

International Cooperative Programme on Assessment and Monitoring
of Air Pollution Effects on Forests

Technical Report QA-RFoliar15

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

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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 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 2014)
- Registration of 54 participants via internet (7th July 2014)
- Submission of the ring test samples (July 2014)
- Submission of the results from the labs (October-December 2014)
- Deadline of data input (4st January 2015)
- Evaluation according to DIN 38402/42 (January/February 2015)
- Submission of the final report and the online qualification reports (February 2015)
- Re-qualification process finished (1st August 2015)

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 and some additional elements are possible. The units and all possible elements are shown in figure 1.

Figure 1: Elements and units

1 H																	2 He
3 Li µg/g	4 Be											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	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	32 Ge	33 As µg/g	34 Se µg/g	35 Br µg/g	36 Kr
37 Rb µg/g	38 Sr µg/g	39 Y µg/g	40 Zr µg/g	41 Nb	42 Mo µg/g	43 Tc	44 Ru	45 Rh ng/g	46 Pd ng/g	47 Ag	48 Cd ng/g	49 In	50 Sn µg/g	51 Sb µg/g	52 Te	53 I	54 Xe
55 Cs µg/g	56 Ba µg/g	71 Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt ng/g	79 Au	80 Hg ng/g	81 Tl µg/g	82 Pb µg/g	83 Bi µg/g	84 Po	85 At	86 Rn
	Mandatory				Optional				Additional				Not possible				

For each element four replicates per sample are necessary. Minimum sample weight per replicate should be 250 mg, because of the homogeneity of the sample material. All results must be calculated on dry weight (105°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, and if they plan to analyse monitoring samples (foliage, litterfall or ground vegetation) in 2015 from the growing season 2014.

2.2 Material

In July 2014 the Austrian Federal Research Centre for Forests, Natural Hazards and Landscape (BFW) sent four dried and powdered plant samples to 54 laboratories in 25 countries.

The samples consisted of:

1. Spruce needles - *Picea abies* (Croatia)
2. Spruce needles - *Picea abies* (Germany)
3. Pine needles – *Pinus nigra* (Austria) - same sample like in the 15th Test (Sample 1)
4. Sycamore maple leaves - *Acer pseudoplatanus* (Switzerland)

Sample 1 was collected from Tamara Jakovljevic and her employees in Croatia. **Sample 2** was collected from Frank Symosseck and his employees in Germany. **Sample 3** was collected in the park area of Schönbrunn – Vienna/Austria, and **Sample 4** was collected from Peter Waldner and his employees in Switzerland. Special thank to all colleagues for collecting and preparing samples for this ringtest.

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 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	Number of countries	Number of laboratories
1 st	21	24
2 nd	25	39
3 rd	29	51
4 th	29	52
5 th	29	53
6 th	26	46
7 th	23	43
8 th	30	52
9 th	28	53
10 th	29	54
11 th	28	56
12 th	30	56
13 th	29	60
14 th	28	62
15 th	28	61
16 th	25	57
17 th	25	54

With a few exceptions, all laboratories analysed in the 17th 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 submitted (grey); red “X”: monitoring samples will be analyzed from the growing season 2014 and these results will be sent to PCC in 2015 (“ICP-Forests laboratory”)

[illegible]

[illegible]



CHNSO Elemental Analysers for micro and macro range
Nitrogen / Protein Analysers
TOC/TN_b Analysers
S/N Analysers in the ppb range
Stable Isotope Ratio Analysis EA-MS coupling

A woman with dark hair, wearing a white lab coat and a necklace, stands with her arms crossed in the foreground. Behind her is a large, stylized green tree with a dark trunk. The tree's canopy is filled with various icons: a yellow flame, a grey leaf, a blue water drop, a red molecular structure, and an orange isotope symbol. The background consists of rolling green hills under a blue sky with light clouds. In the bottom right corner, there is a dark grey box containing contact information and a membership statement.

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that the measuring results
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2.4 Data Evaluation

Only four replicates above the quantification limits can be used for calculating the outlier. 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. 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	6 th Meeting - Bonn 1999
S	85-115	10 th Meeting - Madrid 2007
P	90-110	10 th Meeting - Madrid 2007
Ca	90-110	10 th Meeting - Madrid 2007
Mg	90-110	10 th Meeting - Madrid 2007
K	90-110	10 th Meeting - Madrid 2007
C	95-105	6 th Meeting - Bonn 1999
Zn	85-115	8 th Meeting - Prague 2003
Mn	85-115	8 th Meeting - Prague 2003
Fe	80-120	6 th Meeting - Bonn 1999
Cu	80-120	8 th Meeting - Prague 2003
Pb	70-130	6 th Meeting - Bonn 1999
Cd	70-130	6 th Meeting - Bonn 1999
B	80-120	6 th 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 ($< 1 \mu\text{g Cu/g}$ is always deficiency) or of the pollution impact situation ($< 20 \text{ ng Cd/g}$, $< 1 \mu\text{g Cu/g}$, $< 0.2 \mu\text{g Pb/g}$ is always not polluted).

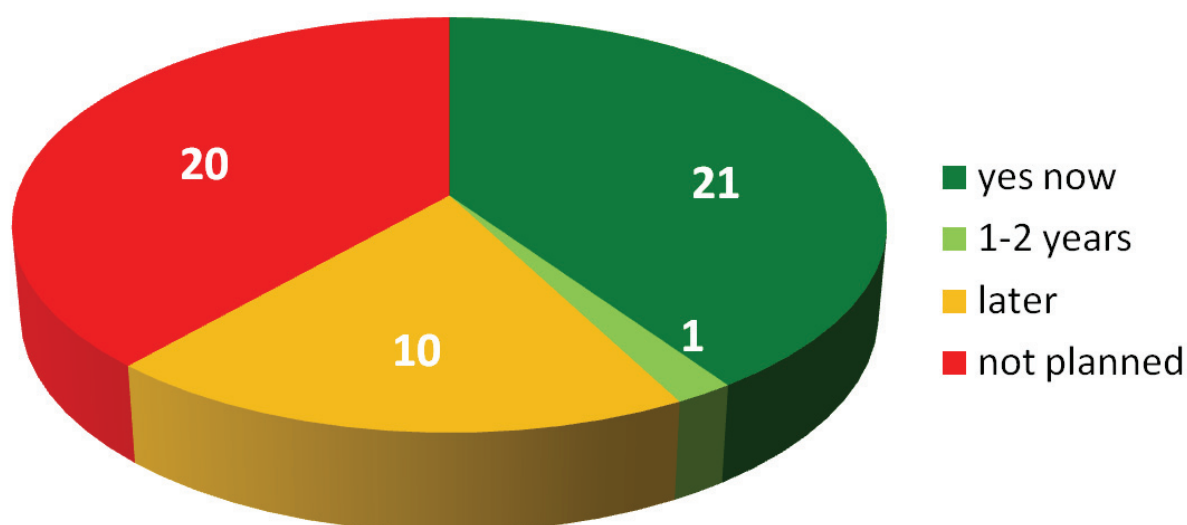
3 RESULTS

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. 52 of the 54 laboratories submit this questionnaire.

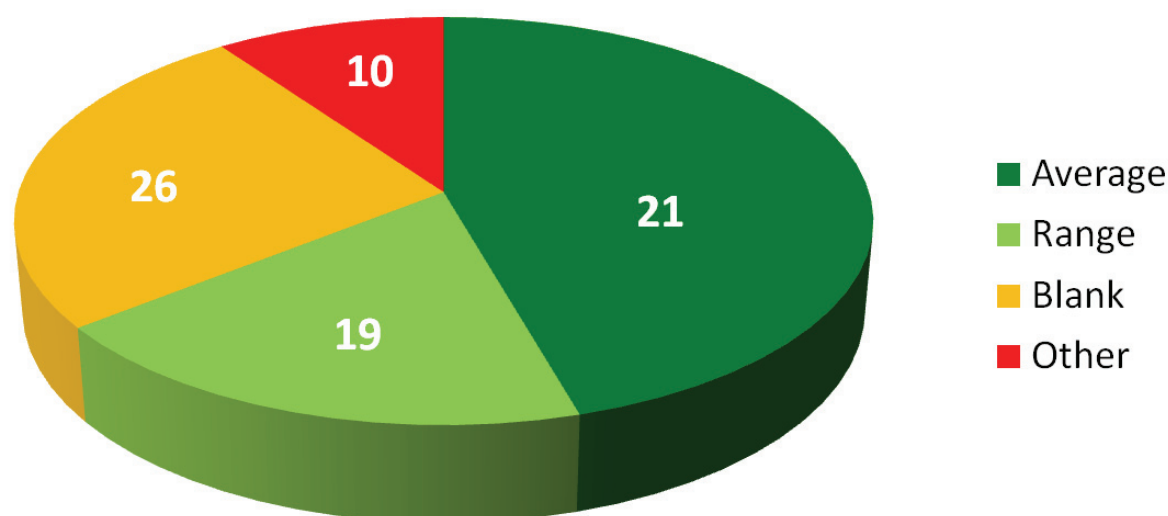
The first questions dealt with the accreditation status of the laboratories and the summarized results are shown in figure 2.

Figure 2: Accreditation status according EN 17025 (n=52)



42.3% of the laboratories are accredited now (21 labs) or plan an accreditation within 1-2 years (1 lab) - 20 laboratories don't plan an accreditation in future.

The next important question was about the usage of control charts for routine quality control. 96.2% of these 52 laboratories are using control charts, and most of them are using average control chart – 2 of this 52 laboratories are still using no control chart. Some of the laboratories are using more than one type of control charts.

Figure 3: Types of control charts used in foliar laboratories

3.2 Results of the 17th Interlaboratory Comparison Test

Table 6 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 4th of January 2015. 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") - is it equal or lower it will be checked then against the tolerable limits. Is the submitted LOQ within the tolerable limits the lab will pass, is it outside the lab will fail (marked with "<" or ">").

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

A43 (78.6%), **A71** (78.6%), **F26** (78.6%), **F06** (76.6%), **F21** (70.8%), **F11** (70.2%), **A53** (66.7%), **F29** (58.8%), **A59** (58.3%), **F24** (57.1%) and **A83** (34.0%).

Some results of laboratories (e.g. A59, F27, F29) are within the tolerable limits, but the statistical evaluation shows an excessive standard deviation (outlier type 1 or 3), that means they had e.g. contamination influences or methodical problems. These results are marked with "a" or with "c" in the detailed evaluation in the annex.

The laboratories A79 and A80 are mainly interested in the determination of environmental relevant elements and therefore some or all *mandatory* elements are not analyzed.

Table 6: Results of the 17th 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														
A50											>>			<
A53		>	>>	>>	>	>>		>	>		>>			
A55														
A56							<							
A57		>	<>	<	>					>>				
A58														
A59			>		>>	>>	<<<	>>>	>>>	>	>>>>			>
A60				>>							<<	LL		
A61														
A62			<>>	<	<									
A65				>>	>>>							>>	LLL	
A67				>		>								
A71	<>	<<<<												
A79				>	>>									
A80								<						
A82				<		<								>
A83		<<<<	<<<<	<<<	<<<<	<<<<		<<<		<<<<	>>>	>>		
A84				<<<										
A85			>											
F01				<<										
F02							>					>		
F03												<		
F05														
F06		<<<	<<<		<<<	<		<						
F07														
F08														
F09														
F11			<<<<	<<<<	<	<<							<>>	
F12												>		
F13	>		<>	>>									>>>	
F14														
F15							<						>	
F16			>											
F18	<							>						
F19														
F20														
F21				<<<		<<<<								
F22			>											
F23											<>			>>
F24		>	<<<<			<<<	>>>>							

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
F26		>>		<<		<<								
F27		<<									<		<<<	
F28				>	<>>	>>		>						
F29		>		<<<	<<<<			<<<	<	<<	<<<<		<<<	
F32														
F33										>>	>			
S18														

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 7.

Table 7: 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 <i>Spruce needles</i>	Sample 2 <i>Spruce needles</i>	Sample 3 <i>Pine needles</i>	Sample 4 <i>Sycamore Maple leaves</i>
N	mg/g %	13.73 0.00	13.63 4.17	12.74 2.08	28.65 2.08
S	mg/g %	1.02 6.25	1.10 10.42	0.93 16.67	1.93 6.25
P	mg/g %	1.90 7.84	1.32 15.69	1.37 17.65	1.94 17.65
Ca	mg/g %	10.28 13.21	4.12 22.64	3.15 22.64	11.66 9.43
Mg	mg/g %	1.49 9.43	0.80 11.32	0.88 13.21	1.57 15.09
K	mg/g %	6.30 11.54	4.91 11.54	6.19 9.62	12.05 13.46
C	g/100g %	52.01 2.22	51.23 6.67	50.92 8.89	49.54 13.33
Zn	µg/g %	40.91 9.30	20.02 9.30	78.03 7.14	39.92 7.14

Element	Unit	Sample 1 <i>Spruce needles</i>	Sample 2 <i>Spruce needles</i>	Sample 3 <i>Pine needles</i>	Sample 4 <i>Sycamore Maple leaves</i>
Mn	µg/g %	529.3 4.44	1446.9 0.00	362.1 2.22	106.9 8.89
Fe	µg/g %	71.89 9.52	71.15 2.38	62.81 7.14	82.63 7.14
Cu	µg/g %	3.00 25.58	2.92 18.60	4.90 6.98	7.34 11.63
Pb	µg/g %	0.84 17.24	0.52 13.79	17.88 0.00	0.19 -
Cd	ng/g %	72.95 17.86	45.08 17.86	1360.5 3.57	52.26 17.86
B	µg/g %	11.11 16.00	24.34 0.00	12.38 4.00	17.10 0.00

The lead concentration of sample 4 was too low for the evaluation.

3.3 Comparison between the 17th Interlaboratory Comparison Test and former tests

Sample 3 of the 17th and sample 1 of the 15th Interlaboratory Comparison Tests are identical (*Pine needles* - Austria). For most of the elements the mean values harmonize well (see Table 8). The results are good comparable and the sample is stable.

Table 8: Comparison between the 15th and 17th Interlaboratory Comparison Test

Element (Unit)	15 th Interlaboratory Comparison Test 2012/13 (Sample 1) Mean <i>Number of Labs</i>	17 th Interlaboratory Comparison Test 2014/15 (Sample 3) Mean <i>Number of Labs</i>
N mg/g	12.96 54	12.74 48
S mg/g	0.94 52	0.93 48
P mg/g	1.38 56	1.37 51
Ca mg/g	3.23 56	3.15 53
Mg mg/g	0.89 55	0.88 53
K mg/g	6.24 57	6.19 52
C g/100g	51.29 49	50.92 45
Zn µg/g	80.07 46	78.03 43

Element (Unit)	15 th Interlaboratory Comparison Test 2012/13 (Sample 1) Mean Number of Labs	17 th Interlaboratory Comparison Test 2014/15 (Sample 3) Mean Number of Labs
Mn μg/g	373.3 47	362.1 45
Fe μg/g	65.35 47	62.81 42
Cu μg/g	5.23 44	4.90 43
Pb μg/g	18.96 35	17.88 29
Cd ng/g	1418 35	1360.5 28
B μg/g	12.30 25	12.38 25

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 17th ringtest. The changes of the tolerable results from the 4th to the 17th test are shown in tables 9a and 9b.



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Table 9a: Percentage of non tolerable results from 3rd to 9th test

Element	Tolerable limits (± %)	4 th Labtest 1999/2000		5 th Labtest 2001/2002		6 th Labtest 2003/2004		7 th Labtest 2004/2005		8 th Labtest 2005/2006		9 th Labtest 2006/2007		10 th Labtest 2007/2008	
		Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number
N	10	6,6	196	10,1	188	3,0	164	3,2	156	7,3	192	6,1	196	2,6	196
S	20	9,8	184	14,2	196	11,3	159	10,3	156	10,6	188	8,3	196	15,4	188
P	15	7,1	196	8,2	196	17,3	168	7,9	164	9,7	196	4,3	208	13,2	204
Ca	15	6,6	196	8,2	196	6,5	168	11,0	164	10,2	196	4,3	208	17,2	204
Mg	15	5,1	196	6,1	196	6,5	168	10,4	164	5,9	188	4,3	208	10,8	204
K	15	6,6	196	4,1	196	7,7	168	4,8	168	5,6	196	3,3	212	16,8	208
C	5	16,1	124	13,1	107	15,6	128	7,8	116	4,3	140	11,1	144	3,2	156
Zn	20/15 ¹⁾	12,0	183	8,3	192	11,5	148	14,0	143	4,5	156	8,9	168	10,2	176
Mn	20/15 ¹⁾	4,2	192	1,0	196	9,9	152	8,4	143	7,0	172	0,0	176	2,8	180
Fe	20	17,9	196	19,1	188	8,8	148	10,3	136	7,1	168	9,9	172	5,7	176
Cu	30/20 ¹⁾	20,0	165	9,8	174	9,9	131	14,3	126	8,9	146	10,8	148	4,9	164
Pb	30	32,1	78	23,9	109	27,8	90	38,0	79	34,7	72	24,0	104	13,0	100
Cd	30	16,9	65	21,6	88	12,0	83	11,1	81	10,3	97	7,1	112	17,0	100
B	20	18,4	103	12,5	104	23,8	84	21,1	90	12,8	86	8,3	84	13,5	96

¹⁾ 4th and 5th test / 6th to 10th test

Table 9b: Percentage of non tolerable results from the 10th to the 17th test

Element	Tolerable limits ²⁾ normal (low) (± %)	11 th Labtest 2008/2009		12 th Labtest 2009/2010		13 th Labtest 2010/2011		14 th Labtest 2011/2012		15 th Labtest 2012/2013		16 th Labtest 2013/2014		17 th Labtest 2014/2015	
		Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number
N	10 (15)	10,9	192	7,6	212	4,9	224	8,9	224	6,0	216	3,1	196	2,1	192
S	15 (20)	14,4	188	16,5	200	13,9	208	12,7	220	13,9	208	14,8	196	9,9	192
P	10 (15)	14,2	204	13,7	212	7,4	216	15,9	220	9,4	224	18,8	208	14,7	204
Ca	10 (15)	19,1	204	9,7	216	8,0	212	14,7	224	12,1	224	16,3	208	17,7	212
Mg	10 (15)	18,6	204	14,4	216	5,7	212	19,3	228	5,9	220	8,8	204	12,3	212
K	10 (15)	17,5	200	6,0	216	8,5	212	21,0	228	18,0	228	9,1	208	11,5	208
C	5	16,9	148	8,5	188	6,3	192	15,4	208	7,7	196	10,0	180	7,8	180
Zn	15 (20)	6,7	164	6,4	172	9,7	176	4,4	184	5,4	184	5,6	180	8,1	172
Mn	15 (20)	6,5	168	2,7	176	4,8	188	6,8	192	0,5	188	8,7	184	3,9	180
Fe	20 (30)	13,1	160	4,8	168	0,0	180	14,1	184	3,7	188	9,4	180	6,5	168
Cu	20	17,1	164	21,3	160	9,1	176	10,3	184	9,1	176	14,5	172	15,7	172
Pb	30 (40)	9,8	92	13,3	120	12,5	112	15,6	128	8,6	105 ³⁾	10,7	56 ³⁾	7,8	87 ³⁾
Cd	30	7,7	104	10,7	112	9,5	116	10,0	140	7,1	140	4,8	62 ³⁾	14,3	112
B	20 (30)	12,5	88	5,4	92	3,3	92	12,0	100	5,0	100	6,3	96	5,0	100

²⁾ special tolerable limits for low concentrations³⁾ sample/s excluded because of very low concentration

3.4 Evaluation by element

3.4.1 Nitrogen

2.1 % of non-tolerable results, a really good result. No laboratory failed with three or four samples. A continuous improvement compared with the last interlaboratory tests can be observed (8.9 → 6.0 → 3.1 → 2.1 %). But all sample concentrations were higher, because litterfall samples were absent in this test.

3.4.2 Sulphur

The laboratories A71, A83 failed with all samples, the laboratory F06 failed in analyzing three of the four samples. In comparison with the last Interlaboratory Comparison Tests the percentage of non-tolerable results is lower (13.9 → 14.8 → 9.9 %). A re-qualification is needed for the *ICP-Forests laboratory* F06.

The laboratories A83 and F06 are using an ICP-AES method – the determined sulphur content is constantly low. The reason for this could be a calibration error (e.g. wrong standard concentration). Laboratory A71 is using an open digestion method – element losses are possible in this case.

3.4.3 Phosphorus

In comparison with the last Interlaboratory Comparison Tests the percentage of non-tolerable results is a little bit lower (18.8 → 14.7 %) but still high. The laboratories A62, A83, F06, F11 and F24 failed in analyzing three or four samples. The laboratory F24 failed in the last test too. A re-qualification is needed for the *ICP-Forests laboratories* A62, F06 and F24.

The laboratories A62 and F24 are using a colorimetric phosphorous determination after an oxidizing digestion. The oxidizing agent (HNO₃) can disturb the colorimetric phosphorous determination. The laboratories A83, F06 and F11 are using an ICP-AES method – the determined phosphorous content is constantly too low. The reason for this could be a calibration error (e.g. wrong standard concentration).

3.4.4 Calcium

In comparison with the last Interlaboratory Test the percentage of non-tolerable results is still high (16.3 → 17.7%). The laboratories A83, A84, F11, F21 and F29 failed in analyzing three or four samples. The laboratory A84 failed in the last test too. A re-qualification is needed for the *ICP-Forests laboratory* F29.

The laboratories A84, F21 and F29 are using a flame AAS for the determination. A buffer against chemical interferences must be added (La-nitrate or EDTA) to avoid chemical interferences, if a C₂H₂/air flame is used. The results of the laboratories A84 and F29 show a correlation between the measured content and the recovery (e.g. wrong slope of the calibration curve).

The laboratories A83 and F11 are using an ICP-AES method – the determined calcium content is constantly too low. The reason for this could be a calibration error (e.g. wrong standard concentration).

3.4.5 Magnesium

In comparison with the last tests the percentage of non-tolerable results is higher (5.9 → 8.8 → 12.3%). The laboratories A65, A83, F06, F28 and F29 fail with three or four samples. A re-qualification is needed for the *ICP-Forests laboratories* F06, F28 and F29.

3.4.6 Potassium

In comparison with the last test the percentage of non-tolerable results is a little bit higher (9.1 → 11.5%). The laboratories A83, F21 and F24 failed in analyzing three or four samples. A re-qualification is needed for the *ICP-Forests laboratory* F24.

3.4.7 Carbon

The percentage of non tolerable results is similar than in the last Interlaboratory Comparison Test (7.7 → 10.0 → 7.8%). The laboratories A47, A59 and F24 failed in analyzing three or four samples. It seems that these laboratories have calibration problems with their element-analyzers. A re-qualification is needed for the *ICP-Forests laboratories* A47 and F24.

3.4.8 Zinc

8.1% of the results were non-tolerable – the result is similar compared with the last tests (5.4 → 5.6 → 8.1%). Three laboratories A59, A83 and F29 failed in analyzing three of the four samples. A re-qualification is needed for the *ICP-Forests laboratory* F29.

3.4.9 Manganese

3.9% of the results were non-tolerable. Only laboratory A59 failed with three samples.

3.4.10 Iron

In comparison with the last test the percentage of non-tolerable results is lower (9.4 → 6.5%). The laboratory A83 failed with all four samples. Too low iron concentrations and to high variation between the replicates could be observed. It seems that the used digestion time and/or the digestion temperature is/are too low.

3.4.11 Copper

15.7% of the results were non-tolerable – similar to the last test. The laboratories A43, A59, A83 and F29 failed in analyzing three or four samples. The laboratories A43, A59 and A83 failed in the last test too. The laboratory A43 is using a wet digestion in an open system; contamination could be a reason for the too high results. The laboratories A43, A59 and A83 failed with Cu in the last test too. A re-qualification is needed for the *ICP-Forests laboratory* F29.

3.4.12 Lead

For passing this Interlaboratory Test for lead two or three samples must be within the tolerable limits. The *background* sample 4 (0.19 µg/g) was excluded from the evaluation.

In comparison with the last tests the percentage of non-tolerable results is lower (8.6 → 10.7 → 7.8%). The laboratories A65 and A83 failed with two samples. The laboratory A83 failed with Pb in the last test too. A too high limit of quantification was reported from

laboratory A60. A re-qualification is needed for the *ICP-Forests laboratory A60* (with a suitable method to detect lower concentrations).

3.4.13 Cadmium

In comparison with the last tests the percentage of non-tolerable results is higher (7.1 → 4.8 → 14.3%). The laboratories F11, F13, F27 and F29 failed with three samples. The laboratory F11 failed with Cd in the last test too. A too high limit of quantification was reported from laboratory A65. A re-qualification is needed for the *ICP-Forests laboratory F29*.

3.4.14 Boron

5.0 % of the results were non-tolerable. In comparison with the last test the percentage of non-tolerable results is similar (5.0 → 6.3 → 5.0%). No laboratory failed with three or four samples.

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4 CONCLUSIONS

54 laboratories in 25 countries participated in the 17th Needle/Leaf Interlaboratory Test. 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, 2013, Rautio et al. 2010, 2013 Pitman et al. 2010).

With the ring test report each participant get a qualification report, the download is possible on the webpage (http://bfw.ac.at/ws/ring_nadel.login). It has been decided to qualify the results of each parameter separately. If 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, the laboratory is qualified. Re-qualification is mandatory for all *ICP-Forests laboratories*, if monitoring results (foliage, litterfall, ground vegetation) will be submitted to PCC in autumn 2015 from the vegetation period 2014.

New since the 14th Interlaboratory Test is the usage of maximum acceptable limits of quantification (LOQ). These limits are needed, because a lot of laboratories are using multi element methods (mostly ICP-AES) with higher LOQs for some elements. But for evaluating and classification of the monitoring samples *real* measured results and lower LOQ are needed. A task was given from the 12th Expert Panel Meeting Foliage and Litterfall (Tallinn 2011) to the Working Group QA/QC in Laboratories to fix this problem. 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 higher LOQs than the maximum acceptable.

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 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.

In general are the results of the 17th Needle/Leaf Interlaboratory Test not so good and similar to the test before. But this is mostly influenced by few participants with methodical problems or lower experience in this working field.

The following participating laboratories with a lower percentage of correct results (less than 80%) have bigger QC/QA-problems in their laboratory and/or methodical problems:

A43 (78.6%), **A71** (78.6%), **F26** (78.6%), **F06** (76.6%), **F21** (70.8%), **F11** (70.2%), **A53** (66.7%), **F29** (58.8%), **A59** (58.3%), **F24** (57.1%) and **A83** (34.0%).

An interesting point is that most of these laboratories indicate in the QA/QC questionnaire that they have control charts, but as it seems they don't use it in reality to adjust their method. Otherwise they had to detect these (sometimes) huge deviations from the target value!

Some of the *ICP-Forests laboratories* failed and had to do a re-qualification (A47: C / A60: Pb / A62: P / F06: S, P, Mg / F24: P, K, C / F28: Mg / F29: Ca, Mg, Zn, Cu, Cd). These (*ICP-Forests*) laboratories had to check and re-validate their method or select another better method. If reference material is needed for this purpose - FFCC can offer some ringtest material (see: <http://bfw.ac.at/rz/bfwcms2.web?dok=5146>).

All laboratories are invited to take part in the re-qualification program started up from now till 1st of September 2015 (see: <http://bfw.ac.at/rz/bfwcms2.web?dok=7830>).

A clear methodical recommendation to ICP-AES can be given and, where ICP-AES is not sensitive enough, ICP-AES with ultrasonic nebulizer, ICP-MS or Flameless AAS should be used. For nitrogen and carbon, element analyzers are the best choice, if a correct calibration is performed.

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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 ₂ SO ₄ /H ₂ O ₂
PB03	Open digestion with HNO ₃
PB04	Open digestion with HNO ₃ /H ₂ SO ₄
PB05	Open digestion with HNO ₃ /H ₂ O ₂
PB06	Open digestion with HNO ₃ /HClO ₄
PB07	Kjeldahl H ₂ SO ₄ with Se or Cu catalyst
PB08	Modified Kjeldahl H ₂ SO 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 ₂ O 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 ₂ O ₂
PD03	Microwave pressure digestion HNO ₃ /H ₂ O 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 ₂ H ₂ /Air)
DB02	AAS-flame technique (C ₂ H ₂ /N ₂ O)
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	Continuous 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	$Si \cdot 100 / \text{Lab. mean}$
VI	$SI \cdot 100 / \text{Mean}$
SR	Standard deviation from all results without outliers
VR	$SR \cdot 100 / \text{Mean}$
Recovery %	$\text{Lab. mean} \cdot 100 / \text{Mean}$
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

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: N Sample: 1 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	F18x	PB07	DZ02	13,00	12,90	12,80	12,80	4	12,88	0,10	0,74	93,81
2	A62x	PZ98	DA01	12,80	12,90	13,00	12,90	4	12,90	0,08	0,63	93,99
3	F15x	PZ98	DA01	12,91	12,90	12,91	12,91	4	12,91	0,00	0,04	94,04
4	A59	PZ98	DA02	12,80	13,29	12,90	13,10	4	13,02	0,22	1,67	94,88
5	F21	PZ98	DA02	12,98	13,09	13,01	13,39	4	13,12	0,19	1,43	95,57
6	F03	PB07	DZ02	13,10	13,20	13,10	13,20	4	13,15	0,06	0,44	95,81
7	F29x	PB07	DF08	13,38	13,01	13,16	13,08	4	13,16	0,16	1,22	95,86
8	A56	PZ98	DA02	13,24	13,32	12,65	13,66	4	13,22	0,42	3,18	96,30
9	A83	PZ98	DA01	13,30	13,23	13,20	13,28	4	13,25	0,05	0,35	96,56
10	A36	PB07	DZ02	13,58	13,00	13,28	13,33	4	13,30	0,24	1,79	96,88
11	A50	PZ98	DA02	13,27	13,28	13,59	13,13	4	13,32	0,19	1,46	97,03
12	S18	PZ98	DA01	13,30	13,40	13,30	13,30	4	13,33	0,05	0,38	97,08
13	A45x	PZ98	DA01	13,50	13,30	13,20	13,60	4	13,40	0,18	1,36	97,63
14	A39	PZ98	DA02	13,38	13,48	13,49	13,34	4	13,42	0,07	0,55	97,80
15	A57	PZ98	DA01	13,51	13,44	13,44	13,36	4	13,44	0,06	0,46	97,90
16	F16x	PZ98	DA02	13,27	13,58	13,87	13,47	4	13,55	0,25	1,85	98,71
17	A61x	PZ98	DA02	13,46	13,46	13,57	13,84	4	13,58	0,18	1,32	98,96
18	F06x	PZ98	DA01	13,90	13,72	13,49	13,31	4	13,61	0,26	1,91	99,12
19	F23	PB07	DZ02	13,56	13,58	13,66	13,62	4	13,61	0,04	0,33	99,12
20	F27x	PZ98	DA01	13,92	13,60	13,49	13,49	4	13,63	0,20	1,49	99,27
21	F22x	PZ98	DA02	13,31	13,66	13,65	13,95	4	13,64	0,26	1,92	99,40
22	F02x	PZ98	DA01	13,58	13,72	13,66	13,66	4	13,66	0,06	0,42	99,49
23	A65	PZ98	DA02	14,20	13,40	13,30	13,80	4	13,68	0,41	3,01	99,63
24	F11	PZ98	DA01	13,80	13,80	13,70	13,50	4	13,70	0,14	1,03	99,82
25	A85	PZ99	DA01	13,74	13,69	13,73	13,68	4	13,71	0,03	0,21	99,89
26	F08x	PZ98	DA01	13,75	13,85	13,75	13,54	4	13,72	0,13	0,96	99,96
27	A82	PZ98	DA02	14,00	13,80	13,60	13,50	4	13,73	0,22	1,62	100,00
28	A42	PZ98	DA01	13,92	13,62	13,81	13,64	4	13,74	0,14	1,04	100,13
29	F14x	PZ98	DA01	13,97	13,63	13,63	13,75	4	13,75	0,16	1,17	100,14
30	F05x	PZ98	DA01	13,73	13,77	13,78	13,75	4	13,76	0,02	0,16	100,24
31	A43	PB08	DZ02	13,77	13,62	13,91	13,77	4	13,77	0,12	0,86	100,31
32	F28x	PZ98	DA02	13,80	13,90	13,60	13,80	4	13,78	0,13	0,91	100,36
33	A60x	PZ98	DA02	13,53	14,24	13,66	13,70	4	13,78	0,32	2,30	100,41
34	F01x	PB07	DZ02	13,85	13,84	13,89	13,78	4	13,84	0,05	0,33	100,84
35	A71	PB07	DA99	14,15	13,93	13,78	13,82	4	13,92	0,17	1,19	101,42
36	F07x	PZ98	DA01	13,81	14,07	13,77	14,26	4	13,98	0,23	1,65	101,84
37	F12x	PZ98	DA02	13,75	13,93	13,97	14,28	4	13,98	0,22	1,57	101,88
38	F26x	PB08	DZ02	13,97	14,01	13,99	13,99	4	13,99	0,02	0,12	101,93
39	A55	PZ98	DA01	14,10	14,30	14,10	13,90	4	14,10	0,16	1,16	102,73
40	A49x	PZ98	DA02	14,50	14,20	14,20	14,20	4	14,28	0,15	1,05	104,01
41	A58x	PZ98	DA02	14,45	14,26	14,35	14,30	4	14,34	0,08	0,57	104,48
42	F13	PZ98	DA01	14,20	14,00	14,40	14,90	4	14,38	0,39	2,69	104,73
43	F19x	PZ98	DA01	14,20	14,40	14,40	14,50	4	14,38	0,13	0,88	104,73
44	A47x	PZ98	DA01	14,55	14,42	14,58	14,55	4	14,53	0,07	0,49	105,83
45	A84	PZ98	DA02	14,57	14,52	14,43	15,02	4	14,63	0,26	1,80	106,61
46	F33x	PZ98	DA02	14,57	14,35	14,79	15,01	4	14,68	0,28	1,93	106,96
47	F32x	PZ98	DA01	14,90	14,60	14,90	14,60	4	14,75	0,17	1,17	107,47
48	F24x	PB08	DZ02	15,03	14,62	15,33	14,55	4	14,88	0,37	2,46	108,43
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

	N	Mean	SI	VI
all labs	192	13,73	0,164	1,198
10	% from the mean			
	L		SR	VR
	48		0,498	3,628

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: N Sample: 2 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	F18x	PB07	DZ02	12,00	12,20	11,80	12,30	4	12,08	*	0,22	1,84	88,62
2	F15x	PZ98	DA01	12,68	12,65	12,65	12,70	4	12,67		0,02	0,19	92,98
3	A62x	PZ98	DA01	12,70	12,90	12,90	12,80	4	12,83		0,10	0,75	94,12
4	F29x	PB07	DF08	13,15	13,14	12,94	12,75	4	13,00		0,19	1,46	95,37
5	A45x	PZ98	DA01	13,10	13,10	13,00	12,90	4	13,03		0,10	0,74	95,59
6	A83	PZ98	DA01	13,13	13,07	13,04	13,11	4	13,09		0,04	0,31	96,05
7	A59	PZ98	DA02	13,27	13,02	13,10	13,11	4	13,13		0,10	0,80	96,32
8	F21	PZ98	DA02	13,18	13,13	13,07	13,18	4	13,14		0,05	0,40	96,43
9	S18	PZ98	DA01	13,20	13,10	13,10	13,20	4	13,15		0,06	0,44	96,51
10	A36	PB07	DZ02	13,43	12,91	13,17	13,09	4	13,15		0,22	1,64	96,51
11	A50	PZ98	DA02	13,33	13,11	13,20	13,10	4	13,19		0,11	0,81	96,76
12	F03	PB07	DZ02	13,30	13,30	13,20	13,10	4	13,23		0,10	0,72	97,06
13	A56	PZ98	DA02	13,64	13,28	13,11	13,07	4	13,28		0,26	1,96	97,42
14	F27x	PZ98	DA01	13,32	13,32	13,32	13,22	4	13,30		0,05	0,38	97,57
15	A43	PB08	DZ02	13,33	13,19	13,33	13,33	4	13,30		0,07	0,53	97,57
16	A65	PZ98	DA02	13,40	13,30	13,60	13,00	4	13,33		0,25	1,88	97,79
17	A55	PZ98	DA01	13,80	12,90	12,90	13,70	4	13,33		0,49	3,70	97,79
18	F22x	PZ98	DA02	13,39	13,50	13,44	13,05	4	13,35		0,20	1,51	97,94
19	F07x	PZ98	DA01	13,21	13,46	13,42	13,30	4	13,35		0,11	0,86	97,96
20	A57	PZ98	DA01	13,40	13,33	13,44	13,54	4	13,43		0,09	0,65	98,54
21	F11	PZ98	DA01	13,50	13,50	13,50	13,50	4	13,50		0,00	0,00	99,08
22	F02x	PZ98	DA01	13,50	13,49	13,50	13,58	4	13,52		0,04	0,31	99,20
23	A39	PZ98	DA02	13,62	13,51	13,56	13,59	4	13,57		0,05	0,35	99,59
24	F23	PB07	DZ02	13,60	13,55	13,57	13,58	4	13,58		0,02	0,15	99,63
25	A61x	PZ98	DA02	13,45	13,65	13,54	13,70	4	13,59		0,11	0,83	99,70
26	F16x	PZ98	DA02	13,55	13,63	13,58	13,59	4	13,59		0,03	0,24	99,72
27	A85	PZ99	DA01	13,67	13,69	13,64	13,65	4	13,66		0,02	0,16	100,27
28	F05x	PZ98	DA01	13,68	13,62	13,73	13,65	4	13,67		0,05	0,34	100,32
29	A82	PZ98	DA02	13,80	13,90	13,30	13,70	4	13,68		0,26	1,92	100,36
30	F28x	PZ98	DA02	13,90	13,40	13,50	13,90	4	13,68		0,26	1,92	100,36
31	F08x	PZ98	DA01	13,53	13,74	13,85	13,64	4	13,69		0,14	1,00	100,46
32	F14x	PZ98	DA01	13,80	13,56	13,72	13,72	4	13,70		0,10	0,73	100,54
33	F06x	PZ98	DA01	13,66	13,78	13,61	13,86	4	13,73		0,11	0,84	100,73
34	A60x	PZ98	DA02	13,68	13,94	14,05	13,75	4	13,85		0,17	1,21	101,67
35	F12x	PZ98	DA02	13,67	13,79	13,88	14,10	4	13,86		0,18	1,31	101,72
36	A49x	PZ98	DA02	13,70	14,00	14,10	14,00	4	13,95		0,17	1,24	102,38
37	F26x	PB08	DZ02	14,01	13,97	13,99	13,98	4	13,99		0,02	0,12	102,65
38	F24x	PB08	DZ02	14,24	14,05	14,05	14,08	4	14,11		0,09	0,65	103,52
39	F19x	PZ98	DA01	14,30	14,20	14,00	14,20	4	14,18		0,13	0,89	104,03
40	F33x	PZ98	DA02	13,91	14,13	14,24	14,46	4	14,19		0,23	1,61	104,10
41	A42	PZ98	DA01	14,25	14,19	14,16	14,23	4	14,21		0,04	0,28	104,27
42	A47x	PZ98	DA01	14,43	14,02	14,11	14,38	4	14,24		0,20	1,41	104,47
43	A84	PZ98	DA02	14,57	14,17	14,32	13,92	4	14,25		0,27	1,92	104,55
44	F32x	PZ98	DA01	14,30	14,30	14,30	14,30	4	14,30		0,00	0,00	104,95
45	F01x	PB07	DZ02	14,59	14,41	14,71	14,59	4	14,58		0,12	0,85	106,96
46	A58x	PZ98	DA02	14,76	14,67	14,80	14,63	4	14,72		0,08	0,53	107,99
47	F13	PZ98	DA01	14,80	15,10	15,00	14,80	4	14,93		0,15	1,01	109,53
48	A71	PB07	DA99	15,27	15,27	15,20	15,50	4	15,31	*	0,13	0,85	112,36
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	192	13,63	0,125	0,919
10	% from the mean			
	L		SR	VR
	48		0,591	4,339

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: N Sample: 3 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A62x	PZ98	DA01	12,00	11,90	11,90	12,10	4	11,98	0,10	0,80	93,97
2	F15x	PZ98	DA01	12,00	12,01	12,15	11,96	4	12,03	0,08	0,69	94,41
3	F18x	PB07	DZ02	12,20	12,00	12,00	12,00	4	12,05	0,10	0,83	94,56
4	A50	PZ98	DA02	12,24	11,95	11,83	12,27	4	12,07	0,22	1,79	94,74
5	F29x	PB07	DF08	12,22	12,29	12,12	12,17	4	12,20	0,07	0,59	95,74
6	F21	PZ98	DA02	12,26	12,33	12,30	12,12	4	12,25	0,09	0,76	96,15
7	A56	PZ98	DA02	12,43	11,99	12,12	12,63	4	12,29	0,29	2,37	96,46
8	A59	PZ98	DA02	12,19	12,43	12,25	12,33	4	12,30	0,10	0,84	96,52
9	A83	PZ98	DA01	12,22	12,41	12,37	12,35	4	12,34	0,08	0,67	96,82
10	S18	PZ98	DA01	12,40	12,50	12,30	12,30	4	12,38	0,10	0,77	97,11
11	A57	PZ98	DA01	12,72	12,24	12,61	12,04	4	12,40	0,32	2,56	97,33
12	F22x	PZ98	DA02	12,29	12,50	12,17	12,67	4	12,41	0,22	1,79	97,37
13	F03	PB07	DZ02	12,50	12,40	12,40	12,40	4	12,43	0,05	0,40	97,50
14	A36	PB07	DZ02	12,53	12,35	12,62	12,39	4	12,47	0,12	1,00	97,88
15	F11	PZ98	DA01	12,60	12,50	12,50	12,40	4	12,50	0,08	0,65	98,09
16	F01x	PB07	DZ02	12,51	12,60	12,42	12,48	4	12,50	0,07	0,60	98,11
17	A45x	PZ98	DA01	12,60	12,40	12,70	12,40	4	12,53	0,15	1,20	98,29
18	A82	PZ98	DA02	12,40	12,80	12,50	12,50	4	12,55	0,17	1,38	98,49
19	F27x	PZ98	DA01	12,56	12,78	12,34	12,56	4	12,56	0,18	1,43	98,56
20	F02x	PZ98	DA01	12,53	12,64	12,60	12,59	4	12,59	0,05	0,36	98,80
21	A71	PB07	DA99	12,84	12,80	12,37	12,45	4	12,62	0,24	1,90	99,00
22	A61x	PZ98	DA02	12,87	12,51	12,58	12,58	4	12,64	0,16	1,27	99,15
23	F07x	PZ98	DA01	12,92	12,73	12,50	12,48	4	12,66	0,21	1,65	99,33
24	A39	PZ98	DA02	12,74	12,69	12,66	12,61	4	12,68	0,05	0,43	99,47
25	A65	PZ98	DA02	12,70	13,20	12,70	12,50	4	12,78	0,30	2,34	100,25
26	F14x	PZ98	DA01	12,71	12,95	12,82	12,76	4	12,81	0,10	0,81	100,53
27	F23	PB07	DZ02	12,82	12,81	12,89	12,80	4	12,83	0,04	0,32	100,68
28	A60x	PZ98	DA02	12,68	12,71	13,07	12,88	4	12,83	0,18	1,42	100,71
29	F08x	PZ98	DA01	12,95	12,74	12,85	12,95	4	12,87	0,10	0,79	101,01
30	F05x	PZ98	DA01	12,92	12,82	12,84	12,91	4	12,87	0,05	0,39	101,02
31	A85	PZ99	DA01	12,98	12,89	12,83	12,85	4	12,89	0,07	0,52	101,13
32	F24x	PB08	DZ02	12,80	12,84	12,82	13,15	4	12,90	0,17	1,29	101,25
33	A42	PZ98	DA01	12,97	12,95	12,91	12,87	4	12,93	0,05	0,35	101,43
34	F06x	PZ98	DA01	12,85	13,04	12,95	12,96	4	12,95	0,08	0,61	101,61
35	F28x	PZ98	DA02	12,80	12,90	13,00	13,10	4	12,95	0,13	1,00	101,62
36	F16x	PZ98	DA02	13,17	12,80	12,80	13,21	4	13,00	0,23	1,74	101,98
37	A55	PZ98	DA01	13,40	12,80	13,10	12,90	4	13,05	0,26	2,03	102,41
38	A49x	PZ98	DA02	13,10	13,10	13,10	13,10	4	13,10	0,00	0,00	102,80
39	A47x	PZ98	DA01	13,08	13,48	12,88	13,21	4	13,16	0,25	1,91	103,29
40	F12x	PZ98	DA02	13,00	13,12	13,51	13,29	4	13,23	0,22	1,67	103,82
41	F19x	PZ98	DA01	13,30	13,40	13,20	13,20	4	13,28	0,10	0,72	104,18
42	F26x	PB08	DZ02	13,30	13,31	13,31	13,30	4	13,31	0,01	0,04	104,41
43	A43	PB08	DZ02	13,27	13,42	13,27	13,27	4	13,31	0,08	0,56	104,43
44	A58x	PZ98	DA02	13,47	13,54	13,42	13,38	4	13,45	0,07	0,51	105,57
45	A84	PZ98	DA02	13,37	13,46	13,90	13,60	4	13,58	0,23	1,73	106,58
46	F32x	PZ98	DA01	13,60	13,60	13,60	13,60	4	13,60	0,00	0,00	106,73
47	F33x	PZ98	DA02	14,24	14,02	13,91	13,24	4	13,85	0,43	3,11	108,71
48	F13	PZ98	DA01	14,60	14,60	14,60	14,7a	0	14,60 b *	0,00	0,00	114,57
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	188	12,74	0,137	1,077
10	% from the mean			
L			SR	VR
47			0,442	3,465

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: N Sample: 4 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	A71	PB07	DA99	25,44	25,93	25,47	25,65	4	25,62	*	0,22	0,88	89,44
2	F18x	PB07	DZ02	26,70	26,20	26,40	27,00	4	26,58		0,35	1,32	92,76
3	F28x	PZ98	DA02	26,80	26,50	27,10	26,80	4	26,80		0,24	0,91	93,55
4	F15x	PZ98	DA01	26,71	26,97	26,89	26,76	4	26,83		0,12	0,44	93,66
5	A43	PB08	DZ02	26,83	28,30	26,83	26,09	4	27,01		0,93	3,43	94,29
6	A59	PZ98	DA02	27,76	26,47	27,63	26,56	4	27,11		0,68	2,52	94,61
7	F29x	PB07	DF08	27,37	27,50	27,26	27,72	4	27,46		0,20	0,72	95,86
8	F21	PZ98	DA02	27,57	27,82	26,71	28,22	4	27,58		0,64	2,32	96,27
9	A47x	PZ98	DA01	27,81	27,43	27,54	27,60	4	27,60		0,16	0,58	96,32
10	A62x	PZ98	DA01	27,80	27,40	27,50	27,70	4	27,60		0,18	0,66	96,34
11	A50	PZ98	DA02	27,92	27,25	27,99	27,77	4	27,73		0,33	1,21	96,80
12	A45x	PZ98	DA01	27,80	28,10	28,20	27,70	4	27,95		0,24	0,85	97,56
13	A83	PZ98	DA01	28,24	27,66	27,95	28,04	4	27,97		0,24	0,86	97,64
14	A61x	PZ98	DA02	27,94	27,95	28,64	27,82	4	28,09		0,37	1,33	98,04
15	F27x	PZ98	DA01	27,95	28,28	28,02	28,19	4	28,11		0,15	0,54	98,12
16	F03	PB07	DZ02	28,10	28,10	28,10	28,20	4	28,13		0,05	0,18	98,17
17	A56	PZ98	DA02	28,79	26,94	29,10	27,94	4	28,19		0,97	3,43	98,41
18	A36	PB07	DZ02	28,28	28,03	28,55	28,15	4	28,25		0,22	0,79	98,62
19	A85	PZ99	DA01	28,43	28,36	28,57	28,45	4	28,45		0,09	0,31	99,32
20	A49x	PZ98	DA02	29,10	28,50	28,50	28,20	4	28,58		0,38	1,32	99,74
21	F01x	PB07	DZ02	28,54	28,79	28,19	28,84	4	28,59		0,30	1,04	99,80
22	F11	PZ98	DA01	28,80	28,70	28,60	28,60	4	28,68		0,10	0,33	100,09
23	A55	PZ98	DA01	28,00	28,80	29,00	28,90	4	28,68		0,46	1,59	100,09
24	A57	PZ98	DA01	28,87	28,67	28,60	28,65	4	28,70		0,12	0,41	100,17
25	F02x	PZ98	DA01	28,83	28,91	28,81	29,01	4	28,89		0,09	0,31	100,84
26	S18	PZ98	DA01	29,00	28,80	28,90	29,00	4	28,93		0,10	0,33	100,97
27	A65	PZ98	DA02	29,60	29,00	27,70	29,50	4	28,95		0,87	3,02	101,05
28	F05x	PZ98	DA01	29,01	29,08	28,92	28,90	4	28,98		0,08	0,29	101,15
29	F08x	PZ98	DA01	28,82	29,03	29,25	28,93	4	29,01		0,18	0,63	101,25
30	A82	PZ98	DA02	28,90	29,10	29,40	28,80	4	29,05		0,26	0,91	101,40
31	F32x	PZ98	DA01	29,00	29,20	29,00	29,20	4	29,10		0,12	0,40	101,58
32	F23	PB07	DZ02	29,19	29,25	29,14	29,22	4	29,20		0,05	0,16	101,93
33	F16x	PZ98	DA02	29,08	29,54	29,25	28,98	4	29,21		0,25	0,84	101,97
34	F07x	PZ98	DA01	29,41	29,28	29,21	28,96	4	29,22		0,19	0,65	101,98
35	F14x	PZ98	DA01	29,54	29,24	29,45	29,09	4	29,33		0,20	0,69	102,38
36	A42	PZ98	DA01	28,95	28,96	29,85	29,57	4	29,33		0,45	1,55	102,38
37	F22x	PZ98	DA02	29,47	29,24	29,62	29,01	4	29,34		0,27	0,91	102,40
38	A60x	PZ98	DA02	29,47	29,75	28,88	29,28	4	29,34		0,36	1,24	102,43
39	A39	PZ98	DA02	29,33	29,38	29,45	29,58	4	29,44		0,11	0,37	102,75
40	F12x	PZ98	DA02	29,80	29,67	29,79	29,92	4	29,80		0,10	0,34	104,00
41	F33x	PZ98	DA02	30,27	29,58	30,04	29,35	4	29,81		0,42	1,41	104,05
42	F24x	PB08	DZ02	29,80	30,18	29,48	29,94	4	29,85		0,29	0,98	104,19
43	A84	PZ98	DA02	29,18	30,15	30,09	30,03	4	29,86		0,46	1,53	104,24
44	A58x	PZ98	DA02	30,07	30,18	29,79	30,23	4	30,07		0,20	0,65	104,95
45	F06x	PZ98	DA01	30,63	30,52	29,69	29,77	4	30,15		0,49	1,63	105,25
46	F19x	PZ98	DA01	30,20	30,60	30,40	30,30	4	30,38		0,17	0,56	106,03
47	F26x	PB08	DZ02	30,78	30,77	30,80	30,80	4	30,79		0,02	0,05	107,47
48	F13	PZ98	DA01	30,70	31,10	31,00	30,60	4	30,85		0,24	0,77	107,69
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	192	28,65	0,286	0,997
10	% from the mean			
	L		SR	VR
	48		1,126	3,931

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: S Sample: 1 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A71	PB03	DA99	0,73	0,76	0,73	0,75	0	0,74	b	*	72,63
2	A83	PD01	DB08	0,73	0,77	0,74	0,76	0	0,75	b	*	73,26
3	F27x	PZ98	DA01	0,89	0,84	0,82	0,92	4	0,87	*		84,78
4	F06x	PD02	DB08	0,89	0,89	0,87	0,86	4	0,88			85,60
5	S18	PB03	DB08	0,88	0,87	0,92	0,88	4	0,89			86,61
6	F11	PD01	DB08	0,93	0,95	0,94	0,93	4	0,94			91,77
7	A45x	PE99	DB08	0,96	0,96	0,95	0,95	4	0,95			93,34
8	F13	PZ02	DD01	0,96	0,96	0,97	0,98	4	0,97			94,63
9	A39	PD02	DB08	0,99	0,96	1,00	0,95	4	0,97			94,95
10	A58x	PZ98	DA01	0,96	0,92	1,06	0,96	4	0,98			95,37
11	A55	PD02	DB08	0,98	0,98	0,98	0,98	4	0,98			95,69
12	A36	PD02	DB08	0,98	1,00	0,97	0,97	4	0,98			95,76
13	A47x	PD01	DB08	0,97	0,99	0,98	1,00	4	0,98			96,22
14	F22x	PB02	DB10	0,97	1,00	0,97	1,00	4	0,99			96,35
15	F14x	PC01	DB08	0,98	0,99	0,98	0,99	4	0,99			96,37
16	A50	PC01	DB08	1,02	0,96	0,98	0,99	4	0,99			96,59
17	A61x	PD01	DB08	1,00	0,97	1,00	0,99	4	0,99			96,79
18	F20x	PD02	DB08	1,00	0,99	1,00	1,00	4	1,00			97,45
19	F07x	PC01	DB08	0,99	0,97	1,00	1,03	4	1,00			97,54
20	F15x	PC01	DB08	1,01	1,01	1,00	1,00	4	1,01			98,30
21	F32x	PD01	DB08	1,01	1,00	1,02	0,99	4	1,01			98,30
22	A85	PD04	DB08	1,04	1,02	1,02	0,95	4	1,01			98,55
23	F19x	PD02	DB08	1,03	1,00	1,03	0,99	4	1,01			98,94
24	A49x	PD05	DB08	1,03	1,01	1,01	1,00	4	1,01			99,04
25	F18x	PD01	DB08	1,03	0,99	1,03	1,01	4	1,01			99,26
26	F12x	PC01	DB08	1,01	1,03	1,02	1,02	4	1,02			99,77
27	A82	PD01	DB08	1,01	1,02	1,02	1,03	4	1,02			99,77
28	F02x	PZ98	DA01	1,05	1,01	1,02	1,00	4	1,02			99,77
29	A65	PD01	DB08	1,00	1,00	1,10	1,00	4	1,03			100,26
30	F29x	PZ98	DD01	1,09	1,02	1,04	0,95	4	1,03			100,26
31	A67	PB05	DB10	1,00	1,06	1,03	1,02	4	1,03			100,50
32	F05x	PZ98	DA01	1,04	1,03	1,04	1,03	4	1,04			101,24
33	F03	PB05	DB08	1,03	1,03	1,05	1,04	4	1,04			101,26
34	F23	PD01	DB08	1,02	1,07	1,08	1,00	4	1,04			101,97
35	A57	PZ98	DD02	1,05	1,06	1,03	1,06	4	1,05			102,70
36	F08x	PD01	DB09	1,06	1,04	1,07	1,05	4	1,05			103,17
37	F09x	PZ02	DD02	1,06	1,06	1,07	1,05	4	1,06			103,68
38	F24x	PZ98	DA01	1,07	1,07	1,06	1,06	4	1,07			104,17
39	A56	PC01	DB08	1,10	1,08	1,05	1,05	4	1,07			104,56
40	A53	PZ02	DD02	1,07	1,08	1,08	1,08	4	1,08			105,39
41	A62x	PZ98	DA01	1,07	1,05	1,11	1,11	4	1,09			106,13
42	F28x	PZ98	DA02	1,10	1,10	1,12	1,10	4	1,11			108,08
43	A59	PC01	DB08	1,03	1,16	1,09	1,17	4	1,11			108,82
44	A60x	PD01	DB08	1,16	1,09	1,08	1,22	4	1,14			111,36
45	F16x	PC01	DB08	1,14	1,14	1,15	1,14	4	1,14			111,60
46	F33x	PD01	DB10	1,16	1,14	1,25σ	1,14	3	1,15			112,16
47	A79	PD03	DB10	1,17	1,17	1,16	1,15	4	1,16			113,56
48	F26x	PZ98	DA02	1,16	1,18	1,17	1,18	4	1,17			114,69
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	183	1,02	0,020	1,969
15	% from the mean			
	L		SR	VR
	46		0,069	6,705

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: S Sample: 2 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	0,81	0,85	0,82	0,81	0	0,82	b	*	74,62
2	A71	PB03	DA99	0,84	0,83	0,85	0,86	0	0,85	b	*	76,79
3	F06x	PD02	DB08	0,93	0,93	0,92	0,93	4	0,93	*		84,24
4	F13	PZ02	DD01	0,94	0,96	0,95	0,95	4	0,95			86,28
5	S18	PB03	DB08	0,99	0,99	1,01	1,00	4	0,99			90,42
6	A58x	PZ98	DA01	1,08	1,00	1,00	0,93	4	1,00			91,10
7	F22x	PB02	DB10	0,98	1,02	0,99	1,03	4	1,01			91,33
8	A59	PC01	DB08	0,86	0,88	1,13	1,19	0	1,02	c		92,24
9	F27x	PZ98	DA01	1,01	0,99	1,04	1,04	4	1,02			92,58
10	F11	PD01	DB08	1,02	1,05	1,03	1,02	4	1,03			93,60
11	A39	PD02	DB08	1,03	1,03	1,05	1,04	4	1,04			94,28
12	A45x	PE99	DB08	1,05	1,04	1,03	1,04	4	1,04			94,51
13	A55	PD02	DB08	1,06	1,04	1,04	1,05	4	1,05			95,08
14	A47x	PD01	DB08	1,05	1,06	1,04	1,04	4	1,05			95,14
15	A61x	PD01	DB08	1,03	1,08	1,07	1,06	4	1,06			96,24
16	F07x	PC01	DB08	1,04	1,07	1,08	1,10	4	1,07			97,44
17	A49x	PD05	DB08	1,08	1,08	1,07	1,06	4	1,07			97,46
18	F23	PD01	DB08	1,11	1,10	1,02	1,07	4	1,08			97,69
19	F08x	PD01	DB09	1,11	1,05	1,06	1,09	4	1,08			97,78
20	F14x	PC01	DB08	1,08	1,08	1,08	1,08	4	1,08			98,12
21	A50	PC01	DB08	1,06	1,06	1,10	1,10	4	1,08			98,14
22	A36	PD02	DB08	1,08	1,08	1,09	1,08	4	1,08			98,37
23	F20x	PD02	DB08	1,09	1,09	1,09	1,09	4	1,09			99,05
24	F02x	PZ98	DA01	1,09	1,10	1,10	1,10	4	1,10			99,73
25	A65	PD01	DB08	1,10	1,10	1,10	1,10	4	1,10			99,96
26	A67	PB05	DB10	1,09	1,13	1,11	1,08	4	1,10			100,19
27	F09x	PZ02	DD02	1,11	1,10	1,09	1,12	4	1,11			100,42
28	F19x	PD02	DB08	1,12	1,08	1,11	1,11	4	1,11			100,42
29	F18x	PD01	DB08	1,12	1,11	1,11	1,09	4	1,11			100,64
30	F15x	PC01	DB08	1,10	1,10	1,12	1,11	4	1,11			100,64
31	F16x	PC01	DB08	1,09	1,13	1,11	1,11	4	1,11			100,73
32	F12x	PC01	DB08	1,11	1,11	1,11	1,11	4	1,11			100,87
33	F32x	PD01	DB08	1,10	1,13	1,10	1,11	4	1,11			100,87
34	A57	PZ98	DD02	1,10	1,13	1,11	1,15	4	1,12			102,01
35	F03	PB05	DB08	1,12	1,12	1,14	1,15	4	1,13			102,89
36	A82	PD01	DB08	1,14	1,13	1,13	1,13	4	1,13			102,91
37	A60x	PD01	DB08	1,10	1,08	1,11	1,27	4	1,14			103,55
38	A79	PD03	DB10	1,13	1,12	1,12	1,21	4	1,14			103,80
39	A56	PC01	DB08	1,14	1,13	1,17	1,14	4	1,14			103,94
40	F05x	PZ98	DA01	1,15	1,14	1,15	1,14	4	1,15			104,05
41	F29x	PZ98	DD01	1,25	1,14	1,07	1,14	4	1,15			104,50
42	F33x	PD01	DB10	1,26	1,20	1,15	1,14	4	1,19			107,91
43	A85	PD04	DB08	1,13	1,21	1,17	1,24	4	1,19			107,91
44	A62x	PZ98	DA01	1,15	1,20	1,19	1,24	4	1,20			108,59
45	F28x	PZ98	DA02	1,21	1,19	1,21	1,23	4	1,21			109,96
46	A53	PZ02	DD02	1,25	1,25	1,25	1,24	4	1,25			113,36
47	F24x	PZ98	DA01	1,23	1,27	1,22	1,36	4	1,27	*		115,41
48	F26x	PZ98	DA02	1,28	1,27	1,27	1,28	4	1,28	*		115,86
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59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	180	1,10	0,021	1,924
15	% from the mean			
L			SR	VR
45			0,074	6,753

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: S Sample: 3 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A71	PB03	DA99	0,65	0,65	0,64	0,63	0	0,64	b	*	68,77
2	A83	PD01	DB08	0,71	0,68	0,70	0,72	4	0,70	*		75,09
3	F06x	PD02	DB08	0,77	0,79	0,79	0,78	4	0,78	*		83,72
4	F27x	PZ98	DA01	0,77	0,80	0,79	0,80	4	0,79	*		84,42
5	S18	PB03	DB08	0,83	0,83	0,82	0,84	4	0,83			88,88
6	F23	PD01	DB08	0,82	0,87	0,82	0,82	4	0,83			89,11
7	F11	PD01	DB08	0,86	0,86	0,87	0,88	4	0,87			92,69
8	A58x	PZ98	DA01	0,83	0,89	0,95	0,85	4	0,88			94,19
9	A55	PD02	DB08	0,89	0,88	0,89	0,88	4	0,89			94,91
10	A39	PD02	DB08	0,87	0,92	0,87	0,89	4	0,89			94,97
11	A45x	PE99	DB08	0,88	0,89	0,90	0,90	4	0,89			95,23
12	A79	PD03	DB10	0,89	0,90	0,90	0,88	4	0,89			95,45
13	A61x	PD01	DB08	0,89	0,89	0,89	0,91	4	0,89			95,72
14	A65	PD01	DB08	0,90	0,90	0,90	0,90	4	0,90			96,33
15	A56	PC01	DB08	0,92	0,91	0,90	0,89	4	0,90			96,84
16	F14x	PC01	DB08	0,91	0,92	0,92	0,92	4	0,92			98,07
17	A50	PC01	DB08	0,91	0,92	0,92	0,92	4	0,92			98,20
18	F19x	PD02	DB08	0,93	0,93	0,88	0,93	4	0,92			98,31
19	A67	PB05	DB10	0,96	0,90	0,90	0,92	4	0,92			98,50
20	A47x	PD01	DB08	0,91	0,94	0,94	0,90	4	0,92			98,71
21	A36	PD02	DB08	0,92	0,93	0,93	0,93	4	0,93			99,01
22	F02x	PZ98	DA01	0,92	0,92	0,94	0,92	4	0,93			99,01
23	F07x	PC01	DB08	0,89	0,95	0,92	0,96	4	0,93			99,41
24	A82	PD01	DB08	0,95	0,92	0,92	0,93	4	0,93			99,46
25	A49x	PD05	DB08	0,92	0,92	0,92	0,96	4	0,93			99,54
26	F16x	PC01	DB08	0,92	0,95	0,92	0,93	4	0,93			99,57
27	F20x	PD02	DB08	0,94	0,93	0,92	0,94	4	0,93			99,78
28	F15x	PC01	DB08	0,93	0,94	0,93	0,93	4	0,93			99,81
29	F12x	PC01	DB08	0,93	0,93	0,94	0,94	4	0,94			100,08
30	F32x	PD01	DB08	0,92	0,92	0,97	0,95	4	0,94			100,61
31	A60x	PD01	DB08	0,99	0,85	0,95	1,00	4	0,95			101,39
32	F08x	PD01	DB09	0,97	0,92	0,95	0,97	4	0,95			101,71
33	F24x	PZ98	DA01	0,97	0,95	0,93	0,97	4	0,96			102,22
34	F18x	PD01	DB08	0,98	0,97	0,93	0,96	4	0,96			102,83
35	F22x	PB02	DB10	0,96	0,98	0,96	0,95	4	0,96			103,02
36	F03	PB05	DB08	0,97	0,96	0,96	0,97	4	0,96			103,26
37	A59	PC01	DB08	0,95	1,03	0,94	0,96	4	0,97			103,82
38	F33x	PD01	DB10	0,98	0,98	1,04	0,90	4	0,98			104,36
39	F28x	PZ98	DA02	0,97	1,00	0,97	0,98	4	0,98			104,49
40	A85	PD04	DB08	0,93	0,95	1,12	0,91	4	0,98			104,63
41	F05x	PZ98	DA01	0,98	0,98	0,99	0,98	4	0,98			105,22
42	F13	PZ02	DD01	0,98	0,99	0,99	0,99	4	0,99			105,75
43	F09x	PZ02	DD02	1,01	0,99	0,98	0,99	4	0,99			106,18
44	A62x	PZ98	DA01	1,06	1,02	1,07	1,03	4	1,05			111,85
45	A57	PZ98	DD02	1,01	1,09	1,11	1,13	4	1,09	*		116,13
46	F26x	PZ98	DA02	1,11	1,09	1,10	1,08	4	1,10	*		117,20
47	A53	PZ02	DD02	1,13	1,12	1,13	1,11	4	1,12	*		120,15
48	F29x	PZ98	DD01	1,11	1,13	1,15	1,10	4	1,12	*		120,15
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	188	0,93	0,019	2,067
15	% from the mean			
L			SR	VR
47			0,080	8,510

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: S Sample: 4 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	1,45	1,42	1,47	1,43	0	1,44	b	*	74,58
2	A71	PB03	DA99	1,57	1,55	1,60	1,56	0	1,57	b	*	81,27
3	F06x	PD02	DB08	1,638a	1,60	1,60	1,60	0	1,60	b	*	82,81
4	S18	PB03	DB08	1,78	1,78	1,81	1,81	4	1,80			92,92
5	F11	PD01	DB08	1,82	1,83	1,81	1,81	4	1,82			94,08
6	A45x	PE99	DB08	1,84	1,83	1,81	1,82	4	1,83			94,47
7	F23	PD01	DB08	1,89	1,90	1,87	1,78	4	1,86			96,28
8	F07x	PC01	DB08	1,86	1,92	1,81	1,85	4	1,86			96,31
9	A61x	PD01	DB08	1,87	1,82	1,87	1,89	4	1,86			96,31
10	A58x	PZ98	DA01	1,85	1,91	1,82	1,89	4	1,87			96,67
11	A56	PC01	DB08	1,89	1,85	1,91	1,85	4	1,87			96,99
12	A49x	PD05	DB08	1,86	1,87	1,92	1,86	4	1,88			97,19
13	F08x	PD01	DB09	1,93	1,83	1,89	1,87	4	1,88			97,27
14	F22x	PB02	DB10	1,85	1,87	1,88	1,92	4	1,88			97,32
15	A57	PZ98	DD02	1,87	1,89	1,88	1,91	4	1,89			97,71
16	A39	PD02	DB08	1,84	1,88	1,94	1,90	4	1,89			97,73
17	A55	PD02	DB08	1,89	1,90	1,90	1,90	4	1,89			98,03
18	F18x	PD01	DB08	1,89	1,90	1,90	1,90	4	1,90			98,22
19	F20x	PD02	DB08	1,90	1,91	1,90	1,91	4	1,91			98,61
20	A59	PC01	DB08	1,47a	1,92	1,92	1,88	3	1,91			98,70
21	F15x	PC01	DB08	1,90	1,93	1,92	1,89	4	1,91			98,87
22	A62x	PZ98	DA01	1,84	1,93	1,96	1,92	4	1,91			99,00
23	F14x	PC01	DB08	1,92	1,91	1,90	1,92	4	1,91			99,00
24	F09x	PZ02	DD02	1,93	1,92	1,93	1,92	4	1,93			99,65
25	F13	PZ02	DD01	1,94	1,92	1,92	1,93	4	1,93			99,76
26	F19x	PD02	DB08	1,94	1,93	1,87	1,97	4	1,93			99,78
27	A82	PD01	DB08	1,93	1,92	1,94	1,94	4	1,93			100,04
28	A36	PD02	DB08	1,95	1,93	1,90	1,96	4	1,94			100,16
29	A79	PD03	DB10	1,94	1,95	1,98	1,87	4	1,94			100,18
30	F02x	PZ98	DA01	1,90	1,95	1,94	1,97	4	1,94			100,42
31	F27x	PZ98	DA01	1,94	2,00	1,89	1,93	4	1,94			100,48
32	F29x	PZ98	DD01	2,05	1,82	1,88	2,02	4	1,94			100,55
33	F33x	PD01	DB10	2,09	2,01	1,93	1,75	4	1,95			100,68
34	A47x	PD01	DB08	1,91	1,95	1,98	1,96	4	1,95			100,99
35	F32x	PD01	DB08	1,96	1,94	1,95	1,96	4	1,95			101,07
36	F12x	PC01	DB08	1,96	1,95	1,96	1,95	4	1,96			101,20
37	F03	PB05	DB08	1,95	1,97	1,95	1,98	4	1,96			101,50
38	A60x	PD01	DB08	2,03	1,83	1,91	2,13	4	1,97			102,17
39	A65	PD01	DB08	2,00	2,00	2,00	1,90	4	1,98			102,24
40	F28x	PZ98	DA02	1,89	1,97	1,97	2,09	4	1,98			102,49
41	F05x	PZ98	DA01	1,98	1,99	1,99	1,98	4	1,99			102,75
42	A50	PC01	DB08	1,99	1,99	2,00	1,98	4	1,99			103,01
43	F24x	PZ98	DA01	2,05	1,95	2,01	1,96	4	1,99			103,14
44	A67	PB05	DB10	2,07	2,08	2,04	1,99	4	2,05			105,86
45	F26x	PZ98	DA02	2,03	2,03	2,06	2,06	4	2,05			105,86
46	A85	PD04	DB08	2,03	2,02	2,15	2,07	4	2,07			107,02
47	F16x	PC01	DB08	2,03	2,05	2,10	2,11	4	2,07			107,26
48	A53	PZ02	DD02	2,12	2,13	2,12	2,11	4	2,12			109,74
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	179	1,93	0,034	1,761
15	% from the mean			
L			SR	VR
45			0,068	3,500

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: P Sample: 1 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %	
		P	D	1	2	3	4			Si	Vi		
1	A83	PD01	DB08	1,56	1,60	1,56	1,54	4	1,56	*	0,03	1,66	82,29
2	F24x	PB03	DE01	1,55	1,61	1,57	1,54	4	1,57	*	0,03	1,97	82,48
3	F11	PD01	DB08	1,68	1,67	1,66	1,64	4	1,66	*	0,02	1,03	87,48
4	F06x	PD02	DB08	1,75	1,74	1,71	1,68	4	1,72		0,03	1,78	90,44
5	F29x	PB05	DE01	1,76	1,78	1,67	1,81	4	1,76		0,06	3,43	92,34
6	A57	PZ98	DD02	1,77	1,76	1,74	1,77	4	1,76		0,01	0,80	92,61
7	A49x	PD05	DB08	1,73	1,65	1,76	1,90	4	1,76		0,10	5,92	92,61
8	A43	PB06	DE01	1,74	1,82	1,76	1,75	4	1,77		0,03	1,93	92,96
9	F26x	PD02	DE01	1,81	1,80	1,70	1,78	4	1,77		0,05	2,82	93,27
10	F01x	PB04	DE01	1,79	1,79	1,81	1,80	4	1,80		0,01	0,60	94,48
11	A50	PC01	DB08	1,88	1,75	1,78	1,79	4	1,80		0,06	3,11	94,71
12	F12x	PC01	DB08	1,80	1,83	1,81	1,80	4	1,81		0,01	0,78	95,24
13	S18	PB03	DB08	1,81	1,80	1,81	1,83	4	1,81		0,01	0,74	95,28
14	A45x	PE99	DB08	1,81	1,82	1,83	1,83	4	1,82		0,01	0,53	95,90
15	A61x	PB02	DB08	1,85	1,81	1,84	1,83	4	1,83		0,02	0,93	96,42
16	F27x	PD04	DE01	1,85	1,86	1,83	1,86	4	1,85		0,02	0,89	97,24
17	A60x	PD01	DB08	1,85	1,80	1,86	1,91	4	1,85		0,04	2,23	97,55
18	A47x	PD01	DB08	1,88	1,91	1,85	1,88	4	1,88		0,02	1,26	98,75
19	F07x	PC01	DB08	1,86	1,82	1,89	1,94	4	1,88		0,05	2,59	98,88
20	F05x	PD02	DB08	1,88	1,89	1,89	1,88	4	1,89		0,01	0,31	99,18
21	A84	PB99	DE01	1,87	1,89	1,90	1,88	4	1,89		0,01	0,68	99,18
22	A36	PD02	DB08	1,88	1,88	1,93	1,87	4	1,89		0,03	1,43	99,45
23	A58x	PD02	DE01	1,90	1,89	1,90	1,89	4	1,90		0,01	0,30	99,71
24	F14x	PC01	DB08	1,90	1,92	1,90	1,92	4	1,91		0,01	0,56	100,37
25	A55	PD02	DB08	1,92	1,92	1,91	1,93	4	1,92		0,01	0,39	100,93
26	F08x	PD01	DB09	1,92	1,93	1,90	1,94	4	1,92		0,02	0,94	101,17
27	F02x	PD02	DB08	1,92	1,92	1,93	1,93	4	1,93		0,01	0,30	101,29
28	F23	PD01	DB08	1,93	1,94	1,95	1,92	4	1,94		0,01	0,67	101,82
29	F15x	PC01	DB08	1,94	1,96	1,93	1,95	4	1,95		0,01	0,66	102,34
30	F32x	PD01	DB08	1,95	1,94	1,95	1,95	4	1,95		0,01	0,26	102,47
31	F13	PZ02	DD01	1,95	1,94	1,95	1,95	4	1,95		0,01	0,38	102,49
32	F20x	PD02	DB08	1,97	1,95	1,95	1,93	4	1,95		0,02	0,84	102,61
33	F03	PB05	DB08	1,96	1,95	1,94	1,96	4	1,95		0,01	0,49	102,74
34	F19x	PD02	DB08	1,99	1,95	1,98	1,92	4	1,96		0,03	1,61	103,13
35	F21	PD01	DE01	1,93	1,92	1,98	2,01	4	1,96		0,04	2,16	103,13
36	A56	PC01	DB08	1,97	1,98	1,94	1,96	4	1,96		0,02	0,94	103,22
37	A39	PD02	DB08	1,99	1,99	2,00	1,94	4	1,98		0,03	1,35	104,13
38	F09x	PZ02	DD02	1,98	2,00	1,97	1,98	4	1,98		0,01	0,63	104,32
39	A65	PD01	DB08	2,00	2,00	2,00	2,00	4	2,00		0,00	0,00	105,24
40	A71	PB03	DA99	2,02	2,01	1,97	2,00	4	2,00		0,02	1,08	105,24
41	F33x	PD01	DB10	1,95	2,05	2,03	1,97	4	2,00		0,05	2,38	105,24
42	A85	PD04	DB08	2,03	2,01	2,08	1,92	4	2,01		0,07	3,33	105,76
43	F18x	PD01	DB08	2,02	2,03	2,01	2,02	4	2,02		0,01	0,40	106,29
44	A67	PB05	DB10	2,01	2,09	2,00	2,02	4	2,03		0,04	2,01	106,81
45	F22x	PB02	DB10	2,03	2,02	2,02	2,06	4	2,03		0,02	0,93	106,95
46	F16x	PC01	DB08	2,05	2,02	2,05	2,03	4	2,04		0,01	0,68	107,26
47	A53	PZ02	DD02	2,03	2,04	2,04	2,05	4	2,04		0,01	0,40	107,34
48	A82	PD01	DB08	2,04	2,06	2,04	2,06	4	2,05		0,01	0,56	107,87
49	F28x	PD02	DB08	2,10	2,10	2,06	2,03	4	2,07		0,04	1,71	109,09
50	A62x	PD02	DE01	2,17	2,30	1,93	1,92	4	2,08		0,19	8,98	109,45
51	A59	PC01	DB08	2,01	2,23	2,11	2,23	4	2,15	*	0,11	4,96	112,87
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	204	1,90	0,029	1,521
10	% from the mean			
	L		SR	VR
	51		0,124	6,547

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: P Sample: 2 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	A83	PD01	DB08	1,05	1,09	1,07	1,04	4	1,06	*	0,02	2,28	80,36
2	A43	PB06	DE01	1,08	1,09	1,11	1,09	4	1,09	*	0,01	1,02	82,88
3	F24x	PB03	DE01	1,13	1,11	1,14	1,12	4	1,13	*	0,01	1,15	85,29
4	F06x	PD02	DB08	1,16	1,17	1,14	1,15	4	1,16	*	0,01	1,14	87,64
5	F11	PD01	DB08	1,15	1,16	1,17	1,15	4	1,16	*	0,01	0,83	87,75
6	F29x	PB05	DE01	1,32	1,22	1,18	1,13	4	1,21		0,08	6,65	91,92
7	S18	PB03	DB08	1,23	1,21	1,25	1,23	4	1,23		0,02	1,23	93,12
8	A45x	PE99	DB08	1,27	1,23	1,27	1,23	4	1,25		0,02	1,85	94,77
9	A61x	PB02	DB08	1,25	1,25	1,25	1,26	4	1,25		0,01	0,40	94,96
10	F12x	PC01	DB08	1,26	1,26	1,25	1,25	4	1,26		0,01	0,46	95,14
11	A59	PC01	DB08	1,05	1,08	1,41	1,49	0	1,26	c	0,23	17,89	95,33
12	F21	PD01	DE01	1,26	1,27	1,27	1,25	4	1,26		0,01	0,76	95,71
13	A50	PC01	DB08	1,25	1,23	1,28	1,30	4	1,27		0,03	2,46	95,90
14	F26x	PD02	DE01	1,39	1,14	1,24	1,30	4	1,27		0,11	8,28	96,09
15	F27x	PD04	DE01	1,29	1,30	1,29	1,27	4	1,29		0,01	1,13	97,61
16	A47x	PD01	DB08	1,30	1,32	1,30	1,30	4	1,30		0,01	0,71	98,73
17	A84	PB99	DE01	1,31	1,31	1,31	1,31	4	1,31		0,00	0,00	99,31
18	A36	PD02	DB08	1,30	1,31	1,32	1,32	4	1,31		0,01	0,73	99,50
19	A49x	PD05	DB08	1,24	1,34	1,31	1,36	4	1,31		0,05	4,00	99,50
20	A71	PB03	DA99	1,32	1,31	1,31	1,32	4	1,32		0,01	0,44	99,69
21	F05x	PD02	DB08	1,32	1,32	1,31	1,32	4	1,32		0,01	0,38	99,88
22	A55	PD02	DB08	1,33	1,31	1,32	1,33	4	1,32		0,01	0,76	99,96
23	A60x	PD01	DB08	1,27	1,30	1,35	1,37	4	1,32		0,04	3,29	100,07
24	A57	PZ98	DD02	1,30	1,33	1,31	1,34	4	1,32		0,02	1,38	100,07
25	F07x	PC01	DB08	1,30	1,32	1,33	1,34	4	1,32		0,02	1,44	100,09
26	A58x	PD02	DE01	1,32	1,32	1,33	1,32	4	1,32		0,01	0,38	100,26
27	F23	PD01	DB08	1,33	1,30	1,32	1,34	4	1,32		0,02	1,29	100,26
28	F14x	PC01	DB08	1,32	1,33	1,32	1,33	4	1,33		0,01	0,42	100,47
29	A67	PB05	DB10	1,31	1,34	1,35	1,31	4	1,33		0,02	1,55	100,64
30	F22x	PB02	DB10	1,34	1,33	1,33	1,34	4	1,34		0,01	0,43	101,21
31	F02x	PD02	DB08	1,33	1,34	1,35	1,34	4	1,34		0,01	0,61	101,59
32	F01x	PB04	DE01	1,33	1,34	1,35	1,37	4	1,35		0,02	1,18	102,10
33	F33x	PD01	DB10	1,36	1,36	1,35	1,32	4	1,35		0,02	1,40	102,16
34	F15x	PC01	DB08	1,34	1,34	1,36	1,36	4	1,35		0,01	0,86	102,35
35	F08x	PD01	DB09	1,34	1,36	1,36	1,35	4	1,36		0,01	0,78	102,78
36	F03	PB05	DB08	1,36	1,34	1,37	1,36	4	1,36		0,01	0,93	102,92
37	A56	PC01	DB08	1,35	1,35	1,37	1,36	4	1,36		0,01	0,73	103,14
38	F20x	PD02	DB08	1,36	1,36	1,38	1,36	4	1,37		0,01	0,73	103,48
39	F19x	PD02	DB08	1,39	1,35	1,37	1,38	4	1,37		0,02	1,24	104,05
40	A39	PD02	DB08	1,38	1,38	1,37	1,36	4	1,37		0,01	0,55	104,19
41	F32x	PD01	DB08	1,37	1,37	1,38	1,39	4	1,38		0,01	0,70	104,43
42	F28x	PD02	DB08	1,39	1,37	1,40	1,36	4	1,38		0,02	1,32	104,62
43	A65	PD01	DB08	1,40	1,40	1,40	1,40	4	1,40		0,00	0,00	106,14
44	F09x	PZ02	DD02	1,41	1,41	1,42	1,42	4	1,42		0,01	0,41	107,27
45	F16x	PC01	DB08	1,39	1,44	1,40	1,43	4	1,42		0,02	1,63	107,41
46	F18x	PD01	DB08	1,41	1,43	1,41	1,42	4	1,42		0,01	0,68	107,46
47	F13	PZ02	DD01	1,44	1,45	1,41	1,45	4	1,44		0,02	1,46	108,96
48	A82	PD01	DB08	1,45	1,45	1,44	1,46	4	1,45		0,01	0,56	109,93
49	A85	PD04	DB08	1,41	1,48	1,46	1,50	4	1,46	*	0,04	2,64	110,88
50	A62x	PD02	DE01	1,38	1,70	1,42	1,48	4	1,50	*	0,14	9,55	113,34
51	A53	PZ02	DD02	1,53	1,53	1,54σ	1,53	3	1,53	*	0,00	0,00	115,99
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	199	1,32	0,020	1,496
10	% from the mean			
	L		SR	VR
50			0,094	7,152

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: P Sample: 3 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	F24x	PB03	DE01	1,11	1,08	1,12	1,10	4	1,10	*	0,02	1,55	80,68
2	A83	PD01	DB08	1,08	1,08	1,08	1,24	4	1,12	*	0,08	7,01	81,98
3	F06x	PD02	DB08	1,15	1,18	1,17	1,16	4	1,16	*	0,01	1,10	85,03
4	F11	PD01	DB08	1,16	1,17	1,17	1,17	4	1,17	*	0,01	0,43	85,43
5	F26x	PD02	DE01	1,27	1,22	1,28	1,17	4	1,24		0,05	4,10	90,37
6	S18	PB03	DB08	1,27	1,24	1,27	1,26	4	1,26		0,01	0,98	92,31
7	F29x	PB05	DE01	1,34	1,32	1,22	1,22	4	1,28		0,06	5,02	93,30
8	F12x	PC01	DB08	1,28	1,28	1,28	1,27	4	1,28		0,01	0,39	93,48
9	F21	PD01	DE01	1,24	1,30	1,27	1,35	4	1,29		0,05	3,64	94,40
10	A61x	PB02	DB08	1,32	1,30	1,30	1,30	4	1,31		0,01	0,77	95,50
11	A50	PC01	DB08	1,31	1,30	1,32	1,30	4	1,31		0,01	0,73	95,68
12	F27x	PD04	DE01	1,32	1,31	1,31	1,33	4	1,32		0,01	0,82	96,41
13	A45x	PE99	DB08	1,31	1,32	1,32	1,33	4	1,32		0,01	0,62	96,59
14	A49x	PD05	DB08	1,31	1,33	1,31	1,35	4	1,33		0,02	1,45	96,96
15	F05x	PD02	DB08	1,33	1,32	1,33	1,32	4	1,33		0,01	0,44	96,96
16	A67	PB05	DB10	1,40	1,31	1,29	1,33	4	1,33		0,05	3,59	97,51
17	F33x	PD01	DB10	1,32	1,33	1,35	1,36	4	1,34		0,02	1,36	98,06
18	A55	PD02	DB08	1,34	1,35	1,34	1,34	4	1,34		0,01	0,41	98,26
19	A84	PB99	DE01	1,35	1,35	1,34	1,36	4	1,35		0,01	0,60	98,79
20	F23	PD01	DB08	1,35	1,34	1,36	1,35	4	1,35		0,01	0,60	98,79
21	A60x	PD01	DB08	1,35	1,39	1,34	1,33	4	1,35		0,02	1,79	98,92
22	A58x	PD02	DE01	1,36	1,35	1,35	1,35	4	1,35		0,01	0,37	98,97
23	A36	PD02	DB08	1,37	1,35	1,35	1,36	4	1,36		0,01	0,71	99,34
24	F19x	PD02	DB08	1,39	1,38	1,30	1,39	4	1,37		0,04	3,19	99,89
25	F14x	PC01	DB08	1,36	1,37	1,37	1,37	4	1,37		0,00	0,27	100,07
26	F02x	PD02	DB08	1,34	1,39	1,36	1,38	4	1,37		0,02	1,62	100,07
27	F07x	PC01	DB08	1,32	1,38	1,39	1,39	4	1,37		0,03	2,40	100,33
28	F28x	PD02	DB08	1,40	1,37	1,35	1,38	4	1,38		0,02	1,51	100,62
29	F15x	PC01	DB08	1,38	1,39	1,39	1,38	4	1,39		0,01	0,42	101,35
30	F01x	PB04	DE01	1,40	1,39	1,37	1,39	4	1,39		0,01	0,90	101,57
31	A39	PD02	DB08	1,38	1,38	1,39	1,42	4	1,39		0,02	1,31	101,86
32	A47x	PD01	DB08	1,41	1,42	1,41	1,36	4	1,40		0,03	1,83	102,28
33	A71	PB03	DA99	1,40	1,41	1,40	1,39	4	1,40		0,01	0,58	102,45
34	A65	PD01	DB08	1,40	1,40	1,40	1,40	4	1,40		0,00	0,00	102,45
35	A56	PC01	DB08	1,40	1,40	1,41	1,40	4	1,40		0,01	0,40	102,63
36	F08x	PD01	DB09	1,40	1,42	1,42	1,39	4	1,41		0,02	1,14	103,14
37	F03	PB05	DB08	1,41	1,39	1,41	1,43	4	1,41		0,02	1,16	103,18
38	F20x	PD02	DB08	1,42	1,41	1,40	1,41	4	1,41		0,01	0,58	103,18
39	F32x	PD01	DB08	1,44	1,42	1,43	1,44	4	1,43		0,01	0,67	104,83
40	F16x	PC01	DB08	1,44	1,44	1,46	1,45	4	1,45		0,01	0,88	105,90
41	F18x	PD01	DB08	1,45	1,43	1,46	1,48	4	1,46		0,02	1,43	106,47
42	A85	PD04	DB08	1,44	1,46	1,47	1,46	4	1,46		0,01	0,86	106,66
43	A59	PC01	DB08	1,44	1,58	1,40	1,43	4	1,46		0,08	5,48	107,02
44	F22x	PB02	DB10	1,49	1,47	1,45	1,45	4	1,47		0,02	1,31	107,20
45	A82	PD01	DB08	1,50	1,47	1,46	1,48	4	1,48		0,02	1,16	108,12
46	F09x	PZ02	DD02	1,49	1,46	1,46	1,51	4	1,48		0,02	1,66	108,30
47	A62x	PD02	DE01	1,57	1,57	1,50	1,48	4	1,53	*	0,05	3,07	111,96
48	A43	PB06	DE01	1,52	1,60	1,52	1,55	4	1,55	*	0,04	2,51	113,26
49	F13	PZ02	DD01	1,57	1,59	1,58	1,57	4	1,58	*	0,01	0,46	115,53
50	A57	PZ98	DD02	1,51	1,58	1,61	1,64	4	1,59	*	0,06	3,51	115,99
51	A53	PZ02	DD02	1,76	1,75	1,76	1,75	0	1,76	b *	0,01	0,33	128,43
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	200	1,37	0,021	1,562
10	% from the mean			
	L		SR	VR
50			0,103	7,510

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: P Sample: 4 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	F13	PZ02	DD01	1,55	1,54	1,52	1,54	4	1,54	*	0,01	0,82	79,46
2	A83	PD01	DB08	1,58	1,58	1,63	1,57	4	1,59	*	0,03	1,74	82,08
3	F24x	PB03	DE01	1,59	1,58	1,64	1,67	4	1,62	*	0,04	2,62	83,68
4	A62x	PD02	DE01	1,51	1,68	1,82	1,54	4	1,64	*	0,14	8,70	84,59
5	A57	PZ98	DD02	1,69	1,70	1,69	1,71	4	1,70	*	0,01	0,56	87,69
6	F11	PD01	DB08	1,70	1,71	1,68	1,71	4	1,70	*	0,01	0,83	87,81
7	F06x	PD02	DB08	1,73	1,70	1,68	1,70	4	1,70	*	0,02	1,30	87,90
8	F29x	PB05	DE01	1,85	1,68	1,78	1,77	4	1,77		0,07	3,94	91,43
9	F01x	PB04	DE01	1,83	1,85	1,83	1,85	4	1,84		0,01	0,38	95,02
10	S18	PB03	DB08	1,83	1,85	1,86	1,85	4	1,85		0,01	0,65	95,43
11	A61x	PB02	DB08	1,83	1,86	1,86	1,86	4	1,85		0,02	0,81	95,69
12	F12x	PC01	DB08	1,88	1,86	1,86	1,87	4	1,87		0,01	0,51	96,47
13	F26x	PD02	DE01	1,84	1,94	1,98	1,79	4	1,89		0,09	4,65	97,50
14	A60x	PD01	DB08	1,90	1,89	1,92	1,89	4	1,90		0,01	0,76	98,21
15	F27x	PD04	DE01	1,91	1,90	1,92	1,93	4	1,91		0,01	0,66	98,83
16	F09x	PZ02	DD02	1,93	1,92	1,91	1,90	4	1,92		0,01	0,67	98,92
17	A49x	PD05	DB08	1,86	1,99	1,91	1,98	4	1,94		0,06	3,17	99,95
18	A84	PB99	DE01	1,94	1,94	1,94	1,93	4	1,94		0,01	0,26	100,08
19	A43	PB06	DE01	1,95	1,91	1,92	1,97	4	1,94		0,03	1,50	100,16
20	F28x	PD02	DB08	1,90	1,94	1,93	1,99	4	1,94		0,04	2,00	100,25
21	A58x	PD02	DE01	1,95	1,95	1,95	1,94	4	1,95		0,01	0,26	100,60
22	F07x	PC01	DB08	1,94	1,98	1,92	1,95	4	1,95		0,02	1,20	100,68
23	A45x	PE99	DB08	1,95	1,96	1,95	1,96	4	1,96		0,01	0,30	100,99
24	A55	PD02	DB08	1,97	1,98	1,95	1,96	4	1,96		0,01	0,59	101,43
25	F05x	PD02	DB08	1,97	1,96	1,96	1,97	4	1,97		0,01	0,29	101,50
26	F03	PB05	DB08	1,99	1,95	2,02	1,94	4	1,98		0,04	1,87	102,02
27	F08x	PD01	DB09	1,97	1,97	1,98	2,00	4	1,98		0,02	0,76	102,20
28	A36	PD02	DB08	1,98	1,98	1,95	2,01	4	1,98		0,02	1,24	102,28
29	F02x	PD02	DB08	1,98	1,99	1,96	2,00	4	1,98		0,02	0,86	102,41
30	A50	PC01	DB08	1,98	1,98	1,99	1,99	4	1,99		0,01	0,29	102,54
31	F15x	PC01	DB08	2,00	2,00	1,99	1,96	4	1,99		0,02	0,95	102,67
32	F21	PD01	DE01	1,99	1,98	1,94	2,07	4	2,00		0,05	2,73	103,05
33	F32x	PD01	DB08	1,99	2,00	1,98	2,02	4	2,00		0,02	0,85	103,18
34	F14x	PC01	DB08	2,01	2,01	2,01	2,01	4	2,01		0,00	0,19	103,81
35	F20x	PD02	DB08	2,01	2,02	2,01	2,00	4	2,01		0,01	0,41	103,83
36	A71	PB03	DA99	2,02	2,01	1,99	2,04	4	2,02		0,02	1,03	104,09
37	F33x	PD01	DB10	2,08	2,07	1,98	1,93	4	2,02		0,07	3,59	104,09
38	A59	PC01	DB08	1,53a	2,02	2,04	2,01	3	2,02		0,02	0,75	104,52
39	A47x	PD01	DB08	2,01	1,99	2,07	2,04	4	2,03		0,04	1,83	104,62
40	F19x	PD02	DB08	2,04	2,03	1,99	2,07	4	2,03		0,03	1,63	104,99
41	A56	PC01	DB08	2,04	2,01	2,06	2,04	4	2,04		0,02	0,92	105,22
42	A53	PZ02	DD02	1,99	1,99	2,12	2,11	4	2,05		0,07	3,52	106,02
43	A39	PD02	DB08	2,05	2,01	2,09	2,06	4	2,05		0,03	1,52	106,04
44	F23	PD01	DB08	2,07	2,05	2,07	2,04	4	2,06		0,01	0,73	106,28
45	A82	PD01	DB08	2,08	2,08	2,06	2,04	4	2,07		0,02	0,93	106,67
46	A65	PD01	DB08	2,10	2,10	2,10	2,00	4	2,08		0,05	2,41	107,18
47	A85	PD04	DB08	2,08	2,06	2,16	2,01	4	2,08		0,06	3,00	107,31
48	A67	PB05	DB10	2,12	2,14	2,08	2,03	4	2,09		0,05	2,32	108,09
49	F18x	PD01	DB08	2,08	2,10	2,10	2,11	4	2,10		0,01	0,60	108,35
50	F16x	PC01	DB08	2,10	2,20	2,14	2,19	4	2,16	*	0,04	2,07	111,51
51	F22x	PB02	DB10	2,14	2,13	2,20	2,19	4	2,17	*	0,04	1,62	111,83
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	203	1,94	0,029	1,507
10	% from the mean			
L			SR	VR
51			0,143	7,402

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Ca Sample: 1 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	F21	PD01	DB01	8,67	8,60	8,62	8,59	4	8,62	*	0,04	0,41	83,86
2	F11	PD01	DB08	8,77	8,60	8,62	8,78	4	8,69	*	0,10	1,10	84,57
3	A84	PB99	DB01	8,96	9,09	8,69	8,99	4	8,93	*	0,17	1,91	86,90
4	A83	PD01	DB08	9,47	9,40	9,07	9,00	4	9,24	*	0,23	2,54	89,84
5	A79	PD03	DB10	9,20	9,26	9,42	9,22	4	9,27		0,10	1,05	90,22
6	A43	PB06	DB01	9,52	9,42	9,47	9,42	4	9,46		0,05	0,51	92,01
7	F22x	PD02	DB02	9,47	9,57	9,36	9,48	4	9,47		0,09	0,91	92,13
8	F29x	PB05	DB01	10,47	9,47	9,34	9,30	4	9,65		0,55	5,75	93,83
9	F06x	PD02	DB08	9,49	9,67	9,76	9,84	4	9,69		0,15	1,55	94,27
10	A82	PD01	DB08	9,65	9,67	9,74	9,83	4	9,72		0,08	0,84	94,56
11	A50	PC01	DB08	9,88	9,66	9,72	9,63	4	9,72		0,11	1,15	94,59
12	A49x	PD05	DB08	10,11	9,43	9,54	10,43	4	9,88		0,47	4,80	96,09
13	A58x	PD02	DB02	9,99	9,99	9,92	10,02	4	9,98		0,04	0,43	97,09
14	S18	PB03	DB08	9,94	10,02	9,94	10,05	4	9,99		0,05	0,55	97,18
15	F15x	PC01	DB08	10,02	10,30	9,99	9,94	4	10,06		0,16	1,61	97,89
16	F14x	PC01	DB08	10,02	10,03	10,14	10,06	4	10,06		0,05	0,54	97,89
17	A71	PB03	DA99	10,17	9,87	10,08	10,15	4	10,07		0,14	1,36	97,94
18	A39	PD02	DB08	9,91	10,49	10,08	9,80	4	10,07		0,30	3,00	97,96
19	A61x	PB02	DB08	10,16	10,01	10,00	10,12	4	10,07		0,08	0,79	97,99
20	F01x	PB04	DB01	10,12	10,52	9,82	9,90	4	10,09		0,31	3,11	98,16
21	F20x	PD02	DB08	10,20	10,10	10,20	10,10	4	10,15		0,06	0,57	98,74
22	F23	PD01	DB01	10,10	10,00	10,30	10,20	4	10,15		0,13	1,27	98,74
23	F07x	PC01	DB08	10,12	9,93	10,19	10,46	4	10,17		0,22	2,18	98,98
24	F27x	PD04	DB01	10,61	10,10	10,23	10,11	4	10,26		0,24	2,31	99,83
25	A47x	PD01	DB08	10,21	10,21	10,42	10,21	4	10,26		0,10	1,02	99,84
26	F12x	PC01	DB08	10,22	10,32	10,23	10,31	4	10,27		0,05	0,51	99,91
27	A55	PD02	DB08	10,17	10,29	10,23	10,40	4	10,27		0,10	0,96	99,94
28	F08x	PD01	DB09	10,28	10,33	10,36	10,33	4	10,32		0,03	0,29	100,42
29	A45x	PE99	DB08	10,20	10,30	10,40	10,40	4	10,33		0,10	0,93	100,45
30	A36	PD02	DB08	10,40	10,30	10,40	10,20	4	10,33		0,10	0,93	100,45
31	F09x	PZ02	DD02	10,41	10,35	10,42	10,39	4	10,39		0,03	0,30	101,10
32	A60x	PD01	DB08	10,30	10,32	10,61	10,45	4	10,42		0,14	1,38	101,34
33	A62x	PC02	DB01	9,16	10,63	11,05	10,83	4	10,42		0,86	8,21	101,35
34	F02x	PD02	DB08	10,31	10,44	10,69	10,34	4	10,45		0,17	1,65	101,61
35	F24x	PB03	DB01	10,90	10,31	10,52	10,11	4	10,46		0,34	3,24	101,75
36	A56	PC01	DB08	10,95	10,51	10,13	10,26	4	10,46		0,36	3,46	101,77
37	F05x	PD02	DB08	10,48	10,48	10,51	10,51	4	10,50		0,02	0,17	102,10
38	F32x	PD01	DB08	10,60	10,40	10,40	10,60	4	10,50		0,12	1,10	102,15
39	F18x	PD01	DB08	10,60	10,40	10,60	10,50	4	10,53		0,10	0,91	102,39
40	F16x	PC01	DB08	10,68	10,49	10,62	10,37	4	10,54		0,14	1,31	102,54
41	F19x	PD02	DB08	10,80	10,70	10,50	10,20	4	10,55		0,26	2,51	102,64
42	A42	PB04	DB01	10,36	10,62	10,91	10,59	4	10,62		0,23	2,13	103,29
43	F33x	PD01	DB10	10,61	11,03	10,69	10,87	4	10,80		0,19	1,74	105,07
44	F03	PD02	DB08	10,86	11,09	10,96	10,72	4	10,91		0,16	1,43	106,11
45	A59	PC01	DB08	10,51	11,10	10,92	11,33	4	10,97		0,35	3,16	106,67
46	A57	PZ98	DD02	11,01	10,98	10,98	10,99	4	10,99		0,01	0,13	106,92
47	A85	PD04	DB08	10,98	11,45	10,97	10,71	4	11,03		0,31	2,79	107,28
48	A67	PB05	DB08	10,80	11,70	10,90	10,90	4	11,08		0,42	3,79	107,74
49	A65	PD01	DB08	10,90	11,10	11,30	11,20	4	11,13		0,17	1,54	108,23
50	F26x	PD02	DB09	11,23	11,28	11,05	11,16	4	11,18		0,10	0,89	108,76
51	F13	PZ02	DD01	11,60	11,64	11,59	11,64	4	11,62	*	0,03	0,23	113,02
52	F28x	PD02	DB08	11,93	11,40	11,72	11,62	4	11,67	*	0,22	1,88	113,51
53	A53	PZ02	DD02	12,50	12,30	12,20	12,50	4	12,38	*	0,15	1,21	120,39
54													
55													
56													
57													
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	212	10,28	0,175	1,701
10	% from the mean			
	L		SR	VR
53			0,701	6,821

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Ca Sample: 2 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A84	PB99	DB01	2,98	2,94	3,08	2,96	0	2,99	b	*	72,65
2	A42	PB04	DB01	3,22	3,29	3,14	3,16	4	3,20	*	*	77,80
3	F26x	PD02	DB09	3,43	3,27	3,25	3,39	4	3,34	*	*	81,03
4	F01x	PB04	DB01	3,16	3,23	3,37	3,65	4	3,35	*	*	81,46
5	F11	PD01	DB08	3,55	3,54	3,56	3,52	4	3,54	*	*	86,07
6	F29x	PB05	DB01	4,09	3,62	3,59	3,37	4	3,67	*	*	89,11
7	A83	PD01	DB08	3,58	4,01	3,54	3,63	4	3,69	*	*	89,65
8	F21	PD01	DB01	3,72	3,71	3,74	3,76	4	3,73			90,69
9	A43	PB06	DB01	3,83	3,73	3,83	3,83	4	3,81			92,45
10	A62x	PC02	DB01	4,05	4,31	3,44	3,65	4	3,86			93,85
11	F06x	PD02	DB08	3,89	3,92	3,84	3,90	4	3,89			94,46
12	A59	PC01	DB08	3,52	3,57	4,25	4,37	4	3,93			95,43
13	F18x	PD01	DB08	3,90	4,04	3,93	3,94	4	3,95			96,04
14	A82	PD01	DB08	3,98	3,99	3,95	3,94	4	3,96			96,32
15	F15x	PC01	DB08	3,94	3,90	4,10	3,93	4	3,97			96,40
16	A50	PC01	DB08	3,82	4,01	4,10	4,23	4	4,04			98,16
17	F27x	PD04	DB01	4,07	4,03	4,04	4,02	4	4,04			98,17
18	F24x	PB03	DB01	4,20	4,06	3,91	4,03	4	4,05			98,37
19	F23	PD01	DB01	4,23	4,07	3,96	3,99	4	4,06			98,71
20	F14x	PC01	DB08	4,06	4,09	4,08	4,07	4	4,07			98,96
21	S18	PB03	DB08	4,10	4,03	4,16	4,11	4	4,10			99,57
22	A39	PD02	DB08	3,97	4,17	4,09	4,24	4	4,12			100,05
23	F20x	PD02	DB08	4,15	4,10	4,12	4,11	4	4,12			100,11
24	A58x	PD02	DB02	4,18	4,16	4,10	4,06	4	4,13			100,23
25	A49x	PD05	DB08	3,77	4,23	4,21	4,33	4	4,14			100,47
26	A61x	PB02	DB08	4,19	4,09	4,18	4,21	4	4,17			101,26
27	A47x	PD01	DB08	4,14	4,18	4,14	4,21	4	4,17			101,26
28	A57	PZ98	DD02	4,16	4,19	4,16	4,20	4	4,18			101,50
29	F08x	PD01	DB09	4,13	4,20	4,22	4,17	4	4,18			101,52
30	A45x	PE99	DB08	4,22	4,18	4,17	4,15	4	4,18			101,56
31	A36	PD02	DB08	4,23	4,19	4,15	4,16	4	4,18			101,62
32	F12x	PC01	DB08	4,20	4,23	4,19	4,21	4	4,21			102,23
33	A71	PB03	DA99	4,22	4,22	4,24	4,21	4	4,22			102,60
34	F02x	PD02	DB08	4,31	4,25	4,20	4,22	4	4,25			103,14
35	A55	PD02	DB08	4,26	4,27	4,24	4,23	4	4,25			103,24
36	F05x	PD02	DB08	4,26	4,22	4,26	4,26	4	4,25			103,26
37	F19x	PD02	DB08	4,30	4,21	4,26	4,32	4	4,27			103,81
38	F33x	PD01	DB10	4,41	4,27	4,25	4,21	4	4,29			104,12
39	F09x	PZ02	DD02	4,28	4,31	4,26	4,33	4	4,30			104,36
40	F22x	PD02	DB02	4,30	4,35	4,32	4,25	4	4,31			104,60
41	F07x	PC01	DB08	4,27	4,22	4,33	4,40	4	4,31			104,63
42	A56	PC01	DB08	4,21	4,24	4,51	4,27	4	4,31			104,64
43	F32x	PD01	DB08	4,26	4,33	4,31	4,34	4	4,31			104,72
44	F16x	PC01	DB08	4,31	4,37	4,30	4,33	4	4,33			105,18
45	F03	PD02	DB08	4,32	4,36	4,38	4,38	4	4,36			105,94
46	A67	PB05	DB08	4,28	4,45	4,43	4,38	4	4,39			106,55
47	A85	PD04	DB08	4,56	4,49	4,48	4,37	4	4,48			108,73
48	F28x	PD02	DB08	4,65	4,46	4,54	4,45	4	4,53			109,95
49	A65	PD01	DB08	4,60	4,60	4,50	4,50	4	4,55	*	*	110,55
50	A60x	PD01	DB08	4,62	4,52	4,85	4,48	4	4,61	*	*	112,10
51	F13	PZ02	DD01	4,65	4,66	4,70	4,68	4	4,67	*	*	113,51
52	A53	PZ02	DD02	4,92	4,94	4,96	4,91	4	4,93	*	*	119,85
53	A79	PD03	DB10	7,16	6,74	7,16	6,74	0	6,95	b	*	168,81
54												
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60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	204	4,12	0,085	2,064
10	% from the mean			
	L		SR	VR
51			0,330	8,013

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Ca Sample: 3 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
		P	D	1	2	3	4				Si	Vi	
1	A84	PB99	DB01	1,87	1,89	1,97	1,88	0	1,88	b *	0,01	0,53	59,59
2	A42	PB04	DB01	2,35	2,45	2,08	2,21	0	2,27	b *	0,16	7,10	71,94
3	F01x	PB04	DB01	2,24	2,21	2,39	2,42	0	2,32	b *	0,11	4,55	73,38
4	F26x	PD02	DB09	2,47	2,47	2,49	2,40	0	2,46	b *	0,04	1,61	77,89
5	F11	PD01	DB08	2,73	2,68	2,72	2,68	4	2,70	*	0,03	0,97	85,66
6	A83	PD01	DB08	2,75	2,72	2,64	2,76	4	2,72	*	0,06	2,05	86,21
7	A62x	PC02	DB01	2,68	2,61	2,80	2,82	4	2,73	*	0,10	3,66	86,45
8	F29x	PB05	DB01	2,87	3,13	2,62	2,53	4	2,79	*	0,27	9,68	88,35
9	A82	PD01	DB08	2,84	2,79	2,82	2,80	4	2,81	*	0,02	0,82	89,21
10	F21	PD01	DB01	2,90	2,85	2,80	2,79	4	2,84	*	0,05	1,79	89,86
11	A79	PD03	DB10	2,93	2,88	2,82	2,90	4	2,88		0,05	1,66	91,43
12	F18x	PD01	DB08	2,93	2,79	2,99	2,95	4	2,92		0,09	2,98	92,39
13	F15x	PC01	DB08	2,95	3,01	2,94	2,93	4	2,96		0,04	1,22	93,74
14	F06x	PD02	DB08	3,00	3,07	3,04	3,02	4	3,03		0,03	0,98	96,12
15	F23	PD01	DB01	3,09	3,03	2,99	3,05	4	3,04		0,04	1,37	96,36
16	A43	PB06	DB01	3,00	3,11	3,11	3,00	4	3,06		0,06	2,08	96,83
17	F08x	PD01	DB09	3,08	3,08	3,11	3,06	4	3,08		0,02	0,71	97,66
18	F13	PZ02	DD01	3,08	3,10	3,09	3,07	4	3,08		0,01	0,39	97,69
19	F33x	PD01	DB10	2,99	3,14	3,07	3,16	4	3,09		0,08	2,49	97,94
20	A49x	PD05	DB08	3,01	3,16	3,07	3,12	4	3,09		0,06	2,10	97,94
21	F14x	PC01	DB08	3,10	3,09	3,10	3,10	4	3,10		0,01	0,20	98,16
22	F20x	PD02	DB08	3,12	3,12	3,06	3,15	4	3,11		0,04	1,21	98,65
23	S18	PB03	DB08	3,11	3,11	3,10	3,14	4	3,12		0,02	0,53	98,77
24	F27x	PD04	DB01	3,13	3,10	3,16	3,12	4	3,12		0,02	0,78	99,04
25	A71	PB03	DA99	3,12	3,15	3,12	3,11	4	3,13		0,02	0,55	99,05
26	A45x	PE99	DB08	3,13	3,13	3,16	3,18	4	3,15		0,02	0,78	99,84
27	F24x	PB03	DB01	3,30	3,13	3,17	3,02	4	3,15		0,12	3,67	99,95
28	A50	PC01	DB08	3,31	3,01	3,27	3,10	4	3,17		0,14	4,46	100,56
29	F19x	PD02	DB08	3,25	3,25	3,01	3,23	4	3,19		0,12	3,67	100,95
30	A61x	PB02	DB08	3,21	3,23	3,16	3,14	4	3,19		0,04	1,32	100,95
31	F05x	PD02	DB08	3,20	3,19	3,19	3,17	4	3,19		0,01	0,39	101,03
32	F09x	PZ02	DD02	3,16	3,20	3,23	3,18	4	3,19		0,03	0,94	101,19
33	A57	PZ98	DD02	3,30	3,20	3,13	3,16	4	3,20		0,07	2,32	101,35
34	F12x	PC01	DB08	3,20	3,19	3,20	3,25	4	3,21		0,03	0,84	101,75
35	A56	PC01	DB08	3,24	3,20	3,20	3,24	4	3,22		0,02	0,75	101,96
36	A47x	PD01	DB08	3,28	3,13	3,25	3,23	4	3,22		0,06	2,02	102,14
37	A58x	PD02	DB02	3,20	3,23	3,25	3,23	4	3,23		0,02	0,64	102,30
38	A36	PD02	DB08	3,26	3,26	3,25	3,24	4	3,25		0,01	0,29	103,09
39	A55	PD02	DB08	3,27	3,27	3,23	3,25	4	3,26		0,02	0,54	103,20
40	F02x	PD02	DB08	3,22	3,28	3,33	3,23	4	3,27		0,05	1,55	103,49
41	F32x	PD01	DB08	3,27	3,28	3,28	3,26	4	3,27		0,01	0,29	103,73
42	F28x	PD02	DB08	3,37	3,23	3,31	3,20	4	3,28		0,08	2,36	103,88
43	F03	PD02	DB08	3,27	3,29	3,33	3,32	4	3,30		0,03	0,83	104,68
44	F07x	PC01	DB08	3,26	3,34	3,41	3,32	4	3,33		0,06	1,80	105,65
45	F22x	PD02	DB02	3,39	3,39	3,43	3,32	4	3,38		0,05	1,35	107,21
46	F16x	PC01	DB08	3,36	3,41	3,47	3,35	4	3,40		0,06	1,67	107,68
47	A53	PZ02	DD02	3,39	3,40	3,38	3,43	4	3,40		0,02	0,64	107,77
48	A59	PC01	DB08	3,27	3,56	3,46	3,36	4	3,41		0,13	3,67	108,16
49	A85	PD04	DB08	3,43	3,43	3,46	3,38	4	3,43		0,03	0,97	108,56
50	A39	PD02	DB08	3,45	3,53	3,30	3,42	4	3,43		0,09	2,75	108,62
51	A67	PB05	DB08	3,52	3,45	3,39	3,45	4	3,45		0,05	1,54	109,43
52	A65	PD01	DB08	3,50	3,50	3,50	3,50	4	3,50	*	0,00	0,00	110,94
53	A60x	PD01	DB08	3,75	3,38	3,58	3,47	4	3,55	*	0,16	4,45	112,43
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	196	3,15	0,054	1,710
10	% from the mean			
L			SR	VR
49			0,207	6,547

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Ca Sample: 4 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	F21	PD01	DB01	9,86	9,88	9,89	9,85	4	9,87	*	0,02	0,18	84,61
2	F11	PD01	DB08	9,96	9,87	9,98	9,76	4	9,89	*	0,10	1,02	84,81
3	F29x	PB05	DB01	11,06	10,20	10,20	9,98	4	10,36	*	0,48	4,61	88,81
4	A57	PZ98	DD02	10,47	10,44	10,40	10,56	4	10,47	*	0,07	0,65	89,73
5	A79	PD03	DB10	10,38	10,34	11,07	10,25	4	10,51		0,38	3,59	90,10
6	A83	PD01	DB08	10,59	10,43	10,64	10,55	4	10,55		0,09	0,85	90,46
7	A43	PB06	DB01	10,48	10,53	11,06	10,56	4	10,66		0,27	2,54	91,36
8	A82	PD01	DB08	10,61	10,81	10,56	10,93	4	10,73		0,17	1,59	91,95
9	A84	PB99	DB01	10,69	10,68	10,76	11,01	4	10,79		0,15	1,43	92,46
10	F13	PZ02	DD01	10,84	10,81	10,76	10,83	4	10,81		0,04	0,33	92,67
11	A62x	PC02	DB01	10,87	12,13	9,99	10,33	4	10,83		0,94	8,67	92,84
12	F26x	PD02	DB09	10,84	10,87	10,97	10,92	4	10,90		0,06	0,52	93,44
13	F06x	PD02	DB08	11,30	10,90	10,90	11,00	4	11,03		0,19	1,72	94,51
14	F15x	PC01	DB08	11,19	11,21	11,22	10,97	4	11,15		0,12	1,07	95,56
15	A59	PC01	DB08	8,95a	11,23	11,45	11,36	3	11,35		0,11	0,97	97,27
16	F28x	PD02	DB08	11,50	11,60	11,40	11,10	4	11,40		0,22	1,89	97,73
17	A71	PB03	DA99	11,49	11,37	11,55	11,45	4	11,47		0,08	0,66	98,29
18	F22x	PD02	DB02	11,57	11,89	11,21	11,38	4	11,51		0,29	2,53	98,69
19	F20x	PD02	DB08	11,40	11,60	11,50	11,60	4	11,53		0,10	0,83	98,80
20	A61x	PB02	DB08	11,53	11,44	11,60	11,60	4	11,54		0,08	0,66	98,95
21	S18	PB03	DB08	11,60	11,69	11,51	11,69	4	11,62		0,09	0,74	99,64
22	F09x	PZ02	DD02	11,70	11,67	11,61	11,58	4	11,64		0,05	0,47	99,79
23	F01x	PB04	DB01	11,83	11,33	11,91	11,56	4	11,66		0,26	2,27	99,94
24	F07x	PC01	DB08	11,75	11,91	11,65	11,68	4	11,75		0,12	0,99	100,71
25	F27x	PD04	DB01	11,53	11,88	11,77	11,89	4	11,77		0,17	1,42	100,87
26	F23	PD01	DB01	11,50	11,90	12,00	11,70	4	11,78		0,22	1,88	100,94
27	A49x	PD05	DB08	11,41	12,20	11,60	11,89	4	11,78		0,35	2,93	100,94
28	A56	PC01	DB08	11,72	11,72	11,84	11,84	4	11,78		0,07	0,57	100,96
29	A58x	PD02	DB02	11,92	11,93	11,80	11,53	4	11,80		0,19	1,58	101,11
30	F32x	PD01	DB08	11,80	11,90	11,90	11,80	4	11,85		0,06	0,49	101,59
31	F14x	PC01	DB08	11,87	11,85	11,95	11,89	4	11,89		0,04	0,36	101,93
32	A36	PD02	DB08	12,00	11,90	11,90	11,90	4	11,93		0,05	0,42	102,23
33	F08x	PD01	DB09	11,97	11,93	11,94	11,90	4	11,93		0,03	0,23	102,30
34	F12x	PC01	DB08	11,93	11,95	11,97	12,03	4	11,97		0,04	0,36	102,61
35	A42	PB04	DB01	11,82	12,66	12,23	11,54	4	12,06		0,49	4,05	103,38
36	A53	PZ02	DD02	12,10	12,10	12,10	12,00	4	12,08		0,05	0,41	103,51
37	F33x	PD01	DB10	12,57	12,37	11,89	11,50	4	12,08		0,48	3,99	103,58
38	F05x	PD02	DB08	12,09	12,08	12,14	12,06	4	12,09		0,03	0,28	103,66
39	F19x	PD02	DB08	12,10	12,20	11,80	12,30	4	12,10		0,22	1,79	103,73
40	A45x	PE99	DB08	12,00	12,10	12,20	12,10	4	12,10		0,08	0,67	103,73
41	F02x	PD02	DB08	12,04	12,23	12,11	12,06	4	12,11		0,09	0,70	103,81
42	A50	PC01	DB08	12,32	11,85	12,26	12,04	4	12,12		0,22	1,78	103,88
43	A47x	PD01	DB08	11,99	12,13	12,30	12,25	4	12,17		0,14	1,14	104,31
44	A60x	PD01	DB08	11,99	12,86	12,25	11,61	4	12,18		0,53	4,33	104,41
45	A55	PD02	DB08	12,35	12,37	12,36	12,26	4	12,34		0,05	0,41	105,74
46	F16x	PC01	DB08	12,38	12,66	12,48	12,40	4	12,48		0,13	1,02	106,99
47	F03	PD02	DB08	12,12	12,65	12,53	12,80	4	12,53		0,29	2,33	107,37
48	A85	PD04	DB08	12,85	12,85	12,68	12,06	4	12,61		0,38	2,98	108,10
49	A39	PD02	DB08	12,38	12,96	12,58	12,54	4	12,62		0,24	1,93	108,15
50	A65	PD01	DB08	12,90	12,60	12,70	12,60	4	12,70		0,14	1,11	108,87
51	F24x	PB03	DB01	12,90	12,47	12,65	12,85	4	12,72		0,20	1,55	109,01
52	F18x	PD01	DB08	13,10	13,30	12,60	12,20	4	12,80		0,50	3,88	109,73
53	A67	PB05	DB08	14,10	14,30	13,70	13,30	4	13,85	*	0,44	3,20	118,73
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	211	11,66	0,195	1,674
10	% from the mean			
L			SR	VR
53			0,784	6,722

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mg Sample: 1 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	F29x	PB05	DB01	1,33	1,25	1,19	1,26	4	1,26	0,06	4,56	84,21
2	A83	PD01	DB08	1,28	1,26	1,27	1,26	4	1,27	0,01	0,63	85,01
3	F11	PD01	DB08	1,37	1,37	1,36	1,35	4	1,36	0,01	0,70	91,24
4	F06x	PD02	DB08	1,39	1,39	1,36	1,34	4	1,37	0,02	1,79	91,74
5	A62x	PD02	DB01	1,38	1,28	1,46	1,41	4	1,38	0,08	5,49	92,58
6	A71	PB03	DA99	1,40	1,41	1,41	1,40	4	1,41	0,01	0,41	94,08
7	F07x	PC01	DB08	1,43	1,39	1,40	1,47	4	1,42	0,04	2,60	95,14
8	A43	PB06	DB01	1,45	1,40	1,40	1,45	4	1,42	0,03	2,11	95,29
9	F21	PD01	DB01	1,43	1,44	1,42	1,42	4	1,43	0,01	0,67	95,59
10	F27x	PD04	DB01	1,42	1,42	1,44	1,43	4	1,43	0,01	0,60	95,67
11	S18	PB03	DB08	1,43	1,43	1,42	1,44	4	1,43	0,01	0,57	95,86
12	A60x	PD01	DB08	1,43	1,42	1,40	1,47	4	1,43	0,03	2,15	95,91
13	F09x	PZ02	DD02	1,45	1,46	1,47	1,46	4	1,46	0,01	0,56	97,77
14	F23	PD01	DB01	1,45	1,51	1,45	1,44	4	1,46	0,03	2,19	97,93
15	A57	PZ98	DD02	1,46	1,47	1,45	1,48	4	1,47	0,01	0,88	98,10
16	A39	PD02	DB08	1,44	1,51	1,51	1,40	4	1,47	0,06	3,90	98,19
17	F18x	PD01	DB08	1,47	1,47	1,47	1,48	4	1,47	0,01	0,34	98,60
18	A56	PC01	DB08	1,46	1,50	1,46	1,47	4	1,47	0,02	1,40	98,67
19	A47x	PD01	DB08	1,47	1,46	1,49	1,49	4	1,48	0,02	1,18	98,97
20	F08x	PD01	DB09	1,46	1,50	1,49	1,47	4	1,48	0,02	1,30	99,09
21	A42	PB04	DB01	1,53	1,43	1,55	1,45	4	1,49	0,06	3,91	99,64
22	A50	PC01	DB08	1,57	1,47	1,46	1,49	4	1,50	0,05	3,33	100,28
23	A67	PB05	DB08	1,43	1,54	1,53	1,50	4	1,50	0,05	3,31	100,45
24	F03	PB05	DB08	1,51	1,50	1,50	1,50	4	1,50	0,01	0,33	100,61
25	F01x	PB04	DB01	1,50	1,49	1,50	1,52	4	1,50	0,01	0,84	100,61
26	A49x	PD05	DB08	1,50	1,46	1,52	1,54	4	1,51	0,03	2,27	100,78
27	A45x	PE99	DB08	1,51	1,49	1,51	1,51	4	1,51	0,01	0,66	100,78
28	A61x	PB02	DB08	1,52	1,50	1,49	1,51	4	1,51	0,01	0,86	100,78
29	F19x	PD02	DB08	1,54	1,50	1,52	1,48	4	1,51	0,03	1,71	101,12
30	F14x	PC01	DB08	1,50	1,51	1,51	1,52	4	1,51	0,01	0,46	101,20
31	A58x	PD02	DB01	1,51	1,50	1,51	1,53	4	1,51	0,01	0,83	101,28
32	F05x	PD02	DB08	1,51	1,52	1,51	1,52	4	1,52	0,01	0,38	101,45
33	A84	PB99	DB01	1,53	1,50	1,50	1,54	4	1,52	0,02	1,36	101,62
34	F32x	PD01	DB08	1,53	1,51	1,52	1,52	4	1,52	0,01	0,54	101,79
35	F26x	PD02	DB09	1,55	1,52	1,51	1,50	4	1,52	0,02	1,42	101,79
36	F13	PC01	DB08	1,55	1,53	1,50	1,51	4	1,52	0,02	1,34	101,87
37	A36	PD02	DB08	1,52	1,52	1,54	1,51	4	1,52	0,01	0,83	101,95
38	F20x	PD02	DB08	1,52	1,53	1,52	1,53	4	1,53	0,01	0,38	102,12
39	F02x	PD02	DB08	1,51	1,51	1,54	1,54	4	1,53	0,02	1,14	102,12
40	F24x	PB03	DB01	1,48	1,53	1,55	1,55	4	1,53	0,03	2,13	102,27
41	F15x	PC01	DB08	1,54	1,53	1,53	1,51	4	1,53	0,01	0,82	102,29
42	F12x	PC01	DB08	1,52	1,53	1,53	1,54	4	1,53	0,01	0,53	102,45
43	F22x	PD02	DB02	1,55	1,54	1,58	1,46	4	1,53	0,05	3,34	102,62
44	A53	PZ02	DD02	1,54	1,53	1,53	1,55	4	1,54	0,01	0,62	102,96
45	F16x	PC01	DB08	1,58	1,56	1,59	1,59	4	1,58	0,01	0,94	105,77
46	A82	PD01	DB08	1,58	1,58	1,59	1,61	4	1,59	0,01	0,89	106,47
47	A85	PD04	DB08	1,57	1,63	1,60	1,57	4	1,59	0,03	1,80	106,64
48	F33x	PD01	DB10	1,57	1,62	1,60	1,59	4	1,60	0,02	1,31	106,81
49	A55	PD02	DB08	1,61	1,60	1,60	1,61	4	1,60	0,01	0,32	107,43
50	A79	PD03	DB10	1,61	1,63	1,64	1,63	4	1,63	0,02	0,99	108,92
51	A65	PD01	DB08	1,60	1,60	1,70	1,70	4	1,65	0,06	3,50	110,49
52	A59	PC01	DB08	1,64	1,71	1,70	1,70	4	1,69	0,03	1,90	113,00
53	F28x	PD02	DB08	1,88	1,87	1,95	1,91	0	1,91	0,04	1,92	127,62
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	208	1,49	0,023	1,508
10	% from the mean			
	L		SR	VR
	52		0,081	5,414

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mg Sample: 2 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	0,63	0,7001a	0,62	0,63	0	0,63	b	*	78,52
2	F29x	PB05	DB01	0,73	0,63	0,68	0,62	0	0,67	b	*	83,13
3	F06x	PD02	DB08	0,72	0,72	0,71	0,72	4	0,72		*	89,45
4	A71	PB03	DA99	0,72	0,72	0,72	0,72	4	0,72			90,01
5	F11	PD01	DB08	0,72	0,72	0,72	0,73	4	0,72			90,29
6	F26x	PD02	DB09	0,71	0,72	0,74	0,74	4	0,73			90,95
7	F22x	PD02	DB02	0,78	0,73	0,75	0,71	4	0,74			92,82
8	A42	PB04	DB01	0,77	0,72	0,80	0,73	4	0,76			94,48
9	F24x	PB03	DB01	0,78	0,74	0,76	0,75	4	0,76			94,79
10	F23	PD01	DB01	0,75	0,75	0,79	0,76	4	0,76			95,01
11	A43	PB06	DB01	0,78	0,73	0,78	0,78	4	0,76			95,41
12	F20x	PD02	DB08	0,78	0,76	0,76	0,77	4	0,77			96,01
13	F27x	PD04	DB01	0,77	0,78	0,77	0,77	4	0,77			96,45
14	A84	PB99	DB01	0,76	0,77	0,78	0,78	4	0,77			96,57
15	F18x	PD01	DB08	0,77	0,78	0,77	0,78	4	0,78			96,88
16	A56	PC01	DB08	0,77	0,78	0,78	0,78	4	0,78			97,32
17	S18	PB03	DB08	0,78	0,77	0,79	0,78	4	0,78			97,47
18	F01x	PB04	DB01	0,78	0,81	0,79	0,76	4	0,79			98,13
19	F21	PD01	DB01	0,81	0,79	0,77	0,78	4	0,79			98,45
20	F07x	PC01	DB08	0,79	0,79	0,78	0,81	4	0,79			98,60
21	A47x	PD01	DB08	0,79	0,81	0,79	0,78	4	0,79			99,04
22	F03	PB05	DB08	0,80	0,79	0,79	0,80	4	0,80			99,38
23	A60x	PD01	DB08	0,77	0,78	0,80	0,83	4	0,80			99,54
24	F19x	PD02	DB08	0,81	0,79	0,80	0,80	4	0,80			100,01
25	A45x	PE99	DB08	0,81	0,81	0,79	0,80	4	0,80			100,32
26	A53	PZ02	DD02	0,80	0,79	0,81	0,81	4	0,80			100,32
27	F15x	PC01	DB08	0,80	0,81	0,80	0,81	4	0,81			100,63
28	A61x	PB02	DB08	0,81	0,81	0,81	0,81	4	0,81			101,26
29	A67	PB05	DB08	0,81	0,82	0,81	0,81	4	0,81			101,67
30	A49x	PD05	DB08	0,75	0,83	0,83	0,85	4	0,82			101,88
31	F14x	PC01	DB08	0,81	0,81	0,82	0,82	4	0,82			101,88
32	A50	PC01	DB08	0,80	0,80	0,83	0,83	4	0,82			101,88
33	F05x	PD02	DB08	0,82	0,82	0,82	0,82	4	0,82			102,38
34	A58x	PD02	DB01	0,82	0,83	0,82	0,82	4	0,82			102,82
35	A59	PC01	DB08	0,72	0,74	0,90	0,93	0	0,82	c		102,82
36	A39	PD02	DB08	0,81	0,82	0,83	0,85	4	0,83			103,26
37	A36	PD02	DB08	0,83	0,83	0,83	0,82	4	0,83			103,32
38	F08x	PD01	DB09	0,80	0,85	0,83	0,84	4	0,83			103,42
39	F09x	PZ02	DD02	0,82	0,83	0,83	0,83	4	0,83			103,45
40	F02x	PD02	DB08	0,83	0,82	0,84	0,82	4	0,83			103,45
41	A57	PZ98	DD02	0,82	0,83	0,82	0,84	4	0,83			103,45
42	A62x	PD02	DB01	0,82	0,86	0,80	0,83	4	0,83			103,45
43	F32x	PD01	DB08	0,82	0,83	0,83	0,83	4	0,83			103,45
44	F13	PC01	DB08	0,84	0,82	0,83	0,84	4	0,83			103,70
45	F33x	PD01	DB10	0,86	0,83	0,82	0,82	4	0,83			104,07
46	F12x	PC01	DB08	0,84	0,85	0,82	0,82	4	0,83			104,07
47	A82	PD01	DB08	0,83	0,85	0,83	0,84	4	0,84			104,98
48	F16x	PC01	DB08	0,86	0,85	0,84	0,85	4	0,85			106,47
49	A55	PD02	DB08	0,86	0,85	0,86	0,86	4	0,86			107,35
50	A85	PD04	DB08	0,86	0,86	0,86	0,86	4	0,86			107,51
51	A65	PD01	DB08	0,90	0,90	0,90	0,90	4	0,90		*	112,51
52	F28x	PD02	DB08	1,02	1,04	1,05	1,03	0	1,03	b	*	129,20
53	A79	PD03	DB10	1,32	1,17	1,32	1,17	0	1,24	b	*	155,45
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	192	0,80	0,011	1,420
10	% from the mean			
L			SR	VR
48			0,039	4,877

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mg Sample: 3 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	0,71	0,70	0,68	0,70	0	0,70	b	*	79,20
2	F29x	PB05	DB01	0,78	0,78	0,71	0,68	4	0,74	*		83,78
3	F06x	PD02	DB08	0,77	0,79	0,78	0,77	4	0,78	*		88,07
4	F11	PD01	DB08	0,78	0,78	0,80	0,79	4	0,79	*		89,49
5	F27x	PD04	DB01	0,82	0,82	0,83	0,82	4	0,82			93,32
6	A71	PB03	DA99	0,85	0,83	0,80	0,82	4	0,83			93,72
7	F18x	PD01	DB08	0,83	0,81	0,83	0,83	4	0,83			93,89
8	F23	PD01	DB01	0,84	0,84	0,79	0,83	4	0,83			93,89
9	S18	PB03	DB08	0,84	0,83	0,83	0,84	4	0,84			95,02
10	A62x	PD02	DB01	0,84	0,83	0,85	0,83	4	0,84			95,14
11	F19x	PD02	DB08	0,86	0,85	0,79	0,85	4	0,84			95,26
12	A84	PB99	DB01	0,85	0,85	0,83	0,84	4	0,84			95,71
13	F22x	PD02	DB02	0,85	0,86	0,84	0,83	4	0,85			95,99
14	F20x	PD02	DB08	0,84	0,85	0,83	0,86	4	0,85			95,99
15	A56	PC01	DB08	0,85	0,85	0,85	0,85	4	0,85			96,36
16	A60x	PD01	DB08	0,86	0,85	0,85	0,85	4	0,85			97,07
17	F07x	PC01	DB08	0,85	0,88	0,88	0,85	4	0,86			98,10
18	A47x	PD01	DB08	0,87	0,85	0,89	0,85	4	0,86			98,24
19	A43	PB06	DB01	0,84	0,90	0,84	0,88	4	0,86			98,24
20	A67	PB05	DB08	0,90	0,85	0,85	0,86	4	0,87			98,35
21	A45x	PE99	DB08	0,86	0,87	0,87	0,88	4	0,87			98,72
22	F15x	PC01	DB08	0,87	0,87	0,88	0,86	4	0,87			98,83
23	A42	PB04	DB01	0,85	0,88	0,84	0,91	4	0,87			98,86
24	F33x	PD01	DB10	0,85	0,89	0,86	0,89	4	0,87			99,12
25	F21	PD01	DB01	0,87	0,87	0,88	0,87	4	0,87			99,12
26	F03	PB05	DB08	0,88	0,87	0,88	0,88	4	0,88			99,69
27	F05x	PD02	DB08	0,88	0,88	0,88	0,88	4	0,88			99,91
28	F02x	PD02	DB08	0,86	0,90	0,89	0,88	4	0,88			100,25
29	F01x	PB04	DB01	0,87	0,90	0,88	0,89	4	0,89			100,54
30	A58x	PD02	DB01	0,88	0,89	0,88	0,89	4	0,89			100,54
31	A49x	PD05	DB08	0,87	0,91	0,87	0,89	4	0,89			100,54
32	A50	PC01	DB08	0,90	0,88	0,88	0,88	4	0,89			100,54
33	F14x	PC01	DB08	0,89	0,88	0,88	0,89	4	0,89			100,62
34	A61x	PB02	DB08	0,89	0,88	0,89	0,89	4	0,89			100,82
35	F12x	PC01	DB08	0,88	0,87	0,89	0,91	4	0,89			100,82
36	F26x	PD02	DB09	0,90	0,89	0,87	0,91	4	0,89			101,39
37	F24x	PB03	DB01	0,87	0,93	0,91	0,91	4	0,90			102,47
38	F08x	PD01	DB09	0,89	0,90	0,91	0,90	4	0,90			102,50
39	F32x	PD01	DB08	0,91	0,90	0,91	0,90	4	0,91			102,81
40	F13	PC01	DB08	0,91	0,91	0,91	0,91	4	0,91			103,09
41	A36	PD02	DB08	0,91	0,90	0,91	0,92	4	0,91			103,26
42	A53	PZ02	DD02	0,91	0,92	0,91	0,91	4	0,91			103,66
43	A82	PD01	DB08	0,92	0,92	0,92	0,93	4	0,92			104,60
44	A39	PD02	DB08	0,91	0,94	0,92	0,92	4	0,92			104,66
45	F16x	PC01	DB08	0,92	0,93	0,93	0,93	4	0,93			105,22
46	A55	PD02	DB08	0,93	0,93	0,93	0,93	4	0,93			105,39
47	A57	PZ98	DD02	0,92	0,94	0,94	0,97	4	0,94			107,07
48	A85	PD04	DB08	0,93	0,95	0,97	0,93	4	0,95			107,35
49	F09x	PZ02	DD02	0,96	0,97	0,94	0,95	4	0,96			108,49
50	F28x	PD02	DB08	0,97	0,98	0,95	0,92	4	0,96			108,60
51	A59	PC01	DB08	0,93	1,05	0,97	0,93	4	0,97	*		110,19
52	A79	PD03	DB10	0,99	0,97	0,96	0,99	4	0,98	*		111,07
53	A65	PD01	DB08	1,00	1,00	1,00	1,00	4	1,00	*		113,60
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	208	0,88	0,014	1,544
10	% from the mean			
L			SR	VR
52			0,050	5,698

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mg Sample: 4 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	A47x	PD01	DB08	1,05	1,08	0,97	0,89	0	0,99	b *	0,09	8,76	63,32
2	A62x	PD02	DB01	1,17	1,18	0,95a	1,18	0	1,18	b *	0,01	0,49	74,92
3	F29x	PB05	DB01	1,38	1,19	1,26	1,25	0	1,27	b *	0,08	6,27	80,86
4	A83	PD01	DB08	1,33	1,31	1,34	1,32	4	1,33	*	0,01	0,91	84,52
5	F28x	PD02	DB08	1,34	1,34	1,35	1,37	4	1,35	*	0,01	0,98	85,81
6	F06x	PD02	DB08	1,40	1,38	1,37	1,38	4	1,38	*	0,01	0,91	88,02
7	F11	PD01	DB08	1,42	1,42	1,41	1,42	4	1,42		0,01	0,35	90,25
8	A60x	PD01	DB08	1,49	1,47	1,49	1,51	4	1,49		0,01	0,95	94,77
9	F07x	PC01	DB08	1,50	1,53	1,48	1,45	4	1,49		0,03	2,21	94,84
10	A43	PB06	DB01	1,47	1,47	1,53	1,50	4	1,49		0,03	1,70	95,12
11	A84	PB99	DB01	1,51	1,53	1,50	1,50	4	1,51		0,01	0,94	96,14
12	S18	PB03	DB08	1,50	1,52	1,50	1,52	4	1,51		0,01	0,76	96,16
13	F03	PB05	DB08	1,55	1,48	1,52	1,50	4	1,51		0,03	1,97	96,30
14	F27x	PD04	DB01	1,48	1,51	1,52	1,56	4	1,52		0,03	2,17	96,59
15	F18x	PD01	DB08	1,55	1,51	1,51	1,51	4	1,52		0,02	1,32	96,78
16	A49x	PD05	DB08	1,52	1,59	1,51	1,55	4	1,54		0,04	2,33	98,21
17	F15x	PC01	DB08	1,52	1,54	1,58	1,54	4	1,55		0,03	1,63	98,37
18	F21	PD01	DB01	1,55	1,55	1,55	1,55	4	1,55		0,00	0,00	98,69
19	A56	PC01	DB08	1,55	1,54	1,57	1,55	4	1,55		0,01	0,83	98,86
20	F05x	PD02	DB08	1,56	1,55	1,55	1,56	4	1,56		0,01	0,37	99,01
21	F23	PD01	DB01	1,51	1,58	1,57	1,57	4	1,56		0,03	2,06	99,17
22	F32x	PD01	DB08	1,57	1,57	1,56	1,58	4	1,57		0,01	0,52	99,96
23	F01x	PB04	DB01	1,60	1,57	1,55	1,59	4	1,58		0,02	1,41	100,44
24	A71	PB03	DA99	1,59	1,57	1,58	1,57	4	1,58		0,01	0,61	100,44
25	A61x	PB02	DB08	1,57	1,59	1,56	1,59	4	1,58		0,02	0,95	100,44
26	A45x	PE99	DB08	1,57	1,58	1,59	1,58	4	1,58		0,01	0,52	100,60
27	A42	PB04	DB01	1,61	1,59	1,58	1,56	4	1,58		0,02	1,24	100,85
28	F14x	PC01	DB08	1,59	1,59	1,58	1,60	4	1,59		0,01	0,58	101,08
29	F20x	PD02	DB08	1,59	1,60	1,59	1,58	4	1,59		0,01	0,51	101,24
30	F08x	PD01	DB09	1,58	1,59	1,59	1,60	4	1,59		0,01	0,54	101,32
31	F24x	PB03	DB01	1,55	1,61	1,60	1,61	4	1,59		0,03	1,75	101,35
32	F19x	PD02	DB08	1,58	1,59	1,57	1,63	4	1,59		0,03	1,65	101,39
33	A36	PD02	DB08	1,61	1,59	1,58	1,59	4	1,59		0,01	0,79	101,39
34	F02x	PD02	DB08	1,58	1,58	1,60	1,61	4	1,59		0,02	0,94	101,39
35	F13	PC01	DB08	1,61	1,59	1,60	1,60	4	1,60		0,01	0,44	101,92
36	F26x	PD02	DB09	1,56	1,62	1,63	1,60	4	1,60		0,03	1,93	102,03
37	F33x	PD01	DB10	1,69	1,64	1,58	1,52	4	1,61		0,07	4,58	102,35
38	F12x	PC01	DB08	1,60	1,61	1,61	1,61	4	1,61		0,01	0,31	102,35
39	A58x	PD02	DB01	1,61	1,61	1,61	1,61	4	1,61		0,00	0,00	102,51
40	A59	PC01	DB08	1,3a	1,60	1,64	1,61	3	1,62		0,02	1,29	102,93
41	F22x	PD02	DB02	1,70	1,64	1,59	1,62	4	1,64		0,05	2,84	104,26
42	A39	PD02	DB08	1,65	1,61	1,71	1,60	4	1,64		0,05	2,82	104,66
43	A67	PB05	DB08	1,67	1,67	1,63	1,61	4	1,65		0,03	1,82	104,74
44	F09x	PZ02	DD02	1,65	1,63	1,67	1,65	4	1,65		0,02	0,99	105,06
45	F16x	PC01	DB08	1,65	1,68	1,64	1,66	4	1,66		0,02	1,13	105,47
46	A82	PD01	DB08	1,67	1,67	1,67	1,67	4	1,67		0,00	0,00	106,33
47	A85	PD04	DB08	1,67	1,68	1,71	1,63	4	1,67		0,03	1,98	106,49
48	A55	PD02	DB08	1,67	1,68	1,68	1,67	4	1,67		0,00	0,30	106,63
49	A50	PC01	DB08	1,66	1,69	1,69	1,69	4	1,68		0,02	0,89	107,13
50	A79	PD03	DB10	1,71	1,67	1,76	1,66	4	1,70		0,04	2,55	108,13
51	A65	PD01	DB08	1,70	1,70	1,70	1,70	4	1,70		0,00	0,00	108,24
52	A57	PZ98	DD02	1,86	1,85a	1,86	1,86	0	1,86	b *	0,00	0,00	118,43
53	A53	PZ02	DD02	1,97	1,98	1,97	1,99	0	1,98	b *	0,01	0,48	125,91
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	191	1,57	0,019	1,217
10	% from the mean			
L			SR	VR
48			0,083	5,277

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: K Sample: 1 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	F24x	PB03	DB01	4,90	5,21	5,12	5,24	0	5,12	b *	0,15	2,99	81,20
2	F21	PD01	DB01	5,28	5,36	5,22	5,21	0	5,27	b *	0,07	1,31	83,60
3	A83	PD01	DB08	5,57	5,42	5,31	5,25	0	5,39	b *	0,14	2,58	85,51
4	F11	PD01	DB08	5,63	5,52	5,63	5,54	4	5,58	*	0,06	1,04	88,56
5	S18	PB03	DB08	5,77	5,71	5,66	5,82	4	5,74		0,07	1,18	91,05
6	A82	PD01	DB08	5,81	5,74	5,69	5,83	4	5,77		0,06	1,12	91,53
7	A71	PB03	DA99	6,00	5,99	5,98	6,00	4	5,99		0,01	0,16	95,10
8	A43	PB06	DB01	6,16	5,90	5,95	6,00	4	6,00		0,11	1,88	95,26
9	F05x	PD02	DB08	6,10	6,09	6,09	6,09	4	6,09		0,00	0,08	96,69
10	F01x	PB04	DB01	6,18	6,10	6,12	6,14	4	6,14		0,03	0,56	97,37
11	F29x	PB05	DB01	6,21	6,09	5,14a	6,14	3	6,15		0,06	0,98	97,55
12	F20x	PD02	DB08	6,11	6,19	6,13	6,22	4	6,16		0,05	0,83	97,80
13	A58x	PD02	DB01	6,19	6,07	6,18	6,22	4	6,17		0,07	1,06	97,84
14	F07x	PC01	DB08	6,11	6,01	6,17	6,40	4	6,17		0,17	2,71	97,96
15	A50	PC01	DB08	6,37	6,06	6,10	6,18	4	6,18		0,14	2,23	98,04
16	F26x	PD02	DB09	6,20	6,17	6,19	6,16	4	6,18		0,02	0,30	98,08
17	F23	PD01	DB06	6,15	6,15	6,19	6,23	4	6,18		0,04	0,62	98,08
18	F18x	PD01	DB08	5,95	6,26	6,23	6,35	4	6,20		0,17	2,79	98,36
19	A42	PB04	DB01	6,01	6,31	6,37	6,12	4	6,20		0,16	2,64	98,43
20	A57	PZ98	DD02	6,22	6,21	6,19	6,27	4	6,22		0,03	0,55	98,75
21	F06x	PZ99	DB08	6,29	6,30	6,20	6,16	4	6,24		0,07	1,10	98,99
22	A61x	PB02	DB08	6,38	6,16	6,11	6,32	4	6,24		0,13	2,05	99,07
23	A84	PB99	DB01	6,40	6,15	6,20	6,25	4	6,25		0,11	1,73	99,19
24	F14x	PC01	DB08	6,24	6,32	6,21	6,29	4	6,26		0,05	0,83	99,41
25	A56	PC01	DB08	6,44	6,31	6,11	6,24	4	6,27		0,14	2,19	99,58
26	F08x	PD01	DB09	6,36	6,29	6,33	6,28	4	6,31		0,04	0,62	100,17
27	F03	PB05	DB08	6,30	6,31	6,30	6,38	4	6,32		0,04	0,61	100,34
28	A47x	PD01	DB08	6,38	6,25	6,24	6,46	4	6,33		0,11	1,68	100,50
29	A45x	PE99	DB08	6,33	6,38	6,34	6,34	4	6,35		0,02	0,35	100,74
30	F09x	PZ02	DD02	6,36	6,34	6,38	6,35	4	6,36		0,02	0,27	100,90
31	F12x	PC01	DB08	6,33	6,42	6,31	6,37	4	6,36		0,05	0,76	100,90
32	A49x	PD05	DB08	6,41	6,11	6,27	6,68	4	6,37		0,24	3,80	101,06
33	F22x	PD02	DB02	6,24	6,32	6,69	6,24	4	6,37		0,22	3,37	101,14
34	A39	PD02	DB08	6,24	6,68	6,29	6,33	4	6,39		0,20	3,13	101,33
35	A62x	PC02	DB01	6,06	6,35	6,59	6,58	4	6,40		0,25	3,90	101,49
36	A36	PD02	DB08	6,38	6,40	6,37	6,44	4	6,40		0,03	0,48	101,53
37	A65	PD01	DB08	6,40	6,30	6,50	6,40	4	6,40		0,08	1,28	101,57
38	A55	PD02	DB08	6,44	6,38	6,42	6,37	4	6,40		0,03	0,51	101,60
39	F19x	PD02	DB08	6,48	6,39	6,51	6,30	4	6,42		0,09	1,48	101,89
40	F15x	PC01	DB08	6,45	6,49	6,39	6,42	4	6,44		0,04	0,66	102,17
41	A60x	PD01	DB08	6,69	6,27	6,03	6,90	4	6,47		0,39	6,09	102,72
42	A85	PD04	DB08	6,53	6,64	6,48	6,37	4	6,51		0,11	1,72	103,24
43	F32x	PD01	DB08	6,63	6,47	6,47	6,52	4	6,52		0,08	1,16	103,52
44	F16x	PC01	DB08	6,54	6,45	6,55	6,59	4	6,53		0,06	0,91	103,65
45	A67	PB05	DB08	6,43	7,06	6,56	6,35	4	6,60		0,32	4,83	104,75
46	F27x	PD04	DB01	6,65	6,55	6,57	6,72	4	6,62		0,08	1,21	105,08
47	F13	PZ02	DD01	6,67	6,65	6,67	6,68	4	6,67		0,01	0,17	105,82
48	F33x	PD01	DB10	6,53	6,80	6,66	6,71	4	6,68		0,11	1,69	105,94
49	F02x	PD02	DB08	6,71	6,68	6,69	6,75	4	6,71		0,03	0,46	106,45
50	A53	PZ02	DD02	6,76	6,85	6,83	6,83	4	6,82		0,04	0,58	108,20
51	A59	PC01	DB08	7,00	7,84	7,42	8,00	0	7,57	b *	0,45	5,94	120,06
52	F28x	PD02	DB08	7,70	7,90	7,50	7,80	0	7,73	b *	0,17	2,21	122,60
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	187	6,30	0,095	1,503
10	% from the mean			
L			SR	VR
47			0,243	3,851

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: K Sample: 2 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	F24x	PB03	DB01	4,00	4,13	4,15	4,21	4	4,12	*	0,09	2,10	83,95
2	A83	PD01	DB08	4,19	4,22	4,037a	4,18	3	4,19	*	0,02	0,51	85,41
3	F26x	PD02	DB09	4,33	4,35	4,34	4,36	4	4,35	*	0,01	0,30	88,52
4	F21	PD01	DB01	4,35	4,40	4,32	4,32	4	4,35	*	0,04	0,87	88,58
5	F11	PD01	DB08	4,38	4,33	4,49	4,47	4	4,42		0,08	1,71	90,00
6	F29x	PB05	DB01	4,24	4,73	4,64	4,56	4	4,54		0,21	4,70	92,55
7	S18	PB03	DB08	4,56	4,51	4,57	4,58	4	4,55		0,03	0,68	92,76
8	A43	PB06	DB01	4,61	4,40	4,61	4,61	4	4,56		0,11	2,30	92,85
9	A82	PD01	DB08	4,63	4,69	4,62	4,69	4	4,66		0,04	0,81	94,89
10	A62x	PC02	DB01	5,08	4,92	4,30	4,37	4	4,67		0,39	8,37	95,09
11	F01x	PB04	DB01	4,56	4,72	4,80	4,59	4	4,67		0,11	2,41	95,09
12	A42	PB04	DB01	5,02	4,87	4,58	4,44	4	4,73		0,26	5,57	96,27
13	A57	PZ98	DD02	4,71	4,73	4,70	4,76	4	4,73		0,03	0,56	96,27
14	A84	PB99	DB01	4,69	4,74	4,79	4,71	4	4,73		0,04	0,92	96,42
15	F22x	PD02	DB02	4,66	4,66	5,04	4,75	4	4,78		0,18	3,77	97,34
16	A61x	PB02	DB08	4,82	4,83	4,84	4,86	4	4,84		0,02	0,35	98,56
17	F07x	PC01	DB08	4,76	4,79	4,85	4,96	4	4,84		0,09	1,85	98,61
18	F03	PB05	DB08	4,88	4,87	4,86	4,84	4	4,86		0,02	0,35	99,07
19	A49x	PD05	DB08	4,50	4,97	4,94	5,07	4	4,87		0,25	5,19	99,22
20	F20x	PD02	DB08	4,95	4,84	4,86	4,89	4	4,89		0,05	0,98	99,53
21	A50	PC01	DB08	4,85	4,85	4,86	5,00	4	4,89		0,07	1,50	99,63
22	F05x	PD02	DB08	4,91	4,88	4,87	4,91	4	4,89		0,02	0,42	99,68
23	A56	PC01	DB08	4,84	4,89	5,02	4,93	4	4,92		0,08	1,57	100,24
24	A60x	PD01	DB08	4,89	4,67	4,77	5,36	4	4,92		0,31	6,23	100,32
25	A47x	PD01	DB08	4,92	4,88	4,89	5,05	4	4,94		0,08	1,59	100,54
26	A58x	PD02	DB01	4,98	4,93	4,91	4,92	4	4,94		0,03	0,63	100,54
27	A71	PB03	DA99	4,99	4,90	4,96	4,94	4	4,95		0,04	0,76	100,80
28	A55	PD02	DB08	5,00	4,94	4,93	4,97	4	4,96		0,03	0,60	101,07
29	F23	PD01	DB06	4,90	4,91	5,03	5,03	4	4,97		0,07	1,46	101,21
30	F06x	PZ99	DB08	4,97	5,02	4,92	4,97	4	4,97		0,04	0,82	101,26
31	F14x	PC01	DB08	4,98	5,02	5,03	5,05	4	5,02		0,03	0,55	102,21
32	F18x	PD01	DB08	5,11	5,12	4,89	4,99	4	5,03		0,11	2,17	102,43
33	A36	PD02	DB08	5,06	5,05	5,03	5,02	4	5,04		0,02	0,36	102,68
34	F12x	PC01	DB08	5,04	5,08	4,99	5,05	4	5,04		0,04	0,74	102,68
35	A45x	PE99	DB08	5,09	5,07	5,05	5,00	4	5,05		0,04	0,76	102,94
36	A39	PD02	DB08	5,21	4,98	4,84	5,20	4	5,06		0,18	3,55	103,02
37	A67	PB05	DB08	4,93	5,20	5,15	4,99	4	5,07		0,13	2,53	103,24
38	F32x	PD01	DB08	5,07	5,03	5,07	5,16	4	5,08		0,05	1,08	103,55
39	A59	PC01	DB08	4,39	4,45	5,63	5,92	0	5,10	c	0,79	15,53	103,86
40	F27x	PD04	DB01	5,12	5,19	5,07	5,02	4	5,10		0,07	1,39	103,91
41	A65	PD01	DB08	5,10	5,10	5,10	5,20	4	5,13		0,05	0,98	104,42
42	F08x	PD01	DB09	5,10	5,20	5,13	5,15	4	5,14		0,04	0,87	104,78
43	F19x	PD02	DB08	5,23	5,10	5,15	5,10	4	5,15		0,06	1,19	104,82
44	F09x	PZ02	DD02	5,16	5,13	5,18	5,15	4	5,16		0,02	0,40	105,03
45	F33x	PD01	DB10	5,31	5,17	5,09	5,05	4	5,16		0,11	2,23	105,03
46	F16x	PC01	DB08	5,26	5,17	5,08	5,11	4	5,16		0,08	1,58	105,04
47	F15x	PC01	DB08	5,16	5,18	5,24	5,18	4	5,19		0,03	0,67	105,74
48	F02x	PD02	DB08	5,14	5,22	5,16	5,26	4	5,20		0,06	1,06	105,84
49	A85	PD04	DB08	5,27	5,22	5,28	5,16	4	5,23		0,05	1,05	106,61
50	F13	PZ02	DD01	5,29	5,33	5,34	5,36	4	5,33		0,03	0,55	108,59
51	A53	PZ02	DD02	5,46	5,45	5,60	5,46	4	5,49	*	0,07	1,31	111,90
52	F28x	PD02	DB08	5,60	5,50	5,80	5,80	4	5,68	*	0,15	2,64	115,62
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	203	4,91	0,084	1,703
10	% from the mean			
	L		SR	VR
	51		0,304	6,198

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: K Sample: 3 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	5,33	5,34	5,064a	5,28	3	5,32	0,03	0,62	85,94
2	F24x	PB03	DB01	5,10	5,44	5,40	5,10	4	5,26	0,19	3,55	85,05
3	F21	PD01	DB01	5,30	5,29	5,23	5,36	4	5,30	0,05	1,01	85,57
4	F11	PD01	DB08	5,53	5,55	5,55	5,45	4	5,52	0,05	0,86	89,20
5	A84	PB99	DB01	5,50	5,82	5,84	5,28	4	5,61	0,27	4,81	90,66
6	S18	PB03	DB08	5,69	5,65	5,65	5,69	4	5,67	0,02	0,40	91,62
7	A82	PD01	DB08	5,70	5,70	5,70	5,81	4	5,73	0,05	0,96	92,56
8	F22x	PD02	DB02	5,93	5,78	5,84	5,90	4	5,86	0,07	1,13	94,74
9	A62x	PC02	DB01	5,90	5,81	6,11	5,93	4	5,94	0,13	2,12	95,95
10	A43	PB06	DB01	6,00	6,11	5,84	6,00	4	5,99	0,11	1,81	96,78
11	A71	PB03	DA99	6,01	6,00	6,00	6,00	4	6,00	0,00	0,08	97,00
12	F05x	PD02	DB08	6,04	6,03	6,01	6,01	4	6,02	0,02	0,25	97,32
13	F23	PD01	DB06	5,93	6,12	5,89	6,20	4	6,04	0,15	2,47	97,53
14	F06x	PZ99	DB08	5,97	6,09	6,06	6,03	4	6,04	0,05	0,85	97,57
15	F03	PB05	DB08	6,07	6,08	6,07	6,11	4	6,08	0,02	0,31	98,29
16	F29x	PB05	DB01	5,41	6,15	6,46	6,36	4	6,10	0,47	7,79	98,49
17	F01x	PB04	DB01	5,96	6,05	6,16	6,28	4	6,11	0,14	2,26	98,78
18	A55	PD02	DB08	6,08	6,13	6,15	6,13	4	6,12	0,03	0,50	98,92
19	A61x	PB02	DB08	6,23	6,11	6,14	6,15	4	6,16	0,05	0,83	99,50
20	F07x	PC01	DB08	6,06	6,23	6,26	6,21	4	6,19	0,09	1,43	100,03
21	F26x	PD02	DB09	6,23	6,18	6,22	6,16	4	6,20	0,03	0,53	100,15
22	F18x	PD01	DB08	6,22	6,18	6,18	6,29	4	6,22	0,05	0,83	100,47
23	F20x	PD02	DB08	6,20	6,23	6,13	6,32	4	6,22	0,08	1,27	100,51
24	F14x	PC01	DB08	6,26	6,21	6,25	6,23	4	6,24	0,02	0,37	100,77
25	A58x	PD02	DB01	6,18	6,26	6,28	6,24	4	6,24	0,04	0,69	100,84
26	A45x	PE99	DB08	6,19	6,22	6,24	6,32	4	6,24	0,06	0,89	100,88
27	A42	PB04	DB01	6,34	6,21	6,18	6,27	4	6,25	0,07	1,10	101,02
28	A56	PC01	DB08	6,26	6,32	6,26	6,25	4	6,27	0,03	0,49	101,34
29	F33x	PD01	DB10	6,13	6,32	6,24	6,40	4	6,27	0,12	1,84	101,36
30	F19x	PD02	DB08	6,44	6,42	5,96	6,35	4	6,29	0,22	3,58	101,69
31	A57	PZ98	DD02	6,20	6,26	6,32	6,39	4	6,29	0,08	1,29	101,69
32	A60x	PD01	DB08	6,48	5,90	6,06	6,78	4	6,31	0,40	6,41	101,89
33	F12x	PC01	DB08	6,31	6,28	6,30	6,36	4	6,31	0,03	0,54	102,01
34	F08x	PD01	DB09	6,31	6,34	6,30	6,33	4	6,32	0,02	0,31	102,07
35	A47x	PD01	DB08	6,39	6,28	6,39	6,21	4	6,32	0,09	1,40	102,09
36	F13	PZ02	DD01	6,32	6,33	6,36	6,30	4	6,33	0,02	0,36	102,22
37	A50	PC01	DB08	6,47	6,18	6,36	6,40	4	6,35	0,12	1,95	102,66
38	F09x	PZ02	DD02	6,30	6,35	6,41	6,39	4	6,36	0,05	0,76	102,82
39	A36	PD02	DB08	6,37	6,41	6,43	6,34	4	6,39	0,04	0,63	103,22
40	A49x	PD05	DB08	6,21	6,52	6,30	6,56	4	6,40	0,17	2,65	103,38
41	F15x	PC01	DB08	6,38	6,46	6,48	6,41	4	6,43	0,05	0,71	103,95
42	F32x	PD01	DB08	6,47	6,45	6,45	6,47	4	6,46	0,01	0,18	104,39
43	A65	PD01	DB08	6,50	6,50	6,50	6,50	4	6,50	0,00	0,00	105,04
44	A53	PZ02	DD02	6,75	6,80	6,75	5,73	4	6,51	0,52	7,97	105,16
45	A67	PB05	DB08	6,56	6,46	6,37	6,66	4	6,51	0,13	1,92	105,24
46	F27x	PD04	DB01	6,51	6,65	6,49	6,56	4	6,55	0,07	1,09	105,84
47	F16x	PC01	DB08	6,51	6,55	6,60	6,58	4	6,56	0,04	0,56	105,98
48	F02x	PD02	DB08	6,56	6,49	6,65	6,54	4	6,56	0,07	1,02	106,01
49	A39	PD02	DB08	6,60	6,61	6,53	6,68	4	6,60	0,06	0,92	106,73
50	A85	PD04	DB08	6,56	6,64	6,85	6,41	4	6,62	0,18	2,77	106,90
51	F28x	PD02	DB08	6,50	6,80	6,90	6,60	4	6,70	0,18	2,72	108,27
52	A59	PC01	DB08	6,90	7,54a	6,85	6,89	3	6,88	0,03	0,38	111,18
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	206	6,19	0,098	1,578
10	% from the mean			
	L		SR	VR
	52		0,350	5,650

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: K Sample: 4 Unit: mg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	F21	PD01	DB01	10,14	10,16	10,01	10,01	4	10,08	*	0,08	0,81	83,62
2	A83	PD01	DB08	10,36	10,22	10,23	10,26	4	10,27	*	0,06	0,62	85,18
3	F06x	PZ99	DB08	10,70	10,50	10,40	10,60	4	10,55	*	0,13	1,22	87,52
4	A82	PD01	DB08	10,70	10,80	10,60	10,80	4	10,73	*	0,10	0,89	88,97
5	F26x	PD02	DB09	10,64	10,96	10,85	10,76	4	10,80	*	0,14	1,26	89,61
6	F11	PD01	DB08	10,90	10,80	10,90	10,90	4	10,88		0,05	0,46	90,21
7	A43	PB06	DB01	11,21	10,90	11,32	11,13	4	11,14		0,18	1,60	92,41
8	S18	PB03	DB08	11,26	11,30	11,33	11,28	4	11,29		0,03	0,26	93,68
9	A62x	PC02	DB01	11,41	11,98	10,65	11,18	4	11,31		0,55	4,88	93,78
10	F22x	PD02	DB02	11,61	11,21	11,39	11,47	4	11,42		0,17	1,46	94,74
11	F24x	PB03	DB01	11,40	11,50	11,48	11,45	4	11,46		0,04	0,38	95,04
12	F29x	PB05	DB01	12,10	11,89	11,86	10,94	4	11,70		0,52	4,41	97,04
13	A57	PZ98	DD02	11,73	11,71	11,58	11,78	4	11,70		0,09	0,73	97,06
14	A84	PB99	DB01	11,85	11,80	11,98	11,23	4	11,72		0,33	2,83	97,18
15	F05x	PD02	DB08	11,86	11,80	11,84	11,74	4	11,81		0,05	0,45	97,97
16	F13	PZ02	DD01	11,83	11,87	11,78	11,83	4	11,83		0,04	0,31	98,12
17	F03	PB05	DB08	11,28	12,10	12,13	11,89	4	11,85		0,39	3,33	98,30
18	F09x	PZ02	DD02	11,81	11,87	11,85	11,95	4	11,87		0,06	0,50	98,47
19	F01x	PB04	DB01	11,56	12,23	12,34	11,58	4	11,93		0,42	3,48	98,95
20	A61x	PB02	DB08	11,76	11,91	11,99	12,08	4	11,94		0,14	1,14	99,01
21	F15x	PC01	DB08	12,09	11,98	11,79	11,92	4	11,95		0,13	1,05	99,09
22	F07x	PC01	DB08	11,84	12,21	11,83	11,96	4	11,96		0,18	1,48	99,22
23	F14x	PC01	DB08	11,74	12,02	12,08	12,16	4	12,00		0,18	1,52	99,55
24	A42	PB04	DB01	12,03	11,95	11,96	12,12	4	12,02		0,08	0,66	99,67
25	F20x	PD02	DB08	12,10	12,10	12,00	12,00	4	12,05		0,06	0,48	99,96
26	F08x	PD01	DB09	12,07	12,11	12,05	12,08	4	12,08		0,02	0,19	100,17
27	F18x	PD01	DB08	12,00	12,10	12,30	12,10	4	12,13		0,13	1,04	100,58
28	A58x	PD02	DB01	12,15	12,18	12,07	12,25	4	12,16		0,07	0,61	100,90
29	A56	PC01	DB08	12,09	12,10	12,12	12,53	4	12,21		0,21	1,73	101,31
30	F32x	PD01	DB08	12,20	12,30	12,20	12,20	4	12,23		0,05	0,41	101,41
31	A65	PD01	DB08	12,40	12,10	12,40	12,30	4	12,30		0,14	1,15	102,04
32	A45x	PE99	DB08	12,30	12,20	12,30	12,40	4	12,30		0,08	0,66	102,04
33	A36	PD02	DB08	12,30	12,30	12,30	12,30	4	12,30		0,00	0,00	102,04
34	F12x	PC01	DB08	12,45	12,33	12,35	12,35	4	12,37		0,05	0,44	102,62
35	F33x	PD01	DB10	13,03	12,67	12,25	11,77	4	12,43		0,54	4,37	103,11
36	A47x	PD01	DB08	12,32	12,25	12,52	12,78	4	12,47		0,24	1,91	103,43
37	F19x	PD02	DB08	12,30	12,60	12,30	12,80	4	12,50		0,24	1,96	103,70
38	A59	PC01	DB08	9,88a	12,40	12,70	12,50	3	12,53		0,15	1,22	103,97
39	A85	PD04	DB08	12,67	12,75	12,78	12,09	4	12,57		0,32	2,59	104,30
40	A50	PC01	DB08	12,50	12,66	12,68	12,50	4	12,59		0,10	0,78	104,40
41	F23	PD01	DB06	12,70	12,50	12,60	12,70	4	12,63		0,10	0,76	104,73
42	A55	PD02	DB08	12,72	12,58	12,67	12,58	4	12,64		0,07	0,55	104,84
43	A71	PB03	DA99	12,45	12,76	12,82	12,67	4	12,68		0,16	1,28	105,15
44	F28x	PD02	DB08	12,60	12,80	12,50	12,80	4	12,68		0,15	1,18	105,15
45	A60x	PD01	DB08	12,76	12,06	11,82	14,52	4	12,79		1,22	9,54	106,10
46	F02x	PD02	DB08	12,82	12,75	12,92	12,89	4	12,85		0,08	0,59	106,56
47	A39	PD02	DB08	12,92	13,16	12,82	13,00	4	12,98		0,14	1,11	107,64
48	F27x	PD04	DB01	13,14	13,01	13,02	13,14	4	13,08		0,07	0,55	108,49
49	A49x	PD05	DB08	12,44	13,97	13,09	12,99	4	13,12		0,63	4,82	108,86
50	F16x	PC01	DB08	12,90	13,34	12,99	13,35	4	13,15		0,23	1,78	109,05
51	A53	PZ02	DD02	13,26	13,24	13,36	13,40	4	13,32	*	0,08	0,58	110,46
52	A67	PB05	DB08	13,90	13,90	13,50	13,50	4	13,70	*	0,23	1,69	113,65
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	207	12,05	0,187	1,548
10	% from the mean			
	L		SR	VR
52			0,769	6,382

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

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

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	A47x	PZ98	DA01	49,61	49,58	49,79	49,72	4	49,68	0,10	0,20	95,51	
2	A59	PZ98	DA02	49,73	49,66	49,74	49,63	4	49,69	0,05	0,11	95,54	
3	F15x	PZ98	DA01	49,92	49,94	49,87	49,93	4	49,92	0,03	0,06	95,97	
4	A56	PZ98	DA02	50,19	50,14	49,92	50,09	4	50,08	0,12	0,23	96,30	
5	A62x	PZ98	DA01	50,32	50,26	50,35	50,12	4	50,26	0,10	0,20	96,64	
6	A49x	PZ98	DA02	50,67	50,68	50,41	50,48	4	50,56	0,14	0,27	97,21	
7	F03	PZ98	DA01	50,72	50,76	50,81	50,76	4	50,76	0,04	0,07	97,60	
8	A50	PZ98	DA02	50,84	50,89	50,67	50,77	4	50,79	0,10	0,19	97,66	
9	A83	PZ98	DA01	50,87	50,90	50,82	50,81	4	50,85	0,04	0,08	97,77	
10	F06x	PZ98	DA02	51,53	51,15	51,16	51,52	4	51,34	0,21	0,42	98,71	
11	F18x	PZ98	DA99	51,00	51,00	52,00	52,00	4	51,50	0,58	1,12	99,02	
12	F22x	PZ98	DA02	51,58	51,51	51,49	51,46	4	51,51	0,05	0,10	99,04	
13	A45x	PZ98	DA01	51,50	51,50	51,40	51,70	4	51,53	0,13	0,24	99,07	
14	F32x	PZ98	DA01	51,60	51,60	51,60	51,60	4	51,60	0,00	0,00	99,21	
15	F11	PZ98	DA01	51,70	51,80	51,60	51,70	4	51,70	0,08	0,16	99,40	
16	A84	PZ98	DA02	51,68	51,58	51,80	51,75	4	51,70	0,10	0,19	99,41	
17	A57	PZ98	DA01	51,93	51,71	51,80	51,62	4	51,77	0,13	0,26	99,53	
18	A39	PZ98	DA02	51,83	51,76	51,89	51,86	4	51,83	0,06	0,11	99,66	
19	F08x	PZ98	DA01	51,93	51,87	51,75	51,79	4	51,84	0,08	0,16	99,66	
20	F21	PZ98	DA02	51,96	51,75	51,89	51,84	4	51,86	0,09	0,17	99,71	
21	F13	PZ98	DA01	51,92	51,87	51,98	51,80	4	51,89	0,08	0,15	99,77	
22	A65	PZ98	DA02	52,00	52,30	51,20	52,10	4	51,90	0,48	0,93	99,79	
23	A85	PZ99	DA01	52,07	52,01	51,99	51,98	4	52,01	0,04	0,08	100,00	
24	A61x	PZ98	DA02	52,04	52,10	52,24	51,97	4	52,09	0,11	0,22	100,15	
25	F05x	PZ98	DA01	52,16	52,14	52,09	52,16	4	52,14	0,03	0,06	100,24	
26	F16x	PZ98	DA02	52,14	52,18	52,50	52,04	4	52,22	0,20	0,38	100,39	
27	F28x	PZ98	DA02	52,10	52,20	52,30	52,30	4	52,23	0,10	0,18	100,41	
28	F07x	PZ98	DA01	52,31	52,39	52,33	52,24	4	52,32	0,06	0,12	100,59	
29	A60x	PZ98	DA02	52,43	52,26	52,29	52,42	4	52,35	0,08	0,16	100,65	
30	F14x	PZ98	DA01	52,55	52,44	52,23	52,34	4	52,39	0,14	0,26	100,73	
31	F23	PZ98	DA02	53,33	52,15	52,18	52,27	4	52,48	0,57	1,08	100,91	
32	F12x	PZ98	DA02	51,86	52,42	52,42	53,63	4	52,58	0,75	1,42	101,10	
33	F19x	PZ98	DA01	52,60	52,40	52,80	52,90	4	52,68	0,22	0,42	101,28	
34	S18	PZ98	DA01	52,75	52,82	52,53	52,62	4	52,68	0,13	0,25	101,29	
35	A82	PZ98	DA02	52,80	53,00	52,60	52,80	4	52,80	0,16	0,31	101,52	
36	F27x	PZ98	DA01	52,89	52,79	52,89	52,79	4	52,84	0,06	0,11	101,59	
37	A58x	PZ98	DA02	52,81	52,95	52,81	53,02	4	52,90	0,11	0,20	101,70	
38	F33x	PZ98	DA02	52,91	53,07	52,94	52,88	4	52,95	0,08	0,16	101,81	
39	A42	PZ98	DA01	53,33	53,14	53,33	53,24	4	53,26	0,09	0,17	102,40	
40	F26x	PZ98	DB07	53,10	53,50	53,30	53,40	4	53,33	0,17	0,32	102,53	
41	F02x	PZ98	DA01	53,60	53,44	53,69	53,51	4	53,56	0,11	0,20	102,98	
42	A55	PZ98	DA01	53,04	53,90	53,79	54,00	4	53,68	0,44	0,81	103,21	
43	A71	PB99	DA99	53,69	53,85	53,71	53,89	4	53,79	0,10	0,19	103,41	
44	F29x	PZ98	DA02	52,25	53,78	55,18	54,15	4	53,84	1,21	2,26	103,52	
45	F24x	PZ98	DA01	54,82	54,90	54,83	54,84	4	54,85	*	0,04	0,07	105,45
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	180	52,01	0,173	0,332
5	% from the mean			
L			SR	VR
45			1,149	2,210

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

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

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	A47x	PZ98	DA01	47,89	48,34	48,70	48,23	4	48,29	*	0,33	0,69	94,27
2	A59	PZ98	DA02	48,64	48,52	48,65	48,51	4	48,58	*	0,08	0,15	94,83
3	F15x	PZ98	DA01	49,03	49,13	49,17	49,07	4	49,10		0,06	0,13	95,85
4	A56	PZ98	DA02	49,27	49,28	49,28	49,24	4	49,27		0,02	0,04	96,18
5	A62x	PZ98	DA01	49,22	49,37	49,35	49,28	4	49,31		0,07	0,14	96,25
6	A49x	PZ98	DA02	49,38	49,38	49,29	49,59	4	49,41		0,13	0,26	96,45
7	A50	PZ98	DA02	49,98	49,78	49,91	49,68	4	49,84		0,13	0,27	97,29
8	A83	PZ98	DA01	49,97	49,93	49,90	50,01	4	49,95		0,05	0,10	97,51
9	F07x	PZ98	DA01	50,23	49,92	49,62	50,33	4	50,03		0,32	0,64	97,66
10	F03	PZ98	DA01	50,72	50,71	50,69	50,71	4	50,71		0,01	0,02	98,99
11	F06x	PZ98	DA02	50,93	50,82	50,57	50,52	4	50,71		0,20	0,39	98,99
12	F28x	PZ98	DA02	50,70	50,80	50,50	50,90	4	50,73		0,17	0,34	99,02
13	A45x	PZ98	DA01	51,10	50,90	50,60	50,60	4	50,80		0,24	0,48	99,17
14	F32x	PZ98	DA01	50,90	51,00	50,90	51,00	4	50,95		0,06	0,11	99,46
15	A55	PZ98	DA01	51,39	50,86	50,65	51,39	4	51,07		0,38	0,74	99,70
16	F21	PZ98	DA02	51,16	51,04	51,07	51,07	4	51,09		0,05	0,10	99,72
17	F13	PZ98	DA01	51,12	51,17	51,21	51,13	4	51,16		0,04	0,08	99,87
18	F11	PZ98	DA01	51,20	51,20	51,10	51,20	4	51,18		0,05	0,10	99,90
19	A61x	PZ98	DA02	51,10	51,17	51,24	51,21	4	51,18		0,06	0,12	99,91
20	A84	PZ98	DA02	51,19	51,32	51,29	50,98	4	51,20		0,15	0,30	99,94
21	F22x	PZ98	DA02	51,25	51,20	51,12	51,26	4	51,21		0,06	0,12	99,96
22	F08x	PZ98	DA01	51,23	51,32	51,12	51,19	4	51,22		0,08	0,16	99,98
23	A57	PZ98	DA01	52,69	51,17	50,74	50,36	4	51,24		1,02	1,99	100,03
24	A85	PZ99	DA01	51,38	51,38	51,31	51,35	4	51,36		0,03	0,06	100,25
25	A39	PZ98	DA02	51,38	51,24	51,46	51,35	4	51,36		0,09	0,18	100,25
26	A60x	PZ98	DA02	51,55	51,33	51,31	51,35	4	51,38		0,11	0,22	100,31
27	F05x	PZ98	DA01	51,38	51,47	51,46	51,41	4	51,43		0,04	0,08	100,40
28	F18x	PZ98	DA99	51,00	51,00	52,00	52,00	4	51,50		0,58	1,12	100,53
29	F16x	PZ98	DA02	51,42	51,62	51,52	51,52	4	51,52		0,08	0,16	100,57
30	F33x	PZ98	DA02	51,61	51,59	51,60	51,59	4	51,60		0,01	0,02	100,72
31	A65	PZ98	DA02	51,60	51,70	51,80	51,50	4	51,65		0,13	0,25	100,83
32	F14x	PZ98	DA01	51,76	51,76	51,65	51,44	4	51,65		0,15	0,29	100,83
33	F29x	PZ98	DA02	51,47	51,40	52,37	55,86σ	3	51,75		0,54	1,05	101,02
34	F19x	PZ98	DA01	51,70	52,00	51,80	52,00	4	51,88		0,15	0,29	101,27
35	S18	PZ98	DA01	52,29	51,83	51,89	51,93	4	51,99		0,21	0,40	101,48
36	F12x	PZ98	DA02	51,40	51,83	52,07	52,83	4	52,03		0,60	1,15	101,57
37	A82	PZ98	DA02	52,10	52,00	52,40	52,20	4	52,18		0,17	0,33	101,85
38	F23	PZ98	DA02	51,75	51,92	52,95	52,55	4	52,29		0,56	1,07	102,08
39	F27x	PZ98	DA01	52,11	52,22	52,43	52,54	4	52,33		0,20	0,37	102,14
40	A58x	PZ98	DA02	52,43	52,42	52,41	52,43	4	52,42		0,01	0,02	102,34
41	F26x	PZ98	DB07	52,90	53,10	52,90	52,80	4	52,93		0,13	0,24	103,32
42	A42	PZ98	DA01	52,96	53,05	53,05	53,14	4	53,05		0,08	0,14	103,56
43	F02x	PZ98	DA01	53,10	53,09	52,92	53,52	4	53,16		0,26	0,48	103,77
44	A71	PB99	DA99	53,64	53,69	53,65	53,64	4	53,66		0,02	0,04	104,74
45	F24x	PZ98	DA01	54,08	53,88	53,95	54,23	4	54,04	*	0,15	0,29	105,48
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	179	51,23	0,179	0,350
5	% from the mean			
	L		SR	VR
	45		1,245	2,429

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

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

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	A47x	PZ98	DA01	47,93	47,85	47,84	47,99	4	47,90	*	0,07	0,15	94,08
2	A59	PZ98	DA02	48,26	48,39	48,27	48,38	4	48,33	*	0,07	0,14	94,91
3	F15x	PZ98	DA01	48,69	48,82	48,76	48,69	4	48,74		0,06	0,13	95,72
4	A56	PZ98	DA02	48,88	48,80	48,72	48,90	4	48,83		0,08	0,17	95,89
5	A62x	PZ98	DA01	48,90	48,79	48,99	48,94	4	48,91		0,09	0,17	96,04
6	A49x	PZ98	DA02	49,25	49,16	48,96	49,15	4	49,13		0,12	0,25	96,49
7	A50	PZ98	DA02	49,80	49,74	49,71	49,74	4	49,75		0,04	0,08	97,70
8	A83	PZ98	DA01	49,84	49,86	49,89	49,79	4	49,85		0,04	0,08	97,89
9	F11	PZ98	DA01	50,20	50,30	50,30	50,30	4	50,28		0,05	0,10	98,74
10	F07x	PZ98	DA01	50,67	50,16	50,53	49,78	4	50,29		0,40	0,79	98,75
11	A57	PZ98	DA01	51,42	50,14	50,06	49,86	4	50,37		0,71	1,41	98,92
12	A71	PB99	DA99	50,70	50,60	50,31	50,36	4	50,49		0,19	0,37	99,16
13	A45x	PZ98	DA01	50,80	50,60	50,70	50,90	4	50,75		0,13	0,25	99,67
14	F08x	PZ98	DA01	50,83	50,93	50,66	50,79	4	50,80		0,11	0,22	99,77
15	A39	PZ98	DA02	50,81	50,81	50,85	50,86	4	50,83		0,03	0,05	99,83
16	A61x	PZ98	DA02	50,95	50,86	50,91	50,77	4	50,87		0,08	0,15	99,91
17	F13	PZ98	DA01	50,82	50,94	50,78	50,97	4	50,88		0,09	0,18	99,92
18	F32x	PZ98	DA01	50,90	50,90	50,90	50,90	4	50,90		0,00	0,00	99,96
19	F21	PZ98	DA02	51,06	50,83	50,91	50,96	4	50,94		0,10	0,19	100,04
20	A60x	PZ98	DA02	51,31	50,67	50,86	50,96	4	50,95		0,27	0,52	100,06
21	F22x	PZ98	DA02	51,17	50,99	50,89	50,87	4	50,98		0,14	0,27	100,12
22	A55	PZ98	DA01	51,01	51,01	50,80	51,11	4	50,98		0,13	0,26	100,12
23	A84	PZ98	DA02	50,95	51,11	51,44	50,79	4	51,07		0,28	0,54	100,30
24	F06x	PZ98	DA02	51,30	51,39	51,05	51,02	4	51,19		0,18	0,36	100,53
25	F05x	PZ98	DA01	51,22	51,21	51,19	51,19	4	51,20		0,02	0,03	100,56
26	F18x	PZ98	DA99	51,00	51,00	52,00	51,00	4	51,25		0,50	0,98	100,65
27	F23	PZ98	DA02	52,15	51,39	50,96	50,53	4	51,26		0,69	1,35	100,66
28	F28x	PZ98	DA02	51,40	51,30	51,30	51,10	4	51,28		0,13	0,25	100,70
29	F16x	PZ98	DA02	51,39	51,21	51,15	51,47	4	51,31		0,15	0,29	100,76
30	A85	PZ99	DA01	51,67	51,13	51,13	51,33	4	51,32		0,25	0,50	100,78
31	A65	PZ98	DA02	51,40	51,50	51,40	51,30	4	51,40		0,08	0,16	100,94
32	F33x	PZ98	DA02	51,52	51,54	51,55	51,37	4	51,50		0,08	0,16	101,13
33	F14x	PZ98	DA01	51,61	51,50	51,72	51,50	4	51,58		0,11	0,20	101,30
34	A82	PZ98	DA02	51,70	51,80	51,50	51,50	4	51,63		0,15	0,29	101,39
35	F29x	PZ98	DA02	51,28	50,31	54,03	50,94	4	51,64		1,64	3,18	101,42
36	F19x	PZ98	DA01	51,60	51,80	51,60	51,70	4	51,68		0,10	0,19	101,48
37	F12x	PZ98	DA02	51,54	51,65	52,08	52,17	4	51,86		0,31	0,60	101,85
38	S18	PZ98	DA01	51,94	52,24	51,66	51,87	4	51,93		0,24	0,46	101,98
39	F27x	PZ98	DA01	51,86	51,97	52,08	51,97	4	51,97		0,09	0,17	102,06
40	F03	PZ98	DA01	52,05	52,00	52,02	52,02	4	52,02		0,02	0,04	102,17
41	A58x	PZ98	DA02	52,24	52,26	52,20	52,23	4	52,23		0,02	0,05	102,58
42	F26x	PZ98	DB07	52,80	52,90	52,70	52,80	4	52,80		0,08	0,15	103,69
43	A42	PZ98	DA01	52,96	52,96	52,77	52,67	4	52,84		0,14	0,27	103,77
44	F02x	PZ98	DA01	53,88	53,82	53,67	53,72	4	53,77	*	0,10	0,18	105,60
45	F24x	PZ98	DA01	54,78a	54,96	54,98	55,01	0	54,98	b *	0,03	0,05	107,98
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	176	50,92	0,190	0,373
5	% from the mean			
L			SR	VR
44			1,190	2,336

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

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

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery		
		P	D	1	2	3	4			Si	Vi		%	
1	A45x	PZ98	DA01	6,82	6,86	6,78	6,77	0	6,81	b	*	0,04	0,60	13,74
2	A59	PZ98	DA02	45,93	46,26	46,07	46,09	4	46,09		*	0,14	0,29	93,03
3	A47x	PZ98	DA01	46,30	46,21	46,22	46,35	4	46,27		*	0,07	0,14	93,40
4	F15x	PZ98	DA01	46,70	46,89	46,77	46,63	4	46,75		*	0,11	0,24	94,37
5	A56	PZ98	DA02	47,28	46,80	47,07	46,74	4	46,97		*	0,25	0,53	94,82
6	A62x	PZ98	DA01	47,19	47,03	47,07	47,07	4	47,09			0,07	0,15	95,06
7	A49x	PZ98	DA02	47,87	47,64	47,21	46,90	4	47,41			0,43	0,92	95,69
8	A50	PZ98	DA02	48,13	48,05	48,18	48,17	4	48,13			0,06	0,12	97,16
9	A83	PZ98	DA01	48,24	48,32	48,28	48,28	4	48,28			0,03	0,07	97,46
10	A71	PB99	DA99	48,27	48,52	48,85	48,01	4	48,41			0,36	0,74	97,73
11	F28x	PZ98	DA02	48,50	48,60	48,70	49,00	4	48,70			0,22	0,44	98,31
12	F11	PZ98	DA01	49,00	49,00	49,00	49,00	4	49,00			0,00	0,00	98,91
13	A60x	PZ98	DA02	49,32	49,18	48,84	49,33	4	49,17			0,23	0,46	99,25
14	A84	PZ98	DA02	49,51	49,31	49,65	49,60	4	49,52			0,15	0,30	99,95
15	A61x	PZ98	DA02	49,49	49,55	49,64	49,46	4	49,54			0,08	0,16	99,99
16	F06x	PZ98	DA02	49,77	49,74	49,27	49,38	4	49,54			0,25	0,51	100,00
17	F21	PZ98	DA02	49,61	49,46	49,57	49,63	4	49,57			0,08	0,15	100,06
18	A57	PZ98	DA01	49,61	49,25	49,49	50,02	4	49,59			0,32	0,65	100,11
19	F32x	PZ98	DA01	49,60	49,70	49,60	49,70	4	49,65			0,06	0,12	100,23
20	F07x	PZ98	DA01	50,45	49,39	49,58	49,22	4	49,66			0,55	1,10	100,25
21	F18x	PZ98	DA99	50,00	50,00	50,00	49,00	4	49,75			0,50	1,01	100,43
22	F22x	PZ98	DA02	49,85	49,77	49,65	49,78	4	49,76			0,08	0,17	100,45
23	A39	PZ98	DA02	49,71	49,75	49,82	49,85	4	49,78			0,06	0,13	100,49
24	F08x	PZ98	DA01	49,89	49,77	49,68	49,80	4	49,79			0,09	0,17	100,50
25	F13	PZ98	DA01	49,74	49,80	49,80	49,86	4	49,80			0,05	0,10	100,53
26	F33x	PZ98	DA02	49,92	49,85	49,80	49,75	4	49,83			0,07	0,15	100,59
27	A85	PZ99	DA01	49,88	49,87	49,90	49,89	4	49,89			0,01	0,03	100,70
28	F29x	PZ98	DA02	49,46	49,89	50,18	50,07	4	49,90			0,32	0,63	100,73
29	A65	PZ98	DA02	50,10	49,90	49,50	50,20	4	49,93			0,31	0,62	100,78
30	F16x	PZ98	DA02	50,07	50,23	49,95	49,67	4	49,98			0,24	0,47	100,89
31	F05x	PZ98	DA01	50,01	50,09	50,12	50,02	4	50,06			0,05	0,11	101,05
32	F03	PZ98	DA01	50,10	50,07	50,08	50,08	4	50,08			0,01	0,03	101,10
33	F14x	PZ98	DA01	50,37	49,93	50,04	50,15	4	50,12			0,19	0,37	101,18
34	F23	PZ98	DA02	51,34	50,78	49,59	49,71	4	50,36			0,85	1,68	101,65
35	A82	PZ98	DA02	50,30	50,50	50,60	50,30	4	50,43			0,15	0,30	101,79
36	F12x	PZ98	DA02	50,05	50,46	50,70	50,78	4	50,50			0,33	0,65	101,94
37	S18	PZ98	DA01	50,43	50,41	50,51	50,65	4	50,50			0,11	0,22	101,94
38	A55	PZ98	DA01	50,47	50,79	50,04	51,00	4	50,58			0,42	0,83	102,09
39	F19x	PZ98	DA01	50,70	50,80	50,60	50,60	4	50,68			0,10	0,19	102,30
40	A58x	PZ98	DA02	50,82	50,87	50,75	50,92	4	50,84			0,07	0,14	102,63
41	F27x	PZ98	DA01	50,88	50,88	50,99	51,10	4	50,96			0,11	0,21	102,88
42	F02x	PZ98	DA01	51,37	51,35	51,36	51,28	4	51,34			0,04	0,08	103,64
43	A42	PZ98	DA01	51,83	51,92	51,55	51,45	4	51,69			0,22	0,43	104,34
44	F26x	PZ98	DB07	51,80	51,80	51,70	51,70	4	51,75			0,06	0,11	104,47
45	F24x	PZ98	DA01	51,99	52,08	52,08	52,13	4	52,07		*	0,06	0,11	105,11
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	176	49,54	0,180	0,364
5	% from the mean			
	L		SR	VR
	44		1,397	2,820

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Zn Sample: 1 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	31,46	32,06	30,65	31,31	0	31,37 b *	0,58	1,85	76,69
2	F29x	PB05	DB10	35,78	35,06	31,53	34,21	4	34,15 *	1,86	5,44	83,47
3	F06x	PD02	DB08	36,00	36,10	36,40	35,30	4	35,95	0,47	1,29	87,89
4	A80	PD03	DB10	36,80	35,50	37,30	36,30	4	36,48	0,77	2,10	89,17
5	A39	PD02	DB08	36,52	36,00	37,77	36,08	4	36,59	0,82	2,23	89,46
6	F27	PD04	DB01	35,62	37,75	37,04	37,91	4	37,08	1,04	2,82	90,65
7	F07x	PC01	DB08	37,56	35,38	38,06	38,82	4	37,46	1,48	3,94	91,56
8	A61x	PB02	DB08	37,80	38,70	39,10	38,40	4	38,50	0,55	1,42	94,12
9	F20x	PD02	DB08	38,80	38,30	38,60	38,40	4	38,53	0,22	0,58	94,18
10	A55	PD02	DB10	38,97	38,35	38,55	38,36	4	38,56	0,29	0,75	94,26
11	F18x	PD01	DB10	38,50	38,50	38,60	38,90	4	38,63	0,19	0,49	94,42
12	A84	PB99	DB01	39,44	39,73	39,58	39,61	4	39,59	0,12	0,30	96,78
13	A67	PB05	DB08	39,30	40,00	48,3σ	39,70	3	39,67	0,35	0,89	96,97
14	F19x	PD02	DB08	40,60	40,00	39,80	39,20	4	39,90	0,58	1,45	97,54
15	A45x	PE99	DB08	40,00	39,70	40,00	40,30	4	40,00	0,24	0,61	97,79
16	A58x	PD02	DB01	40,78	40,20	41,14	39,37	4	40,37	0,77	1,91	98,70
17	A49	PD05	DB08	40,65	39,92	41,15	41,01	4	40,68	0,55	1,35	99,45
18	F14x	PC01	DB08	40,46	40,51	41,26	41,24	4	40,87	0,44	1,08	99,91
19	F08x	PD01	DB10	41,45	41,45	40,71	40,29	4	40,98	0,57	1,39	100,17
20	F02x	PD02	DB08	40,60	41,00	41,20	41,20	4	41,00	0,28	0,69	100,23
21	A79	PD03	DB10	41,31	40,82	41,00	40,96	4	41,02	0,21	0,50	100,29
22	F05x	PD02	DB08	41,41	41,22	40,84	40,88	4	41,09	0,27	0,67	100,44
23	A36	PD02	DB08	41,30	41,40	41,90	41,10	4	41,43	0,34	0,82	101,27
24	A82	PD01	DB08	40,70	41,90	42,30	41,90	4	41,70	0,69	1,66	101,94
25	F13	PZ02	DD01	40,40	41,40	42,60	43,20	4	41,90	1,25	2,98	102,43
26	A60x	PC01	DB08	42,57	41,35	40,61	43,17	4	41,92	1,16	2,76	102,49
27	F32x	PD01	DB08	41,70	42,50	41,60	42,00	4	41,95	0,40	0,96	102,55
28	A65	PD01	DB08	41,40	41,60	42,60	42,30	4	41,98	0,57	1,35	102,61
29	F11	PD01	DB08	42,30	41,70	41,80	42,20	4	42,00	0,29	0,70	102,68
30	F15x	PC01	DB08	42,00	44,00	41,00	41,00	4	42,00	1,41	3,37	102,68
31	A50	PC01	DB08	43,30	41,40	41,40	42,20	4	42,08	0,90	2,14	102,86
32	F23	PD01	DB01	39,90	44,10	42,90	43,00	4	42,48	1,80	4,24	103,84
33	F12x	PC01	DB09	42,33	42,00	42,75	42,91	4	42,50	0,41	0,97	103,89
34	A85	PD04	DB08	42,73	43,59	42,72	41,99	4	42,76	0,65	1,53	104,53
35	F33x	PD01	DB10	42,62	44,35	43,77	41,05	4	42,95	1,46	3,39	104,99
36	F03	PB05	DB08	43,05	43,18	42,39	43,46	4	43,02	0,45	1,05	105,17
37	A47x	PD01	DB08	42,87	43,03	43,41	44,14	4	43,36	0,57	1,30	106,01
38	F09x	PZ02	DD02	43,20	44,20	43,70	42,90	4	43,50	0,57	1,31	106,34
39	A57	PZ98	DD02	44,23	43,70	44,20	44,13	4	44,07	0,25	0,56	107,72
40	F16x	PC01	DB08	44,67	45,27	44,04	44,94	4	44,73	0,52	1,17	109,35
41	F28x	PD02	DB08	45,00	45,20	47,50	47,30	4	46,25	1,33	2,88	113,06
42	A53	PZ02	DD02	47,00	47,20	47,20	47,40	4	47,20 *	0,16	0,35	115,39
43	A59	PC01	DB08	51,09	63,36	47,06	53,99	0	53,88 b *	6,93	12,87	131,71
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	163	40,91	0,665	1,626
15	% from the mean			
	L		SR	VR
	41		2,712	6,632

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Zn Sample: 2 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	F29x	PB05	DB10	14,13	14,04	13,97	14,03	0	14,04 b *	0,07	0,47	70,15
2	A80	PD03	DB10	16,70	16,90	16,50	17,80	4	16,98 *	0,57	3,38	84,80
3	F06x	PD02	DB08	17,20	17,20	16,80	17,20	4	17,10	0,20	1,17	85,42
4	F23	PD01	DB01	17,90	16,30	17,40	16,80	4	17,10	0,70	4,08	85,42
5	F27	PD04	DB01	15,93a	17,28	17,17	17,31	3	17,25	0,07	0,43	86,19
6	A83	PD01	DB08	15,69	22,76	16,33	15,71	4	17,62	3,44	19,51	88,03
7	F07x	PC01	DB08	17,73	18,16	18,66	18,73	4	18,32	0,47	2,56	91,52
8	F20x	PD02	DB08	18,80	18,60	18,80	18,70	4	18,73	0,10	0,51	93,54
9	A84	PB99	DB01	18,77	18,45	19,05	18,71	4	18,74	0,25	1,32	93,64
10	A45x	PE99	DB08	19,30	19,20	18,80	19,20	4	19,13	0,22	1,16	95,54
11	F19x	PD02	DB08	19,50	19,00	19,20	19,30	4	19,25	0,21	1,08	96,16
12	A39	PD02	DB08	19,78	20,12	18,20	19,15	4	19,31	0,84	4,37	96,47
13	F14x	PC01	DB08	19,51	19,57	19,85	19,65	4	19,65	0,15	0,75	98,14
14	A67	PB05	DB08	19,50	20,10	19,80	19,50	4	19,73	0,29	1,46	98,54
15	A57	PZ98	DD02	19,77	19,73	19,67	19,87	4	19,76	0,08	0,43	98,71
16	A79	PD03	DB10	19,54	20,45	19,61	19,96	4	19,89	0,42	2,09	99,36
17	F33x	PD01	DB10	20,01	20,07	20,06	19,45	4	19,90	0,30	1,51	99,40
18	F02x	PD02	DB08	20,00	19,70	20,20	19,90	4	19,95	0,21	1,04	99,66
19	F11	PD01	DB08	19,80	19,90	20,40	19,90	4	20,00	0,27	1,35	99,91
20	F13	PZ02	DD01	20,00	20,30	20,00	19,70	4	20,00	0,24	1,22	99,91
21	A36	PD02	DB08	20,30	19,90	20,10	20,10	4	20,10	0,16	0,81	100,41
22	A55	PD02	DB10	20,17	19,96	20,13	20,16	4	20,11	0,10	0,49	100,43
23	F32x	PD01	DB08	19,90	20,10	20,90	19,80	4	20,18	0,50	2,47	100,78
24	F15x	PC01	DB08	20,00	20,00	21,00	20,00	4	20,25	0,50	2,47	101,16
25	F05x	PD02	DB08	20,17	20,36	20,33	20,28	4	20,29	0,08	0,41	101,33
26	F08x	PD01	DB10	20,72	19,98	20,19	20,51	4	20,35	0,33	1,62	101,65
27	F12x	PC01	DB09	20,57	20,31	20,40	20,61	4	20,47	0,14	0,69	102,27
28	A61x	PB02	DB08	21,10	20,90	20,40	19,60	4	20,50	0,67	3,26	102,41
29	F18x	PD01	DB10	23,30	20,90	19,00	19,10	4	20,58	2,02	9,80	102,78
30	A65	PD01	DB08	20,60	20,70	20,70	20,70	4	20,68	0,05	0,24	103,28
31	A49	PD05	DB08	20,89	20,60	20,91	20,52	4	20,73	0,20	0,96	103,56
32	A85	PD04	DB08	21,64	20,48	20,66	20,35	4	20,78	0,59	2,82	103,82
33	F03	PB05	DB08	21,19	20,13	21,15	20,89	4	20,84	0,49	2,36	104,10
34	A60x	PC01	DB08	20,84	20,34	20,70	22,32	4	21,05	0,87	4,13	105,16
35	A47x	PD01	DB08	20,91	21,98	20,01	21,45	4	21,09	0,84	3,99	105,34
36	A58x	PD02	DB01	20,62	19,40	21,26	23,26	4	21,14	1,61	7,63	105,58
37	A82	PD01	DB08	21,50	21,20	21,20	21,60	4	21,38	0,21	0,96	106,78
38	A50	PC01	DB08	21,30	21,30	21,90	21,80	4	21,58	0,32	1,48	107,78
39	F16x	PC01	DB08	21,44	21,65	22,09	21,82	4	21,75	0,27	1,26	108,65
40	F09x	PZ02	DD02	22,50	21,30	22,60	21,80	4	22,05	0,61	2,78	110,15
41	A53	PZ02	DD02	22,80	22,50	22,80	22,70	4	22,70	0,14	0,62	113,40
42	F28x	PD02	DB08	22,40	22,60	23,70	23,70	4	23,10 *	0,70	3,02	115,39
43	A59	PC01	DB08	30,67	27,84	23,26	24,51	0	26,57 b *	3,35	12,60	132,73
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	163	20,02	0,498	2,489
15	% from the mean			
L			SR	VR
41			1,439	7,194

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Zn Sample: 3 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery		
		P	D	1	2	3	4			Si	Vi		%	
1	A83	PD01	DB08	58,88	58,15a	58,73	58,77	0	58,79	b	*	0,08	0,13	75,35
2	F29x	PB05	DB10	68,49	67,20	62,74	61,96	4	65,10		*	3,23	4,96	83,43
3	A80	PD03	DB10	68,10	65,70	68,60	65,10	4	66,88			1,73	2,59	85,71
4	F06x	PD02	DB08	65,90	68,00	67,30	67,00	4	67,05			0,87	1,30	85,93
5	F27	PD04	DB01	69,28	71,12	71,14	70,62	4	70,54			0,87	1,24	90,40
6	F07x	PC01	DB08	70,43	73,09	72,82	73,40	4	72,44			1,36	1,87	92,83
7	A58x	PD02	DB01	75,78	73,79	71,32	73,16	4	73,51			1,84	2,50	94,21
8	A67	PB05	DB08	77,20	72,20	71,20	73,70	4	73,58			2,63	3,57	94,29
9	F23	PD01	DB01	75,90	69,40	71,30	78,00	4	73,65			3,98	5,41	94,39
10	F20x	PD02	DB08	73,90	74,00	72,80	74,80	4	73,88			0,82	1,11	94,68
11	F19x	PD02	DB08	75,70	75,60	71,00	75,50	4	74,45			2,30	3,09	95,41
12	A61x	PB02	DB08	75,80	75,80	75,00	75,10	4	75,43			0,43	0,58	96,66
13	F18x	PD01	DB10	76,20	75,40	74,80	77,00	4	75,85			0,96	1,26	97,21
14	A55	PD02	DB10	77,52	77,16	75,66	75,43	4	76,44			1,05	1,37	97,97
15	A45x	PE99	DB08	76,70	75,00	78,00	78,40	4	77,03			1,53	1,99	98,71
16	F33x	PD01	DB10	76,35	76,06	78,19	77,65	4	77,06			1,02	1,33	98,76
17	A49	PD05	DB08	76,17	77,13	77,24	78,08	4	77,16			0,78	1,01	98,88
18	A39	PD02	DB08	79,65	75,64	76,84	78,16	4	77,57			1,73	2,22	99,42
19	A82	PD01	DB08	78,70	77,80	76,60	78,50	4	77,90			0,95	1,22	99,84
20	F13	PZ02	DD01	76,40	78,10	79,90	77,60	4	78,00			1,45	1,86	99,96
21	A79	PD03	DB10	78,69	78,31	77,94	78,14	4	78,27			0,32	0,41	100,31
22	F28x	PD02	DB08	78,50	78,00	77,70	79,10	4	78,33			0,61	0,78	100,38
23	F02x	PD02	DB08	77,80	78,70	78,40	78,80	4	78,43			0,45	0,57	100,51
24	F05x	PD02	DB08	78,50	78,37	78,63	78,27	4	78,44			0,16	0,20	100,53
25	F32x	PD01	DB08	79,00	78,30	78,40	79,20	4	78,73			0,44	0,56	100,89
26	F12x	PC01	DB09	78,72	78,18	79,35	80,64	4	79,22			1,06	1,34	101,53
27	F11	PD01	DB08	78,40	78,80	79,70	80,10	4	79,25			0,79	0,99	101,57
28	A50	PC01	DB08	80,40	81,50	79,20	76,70	4	79,45			2,06	2,59	101,82
29	F14x	PC01	DB08	79,22	79,74	80,01	79,89	4	79,72			0,35	0,44	102,16
30	A36	PD02	DB08	80,30	79,70	79,20	80,10	4	79,83			0,49	0,61	102,30
31	A65	PD01	DB08	79,60	80,20	80,50	79,80	4	80,03			0,40	0,50	102,56
32	F08x	PD01	DB10	82,08	79,51	78,98	80,15	4	80,18			1,35	1,69	102,76
33	A60x	PC01	DB08	81,49	78,49	80,04	81,09	4	80,28			1,34	1,67	102,88
34	F09x	PZ02	DD02	80,60	81,00	82,20	80,50	4	81,08			0,78	0,96	103,90
35	F03	PB05	DB08	81,72	80,90	80,01	82,05	4	81,17			0,91	1,12	104,03
36	F15x	PC01	DB08	81,00	82,00	81,00	81,00	4	81,25			0,50	0,62	104,13
37	F16x	PC01	DB08	83,58	82,91	81,18	81,53	4	82,30			1,13	1,38	105,47
38	A85	PD04	DB08	80,87	82,52	85,02	86,09	4	83,63			2,37	2,83	107,17
39	A57	PZ98	DD02	84,97	84,20	85,70	85,57	4	85,11			0,68	0,80	109,08
40	A47x	PD01	DB08	86,01	89,76	92,05	83,91	4	87,93			3,66	4,16	112,69
41	A53	PZ02	DD02	89,50	89,60	89,70	89,40	4	89,55			0,13	0,14	114,77
42	A59	PC01	DB08	92,46	103,60	95,23	82,81	4	93,53		*	8,57	9,16	119,86
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	164	78,03	1,417	1,816
15		% from the mean		
L			SR	VR
41			5,549	7,112

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Zn Sample: 4 Dimension: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	30,36	31,41	31,74	30,52	0	31,01 b *	0,67	2,17	77,67
2	F06x	PD02	DB08	34,40	33,70	33,40	33,90	4	33,85 *	0,42	1,24	84,79
3	A80	PD03	DB10	36,00	35,80	35,30	34,10	4	35,30	0,85	2,41	88,42
4	F27	PD04	DB01	34,56	35,35	35,25	36,51	4	35,42	0,81	2,28	88,72
5	F29x	PB05	DB10	35,53	35,15	37,80	34,08	4	35,64	1,57	4,39	89,27
6	F13	PZ02	DD01	35,50	36,40	37,50	36,20	4	36,40	0,83	2,28	91,18
7	F07x	PC01	DB08	36,62	37,58	35,97	36,50	4	36,67	0,67	1,83	91,85
8	F20x	PD02	DB08	37,10	37,50	37,00	37,40	4	37,25	0,24	0,64	93,31
9	A84	PB99	DB01	37,07	37,91	37,89	37,27	4	37,54	0,43	1,15	94,02
10	A61x	PB02	DB08	39,10	38,40	37,20	36,60	4	37,83	1,13	2,99	94,75
11	F19x	PD02	DB08	38,40	38,60	37,60	39,10	4	38,43	0,62	1,62	96,25
12	F15x	PC01	DB08	38,00	39,00	39,00	39,00	4	38,75	0,50	1,29	97,07
13	F23	PD01	DB01	37,40	39,80	41,00	37,20	4	38,85	1,86	4,78	97,32
14	A79	PD03	DB10	39,67	39,32	39,94	37,19	4	39,03	1,25	3,21	97,77
15	F33x	PD01	DB10	40,31	40,15	38,01	37,81	4	39,07	1,34	3,44	97,87
16	A82	PD01	DB08	38,30	39,00	40,30	38,90	4	39,13	0,84	2,15	98,00
17	A55	PD02	DB10	39,38	39,35	39,55	39,11	4	39,35	0,18	0,46	98,56
18	F02x	PD02	DB08	39,70	39,60	38,80	39,70	4	39,45	0,44	1,10	98,82
19	F32x	PD01	DB08	39,00	39,00	39,20	41,20	4	39,60	1,07	2,70	99,19
20	A45x	PE99	DB08	39,40	40,00	39,80	39,60	4	39,70	0,26	0,65	99,44
21	F08x	PD01	DB10	39,46	38,71	40,00	41,61	4	39,95	1,23	3,08	100,06
22	F03	PB05	DB08	40,22	39,91	40,03	40,29	4	40,11	0,17	0,43	100,48
23	A67	PB05	DB08	40,20	41,10	41,40	38,00	4	40,18	1,54	3,83	100,63
24	A65	PD01	DB08	40,20	40,40	40,40	40,20	4	40,30	0,12	0,29	100,95
25	F14x	PC01	DB08	40,19	40,56	40,33	40,72	4	40,45	0,24	0,58	101,32
26	A60x	PC01	DB08	41,11	39,66	40,09	41,01	4	40,47	0,71	1,75	101,37
27	F11	PD01	DB08	40,70	40,50	40,90	40,30	4	40,60	0,26	0,64	101,70
28	A39	PD02	DB08	39,08	40,90	42,22	40,75	4	40,74	1,29	3,16	102,04
29	A36	PD02	DB08	41,00	40,70	40,00	41,40	4	40,78	0,59	1,45	102,14
30	A49	PD05	DB08	42,23	40,22	41,10	40,22	4	40,94	0,95	2,33	102,56
31	A57	PZ98	DD02	40,70	40,73	41,00	41,53	4	40,99	0,38	0,94	102,68
32	F05x	PD02	DB08	41,10	41,10	41,20	40,99	4	41,10	0,09	0,21	102,95
33	A85	PD04	DB08	41,11	42,09	42,60	40,53	4	41,58	0,94	2,25	104,16
34	A58x	PD02	DB01	43,90	40,15	41,10	41,31	4	41,62	1,60	3,86	104,24
35	F12x	PC01	DB09	41,35	41,30	42,19	42,76	4	41,90	0,70	1,68	104,96
36	F09x	PZ02	DD02	42,10	42,80	43,20	43,10	4	42,80	0,50	1,16	107,21
37	A50	PC01	DB08	42,90	43,90	42,60	43,20	4	43,15	0,56	1,29	108,09
38	F16x	PC01	DB08	43,54	44,79	43,24	44,53	4	44,03	0,75	1,71	110,28
39	A59	PC01	DB08	49,57a	44,25	43,87	44,12	3	44,08	0,19	0,44	110,42
40	F28x	PD02	DB08	44,60	43,30	43,80	46,50	4	44,55	1,41	3,16	111,59
41	A53	PZ02	DD02	45,00	44,90	45,40	45,10	4	45,10	0,22	0,48	112,97
42	A47x	PD01	DB08	44,30	44,59	46,05	45,86	4	45,20	0,88	1,95	113,22
43	F18x	PD01	DB10	58,90	50,20	56,40	50,20	0	53,93 b *	4,42	8,20	135,08
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	163	39,92	0,747	1,871
15	% from the mean			
	L		SR	VR
	41		2,690	6,733

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mn Sample: 1 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A45x	PE99	DB08	401,0	334,0	383,0	397,0	0	378,8	b	*	71,56
2	F29x	PB05	DB10	476,6	463,2	437,4	461,3	4	459,6			86,83
3	A84	PB99	DB01	470,9	496,9	470,3	470,7	4	477,2			90,16
4	F20x	PD02	DB08	495,0	486,0	485,0	485,0	4	487,8			92,15
5	A47x	PD01	DB08	495,0	499,0	494,0	484,0	4	493,0			93,14
6	A43	PB06	DB01	507,0	492,0	492,0	502,0	4	498,3			94,14
7	A50	PC01	DB08	516,0	496,0	490,0	506,0	4	502,0			94,84
8	F23	PD01	DB01	511,0	505,0	515,0	500,0	4	507,8			95,93
9	A83	PD01	DB08	514,7	515,7	498,9	505,3	4	508,7			96,10
10	A58x	PD02	DB01	505,9	511,8	513,9	510,8	4	510,6			96,47
11	F19x	PD02	DB08	523,0	511,0	509,0	501,0	4	511,0			96,54
12	F14x	PC01	DB08	507,6	509,9	513,8	513,9	4	511,3			96,60
13	A60x	PD01	DB08	512,0	518,3	523,8	514,4	4	517,2			97,71
14	F11	PD01	DB08	515,0	521,0	518,0	520,0	4	518,5			97,96
15	A82	PD01	DB08	515,0	510,0	527,0	522,0	4	518,5			97,96
16	F06x	PB05	DB08	517,0	522,0	534,0	505,0	4	519,5			98,15
17	F15x	PC01	DB08	533,0	520,0	519,0	514,0	4	521,5			98,53
18	A56	PC01	DB08	516,7	532,2	519,0	521,3	4	522,3			98,68
19	A39	PD02	DB08	529,3	518,1	527,7	516,3	4	522,9			98,78
20	F05x	PD02	DB08	527,3	524,1	527,4	517,4	4	524,0			99,01
21	A61x	PB02	DB08	535,1	518,4	525,8	525,5	4	526,2			99,42
22	F08x	PD01	DB10	522,4	533,8	540,3	524,4	4	530,2			100,18
23	F18x	PD01	DB08	530,0	528,0	533,0	531,0	4	530,5			100,23
24	A36	PD02	DB08	532,0	528,0	533,0	530,0	4	530,8			100,28
25	F16x	PC01	DB08	530,8	528,5	538,3	533,6	4	532,8			100,66
26	A49	PD05	DB08	532,8	516,0	534,1	550,0	4	533,2			100,74
27	F32	PD01	DB08	542,0	541,0	534,0	537,0	4	538,5			101,74
28	F09x	PZ02	DD02	537,8	539,6	544,9	536,5	4	539,7			101,97
29	F27	PD04	DB01	507,4	568,1	569,9	515,8	4	540,3			102,08
30	A79	PD03	DB10	544,1	529,9	549,7	538,4	4	540,5			102,12
31	F12x	PC01	DB08	540,0	550,0	540,0	540,0	4	542,5			102,50
32	A57	PZ98	DD02	546,0	542,5	541,7	543,7	4	543,5			102,68
33	A55	PD02	DB08	553,0	542,0	543,9	547,5	4	546,6			103,27
34	F28x	PD02	DB08	548,0	547,0	550,0	548,0	4	548,3			103,58
35	F07x	PC01	DB08	545,2	526,5	527,1	594,6	4	548,4			103,60
36	F02x	PD02	DB08	548,0	545,0	560,0	546,0	4	549,8			103,87
37	F13	PC01	DB08	561,6	550,8	548,2	542,9	4	550,9			104,08
38	F03	PB05	DB08	556,2	556,2	551,0	552,8	4	554,1			104,68
39	A85	PD04	DB08	552,4	565,8	551,8	559,3	4	557,3			105,30
40	A67	PB05	DB08	552,0	579,0	559,0	560,0	4	562,5			106,27
41	F33x	PD01	DB10	554,0	577,0	575,0	561,0	4	566,8			107,08
42	A65	PD01	DB08	558,0	569,0	584,0	574,0	4	571,3			107,93
43	A80	PD03	DB10	580,0	562,0	587,0	568,0	4	574,3			108,49
44	A53	PZ02	DD02	583,0	583,0	582,0	588a	3	582,7			110,08
45	A59	PC01	DB08	669,2	681,1	683,7	707,3	0	685,3	b	*	129,48
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	171	529,29	8,011	1,514
15		% from the mean		
L			SR	VR
43			25,898	4,890

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mn Sample: 2 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	F23	PD01	DB01	1278	1318	1294	1297	4	1296,8	16,44	1,27	89,62
2	A43	PB06	DB01	1309	1283	1304	1299	4	1298,8	11,27	0,87	89,76
3	A84	PB99	DB01	1310	1305	1319	1313	4	1311,9	6,17	0,47	90,67
4	A45x	PE99	DB08	1370	1380	1330	1290	4	1342,5	41,13	3,06	92,79
5	F06x	PB05	DB08	1370	1370	1350	1360	4	1362,5	9,57	0,70	94,17
6	A83	PD01	DB08	1386	1387	1377	1371	4	1380,3	7,63	0,55	95,40
7	A50	PC01	DB08	1352	1370	1412	1412	4	1386,5	30,35	2,19	95,83
8	A82	PD01	DB08	1401	1395	1382	1385	4	1390,8	8,81	0,63	96,12
9	A39	PD02	DB08	1395	1400	1409	1403	4	1401,8	5,85	0,42	96,88
10	F20x	PD02	DB08	1420	1390	1400	1400	4	1402,5	12,58	0,90	96,93
11	F29x	PB05	DB10	1577,9a	1394	1430	1403	3	1409,0	18,87	1,34	97,38
12	A59	PC01	DB08	1235	1262	1537	1603	0	1409,3	187,89	13,33	97,40
13	A56	PC01	DB08	1408	1417	1406	1412	4	1410,6	4,95	0,35	97,49
14	F28x	PD02	DB08	1410	1390	1440	1407	4	1411,8	20,79	1,47	97,57
15	F18x	PD01	DB08	1410	1430	1400	1420	4	1415,0	12,91	0,91	97,80
16	A57	PZ98	DD02	1416	1415	1409	1426	4	1416,3	6,86	0,48	97,89
17	F15x	PC01	DB08	1416	1439	1441	1411	4	1426,8	15,46	1,08	98,61
18	F11	PD01	DB08	1440	1430	1420	1440	4	1432,5	9,57	0,67	99,01
19	F14x	PC01	DB08	1426	1435	1439	1442	4	1435,5	6,95	0,48	99,21
20	F32	PD01	DB08	1488	1438	1353	1472	4	1437,8	60,22	4,19	99,37
21	A47x	PD01	DB08	1396	1457	1477	1427	4	1439,3	35,41	2,46	99,47
22	A49	PD05	DB08	1331	1458	1467	1501	4	1439,3	74,63	5,19	99,48
23	F08x	PD01	DB10	1439	1448	1432	1445	4	1441,1	7,03	0,49	99,60
24	A60x	PD01	DB08	1406	1451	1481	1427	4	1441,3	32,12	2,23	99,61
25	F27	PD04	DB01	1321	1526	1472	1449	4	1442,0	86,74	6,02	99,66
26	F19x	PD02	DB08	1460	1440	1440	1440	4	1445,0	10,00	0,69	99,87
27	A36	PD02	DB08	1474	1451	1435	1436	4	1449,0	18,20	1,26	100,15
28	F05x	PD02	DB08	1454	1454	1451	1454	4	1453,3	1,44	0,10	100,44
29	A61x	PB02	DB08	1459	1444	1451	1465	4	1454,7	8,99	0,62	100,54
30	F12x	PC01	DB08	1460	1450	1450	1460	4	1455,0	5,77	0,40	100,56
31	F09x	PZ02	DD02	1476	1483	1479	1469	4	1476,9	5,77	0,39	102,07
32	A58x	PD02	DB01	1486	1496	1474	1495	4	1487,7	10,29	0,69	102,82
33	F16x	PC01	DB08	1464	1517	1487	1507	4	1493,8	23,43	1,57	103,24
34	F13	PC01	DB08	1506	1498	1492	1481	4	1494,3	10,53	0,70	103,27
35	A55	PD02	DB08	1491	1515	1500	1517	4	1505,8	12,42	0,82	104,07
36	F02x	PD02	DB08	1526	1498	1516	1517	4	1514,3	11,73	0,77	104,66
37	A79	PD03	DB10	1447	1595	1545	1476	4	1515,8	66,94	4,42	104,76
38	F33x	PD01	DB10	1562	1525	1494	1483	4	1516,0	35,45	2,34	104,78
39	F07x	PC01	DB08	1558	1507	1466	1572	4	1525,8	48,65	3,19	105,45
40	A67	PB05	DB08	1483	1554	1542	1525	4	1526,0	31,04	2,03	105,47
41	F03	PB05	DB08	1527	1557	1525	1535	4	1536,1	14,53	0,95	106,17
42	A85	PD04	DB08	1541	1536	1560	1547	4	1546,0	10,36	0,67	106,85
43	A80	PD03	DB10	1610	1502	1538	1568	4	1554,5	45,79	2,95	107,44
44	A53	PZ02	DD02	1560	1560	1570	1550	4	1560,0	8,16	0,52	107,82
45	A65	PD01	DB08	1565	1586	1575	1559	4	1571,3	11,84	0,75	108,60
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	N	Mean	SI	VI
all labs	175	1446,9	21,220	1,467
15	% from the mean			
	L		SR	VR
	44		67,815	4,688

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mn Sample: 3 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A45x	PE99	DB08	325,00	334,00	327,00	317,00	4	325,75	6,99	2,15	89,96
2	A84	PB99	DB01	328,12	326,98	325,49	325,89	4	326,62	1,18	0,36	90,20
3	A47x	PD01	DB08	335,00	342,00	340,00	344,00	4	340,25	3,86	1,14	93,97
4	A82	PD01	DB08	345,00	339,00	337,00	343,00	4	341,00	3,65	1,07	94,17
5	A83	PD01	DB08	345,30	342,00	339,30	347,60	4	343,55	3,65	1,06	94,88
6	F20x	PD02	DB08	347,00	344,00	338,00	349,00	4	344,50	4,80	1,39	95,14
7	F15x	PC01	DB08	348,00	349,00	346,00	345,00	4	347,00	1,83	0,53	95,83
8	F19x	PD02	DB08	355,00	352,00	330,00	357,00	4	348,50	12,50	3,59	96,24
9	A43	PB06	DB01	353,00	353,00	342,00	347,00	4	348,75	5,32	1,52	96,31
10	A50	PC01	DB08	357,00	355,00	351,00	340,00	4	350,75	7,59	2,16	96,87
11	A58x	PD02	DB01	350,78	354,46	355,89	348,62	4	352,44	3,33	0,95	97,33
12	F11	PD01	DB08	350,00	352,00	353,00	361,00	4	354,00	4,83	1,36	97,76
13	F14x	PC01	DB08	353,30	354,90	353,70	354,70	4	354,15	0,77	0,22	97,80
14	F18x	PD01	DB08	354,00	350,00	357,00	357,00	4	354,50	3,32	0,94	97,90
15	A56	PC01	DB08	355,26	357,19	352,83	355,71	4	355,25	1,81	0,51	98,11
16	F05x	PD02	DB08	356,70	356,34	355,68	355,13	4	355,96	0,70	0,20	98,30
17	F28x	PD02	DB08	358,00	356,00	357,00	353,00	4	356,00	2,16	0,61	98,32
18	A39	PD02	DB08	356,40	359,20	355,40	362,40	4	358,35	3,14	0,88	98,96
19	F06x	PB05	DB08	356,00	359,00	359,00	360,00	4	358,50	1,73	0,48	99,01
20	F29x	PB05	DB10	353,90	359,40	384,42	342,40	4	360,03	17,74	4,93	99,43
21	A61x	PB02	DB08	369,00	360,40	356,30	358,00	4	360,93	5,64	1,56	99,68
22	F08x	PD01	DB10	367,52	356,48	363,48	359,02	4	361,62	4,88	1,35	99,87
23	A60x	PD01	DB08	360,90	365,79	356,50	369,81	4	363,25	5,79	1,59	100,32
24	F33x	PD01	DB10	355,00	365,00	365,00	370,00	4	363,75	6,29	1,73	100,46
25	F27	PD04	DB01	328,40	386,20	380,60	360,30	4	363,88	26,14	7,18	100,49
26	F23	PD01	DB01	363,00	371,00	358,00	364,00	4	364,00	5,35	1,47	100,52
27	A49	PD05	DB08	360,70	370,50	357,60	368,70	4	364,38	6,21	1,70	100,63
28	A36	PD02	DB08	366,00	364,00	366,00	365,00	4	365,25	0,96	0,26	100,87
29	A55	PD02	DB08	366,50	366,70	368,90	368,60	4	367,68	1,25	0,34	101,54
30	F09x	PZ02	DD02	366,20	370,30	372,30	367,20	4	369,00	2,81	0,76	101,91
31	F12x	PC01	DB08	370,00	370,00	370,00	370,00	4	370,00	0,00	0,00	102,18
32	F16x	PC01	DB08	369,70	375,70	366,40	371,40	4	370,80	3,87	1,04	102,40
33	A80	PD03	DB10	382,00	364,00	389,00	357,00	4	373,00	14,99	4,02	103,01
34	F13	PC01	DB08	377,70	372,20	370,60	373,60	4	373,53	3,04	0,81	103,15
35	A57	PZ98	DD02	369,80	371,70	376,30	378,57	4	374,09	4,04	1,08	103,31
36	F07x	PC01	DB08	368,00	381,50	388,00	361,20	4	374,68	12,25	3,27	103,47
37	F32	PD01	DB08	375,00	376,00	377,00	375,00	4	375,75	0,96	0,25	103,77
38	A67	PB05	DB08	373,00	375,00	381,00	387,00	4	379,00	6,32	1,67	104,67
39	A79	PD03	DB10	382,60	378,80	378,40	379,70	4	379,88	1,90	0,50	104,91
40	F03	PB05	DB08	381,65	378,94	385,82	383,59	4	382,50	2,92	0,76	105,63
41	F02x	PD02	DB08	382,00	385,00	388,00	385,00	4	385,00	2,45	0,64	106,32
42	A85	PD04	DB08	377,90	385,60	395,90	388,30	4	386,93	7,43	1,92	106,86
43	A65	PD01	DB08	394,00	391,00	393,00	388,00	4	391,50	2,65	0,68	108,12
44	A53	PZ02	DD02	396,00	398,00	396,00	395,00	4	396,25	1,26	0,32	109,43
45	A59	PC01	DB08	465,60	509,30	473,10	460,30	0	477,08	b	*	131,75
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	N	Mean	SI	VI
all labs	176	362,10	5,007	1,383
15	% from the mean			
	L		SR	VR
	44		15,612	4,312

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Mn Sample: 4 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	F29x	PB05	DB10	97,69	87,41	94,18	81,25	4	90,13	*	7,30	8,10	84,30
2	A84	PB99	DB01	95,91	95,47	95,14	93,90	4	95,10		0,86	0,90	88,95
3	F15x	PC01	DB08	96,00	98,00	99,00	93,00	4	96,50		2,65	2,74	90,25
4	A83	PD01	DB08	97,41	96,12	98,71	96,03	4	97,07		1,26	1,30	90,78
5	F20x	PD02	DB08	97,20	97,70	97,00	97,50	4	97,35		0,31	0,32	91,05
6	A82	PD01	DB08	100,00	100,00	101,00	102,00	4	100,75		0,96	0,95	94,23
7	F07x	PC01	DB08	100,70	102,70	100,20	101,80	4	101,35		1,12	1,11	94,79
8	F19x	PD02	DB08	103,00	102,00	100,00	105,00	4	102,50		2,08	2,03	95,86
9	F14x	PC01	DB08	104,20	103,70	103,00	104,30	4	103,80		0,59	0,57	97,08
10	F03	PB05	DB08	105,40	105,52	102,47	101,83	4	103,81		1,93	1,86	97,08
11	A45x	PE99	DB08	104,00	105,00	105,00	104,00	4	104,50		0,58	0,55	97,73
12	F18x	PD01	DB08	105,00	103,00	103,00	107,00	4	104,50		1,91	1,83	97,73
13	F06x	PB05	DB08	107,00	105,00	103,00	105,00	4	105,00		1,63	1,56	98,20
14	A43	PB06	DB01	111,00	100,00	111,00	100,00	4	105,50		6,35	6,02	98,67
15	A49	PD05	DB08	104,30	109,20	103,80	106,60	4	105,98		2,47	2,33	99,11
16	F11	PD01	DB08	106,00	107,00	105,00	106,00	4	106,00		0,82	0,77	99,14
17	F28x	PD02	DB08	106,00	107,00	107,00	104,00	4	106,00		1,41	1,33	99,14
18	F05x	PD02	DB08	106,43	106,29	106,39	106,31	4	106,36		0,07	0,06	99,47
19	A50	PC01	DB08	107,00	106,00	108,00	106,00	4	106,75		0,96	0,90	99,84
20	F16x	PC01	DB08	105,80	108,90	105,90	107,40	4	107,00		1,46	1,37	100,07
21	F23	PD01	DB01	107,00	106,00	110,00	105,00	4	107,00		2,16	2,02	100,07
22	A57	PZ98	DD02	107,17	107,27	106,70	107,60	4	107,19		0,37	0,35	100,24
23	A56	PC01	DB08	107,93	107,00	107,70	106,89	4	107,38		0,51	0,48	100,43
24	A61x	PB02	DB08	107,30	108,10	106,40	108,20	4	107,50		0,84	0,78	100,54
25	F32	PD01	DB08	108,00	107,00	107,00	109,00	4	107,75		0,96	0,89	100,77
26	A39	PD02	DB08	107,10	108,60	109,10	106,90	4	107,93		1,09	1,01	100,94
27	A58x	PD02	DB01	109,53	108,69	107,25	106,31	4	107,95		1,44	1,33	100,96
28	F08x	PD01	DB10	104,19	106,24	112,69	109,57	4	108,17		3,74	3,46	101,17
29	A60x	PD01	DB08	108,06	106,35	108,71	110,52	4	108,41		1,72	1,59	101,39
30	F09x	PZ02	DD02	109,70	109,30	110,30	107,20	4	109,13		1,35	1,23	102,06
31	F27	PD04	DB01	99,22	115,88	115,22	106,45	4	109,19		7,92	7,25	102,12
32	F13	PC01	DB08	109,10	108,10	109,00	110,60	4	109,20		1,04	0,95	102,13
33	A36	PD02	DB08	112,00	110,00	108,00	109,00	4	109,75		1,71	1,56	102,64
34	F33x	PD01	DB10	116,00	113,00	108,00	103,00	4	110,00		5,72	5,20	102,88
35	F12x	PC01	DB08	110,00	110,00	110,00	110,00	4	110,00		0,00	0,00	102,88
36	A67	PB05	DB08	112,00	114,00	109,00	107,00	4	110,50		3,11	2,81	103,34
37	F02x	PD02	DB08	113,00	114,00	112,00	115,00	4	113,50		1,29	1,14	106,15
38	A79	PD03	DB10	115,00	113,90	116,10	109,20	4	113,55		3,04	2,67	106,20
39	A55	PD02	DB08	114,40	114,50	114,00	113,70	4	114,15		0,37	0,32	106,76
40	A85	PD04	DB08	111,70	116,50	117,80	112,20	4	114,55		3,06	2,67	107,13
41	A65	PD01	DB08	119,00	117,00	117,00	116,00	4	117,25		1,26	1,07	109,66
42	A80	PD03	DB10	115,00	121,00	121,00	118,00	4	118,75		2,87	2,42	111,06
43	A53	PZ02	DD02	123,00	123,00	123,00	123,00	4	123,00	*	0,00	0,00	115,04
44	A59	PC01	DB08	194,30	213,90	215,10	238,40	0	215,43	b *	18,04	8,38	201,48
45	A47x	PD01	DB08	432,00	369,00	358,00	406,00	0	391,25	b *	34,05	8,70	365,91
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	172	106,92	1,913	1,789
15	% from the mean			
L			SR	VR
43			6,196	5,795

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Fe Sample: 1 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	F29x	PB05	DB10	50,80	54,50	53,70	61,20	4	55,05	4,40	7,99	76,57
2	A83	PD01	DB08	67,03	53,56	51,30	52,79	4	56,17	7,30	13,00	78,13
3	A84	PB99	DB01	60,76	58,31	61,24	60,79	4	60,28	1,33	2,20	83,84
4	A45x	PE99	DB08	65,80	60,50	60,40	59,10	4	61,45	2,97	4,83	85,48
5	F18x	PD01	DB08	65,50	65,50	63,20	65,50	4	64,93	1,15	1,77	90,31
6	F20x	PD02	DB08	66,70	65,70	67,00	65,40	4	66,20	0,77	1,16	92,08
7	F11	PD01	DB08	67,10	66,80	66,00	65,80	4	66,43	0,62	0,94	92,40
8	A67	PB05	DB08	65,70	71,90	68,00	65,60	4	67,80	2,95	4,35	94,31
9	A39	PD02	DB08	67,72	67,98	69,77	66,59	4	68,02	1,32	1,94	94,61
10	F13	PC01	DB08	72,01	70,06	66,83	67,29	4	69,05	2,44	3,53	96,04
11	A49	PD05	DB08	68,73	66,96	69,04	72,56	4	69,32	2,34	3,38	96,43
12	F19x	PD02	DB08	72,50	69,10	69,20	68,70	4	69,88	1,76	2,52	97,19
13	F05x	PD02	DB08	70,46	69,98	70,29	69,16	4	69,97	0,58	0,82	97,33
14	F12x	PC01	DB08	70,00	70,00	70,00	70,00	4	70,00	0,00	0,00	97,37
15	A60x	PC01	DB08	71,37	66,73	71,65	70,88	4	70,16	2,31	3,29	97,59
16	A47x	PD01	DB08	70,71	69,88	70,95	69,93	4	70,37	0,54	0,77	97,88
17	F08x	PD01	DB10	73,35	70,72	68,52	70,09	4	70,67	2,01	2,84	98,30
18	F23	PD01	DB01	70,51	70,62	69,39	72,50	4	70,76	1,29	1,82	98,42
19	F14x	PC01	DB08	70,91	71,86	71,17	71,70	4	71,41	0,45	0,62	99,33
20	F27	PD04	DB01	65,41	72,52	73,30	74,84	4	71,52	4,18	5,85	99,48
21	F32	PD01	DB08	72,60	71,20	70,80	71,90	4	71,63	0,79	1,11	99,63
22	A36	PD02	DB08	72,20	71,90	72,00	72,00	4	72,03	0,13	0,17	100,19
23	F07x	PC01	DB08	71,05	69,22	69,81	78,22	4	72,08	4,17	5,78	100,25
24	F15x	PC01	DB08	77,00	74,00	69,00	69,00	4	72,25	3,95	5,46	100,50
25	A61x	PB02	DB08	74,30	71,10	71,50	72,20	4	72,28	1,42	1,97	100,53
26	A50	PC01	DB08	73,40	70,20	71,90	73,80	4	72,33	1,64	2,26	100,60
27	A82	PD01	DB08	74,00	71,20	71,60	73,10	4	72,48	1,30	1,80	100,81
28	A58x	PD02	DB01	72,26	72,93	72,08	73,53	4	72,70	0,66	0,91	101,12
29	F09x	PZ02	DD02	73,80	74,60	72,90	73,30	4	73,65	0,73	0,99	102,45
30	A85	PD04	DB08	73,83	73,69	72,90	74,59	4	73,75	0,69	0,94	102,59
31	F02x	PD02	DB08	76,00	73,00	74,00	73,00	4	74,00	1,41	1,91	102,93
32	F03	PB05	DB08	75,77	75,14	71,91	73,89	4	74,18	1,70	2,29	103,18
33	A79	PD03	DB10	75,05	74,61	74,95	75,63	4	75,06	0,42	0,57	104,41
34	F16x	PC01	DB08	74,72	74,55	75,58	75,56	4	75,10	0,54	0,72	104,47
35	A55	PD02	DB10	76,70	76,84	76,21	75,80	4	76,39	0,48	0,62	106,25
36	F28x	PD02	DB08	77,60	79,50	77,80	76,20	4	77,78	1,35	1,74	108,18
37	A65	PD01	DB08	78,30	76,20	78,60	79,10	4	78,05	1,28	1,64	108,57
38	A53	PZ02	DD02	78,50	77,20	78,20	78,70	4	78,15	0,67	0,85	108,70
39	A80	PD03	DB10	79,70	77,20	82,20	84,80	4	80,98	3,27	4,03	112,63
40	A59	PC01	DB08	87,73	81,34	91,15	83,48	4	85,93	4,38	5,10	119,52
41	A57	PZ98	DD02	89,77	91,13	86,97	87,87	4	88,94	1,87	2,10	123,71
42	F33x	PD01	DB10	89,96	92,59	86,19	92,71	4	90,36	3,06	3,38	125,69
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	168	71,89	1,824	2,538
20		% from the mean		
L			SR	VR
42			7,042	9,795

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Fe Sample: 2 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	34,54	24,23	54,30	40,54	0	38,40 b *	12,56	32,70	53,97
2	A45x	PE99	DB08	66,60	57,30	60,70	61,10	4	61,43	3,85	6,26	86,33
3	F29x	PB05	DB10	63,30	62,50	58,20	62,00	4	61,50	2,26	3,68	86,44
4	A84	PB99	DB01	62,55	61,85	61,70	62,67	4	62,20	0,49	0,78	87,41
5	F18x	PD01	DB08	62,20	65,30	65,20	64,00	4	64,18	1,44	2,25	90,20
6	A67	PB05	DB08	62,50	64,60	63,80	67,10	4	64,50	1,94	3,00	90,65
7	F20x	PD02	DB08	66,10	67,00	67,10	66,20	4	66,60	0,52	0,79	93,60
8	F23	PD01	DB01	66,34	66,99	66,60	67,00	4	66,73	0,32	0,48	93,79
9	F11	PD01	DB08	65,20	69,70	66,40	68,20	4	67,38	1,98	2,94	94,69
10	F13	PC01	DB08	70,97	69,12	64,73	66,56	4	67,84	2,75	4,06	95,35
11	A58x	PD02	DB01	65,55	68,12	68,87	70,42	4	68,24	2,03	2,98	95,91
12	F05x	PD02	DB08	68,94	68,80	69,36	68,85	4	68,99	0,26	0,37	96,96
13	F15x	PC01	DB08	70,00	69,00	71,00	69,00	4	69,75	0,96	1,37	98,03
14	F12x	PC01	DB08	70,00	70,00	70,00	70,00	4	70,00	0,00	0,00	98,38
15	F27	PD04	DB01	65,48	72,19	69,53	72,91	4	70,03	3,36	4,80	98,42
16	A39	PD02	DB08	69,82	69,64	71,07	69,92	4	70,11	0,65	0,93	98,54
17	F28x	PD02	DB08	68,80	70,00	72,40	69,50	4	70,18	1,56	2,23	98,63
18	A49	PD05	DB08	65,71	72,65	71,67	73,69	4	70,93	3,58	5,04	99,69
19	F33x	PD01	DB10	74,78	69,33	70,31	69,44	4	70,97	2,58	3,64	99,74
20	F19x	PD02	DB08	71,40	70,30	69,50	73,10	4	71,08	1,56	2,19	99,89
21	A50	PC01	DB08	70,10	70,00	73,50	71,70	4	71,33	1,65	2,31	100,25
22	A36	PD02	DB08	72,80	72,00	70,60	70,70	4	71,53	1,06	1,49	100,53
23	F32	PD01	DB08	72,40	70,10	72,20	72,00	4	71,68	1,06	1,48	100,74
24	A47x	PD01	DB08	71,77	72,18	71,74	71,25	4	71,74	0,38	0,53	100,82
25	A60x	PC01	DB08	70,30	71,38	75,13	70,43	4	71,81	2,27	3,16	100,93
26	F08x	PD01	DB10	72,41	71,78	70,93	72,20	4	71,83	0,65	0,91	100,95
27	F02x	PD02	DB08	72,00	71,00	74,00	71,00	4	72,00	1,41	1,96	101,19
28	A55	PD02	DB10	72,42	71,52	71,85	72,37	4	72,04	0,43	0,60	101,25
29	F14x	PC01	DB08	72,41	71,78	72,25	72,19	4	72,16	0,27	0,37	101,42
30	F07x	PC01	DB08	70,32	75,10	69,28	75,73	4	72,61	3,28	4,52	102,05
31	A61x	PB02	DB08	71,40	71,30	70,10	77,70	4	72,63	3,43	4,73	102,07
32	A82	PD01	DB08	73,90	74,30	72,10	72,60	4	73,23	1,04	1,43	102,92
33	A79	PD03	DB10	73,43	74,35	74,30	73,96	4	74,01	0,42	0,57	104,02
34	F16x	PC01	DB08	76,49	71,16	74,67	75,23	4	74,39	2,28	3,07	104,55
35	A85	PD04	DB08	74,84	75,41	74,79	75,48	4	75,13	0,37	0,49	105,59
36	A57	PZ98	DD02	76,03	77,87	73,13	74,20	4	75,31	2,09	2,77	105,84
37	F03	PB05	DB08	75,07	77,01	75,26	74,91	4	75,56	0,98	1,29	106,20
38	F09x	PZ02	DD02	77,00	76,20	75,90	75,40	4	76,13	0,67	0,88	106,99
39	A53	PZ02	DD02	78,20	78,00	78,00	78,00	4	78,05	0,10	0,13	109,70
40	A65	PD01	DB08	77,00	78,40	79,50	79,60	4	78,63	1,21	1,54	110,51
41	A80	PD03	DB10	81,80	75,90	77,30	79,70	4	78,68	2,61	3,32	110,58
42	A59	PC01	DB08	77,73	77,06	84,26	97,47	4	84,13	9,47	11,25	118,24
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	164	71,15	1,689	2,373
20	% from the mean			
	L		SR	VR
	41		4,699	6,605

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Fe Sample: 3 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	18,47	15,17	14,71	11,76	0	15,03 b *	2,75	18,28	23,93
2	F18x	PD01	DB08	54,40	53,90	55,70	54,60	4	54,65	0,76	1,39	87,01
3	A67	PB05	DB08	63,80	57,00	55,10	53,60	4	57,38	4,50	7,85	91,35
4	A84	PB99	DB01	58,05	58,70	58,11	57,54	4	58,10	0,47	0,81	92,50
5	F11	PD01	DB08	56,90	58,10	56,90	60,50	4	58,10	1,70	2,92	92,50
6	F33x	PD01	DB10	57,72	58,20	58,07	58,54	4	58,13	0,34	0,58	92,55
7	F27	PD04	DB01	55,66	59,82	60,29	60,12	4	58,97	2,22	3,76	93,89
8	F20x	PD02	DB08	60,10	58,90	57,60	61,00	4	59,40	1,48	2,49	94,57
9	A45x	PE99	DB08	59,10	58,00	58,40	63,10	4	59,65	2,34	3,93	94,97
10	F23	PD01	DB01	58,44	60,80	59,35	60,70	4	59,82	1,13	1,90	95,25
11	F13	PC01	DB08	63,18	60,99	58,71	57,66	4	60,14	2,46	4,09	95,74
12	A58x	PD02	DB01	60,67	60,88	59,32	61,60	4	60,62	0,95	1,57	96,51
13	F05x	PD02	DB08	61,47	61,89	60,30	60,42	4	61,02	0,78	1,28	97,15
14	F15x	PC01	DB08	63,00	64,00	59,00	59,00	4	61,25	2,63	4,29	97,52
15	A55	PD02	DB10	61,10	61,50	62,10	62,33	4	61,76	0,56	0,91	98,33
16	A49	PD05	DB08	58,34	59,59	68,20	62,47	4	62,15	4,39	7,06	98,95
17	A53	PZ02	DD02	62,90	64,30	61,90	60,60	4	62,43	1,56	2,51	99,39
18	F02x	PD02	DB08	64,00	62,00	62,00	62,00	4	62,50	1,00	1,60	99,51
19	F12x	PC01	DB08	60,00	70,00	60,00	60,00	4	62,50	5,00	8,00	99,51
20	F14x	PC01	DB08	63,95	62,91	62,40	61,51	4	62,69	1,02	1,62	99,81
21	F09x	PZ02	DD02	62,50	62,40	63,30	62,70	4	62,73	0,40	0,64	99,87
22	F19x	PD02	DB08	61,30	61,80	66,30	61,50	4	62,73	2,39	3,81	99,87
23	A50	PC01	DB08	66,40	62,70	63,80	59,30	4	63,05	2,94	4,67	100,38
24	F08x	PD01	DB10	64,44	62,42	63,59	63,80	4	63,56	0,84	1,32	101,20
25	A61x	PB02	DB08	66,50	66,40	59,80	61,70	4	63,60	3,38	5,32	101,26
26	A36	PD02	DB08	62,70	64,40	64,30	63,10	4	63,63	0,85	1,34	101,30
27	F07x	PC01	DB08	61,00	66,33	62,90	64,52	4	63,69	2,27	3,57	101,40
28	A47x	PD01	DB08	64,64	62,87	64,89	62,91	4	63,83	1,09	1,70	101,62
29	F28x	PD02	DB08	66,30	66,10	62,10	62,50	4	64,25	2,26	3,52	102,29
30	F32	PD01	DB08	63,30	63,70	68,30	65,10	4	65,10	2,27	3,48	103,65
31	A79	PD03	DB10	66,38	66,39	64,39	63,27	4	65,11	1,54	2,37	103,66
32	F16x	PC01	DB08	63,23	66,41	69,66	63,28	4	65,65	3,06	4,66	104,52
33	A39	PD02	DB08	66,39	65,41	65,57	65,74	4	65,78	0,43	0,65	104,73
34	A82	PD01	DB08	65,40	69,80	63,60	65,30	4	66,03	2,65	4,01	105,12
35	A60x	PC01	DB08	67,56	66,64	65,29	65,25	4	66,18	1,12	1,70	105,37
36	A80	PD03	DB10	66,40	67,20	68,80	64,90	4	66,83	1,63	2,43	106,39
37	A85	PD04	DB08	64,36	69,99	68,02	66,81	4	67,30	2,36	3,50	107,14
38	F29x	PB05	DB10	72,20	69,70	67,60	67,20	4	69,18	2,30	3,32	110,14
39	F03	PB05	DB08	70,23	71,21	68,96	69,66	4	70,02	0,95	1,36	111,47
40	A65	PD01	DB08	71,50	66,60	73,20	69,10	4	70,10	2,88	4,10	111,61
41	A57	PZ98	DD02	76,53	77,8a	76,53	76,30	0	76,45 b *	0,13	0,17	121,72
42	A59	PC01	DB08	93,63	108,60	93,77	77,58	0	93,40 b *	12,67	13,56	148,70
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	156	62,81	1,870	2,977
20	% from the mean			
	L		SR	VR
	39		3,494	5,563

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Fe Sample: 4 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	34,15	49,12	37,94	37,26	0	39,62	b	*	47,95
2	F29x	PB05	DB10	59,30	53,80	61,40	55,90	0	57,60	b	*	69,71
3	A84	PB99	DB01	68,26	68,74	67,85	67,74	4	68,15	0,45	0,67	82,48
4	A47x	PD01	DB08	79,41	70,59	65,62	77,37	4	73,25	6,33	8,64	88,65
5	F20x	PD02	DB08	73,80	75,40	74,10	73,90	4	74,30	0,74	1,00	89,92
6	F18x	PD01	DB08	75,90	73,60	74,10	74,10	4	74,43	1,01	1,36	90,08
7	A82	PD01	DB08	77,20	75,30	76,10	74,30	4	75,73	1,23	1,62	91,65
8	A39	PD02	DB08	75,50	77,68	76,37	78,54	4	77,02	1,35	1,75	93,22
9	F28x	PD02	DB08	79,80	78,30	77,60	76,90	4	78,15	1,24	1,59	94,58
10	F15x	PC01	DB08	77,00	79,00	80,00	77,00	4	78,25	1,50	1,92	94,70
11	F13	PC01	DB08	80,91	77,74	78,36	78,43	4	78,86	1,40	1,78	95,44
12	F11	PD01	DB08	78,70	79,10	78,30	79,70	4	78,95	0,60	0,76	95,55
13	F23	PD01	DB01	78,94	79,92	79,26	78,77	4	79,22	0,51	0,64	95,88
14	F19x	PD02	DB08	79,90	76,90	81,00	80,70	4	79,63	1,88	2,35	96,37
15	F12x	PC01	DB08	80,00	80,00	80,00	80,00	4	80,00	0,00	0,00	96,82
16	F05x	PD02	DB08	79,49	80,59	80,43	79,54	4	80,01	0,58	0,72	96,84
17	A45x	PE99	DB08	85,50	79,30	77,20	78,30	4	80,08	3,72	4,64	96,91
18	A49	PD05	DB08	77,37	82,42	82,10	79,73	4	80,41	2,35	2,93	97,31
19	F08x	PD01	DB10	79,14	78,39	82,90	81,29	4	80,43	2,06	2,56	97,34
20	F14x	PC01	DB08	80,96	80,37	80,06	80,76	4	80,54	0,40	0,50	97,47
21	F32	PD01	DB08	80,00	79,80	80,30	82,40	4	80,63	1,20	1,49	97,58
22	F27	PD04	DB01	80,87	80,31	80,86	81,76	4	80,95	0,60	0,74	97,97
23	F07x	PC01	DB08	81,95	83,76	79,77	79,37	4	81,21	2,04	2,51	98,29
24	A61x	PB02	DB08	83,60	83,90	80,10	81,60	4	82,30	1,79	2,17	99,61
25	F02x	PD02	DB08	84,00	82,00	83,00	82,00	4	82,75	0,96	1,16	100,15
26	F03	PB05	DB08	83,94	81,99	82,55	83,16	4	82,91	0,84	1,01	100,34
27	A60x	PC01	DB08	81,39	82,30	86,87	83,12	4	83,42	2,41	2,88	100,96
28	A58x	PD02	DB01	84,97	81,69	84,40	83,24	4	83,58	1,45	1,73	101,15
29	A67	PB05	DB08	84,70	84,60	83,30	81,90	4	83,63	1,31	1,57	101,21
30	F09x	PZ02	DD02	83,40	84,70	85,10	84,20	4	84,35	0,73	0,87	102,09
31	A79	PD03	DB10	88,15	84,39	85,12	80,60	4	84,57	3,10	3,67	102,35
32	A36	PD02	DB08	87,20	85,00	84,50	83,40	4	85,03	1,60	1,88	102,90
33	F16x	PC01	DB08	85,13	84,89	87,22	85,56	4	85,70	1,05	1,23	103,72
34	A50	PC01	DB08	85,70	87,90	91,30	86,20	4	87,78	2,53	2,88	106,23
35	A85	PD04	DB08	87,10	85,69	89,41	90,77	4	88,24	2,28	2,58	106,80
36	A80	PD03	DB10	83,40	89,80	91,70	89,00	4	88,48	3,57	4,03	107,08
37	A55	PD02	DB10	89,84	90,21	90,43	88,75	4	89,81	0,75	0,83	108,69
38	A65	PD01	DB08	92,00	88,90	89,90	89,40	4	90,05	1,36	1,51	108,99
39	A53	PZ02	DD02	89,80	90,00	90,60	90,00	4	90,10	0,35	0,38	109,05
40	A59	PC01	DB08	89,77	82,10	109,80	87,29	4	92,24	12,14	13,16	111,64
41	A57	PZ98	DD02	97,93	99,33	97,90	100,07	4	98,81	1,07	1,09	119,58
42	F33x	PD01	DB10	105,54	104,77	96,93	97,29	4	101,13	*		122,40
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	160	82,63	1,878	2,273
20	% from the mean			
L			SR	VR
40			6,445	7,800

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cu Sample: 1 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %		
		P	D	1	2	3	4			Si	Vi			
1	F29x	PB05	DB10	1,93	1,82	2,07	2,10	4	1,98	*	0,13	6,56	66,06	
2	F27	PD04	DB01	2,92	1,37	2,48	1,80	4	2,14	*	0,69	32,17	71,50	
3	A45x	PE99	DB08	2,33	2,30	2,38	2,34	4	2,34	*	0,03	1,41	77,98	
4	F28x	PD02	DB01	2,64	2,52	2,44	2,53	4	2,53	*	0,08	3,25	84,49	
5	F07x	PC01	DB08	2,60	2,56	2,75	2,68	4	2,65		0,08	3,06	88,37	
6	A55	PD02	DB10	2,72	2,68	2,64	2,69	4	2,68		0,03	1,30	89,50	
7	F14x	PC01	DB10	2,67	2,73	2,67	2,74	4	2,70		0,04	1,34	90,12	
8	A85	PD04	DB08	2,80	2,68	2,71	2,67	4	2,72		0,06	2,18	90,58	
9	F09x	PZ02	DD02	2,83	2,73	2,65	2,69	4	2,73		0,08	2,83	90,91	
10	F06x	PD02	DB08	2,83	2,76	2,68	2,66	4	2,73		0,08	2,86	91,16	
11	A39	PD02	DB08	2,76	2,72	2,76	2,72	4	2,74		0,02	0,91	91,36	
12	F08x	PD01	DB10	2,79	2,74	2,84	2,78	4	2,79		0,04	1,55	93,04	
13	A79	PD03	DB10	2,81	2,83	2,80	2,81	4	2,81		0,01	0,51	93,82	
14	F20x	PD02	DB08	2,83	2,84	2,84	2,82	4	2,83		0,01	0,34	94,50	
15	A58x	PD02	DB05	2,78	2,99	2,78	2,82	4	2,84		0,10	3,52	94,83	
16	F19x	PD02	DB08	2,88	2,90	2,86	2,79	4	2,86		0,05	1,68	95,33	
17	F03	PB05	DB08	3,13	2,68	2,91	2,81	4	2,88		0,19	6,59	96,17	
18	A82	PD01	DB10	2,79	2,97	2,89	2,90	4	2,89		0,07	2,57	96,33	
19	F12x	PC01	DB09	2,87	2,85	2,91	2,96	4	2,90		0,05	1,68	96,67	
20	A57	PZ98	DD02	2,97	2,87	3,03	2,80	4	2,92		0,10	3,51	97,33	
21	A80	PD03	DB10	3,00	2,82	2,94	2,92	4	2,92		0,07	2,56	97,42	
22	F32x	PD01	DB08	2,98	2,99	2,99	2,98	4	2,99		0,01	0,19	99,59	
23	A47x	PD01	DB08	3,01	3,05	2,90	3,02	4	2,99		0,06	2,16	99,85	
24	F13	PC01	DB08	3,14	2,95	2,95	3,00	4	3,01		0,09	2,97	100,39	
25	F05x	PD02	DB08	3,00	3,00	3,09	2,95	4	3,01		0,06	1,94	100,42	
26	A84	PB99	DB01	3,01	3,04	3,11	3,21	4	3,09		0,09	2,83	103,20	
27	A36	PD02	DB08	3,05	3,25	3,03	3,13	4	3,12		0,10	3,20	103,92	
28	A65	PD01	DB08	3,10	3,10	3,20	3,10	4	3,13		0,05	1,60	104,26	
29	F18x	PD01	DB10	3,05	2,94	3,36	3,36	4	3,18		0,22	6,78	106,01	
30	A49	PD05	DB08	3,16	3,18	3,20	3,20	4	3,19		0,02	0,60	106,26	
31	A61x	PD01	DB08	3,21	3,23	3,21	3,14	4	3,20		0,04	1,23	106,68	
32	F15x	PC01	DB08	3,80	3,10	2,90	3,00	4	3,20		0,41	12,76	106,76	
33	A67	PB05	DB08	3,09	3,50	3,16	3,26	4	3,25		0,18	5,51	108,51	
34	F02x	PD02	DB08	3,39	3,37	3,36	3,31	4	3,36		0,03	1,01	112,01	
35	F16x	PC01	DB08	3,57	3,71	3,41	3,53	4	3,55		0,13	3,52	118,54	
36	A53	PZ02	DD02	3,62	3,63	3,66	3,69	4	3,65		*	0,03	0,86	121,78
37	A50	PC01	DB08	3,75	3,91	3,83	3,66	4	3,79		*	0,11	2,83	126,36
38	A83	PD01	DB08	4,07	4,10	3,39	3,76	4	3,83		*	0,33	8,71	127,76
39	F33x	PD01	DB10	3,88	4,21	3,74	3,70	4	3,88	*	0,23	5,96	129,53	
40	F23	PD01	DB01	3,72	4,31	3,72	3,92	4	3,92	*	0,28	7,10	130,70	
41	A59	PC01	DB08	4,73	7,19a	4,91	5,27	0	4,97	b *	0,27	5,53	165,81	
42	A43	PB06	DB01	5,30	5,96	5,30	5,96	0	5,63	b *	0,38	6,77	187,83	
43														
44														
45	A60x	PD01	DB08	<,1	<,1	<,1	<,1			*				
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	160	3,00	0,112	3,744
20	% from the mean			
L			SR	VR
40			0,432	14,411

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cu Sample: 2 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean		Lab.standard dev.		Recovery
		P	D	1	2	3	4				Si	Vi	%
1	F23	PD01	DB01	1,45	1,60	1,34	1,46	0	1,46	b *	0,11	7,29	50,03
2	F29x	PB05	DB10	2,09	1,82	1,89	1,87	0	1,92	b *	0,12	6,19	65,59
3	A45x	PE99	DB08	2,29	2,37	2,27	2,27	4	2,30	*	0,05	2,07	78,68
4	F28x	PD02	DB01	2,27	2,52	2,31	2,40	4	2,38		0,11	4,67	81,24
5	A57	PZ98	DD02	2,57	2,50	2,53	2,53	4	2,53		0,03	1,13	86,63
6	F07x	PC01	DB08	2,49	2,79	2,64	2,54	4	2,62		0,13	4,95	89,47
7	F06x	PD02	DB08	2,63	2,67	2,62	2,63	4	2,64		0,02	0,84	90,22
8	A85	PD04	DB08	2,74	2,64	2,73	2,62	4	2,68		0,06	2,29	91,76
9	F14x	PC01	DB10	2,79	2,66	2,65	2,64	4	2,68		0,07	2,66	91,79
10	F03	PB05	DB08	2,74	2,82	2,58	2,72	4	2,72		0,10	3,68	92,87
11	A39	PD02	DB08	2,80	2,83	2,84	2,79	4	2,81		0,02	0,74	96,23
12	F12x	PC01	DB09	2,77	2,78	2,85	2,86	4	2,82		0,05	1,65	96,29
13	A55	PD02	DB10	2,74	2,80	2,87	2,90	4	2,83		0,07	2,45	96,65
14	A50	PC01	DB08	2,90	2,75	2,87	2,79	4	2,83		0,07	2,46	96,72
15	A79	PD03	DB10	2,81	2,83	2,82	2,85	4	2,83		0,02	0,59	96,73
16	F20x	PD02	DB08	2,87	2,83	2,80	2,89	4	2,85		0,04	1,42	97,40
17	F09x	PZ02	DD02	2,76	2,87	2,91	2,85	4	2,85		0,06	2,23	97,40
18	A82	PD01	DB10	2,86	2,78	2,87	2,90	4	2,85		0,05	1,80	97,58
19	F08x	PD01	DB10	2,85	2,83	2,87	2,88	4	2,86		0,02	0,63	97,72
20	F19x	PD02	DB08	2,97	2,87	2,86	2,94	4	2,91		0,05	1,84	99,54
21	F32x	PD01	DB08	2,95	2,91	2,93	2,90	4	2,92		0,02	0,76	99,97
22	F05x	PD02	DB08	2,97	2,98	2,89	2,87	4	2,93		0,06	1,90	100,14
23	A47x	PD01	DB08	2,92	3,00	2,93	2,91	4	2,94		0,04	1,44	100,51
24	A80	PD03	DB10	3,07	2,84	2,89	2,98	4	2,95		0,10	3,45	100,74
25	F13	PC01	DB08	2,99	2,90	3,10	3,00	4	3,00		0,08	2,75	102,54
26	A84	PB99	DB01	3,03	2,93	3,14	3,04	4	3,03		0,09	2,88	103,76
27	A61x	PD01	DB08	3,04	3,02	3,09	3,14	4	3,07		0,05	1,75	105,10
28	F15x	PC01	DB08	3,20	3,10	3,10	3,00	4	3,10		0,08	2,63	106,04
29	A58x	PD02	DB05	3,09	3,06	3,16	3,11	4	3,11		0,04	1,35	106,21
30	F18x	PD01	DB10	3,13	3,09	2,99	3,25	4	3,12		0,11	3,45	106,55
31	A36	PD02	DB08	3,14	3,17	3,11	3,15	4	3,14		0,03	0,80	107,50
32	A49	PD05	DB08	2,92	2,97	3,37	3,33	4	3,15		0,24	7,48	107,67
33	F33x	PD01	DB10	3,55	3,12	3,03	2,99	4	3,17		0,26	8,12	108,52
34	A65	PD01	DB08	3,10	3,10	3,20	3,30	4	3,18		0,10	3,02	108,61
35	A67	PB05	DB08	3,23	3,28	3,26	3,23	4	3,25		0,02	0,75	111,17
36	F27	PD04	DB01	4,03	3,24	2,20	3,65	0	3,28	c	0,79	23,97	112,18
37	F16x	PC01	DB08	3,27	3,33	3,26	3,32	4	3,30		0,04	1,14	112,72
38	F02x	PD02	DB08	3,28	3,37	3,31	3,29	4	3,31		0,04	1,22	113,31
39	A53	PZ02	DD02	3,66	3,67	3,62	3,55	4	3,63	*	0,05	1,50	124,00
40	A83	PD01	DB08	4,14	4,956a	4,15	4,00	0	4,09	b *	0,08	1,99	140,07
41	A43	PB06	DB01	4,64	4,64	4,62a	4,64	0	4,64	b *	0,00	0,00	158,72
42	A59	PC01	DB08	4,63	4,22	4,85	5,08	0	4,70	b *	0,37	7,80	160,60
43													
44													
45	A60x	PD01	DB08	<,1	<,1	<,1	<,1			*			
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	144	2,92	0,069	2,345
20	% from the mean			
	L		SR	VR
	36		0,267	9,150

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cu Sample: 3 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		%
1	F29x	PB05	DB10	3,23	3,43	3,25	3,13	0	3,26	b *	0,12	3,83	66,50
2	F27	PD04	DB01	4,46	4,51	4,07	3,75	4	4,20		0,36	8,46	85,60
3	F09x	PZ02	DD02	4,15	4,41	4,34	4,52	4	4,36	0,16	3,57	88,83	
4	A45x	PE99	DB08	4,32	4,40	4,47	4,53	4	4,43	0,09	2,04	90,36	
5	F06x	PD02	DB08	4,42	4,55	4,49	4,45	4	4,48	0,06	1,26	91,33	
6	F07x	PC01	DB08	4,35	4,56	4,43	4,60	4	4,48	0,11	2,56	91,48	
7	F23	PD01	DB01	4,63	4,30	4,57	4,63	4	4,53	0,16	3,48	92,45	
8	A84	PB99	DB01	4,38	4,63	4,48	4,71	4	4,55	0,15	3,27	92,80	
9	A57	PZ98	DD02	4,60	4,57	4,70	4,62	4	4,62	0,06	1,20	94,29	
10	F03	PB05	DB08	4,73	4,56	4,76	4,68	4	4,68	0,09	1,88	95,51	
11	F12x	PC01	DB09	4,61	4,66	4,73	4,85	4	4,71	0,10	2,21	96,13	
12	A61x	PD01	DB08	4,71	4,71	4,67	4,78	4	4,72	0,05	0,97	96,23	
13	F14x	PC01	DB10	4,79	4,71	4,66	4,73	4	4,72	0,05	1,14	96,32	
14	A80	PD03	DB10	4,86	4,59	4,93	4,51	4	4,72	0,20	4,32	96,33	
15	F08x	PD01	DB10	4,76	4,72	4,77	4,75	4	4,75	0,02	0,38	96,85	
16	A60x	PD01	DB08	5,29	4,94	4,26	4,51	4	4,75	0,46	9,61	96,93	
17	F20x	PD02	DB08	4,78	4,84	4,70	4,77	4	4,77	0,06	1,20	97,35	
18	F19x	PD02	DB08	4,89	4,86	4,63	4,81	4	4,80	0,12	2,43	97,86	
19	A79	PD03	DB10	4,88	4,85	4,82	4,79	4	4,84	0,04	0,80	98,63	
20	F05x	PD02	DB08	4,83	7,86a	4,84	4,84	3	4,84	0,01	0,12	98,66	
21	A82	PD01	DB10	5,07	4,80	4,78	4,73	4	4,85	0,15	3,16	98,83	
22	A49	PD05	DB08	4,92	4,93	4,83	4,95	4	4,91	0,05	1,08	100,10	
23	A85	PD04	DB08	4,72	4,89	5,19	4,83	4	4,91	0,20	4,10	100,10	
24	A55	PD02	DB10	5,28	4,79	4,73	4,86	4	4,91	0,25	5,07	100,21	
25	A39	PD02	DB08	4,91	5,08	4,81	4,93	4	4,93	0,11	2,30	100,61	
26	F33x	PD01	DB10	4,92	5,14	4,91	5,04	4	5,00	0,11	2,18	102,04	
27	A36	PD02	DB08	5,08	5,03	5,04	4,98	4	5,03	0,04	0,82	102,65	
28	F32x	PD01	DB08	5,05	5,07	5,07	5,05	4	5,06	0,01	0,23	103,21	
29	F18x	PD01	DB10	5,03	4,97	5,16	5,10	4	5,07	0,08	1,63	103,32	
30	F13	PC01	DB08	5,10	5,05	5,21	5,00	4	5,09	0,09	1,77	103,78	
31	A47x	PD01	DB08	5,05	5,11	5,21	5,00	4	5,09	0,09	1,78	103,89	
32	A67	PB05	DB08	5,24	5,02	5,04	5,15	4	5,11	0,10	2,00	104,29	
33	F15x	PC01	DB08	5,10	5,10	5,10	5,30	4	5,15	0,10	1,94	105,05	
34	A50	PC01	DB08	5,45	5,23	5,15	5,29	4	5,28	0,13	2,41	107,70	
35	A83	PD01	DB08	5,64	4,93	5,48	5,22	4	5,32	0,31	5,81	108,48	
36	F28x	PD02	DB01	5,51	5,23	5,33	5,21	4	5,32	0,14	2,58	108,52	
37	A58x	PD02	DB05	5,24	5,59	5,18	5,29	4	5,33	0,18	3,42	108,62	
38	A65	PD01	DB08	5,30	5,30	5,40	5,30	4	5,33	0,05	0,94	108,62	
39	F02x	PD02	DB08	5,31	5,40	5,36	5,40	4	5,37	0,04	0,80	109,49	
40	A53	PZ02	DD02	5,37	5,50	5,50	5,56	4	5,48	0,08	1,46	111,83	
41	F16x	PC01	DB08	5,53	5,53	5,75	5,63	4	5,61	0,10	1,83	114,39	
42	A43	PB06	DB01	7,74	8,76a	7,74	7,62	0	7,70	b *	0,07	0,90	157,07
43	A59	PC01	DB08	6,88	7,44	8,77	9,80	0	8,22		b *	1,32	16,02
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	159	4,90	0,119	2,422
20	% from the mean			
	L		SR	VR
	40		0,326	6,646

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cu Sample: 4 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	F29x	PB05	DB10	4,66	4,10	4,46	4,42	0	4,41	b	*	60,07
2	F07x	PC01	DB08	6,55	6,65	6,37	6,37	4	6,48			88,30
3	F06x	PD02	DB08	6,70	6,54	6,48	6,61	4	6,58			89,67
4	F20x	PD02	DB08	6,62	6,63	6,60	6,60	4	6,61			90,08
5	A84	PB99	DB01	6,71	6,68	6,72	6,64	4	6,69			91,09
6	A55	PD02	DB10	6,71	6,69	6,74	6,68	4	6,70			91,30
7	F09x	PZ02	DD02	6,74	6,71	6,83	6,86	4	6,79			92,43
8	F05x	PD02	DB08	6,79	6,78	6,79	6,83	4	6,80			92,60
9	A45x	PE99	DB08	6,82	6,86	6,78	6,77	4	6,81			92,73
10	F14x	PC01	DB10	7,09	6,73	6,75	6,69	4	6,81			92,82
11	A79	PD03	DB10	6,99	6,87	7,02	6,55	4	6,86			93,40
12	A57	PZ98	DD02	6,93	6,90	6,87	6,93	4	6,91			94,09
13	F19x	PD02	DB08	6,91	6,91	6,85	7,03	4	6,93			94,33
14	F08x	PD01	DB10	6,90	6,98	6,99	6,91	4	6,95			94,62
15	F03	PB05	DB08	6,90	6,71	6,99	7,32	4	6,98			95,08
16	A80	PD03	DB10	7,08	7,13	7,13	6,88	4	7,06			96,10
17	A85	PD04	DB08	6,90	7,18	7,08	7,16	4	7,08			96,44
18	A60x	PD01	DB08	7,28	7,14	6,15	7,78	4	7,09			96,53
19	F27	PD04	DB01	8,60	7,15	6,37	6,28	4	7,10			96,70
20	A61x	PD01	DB08	6,87	7,16	7,22	7,16	4	7,10			96,75
21	A58x	PD02	DB05	7,11	6,95	7,23	7,14	4	7,11			96,82
22	F12x	PC01	DB09	7,03	7,03	7,21	7,30	4	7,14			97,30
23	A39	PD02	DB08	7,07	7,12	7,27	7,17	4	7,16			97,49
24	F32x	PD01	DB08	7,27	7,21	7,09	7,14	4	7,18			97,77
25	F33x	PD01	DB10	7,62	7,32	6,97	6,89	4	7,20			98,08
26	A49	PD05	DB08	7,28	7,26	7,29	7,12	4	7,24			98,59
27	F28x	PD02	DB01	7,33	7,44	7,35	7,04	4	7,29			99,31
28	F18x	PD01	DB10	7,30	7,34	7,23	7,37	4	7,31			99,58
29	A82	PD01	DB10	7,25	7,50	7,32	7,32	4	7,35			100,09
30	F13	PC01	DB08	7,33	7,28	7,60	7,30	4	7,38			100,47
31	F15x	PC01	DB08	7,40	7,50	7,50	7,50	4	7,48			101,83
32	A47x	PD01	DB08	7,42	7,40	7,53	7,61	4	7,49			102,05
33	A65	PD01	DB08	7,60	7,50	7,50	7,50	4	7,53			102,51
34	A36	PD02	DB08	7,47	7,70	7,75	7,33	4	7,56			103,02
35	F23	PD01	DB01	7,51	8,21	7,86	7,70	4	7,82			106,52
36	A53	PZ02	DD02	7,77	7,89	7,91	7,88	4	7,86			107,10
37	A67	PB05	DB08	7,98	7,99	7,86	7,94	4	7,94			108,19
38	F16x	PC01	DB08	7,82	8,15	7,89	7,99	4	7,96			108,48
39	F02x	PD02	DB08	8,05	8,03	7,88	8,01	4	7,99			108,87
40	A50	PC01	DB08	8,70	9,24	9,12	8,68	4	8,94		*	121,71
41	A59	PC01	DB08	8,94	9,00	9,8a	8,90	3	8,95		*	121,87
42	A43	PB06	DB01	9,43	8,76	9,43	9,27	4	9,22		*	125,63
43	A83	PD01	DB08	7,92	10,52	10,28	8,61	4	9,33		*	127,11
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	167	7,34	0,183	2,495
20	% from the mean			
L			SR	VR
42			0,693	9,421

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Pb Sample: 1 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A47	PD01	DB08	0,58	0,67	0,69	0,62	4	0,64	0,05	7,76	75,78
2	F27	PD04	DB05	0,68	0,60	0,77	0,81	4	0,72	0,10	13,42	84,75
3	A79	PD03	DB10	0,71	0,72	0,71	0,75	4	0,72	0,02	2,49	85,60
4	A82	PD01	DB10	0,75	0,74	0,72	0,73	4	0,73	0,01	1,81	86,85
5	F06x	PD02	DB08	0,78	0,73	0,75	0,67	4	0,73	0,05	6,20	86,91
6	F05x	PD02	DB05	0,72	0,77	0,71	0,74	4	0,74	0,03	3,71	87,14
7	A39	PD02	DB08	0,79	0,74	0,77	0,81	4	0,78	0,03	3,84	92,07
8	F15	PC01	DB09	0,85	0,86	0,74	0,78	4	0,81	0,06	7,11	95,61
9	A55	PD02	DB10	0,82	0,81	0,83	0,81	4	0,82	0,01	1,54	96,88
10	A36	PD02	DB10	0,85	0,83	0,86	0,84	4	0,85	0,01	1,46	100,08
11	F08x	PD01	DB10	0,82	0,84	0,86	0,86	4	0,85	0,02	2,33	100,23
12	F14x	PC01	DB10	0,85	0,87	0,82	0,85	4	0,85	0,02	2,11	100,46
13	F18x	PD01	DB10	0,86	0,86	0,86	0,86	4	0,86	0,00	0,15	101,62
14	A80	PD03	DB10	0,83	0,84	0,95	0,87	4	0,87	0,05	5,89	103,36
15	F23	PD01	DB05	0,86	0,88	0,86	0,90	4	0,88	0,02	2,19	103,60
16	F11	PD01	DB10	0,91	0,88	0,83	0,89	4	0,88	0,04	4,09	103,84
17	F29x	PB05	DB10	0,90	0,81	0,99	0,83	4	0,88	0,08	9,22	104,49
18	F07x	PC01	DB08	0,89	0,82	0,87	0,96	4	0,88	0,06	6,44	104,76
19	F33x	PD01	DB10	0,83	0,88	0,88	0,98	4	0,89	0,06	7,05	105,67
20	F13	PC01	DA99	0,92	0,92	0,88	0,94	4	0,91	0,02	2,72	108,22
21	F12x	PC01	DB09	1,06	0,90	0,91	0,91	4	0,95	0,08	8,13	111,89
22	A67	PB05	DB10	1,01	0,93	1,01	0,98	4	0,98	0,04	4,04	116,21
23	A45x	PE99	DB10	1,01	0,99	0,98	1,01	4	1,00	0,02	1,75	117,87
24	F32x	PD01	DB05	1,10	1,06	1,07	1,04	4	1,07	0,02	2,14	126,13
25	F02	PD02	DB05	1,00	1,38	1,24	1,12	0	1,19	b	*	140,31
26	A65	PD01	DB08	1,40	1,50	1,40	1,30	0	1,40	b	*	165,76
27	A83	PD01	DB08	5,12	5,70	5,25	4,09	0	5,04	b	*	596,86
28												
29												
30	A60x	PD01	DB08	<3,3	<3,3	<3,3	<3,3				**	
31	F03	PB05	DB08	<,5	<,5	<,5	<,5				*	
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	N	Mean	SI	VI
all labs	96	0,84	0,037	4,392
30		% from the mean		
	L		SR	VR
	24		0,100	11,830

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Pb Sample: 2 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A79	PD03	DB10	0,41	0,40	0,41	0,41	4	0,41	0,00	1,21	78,05
2	A82	PD01	DB10	0,41	0,41	0,42	0,45	4	0,42	0,02	5,07	81,22
3	A55	PD02	DB10	0,45	0,46	0,48	0,47	4	0,47	0,01	2,59	89,88
4	F23	PD01	DB05	0,47	0,46	0,50	0,46	4	0,47	0,02	4,01	90,73
5	F33x	PD01	DB10	0,49	0,46	0,50	0,49	4	0,49	0,02	3,57	93,13
6	A36	PD02	DB10	0,50	0,48	0,48	0,48	4	0,49	0,01	1,81	93,13
7	F06x	PD02	DB08	0,55	0,41	0,53	0,46	4	0,49	0,06	12,84	93,37
8	F27	PD04	DB05	0,42	0,49	0,58	0,49	4	0,49	0,06	12,94	94,81
9	F11	PD01	DB10	0,52	0,53	0,48	0,49	4	0,50	0,02	4,73	96,77
10	F18x	PD01	DB10	0,52	0,51	0,49	0,50	4	0,50	0,01	2,30	96,87
11	A80	PD03	DB10	0,52	0,50	0,49	0,51	4	0,51	0,02	3,17	96,97
12	A45x	PE99	DB10	0,50	0,53	0,51	0,50	4	0,51	0,01	2,14	98,17
13	F14x	PC01	DB10	0,50	0,52	0,52	0,51	4	0,51	0,01	1,68	98,55
14	F05x	PD02	DB05	0,52	0,51	0,52	0,51	4	0,52	0,00	0,92	98,98
15	F08x	PD01	DB10	0,52	0,54	0,54	0,53	4	0,53	0,01	1,66	101,72
16	F32x	PD01	DB05	0,55	0,54	0,56	0,54	4	0,54	0,01	1,86	104,45
17	A39	PD02	DB08	0,56	0,56	0,54	0,55	4	0,55	0,01	1,44	105,89
18	F13	PC01	DA99	0,55	0,60	0,51	0,55	4	0,55	0,04	6,36	106,09
19	F07x	PC01	DB08	0,54	0,57	0,60	0,55	4	0,57	0,03	4,86	108,69
20	A67	PB05	DB10	0,62	0,59	0,52	0,55	4	0,57	0,05	8,15	109,16
21	F29x	PB05	DB10	0,63	0,54	0,62	0,52	4	0,58	0,06	9,63	110,89
22	F02	PD02	DB05	0,77	0,50	0,77	0,50	0	0,64	c	24,55	121,93
23	F15	PC01	DB09	0,62	0,66	0,66	0,61	4	0,64	0,03	4,13	122,41
24	F12x	PC01	DB09	0,64	0,75	0,65	0,67	4	0,68	*	7,37	130,09
25	A65	PD01	DB08	1,10	1a	1,10	1,10	0	1,10	b	0,00	211,21
26	A83	PD01	DB08	3,29	4,04	2,87	2,64	0	3,21	b	0,62	616,79
27												
28												
29	A60x	PD01	DB08	<3,3	<3,3	<3,3	<3,3			**		
30	F03	PB05	DB08	<,5	<,5	<,5	<,5					
31	A47	PD01	DB08	0,50	<,5	<,5	<,5					
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	92	0,52	0,024	4,618
30		% from the mean		
	L		SR	VR
	23		0,061	11,686

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Pb Sample: 3 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A83	PD01	DB08	13,95	14,26	14,15	13,03	4	13,85	0,56	4,04	77,45
2	F29x	PB05	DB10	15,01	15,29	14,90	13,69	4	14,72	0,71	4,81	82,34
3	A60x	PD01	DB08	15,50	17,16	14,99	15,03	4	15,67	1,02	6,50	87,64
4	A79	PD03	DB10	15,96	15,95	15,89	15,77	4	15,89	0,09	0,55	88,88
5	F06x	PD02	DB08	15,58	16,72	15,99	15,87	4	16,04	0,48	3,02	89,71
6	A82	PD01	DB10	16,10	17,20	15,60	15,90	4	16,20	0,70	4,31	90,60
7	A39	PD02	DB08	16,54	16,60	16,57	16,46	4	16,54	0,06	0,36	92,52
8	F27	PD04	DB05	16,78	17,03	16,00	17,06	4	16,72	0,49	2,96	93,50
9	F23	PD01	DB05	16,85	16,17	17,08	16,93	4	16,76	0,40	2,41	93,72
10	F05x	PD02	DB05	16,90	17,20	16,90	17,00	4	17,00	0,14	0,83	95,08
11	F07x	PC01	DB08	16,66	17,41	17,39	17,01	4	17,12	0,36	2,08	95,73
12	F14x	PC01	DB10	17,78	17,52	17,33	17,34	4	17,49	0,21	1,20	97,83
13	F11	PD01	DB10	17,70	17,60	17,80	17,80	4	17,73	0,10	0,54	99,13
14	F15	PC01	DB09	18,10	18,10	18,00	17,60	4	17,95	0,24	1,33	100,39
15	F08x	PD01	DB10	18,33	18,45	18,05	18,21	4	18,26	0,17	0,93	102,10
16	F12x	PC01	DB09	18,51	17,79	18,31	18,42	4	18,26	0,32	1,76	102,11
17	A67	PB05	DB10	19,10	17,90	18,70	18,70	4	18,60	0,50	2,71	104,03
18	F03	PB05	DB08	18,26	18,67	19,35	19,40	4	18,92	0,55	2,92	105,82
19	F13	PC01	DA99	21,868a	18,88	18,83	19,10	3	18,94	0,14	0,76	105,92
20	F18x	PD01	DB10	18,80	19,10	19,40	18,70	4	19,00	0,32	1,66	106,26
21	F32x	PD01	DB05	19,60	20,15	18,46	18,67	4	19,22	0,79	4,13	107,49
22	A55	PD02	DB10	19,09	19,41	19,07	19,48	4	19,26	0,21	1,10	107,73
23	A36	PD02	DB10	19,00	19,50	19,30	19,40	4	19,30	0,22	1,12	107,94
24	A65	PD01	DB08	19,20	19,50	20,20	18,50	4	19,35	0,70	3,64	108,22
25	A80	PD03	DB10	19,90	18,90	20,00	18,70	4	19,38	0,67	3,46	108,36
26	F02	PD02	DB05	20,64	18,55	20,47	18,15	4	19,45	1,29	6,61	108,79
27	F33x	PD01	DB10	18,68	19,95	19,29	19,92	4	19,46	0,60	3,10	108,84
28	A47	PD01	DB08	20,19	20,66	21,63	20,01	4	20,62	0,73	3,52	115,34
29	A45x	PE99	DB10	20,90	21,20	21,10	21,20	4	21,10	0,14	0,67	118,01
30												
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	N	Mean	SI	VI
all labs	115	17,88	0,445	2,491
30		% from the mean		
	L		SR	VR
	29		1,737	9,707

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Pb Sample: 4 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A82	PD01	DB10	0,14	0,13	0,14	0,13	4	0,13	0,01	5,14	70,32
2	A55	PD02	DB10	0,13	0,15	0,14	0,14	4	0,14	0,01	4,99	74,02
3	A79	PD03	DB10	0,15	0,14	0,15	0,14	4	0,15	0,01	3,57	77,13
4	A39	PD02	DB08	0,16	0,16	0,15	0,16	4	0,16	0,01	4,38	83,98
5	F27	PD04	DB05	0,06	0,18	0,22	0,20	4	0,17	0,07	43,76	87,08
6	F33x	PD01	DB10	0,17	0,16	0,16	0,19	4	0,17	0,01	8,32	89,72
7	A36	PD02	DB10	0,17	0,17	0,17	0,18	4	0,17	0,00	2,75	91,30
8	F06x	PD02	DB08	0,16	0,18	0,23	0,15	4	0,18	0,04	20,10	94,34
9	F18x	PD01	DB10	0,22	0,20	0,19	0,20	4	0,20	0,01	4,70	106,34
10	F32x	PD01	DB05	0,20	0,21	0,20	0,21	4	0,20	0,00	1,29	107,53
11	F14x	PC01	DB10	0,21	0,21	0,21	0,20	4	0,21	0,00	1,87	109,51
12	F08x	PD01	DB10	0,20	0,21	0,22	0,21	4	0,21	0,01	2,61	110,83
13	A67	PB05	DB10	0,22	0,21	0,21	0,22	4	0,21	0,01	3,61	113,34
14	F23	PD01	DB05	0,22	0,21	0,23	0,21	4	0,22	0,01	4,40	114,79
15	A45x	PE99	DB10	0,24	0,21	0,21	0,23	4	0,22	0,02	7,30	117,30
16	F05x	PD02	DB05	0,27	0,24	0,25	0,21	4	0,24	0,02	9,62	127,45
17	F13	PC01	DA99	0,298a	0,25	0,26	0,25	3	0,25	0,00	1,65	133,35
18	F29x	PB05	DB10	0,31	0,32	0,35	0,32	4	0,33 b *	0,02	5,33	171,52
19	A83	PD01	DB08	4,22	4,58	5,44	4,70	4	4,74 b *	0,51	10,84	2499,88
20												
21												
22	A60x	PD01	DB08	<3,3	<3,3	<3,3	<3,3					
23	A47	PD01	DB08	<,5	<,5	<,5	<,5					
24	F02	PD02	DB05	<,5	<,5	<,5	<,5					
25	F03	PB05	DB08	<,5	<,5	<,5	<,5					
26	F12x	PC01	DB09	<,38	<,38	<,38	<,38					
27	F11	PD01	DB10	<,3	<,3	<,3	<,3					
28	A80	PD03	DB10	<,25	<,25	<,25	<,25					
29	F15	PC01	DB09	<,2	<,2	<,2	<,2					
30	F07x	PC01	DB08	0,26	<,2	0,24	0,25					
31	A65	PD01	DB08	<,4	0,60	0,50	0,60					
32												
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	N	Mean	SI	VI
all labs	67	0,19	0,014	7,310
30	% from the mean			
	L		SR	VR
	17		0,035	18,580

* = non tolerable mean because more than +/-

Lower than the lowest evaluated result (< 0,20)

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cd Sample: 1 Unit: ng/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	F27	PD04	DB05	42,79	48,36	48,35	47,10	0	46,65	b	*	63,95
2	F03	PB05	DB08	53,00	53,00	55,00	54,00	0	53,75	b		73,68
3	F05x	PD02	DB05	61,60	63,50	63,60	61,90	4	62,65			85,89
4	F33x	PD01	DB10	61,12	70,34	63,91	65,33	4	65,18			89,35
5	A79	PD03	DB10	68,00	67,00	65,00	69,00	4	67,25			92,19
6	F32x	PD01	DB10	66,80	67,90	74,20	64,80	4	68,43			93,80
7	F12x	PC01	DB09	72,00	67,00	70,00	68,00	4	69,25			94,93
8	F06x	PD02	DB08	72,00	74,00	61,00	71,00	4	69,50			95,28
9	F23	PD01	DB05	70,01	70,20	68,74	70,50	4	69,86			95,77
10	F07x	PC01	DB08	70,70	70,40	67,00	72,00	4	70,03			96,00
11	A55	PD02	DB10	70,40	71,90	71,10	70,70	4	71,03			97,37
12	A80	PD03	DB10	72,30	72,00	71,10	69,70	4	71,28			97,71
13	F08x	PD01	DB10	71,35	73,45	74,50	75,55	4	73,71			101,05
14	A67	PB05	DB10	72,90	73,80	75,20	73,30	4	73,80			101,17
15	A39	PD02	DB08	73,08	74,53	75,32	72,80	4	73,93			101,35
16	A36	PD02	DB10	73,00	76,00	71,00	76,00	4	74,00			101,44
17	F02	PD02	DB05	70,00	80,00	80,00	70,00	4	75,00			102,82
18	F14x	PC01	DB10	74,87	74,85	74,24	78,76	4	75,68			103,75
19	A61x	PD01	DB08	72,00	77,00	77,00	77,00	4	75,75			103,84
20	A58x	PD02	DB05	76,29	75,72	77,64	75,12	4	76,19			104,45
21	F18x	PD01	DB10	76,80	76,20	77,60	75,70	4	76,58			104,97
22	A82	PD01	DB10	76,97	80,08	79,18	82,22	4	79,61			109,14
23	F15	PC01	DB09	88,50	85,30	75,80	82,10	4	82,93			113,68
24	A45x	PE99	DB10	81,00	91,60	78,30	81,90	4	83,20			114,06
25	F11	PD01	DB10	110,00	102,00	101,00	105,00	0	104,50	b	*	143,26
26	F13	PD01	DA99	117,00	111,00	115,00	111,00	0	113,50	b	*	155,59
27												
28												
29	A65	PD01	DB08	<200	<200	<200	<200				**	
30	F29x	PB05	DB10	<30	<30	<30	<30				*	
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	88	72,95	2,523	3,459
30		% from the mean		
L			SR	VR
22			5,188	7,112

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cd Sample: 2 Unit: ng/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	F27	PD04	DB05	10,61	17,55	7,40	10,51	0	11,52 b *	4,29	37,24	25,55
2	F05x	PD02	DB05	39,90	33,90	33,50	36,80	4	36,03	2,97	8,25	79,91
3	F33x	PD01	DB10	37,90	39,32	33,71	34,79	4	36,43	2,62	7,19	80,81
4	A79	PD03	DB10	41,00	40,00	41,00	40,00	4	40,50	0,58	1,43	89,84
5	F23	PD01	DB05	43,08	40,19	39,16	41,41	4	40,96	1,69	4,12	90,86
6	F32x	PD01	DB10	41,00	43,10	41,00	42,00	4	41,78	1,00	2,40	92,67
7	F12x	PC01	DB09	42,00	40,00	42,00	45,00	4	42,25	2,06	4,88	93,72
8	A55	PD02	DB10	41,80	42,30	43,00	42,60	4	42,43	0,51	1,19	94,11
9	A67	PB05	DB10	41,90	46,30	42,60	41,10	4	42,98	2,30	5,35	95,33
10	A80	PD03	DB10	43,30	42,40	43,00	45,30	4	43,50	1,26	2,89	96,50
11	A45x	PE99	DB10	45,00	44,30	44,70	43,30	4	44,33	0,74	1,67	98,33
12	A36	PD02	DB10	46,00	45,00	43,00	44,00	4	44,50	1,29	2,90	98,71
13	F07x	PC01	DB08	46,20	40,30	46,10	45,70	4	44,58	2,86	6,41	98,88
14	F18x	PD01	DB10	44,00	45,50	44,80	45,90	4	45,05	0,83	1,85	99,93
15	A58x	PD02	DB05	45,39	45,45	44,97	45,15	4	45,24	0,22	0,49	100,36
16	F08x	PD01	DB10	45,46	46,51	45,46	44,40	4	45,45	0,86	1,90	100,83
17	A61x	PD01	DB08	45,00	44,00	48,00	49,00	4	46,50	2,38	5,12	103,15
18	F14x	PC01	DB10	47,81	45,79	46,11	46,93	4	46,66	0,90	1,94	103,51
19	F06x	PD02	DB08	42,00	53,00	36,00	57,00	4	47,00	9,70	20,63	104,26
20	A82	PD01	DB10	47,54	46,92	45,89	49,32	4	47,42	1,44	3,04	105,18
21	A39	PD02	DB08	52,08	52,64	53,20	52,92	4	52,71	0,48	0,91	116,93
22	F15	PC01	DB09	54,90	63,40	51,70	53,90	4	55,98	5,13	9,16	124,17
23	F11	PD01	DB10	61,00	61,00	58,00	58,00	4	59,50 *	1,73	2,91	131,99
24	F13	PD01	DA99	68,00	65,00	67,00	65,00	0	66,25 b *	1,50	2,26	146,96
25												
26												
27	A65	PD01	DB08	<200	<200	<200	<200					**
28	F03	PB05	DB08	<50	<50	<50	<50					
29	F29x	PB05	DB10	<30	<30	<30	<30					*
30	F02	PD02	DB05	<50	50,00	<50	<50					
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	N	Mean	SI	VI
all labs	88	45,08	1,980	4,392
30		% from the mean		
	L		SR	VR
	22		5,466	12,126

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cd Sample: 3 Unit: ng/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	F29x	PB05	DB10	834	832	734,36a	836	0	834,0	b	*	61,30
2	F02	PD02	DB05	1130	1040	1160	1130	4	1115,0	51,96	4,66	81,96
3	F23	PD01	DB05	1211	1173	1112	1180	4	1169,0	41,43	3,54	85,92
4	F33x	PD01	DB10	1183	1201	1222	1218	4	1205,8	18,02	1,49	88,63
5	A39	PD02	DB08	1222	1228	1224	1244	4	1229,5	9,98	0,81	90,37
6	F05x	PD02	DB05	1250	1265	1266	1259	4	1260,0	7,35	0,58	92,61
7	A79	PD03	DB10	1290	1283	1286	1297	4	1289,0	6,06	0,47	94,74
8	F27	PD04	DB05	1283	1344	1345	1296	4	1317,0	32,20	2,44	96,80
9	F07x	PC01	DB08	1284	1340	1333	1321	4	1319,5	24,93	1,89	96,99
10	A80	PD03	DB10	1350	1300	1340	1310	4	1325,0	23,80	1,80	97,39
11	F06x	PD02	DB08	1310	1360	1340	1330	4	1335,0	20,82	1,56	98,13
12	A61x	PD01	DB08	1337	1335	1336	1354	4	1340,5	9,04	0,67	98,53
13	F11	PD01	DB10	1350	1320	1350	1350	4	1342,5	15,00	1,12	98,68
14	A67	PB05	DB10	1368	1314	1375	1337	4	1348,5	28,31	2,10	99,12
15	F12x	PC01	DB09	1360	1340	1360	1390	4	1362,5	20,62	1,51	100,15
16	F32x	PD01	DB10	1396	1339	1421	1342	4	1374,5	40,58	2,95	101,03
17	A45x	PE99	DB10	1400	1410	1410	1410	4	1407,5	5,00	0,36	103,45
18	F18x	PD01	DB10	1420	1400	1400	1420	4	1410,0	11,55	0,82	103,64
19	A36	PD02	DB10	1432	1417	1402	1408	4	1414,8	13,05	0,92	103,99
20	F08x	PD01	DB10	1416	1410	1439	1395	4	1415,1	18,55	1,31	104,01
21	F15	PC01	DB09	1395	1426	1413	1438	4	1418,0	18,42	1,30	104,23
22	F14x	PC01	DB10	1411	1432	1431	1439	4	1428,3	12,04	0,84	104,98
23	A82	PD01	DB10	1428	1490	1425	1450	4	1448,4	29,67	2,05	106,46
24	A58x	PD02	DB05	1502	1489	1436	1416	4	1460,7	41,19	2,82	107,36
25	F03	PB05	DB08	1467	1464	1459	1467	4	1464,3	3,77	0,26	107,63
26	A55	PD02	DB10	1480	1490	1460	1460	4	1472,5	15,00	1,02	108,23
27	A65	PD01	DB08	1500	1500	1500	1500	4	1500,0	0,00	0,00	110,25
28	F13	PD01	DA99	1551	1568	1536	1588	4	1560,8	22,38	1,43	114,72
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	N	Mean	SI	VI
all labs	108	1360,5	20,027	1,472
30		% from the mean		
	L		SR	VR
	27		103,568	7,613

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: Cd Sample: 4 Unit: ng/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery
		P	D	1	2	3	4			Si	Vi	
1	F27	PD04	DB05	9,08	7,98	9,00	5,41	0	7,87 b *	1,71	21,78	18,62
2	F33x	PD01	DB10	35,92	33,90	31,62	34,00	4	33,86	1,76	5,19	80,13
3	F05x	PD02	DB05	35,70	34,10	33,00	34,60	4	34,35	1,12	3,26	81,29
4	A79	PD03	DB10	37,00	37,30	39,50	36,30	4	37,53	1,38	3,68	88,80
5	A55	PD02	DB10	40,50	40,10	39,40	40,50	4	40,13	0,52	1,29	94,95
6	A80	PD03	DB10	42,90	40,80	38,60	38,90	4	40,30	1,99	4,93	95,37
7	F07x	PC01	DB08	43,60	44,30	35,30	41,40	4	41,15	4,09	9,94	97,38
8	F12x	PC01	DB09	41,00	43,00	40,00	42,00	4	41,50	1,29	3,11	98,21
9	A67	PB05	DB10	42,90	40,00	43,30	39,90	4	41,53	1,83	4,40	98,27
10	A36	PD02	DB10	41,00	42,00	43,00	42,00	4	42,00	0,82	1,94	99,39
11	A61x	PD01	DB08	41,00	40,00	44,00	44,00	4	42,25	2,06	4,88	99,98
12	F32x	PD01	DB10	42,90	41,80	42,90	41,80	4	42,35	0,64	1,50	100,22
13	F14x	PC01	DB10	42,39	40,99	45,76	41,78	4	42,73	2,10	4,91	101,12
14	F06x	PD02	DB08	51,00	36,00	40,00	44,00	4	42,75	6,40	14,96	101,17
15	A82	PD01	DB10	43,45	42,97	44,00	43,07	4	43,37	0,47	1,08	102,64
16	A39	PD02	DB08	44,40	44,52	44,37	44,52	4	44,45	0,08	0,18	105,19
17	F08x	PD01	DB10	44,09	41,94	47,31	45,16	4	44,62	2,24	5,02	105,60
18	F18x	PD01	DB10	45,00	44,50	45,60	44,60	4	44,93	0,50	1,11	106,31
19	F23	PD01	DB05	44,72	46,59	45,22	45,51	4	45,51	0,79	1,74	107,70
20	A45x	PE99	DB10	47,90	46,40	45,90	46,30	4	46,63	0,88	1,88	110,34
21	A58x	PD02	DB05	54,77	51,86	53,01	53,27	4	53,23	1,20	2,25	125,96
22	F15	PC01	DB09	60,20	51,10	57,10	60,20	0	57,15 b *	4,29	7,51	135,24
23	F13	PD01	DA99	96,00	87,00	85,00	84,00	0	88,00 b *	5,48	6,22	208,25
24												
25												
26	A65	PD01	DB08	<200	<200	<200	<200					**
27	F03	PB05	DB08	<50	<50	<50	<50					
28	F02	PD02	DB05	<50	<50	<50	<50					
29	F29x	PB05	DB10	<30	<30	<30	<30					
30	F11	PD01	DB10	<25	<25	<25	<25					*
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	80	42,26	1,607	3,802
30		% from the mean		
	L		SR	VR
	20		4,202	9,944

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: B Sample: 1 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery	
		P	D	1	2	3	4			Si	Vi		
1	A50	PC01	DB08	9,32	8,47	8,87	8,57	4	8,81	*	0,38	4,33	79,26
2	A39	PD02	DB08	9,53	9,62	9,69	9,53	4	9,59		0,08	0,84	86,33
3	F07x	PC01	DB08	9,47	9,22	9,66	10,88	4	9,81		0,74	7,52	88,26
4	A49	PD05	DB08	9,66	9,59	9,34	11,30	4	9,97		0,90	8,98	89,75
5	F28x	PD02	DB08	9,78	9,80	10,42	10,28	4	10,07		0,33	3,27	90,61
6	F18x	PD01	DB08	10,00	10,10	10,10	10,10	4	10,08		0,05	0,50	90,67
7	A67	PB05	DB08	10,10	10,60	10,00	10,10	4	10,20		0,27	2,65	91,80
8	F02x	PD02	DB08	10,16	10,11	10,95	9,82	4	10,26		0,48	4,72	92,34
9	A61x	PD01	DB08	9,93	10,93	10,58	10,44	4	10,47		0,41	3,96	94,23
10	F05x	PD02	DB08	10,60	10,46	10,62	10,48	4	10,54		0,08	0,77	94,86
11	F33x	PD01	DB10	10,76	10,74	10,49	10,43	4	10,61		0,17	1,60	95,44
12	F20x	PD02	DB08	10,80	10,80	10,70	10,80	4	10,78		0,05	0,46	96,97
13	A55	PD02	DB08	10,90	11,00	10,82	10,94	4	10,92		0,08	0,69	98,23
14	F19x	PD02	DB08	11,10	11,00	11,10	10,60	4	10,95		0,24	2,17	98,55
15	F08x	PD01	DB10	10,97	11,12	11,18	11,38	4	11,16		0,17	1,52	100,43
16	A65	PD01	DB08	11,10	11,10	11,30	11,30	4	11,20		0,12	1,03	100,80
17	F14x	PC01	DB08	11,05	11,25	11,35	11,19	4	11,21		0,13	1,12	100,89
18	F32	PD01	DB08	11,30	11,40	11,40	11,20	4	11,33		0,10	0,85	101,92
19	A85	PD04	DB08	11,71	11,44	11,36	10,94	4	11,36		0,32	2,81	102,26
20	A60x	PD01	DB08	11,94	11,38	11,75	10,88	4	11,49		0,47	4,08	103,36
21	A47x	PD01	DB08	12,03	11,80	11,29	11,46	4	11,65		0,33	2,86	104,80
22	A36	PD02	DB08	12,10	12,20	12,10	11,80	4	12,05		0,17	1,44	108,45
23	A59	PC01	DB08	11,97	14,40	13,53	14,46	4	13,59	*	1,16	8,54	122,31
24	F23	PD01	DB08	14,76	14,36	15,42	14,85	4	14,85	*	0,44	2,94	133,62
25	A82	PD01	DB08	15,80	15,30	14,40	14,00	4	14,88	*	0,82	5,53	133,87
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	N	Mean	SI	VI
all labs	100	11,11	0,339	3,052
20	% from the mean			
	L		SR	VR
	25		1,461	13,145

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: B Sample: 2 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	A39	PD02	DB08	21,75	21,92	21,92	21,74	4	21,83	0,10	0,46	89,70
2	A50	PC01	DB08	23,03	21,41	21,97	22,63	4	22,26	0,72	3,21	91,46
3	A67	PB05	DB08	21,90	22,70	23,60	22,20	4	22,60	0,74	3,29	92,86
4	F28x	PD02	DB08	22,17	23,20	22,95	22,85	4	22,79	0,44	1,93	93,65
5	A55	PD02	DB08	22,81	22,49	23,29	23,30	4	22,97	0,39	1,72	94,39
6	F07x	PC01	DB08	22,33	22,60	22,63	24,64	4	23,05	1,07	4,64	94,71
7	F18x	PD01	DB08	23,80	23,30	22,50	22,90	4	23,13	0,56	2,40	95,02
8	F05x	PD02	DB08	23,57	23,36	23,27	23,49	4	23,42	0,13	0,57	96,24
9	A59	PC01	DB08	19,75	20,19	27,61	29,11	0	24,17 c	4,89	20,22	99,29
10	A49	PD05	DB08	24,72	24,49	23,83	24,10	4	24,29	0,40	1,63	99,78
11	F20x	PD02	DB08	24,60	24,00	24,40	24,20	4	24,30	0,26	1,06	99,84
12	F02x	PD02	DB08	24,45	24,07	24,74	24,63	4	24,47	0,29	1,20	100,55
13	A65	PD01	DB08	24,30	24,50	24,30	25,60	4	24,68	0,62	2,53	101,38
14	F33x	PD01	DB10	25,43	24,50	24,73	24,25	4	24,73	0,51	2,05	101,60
15	F19x	PD02	DB08	25,20	24,50	24,70	24,90	4	24,83	0,30	1,20	102,00
16	A61x	PD01	DB08	24,38	25,01	24,29	25,79	4	24,87	0,69	2,79	102,18
17	F14x	PC01	DB08	25,08	25,09	25,20	25,23	4	25,15	0,08	0,30	103,34
18	A36	PD02	DB08	25,40	25,40	25,20	25,00	4	25,25	0,19	0,76	103,75
19	F08x	PD01	DB10	25,55	24,94	25,47	25,62	4	25,39	0,31	1,23	104,34
20	F32	PD01	DB08	25,70	25,70	25,50	25,30	4	25,55	0,19	0,75	104,98
21	F23	PD01	DB08	25,09	24,29	26,70	26,30	4	25,60	1,11	4,32	105,16
22	A47x	PD01	DB08	25,83	25,63	25,32	26,11	4	25,72	0,33	1,29	105,69
23	A85	PD04	DB08	25,84	26,59	26,35	25,05	4	25,96	0,68	2,62	106,65
24	A82	PD01	DB08	27,00	27,20	26,40	27,20	4	26,95	0,38	1,40	110,73
25	A60x	PD01	DB08	28,14	29,03	32,44	26,87	0	29,12 b	2,39	8,20	119,65
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	N	Mean	SI	VI
all labs	92	24,34	0,456	1,875
20	% from the mean			
	L		SR	VR
	23		1,343	5,517

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: B Sample: 3 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	F28x	PD02	DB08	11,20	10,94	10,78	11,10	4	11,01	0,18	1,67	88,89
2	A39	PD02	DB08	10,85	10,98	11,27	10,99	4	11,02	0,18	1,60	89,03
3	F33x	PD01	DB10	10,98	11,12	10,81	11,27	4	11,05	0,20	1,78	89,22
4	A49	PD05	DB08	11,32	11,00	10,92	11,09	4	11,08	0,17	1,56	89,52
5	F07x	PC01	DB08	11,87	11,55	11,64	11,17	4	11,56	0,29	2,52	93,36
6	F02x	PD02	DB08	11,47	12,10	11,57	11,76	4	11,73	0,28	2,37	94,71
7	F05x	PD02	DB08	11,75	11,78	11,76	11,74	4	11,76	0,02	0,15	94,97
8	A55	PD02	DB08	12,15	11,94	11,91	11,97	4	11,99	0,11	0,90	96,87
9	A82	PD01	DB08	11,80	12,60	11,30	12,40	4	12,03	0,59	4,91	97,13
10	A61x	PD01	DB08	11,54	12,53	12,15	12,35	4	12,14	0,43	3,55	98,08
11	F18x	PD01	DB08	12,10	12,00	12,30	12,20	4	12,15	0,13	1,06	98,14
12	A67	PB05	DB08	12,50	11,70	11,40	13,00	4	12,15	0,73	6,03	98,14
13	F20x	PD02	DB08	12,30	12,40	12,10	12,20	4	12,25	0,13	1,05	98,95
14	F19x	PD02	DB08	12,70	12,70	11,70	12,60	4	12,43	0,49	3,91	100,36
15	F14x	PC01	DB08	12,74	12,69	12,60	12,70	4	12,68	0,06	0,47	102,44
16	A50	PC01	DB08	12,25	13,69	13,17	11,94	4	12,76	0,81	6,34	103,09
17	F32	PD01	DB08	12,80	12,90	13,10	13,00	4	12,95	0,13	1,00	104,60
18	F08x	PD01	DB10	13,25	13,06	12,96	12,89	4	13,04	0,16	1,20	105,32
19	A65	PD01	DB08	13,30	13,10	13,40	13,30	4	13,28	0,13	0,95	107,23
20	A36	PD02	DB08	13,40	13,30	13,10	13,70	4	13,38	0,25	1,87	108,04
21	A47x	PD01	DB08	13,16	13,22	13,54	13,86	4	13,45	0,32	2,40	108,60
22	A85	PD04	DB08	13,33	13,41	14,02	13,25	4	13,50	0,35	2,60	109,07
23	A60x	PD01	DB08	13,45	13,20	12,67	15,23	4	13,64	1,11	8,15	110,15
24	A59	PC01	DB08	13,42	14,92	13,41	14,74	4	14,12	0,82	5,81	114,08
25	F23	PD01	DB08	22,60	23,68	23,00	23,14	0	23,11 b *	0,45	1,93	186,63
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	N	Mean	SI	VI
all labs	96	12,38	0,336	2,712
20	% from the mean			
	L		SR	VR
	24		0,908	7,331

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Element: B Sample: 4 Unit: µg/g

No.	Lab. Code	Method code		Replications				n	Lab.mean	Lab.standard dev.		Recovery %
		P	D	1	2	3	4			Si	Vi	
1	F28x	PD02	DB08	15,31	15,50	15,24	15,03	4	15,27	0,19	1,27	89,28
2	A47x	PD01	DB08	16,70	14,73	14,46	15,29	4	15,30	1,00	6,53	89,43
3	A39	PD02	DB08	15,51	15,92	15,56	16,13	4	15,78	0,30	1,88	92,27
4	A50	PC01	DB08	15,94	15,98	15,36	16,06	4	15,84	0,32	2,02	92,59
5	A55	PD02	DB08	16,09	16,07	16,08	16,06	4	16,08	0,01	0,08	93,99
6	F07x	PC01	DB08	16,03	17,37	15,53	15,48	4	16,10	0,88	5,47	94,15
7	F05x	PD02	DB08	16,42	16,34	16,47	16,32	4	16,39	0,07	0,43	95,82
8	A49	PD05	DB08	16,16	17,07	16,66	16,05	4	16,49	0,47	2,86	96,39
9	F33x	PD01	DB10	16,64	16,51	16,25	16,71	4	16,53	0,20	1,23	96,64
10	F18x	PD01	DB08	16,60	16,80	16,80	16,50	4	16,68	0,15	0,90	97,50
11	F02x	PD02	DB08	16,65	16,88	16,46	16,86	4	16,71	0,20	1,18	97,72
12	F20x	PD02	DB08	16,90	17,00	16,90	16,90	4	16,93	0,05	0,30	98,96
13	A82	PD01	DB08	17,10	16,90	17,20	16,80	4	17,00	0,18	1,07	99,40
14	A61x	PD01	DB08	16,21	17,04	17,71	17,26	4	17,06	0,63	3,69	99,72
15	A67	PB05	DB08	17,20	17,60	17,10	16,60	4	17,13	0,41	2,40	100,13
16	F32	PD01	DB08	17,60	17,60	17,30	17,40	4	17,48	0,15	0,86	102,18
17	F19x	PD02	DB08	17,30	17,60	17,20	18,00	4	17,53	0,36	2,05	102,47
18	A60x	PD01	DB08	17,36	18,14	17,24	17,66	4	17,60	0,40	2,28	102,93
19	F08x	PD01	DB10	17,42	17,85	17,85	17,42	4	17,63	0,25	1,41	103,11
20	F14x	PC01	DB08	17,81	17,79	17,73	18,00	4	17,83	0,12	0,65	104,27
21	A65	PD01	DB08	18,00	17,90	17,80	17,70	4	17,85	0,13	0,72	104,37
22	A85	PD04	DB08	18,01	18,38	19,05	17,71	4	18,29	0,58	3,16	106,93
23	A36	PD02	DB08	18,70	19,80	19,00	19,30	4	19,20	0,47	2,44	112,26
24	A59	PC01	DB08	14,41a	19,64	19,56	19,91	3	19,70	0,18	0,93	115,21
25	F23	PD01	DB08	19,86	20,54	19,18	19,86	4	19,86	0,56	2,80	116,12
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	N	Mean	SI	VI
all labs	99	17,10	0,330	1,931
20		% from the mean		
	L		SR	VR
	25		1,220	7,124

* = non tolerable mean because more than +/-

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	1	F03	PB05	DB08	48,67	46,45	44,12	46,07	46,33	1,866	4,027
			A80	PD03	DB10	46,5	46,5	49,9	48,5	47,85	1,660	3,470
			F06x	PD02	DB08	48,6	49,9	47,4	46,8	48,18	1,372	2,848
			A79	PD03	DB10	50,166	50,896	50,707	51,357	50,78	0,493	0,971
			F18x	PD01	DB08	48,6	51,8	51	52,2	50,90	1,612	3,168
			F05x	PD02	DB08	52,15	52,46	51,59	51,09	51,82	0,607	1,171
			A65	PD01	DB08	52	52	53	53	52,50	0,577	1,100
			A36	PC02	DB08	55,2	52,6	51,9	52,5	53,05	1,466	2,764
			A60	PD01	DB08	58,965	54,672	49,046	54,227	54,23	4,062	7,490
			A45x	PE99	DB08	55,4	57,8	57,9	56,6	56,93	1,176	2,066
			A39	PD02	DB08	58,98	56,18	60,03	56,7	57,97	1,833	3,162
			F12x	PC01	DB08	60	60	60	60	60,00	0,000	0,000
			F15x	PC01	DB08	63	61	60	62	61,50	1,291	2,099
			F16x	PC01	DB08	62,07	63,59	61,79	63,75	62,80	1,013	1,613
			A61x	PB02	DB08	62,3	61,3	63	65,4	63,00	1,745	2,771
			F14	PC01	DB08	63,9	65,81	64,24	64,93	64,72	0,844	1,303
			A55	PD02	DB08	65	64,7	64,43	65,95	65,02	0,662	1,019
			A50	PC01	DB08	67,9	65,5	66,3	69,4	67,28	1,733	2,576
			A49	PD05	DB08	66,69	65,95	68,04	70,58	67,82	2,036	3,003
			A59	PC01	DB08	67,58	73,5	68,9	69,5	69,87	2,549	3,649
			A83	PD01	DB08	81,37	78,81	76,45	75,36	78,00	2,670	3,423
Al	(µg/g)	2	A57	PZ98	DD02	117,3	122,4	101,3	106,3	111,83	9,714	8,687
			A53	PZ02	DD02	137	108	116	106	116,75	14,175	12,141
			F06x	PD02	DB08	140	141	138	140	139,75	1,258	0,900
			A79	PD03	DB10	147,95	151,59	148,23	149,46	149,31	1,657	1,110
			F05x	PD02	DB08	159	159,3	159,8	158,5	159,15	0,545	0,342
			F18x	PD01	DB08	159	163	159	168	162,25	4,272	2,633
			A83	PD01	DB08	169,3	161,7	161,4	166	164,60	3,773	2,292
			A59	PC01	DB08	146,7	145,3	183,5	189,6	166,28	23,551	14,164

17th Needle/Leaf Interlaboratory Comparison Test 2014/2015

Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	2	A80	PD03	DB10	178	165	168	173	171,00	5,715	3,342
			F03	PB05	DB08	175,74	162,77	168,31	177,55	171,09	6,839	3,997
			A50	PC01	DB08	169	171	183	179	175,50	6,608	3,765
			A36	PC02	DB08	176	172	176	179	175,75	2,872	1,634
			A39	PD02	DB08	178,4	175,1	177,4	176,7	176,90	1,388	0,785
			A60	PD01	DB08	172,782	176,096	177,647	187,656	178,55	6,404	3,587
			F12x	PC01	DB08	180	180	180	180	180,00	0,000	0,000
			A65	PD01	DB08	176	184	182	185	181,75	4,031	2,218
			F15x	PC01	DB08	182	182	184	180	182,00	1,633	0,897
			A55	PD02	DB08	185,7	182,6	182,9	183,7	183,73	1,396	0,760
			A61x	PB02	DB08	181,5	184,5	182,4	189,3	184,43	3,485	1,889
			F14	PC01	DB08	189,1	181,7	185,4	185,3	185,38	3,021	1,630
			F16x	PC01	DB08	182,8	187,9	183,1	187,7	185,38	2,804	1,513
			A45x	PE99	DB08	191	190	185	183	187,25	3,862	2,063
			A49	PD05	DB08	190,13	206,67	205,31	208,32	202,61	8,409	4,150
			A57	PZ98	DD02	219,3	234,93	197	211,9	215,78	15,778	7,312
			A53	PZ02	DD02	255	253	255	257	255,00	1,633	0,640
Al	(µg/g)	3	F06x	PD02	DB08	343	357	352	348	350,00	5,944	1,698
			A79	PD03	DB10	369,11	365,5	363,53	361,67	364,95	3,182	0,872
			A83	PD01	DB08	374,8	378,4	381,2	377,3	377,93	2,653	0,702
			F05x	PD02	DB08	412,3	413,7	412,8	412,1	412,73	0,714	0,173
			A50	PC01	DB08	429	416	420	416	420,25	6,131	1,459
			A45x	PE99	DB08	422	427	427	418	423,50	4,359	1,029
			A80	PD03	DB10	436	418	442	413	427,25	13,937	3,262
			F18x	PD01	DB08	425	421	432	432	427,50	5,447	1,274
			A55	PD02	DB08	438,6	441,2	437,9	441,6	439,83	1,848	0,420
			F12x	PC01	DB08	440	440	450	450	445,00	5,774	1,297
			F03	PB05	DB08	448,58	445,4	449,55	440,48	446,00	4,086	0,916
			A49	PD05	DB08	442,93	453,53	439,34	450,07	446,47	6,485	1,453

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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	F15x	PC01	DB08	449	452	451	447	449,75	2,217	0,493
			F14	PC01	DB08	451,5	451,7	448,9	447,3	449,85	2,125	0,472
			A36	PC02	DB08	450	451	451	453	451,25	1,258	0,279
			A61x	PB02	DB08	456,2	451,7	451,5	454,2	453,40	2,235	0,493
			A39	PD02	DB08	446,3	460,9	449,6	459,4	454,05	7,197	1,585
			F16x	PC01	DB08	456,7	451	461,5	453	455,55	4,616	1,013
			A60	PD01	DB08	446,157	485,325	447,224	461,154	459,97	18,235	3,964
			A65	PD01	DB08	463	461	467	458	462,25	3,775	0,817
			A59	PC01	DB08	449,9	496,2	459,6	447,3	463,25	22,595	4,878
			A57	PZ98	DD02	487,23	519,17	506,1	523,87	509,09	16,400	3,221
			A53	PZ02	DD02	692	686	691	678	686,75	6,397	0,931
Al	(µg/g)	4	F03	PB05	DB08	27,6	26,49	27,29	27,94	27,33	0,620	2,268
			F06x	PD02	DB08	32,6	31,1	31,8	31,3	31,70	0,668	2,108
			A80	PD03	DB10	31	35,1	35,4	35,3	34,20	2,137	6,248
			F18x	PD01	DB08	36,3	33,6	35,8	36,7	35,60	1,383	3,885
			A79	PD03	DB10	36,49	36,344	37,335	35,015	36,30	0,959	2,643
			F05x	PD02	DB08	39,05	39,04	39,4	39,04	39,13	0,178	0,456
			A60	PD01	DB08	39,769	41,221	36,904	39,661	39,39	1,803	4,577
			F12x	PC01	DB08	40	40	40	40	40,00	0,000	0,000
			A36	PC02	DB08	40,8	41	40,3	41,3	40,85	0,420	1,029
			A65	PD01	DB08	40	41	41	45	41,75	2,217	5,311
			A61x	PB02	DB08	44,5	43,9	40,8	41,5	42,68	1,801	4,220
			A45x	PE99	DB08	43,2	43,5	43,3	43	43,25	0,208	0,481
			A39	PD02	DB08	43,09	43,1	44,05	43,31	43,39	0,453	1,044
			F15x	PC01	DB08	44	44	45	44	44,25	0,500	1,130
			A59	PC01	DB08	41,68	49,84	39,92	47,12	44,64	4,627	10,365
			A49	PD05	DB08	47,95	48,93	46,61	47,63	47,78	0,956	2,001
			A55	PD02	DB08	48,18	48,32	48,51	48,46	48,37	0,149	0,307
			F16x	PC01	DB08	47,69	47,95	49,39	48,45	48,37	0,750	1,550

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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	F14	PC01	DB08	48,99	48,42	48,6	48,31	48,58	0,298	0,614
			A83	PD01	DB08	60,3	67,75	62,61	59,43	62,52	3,734	5,973
			A50	PC01	DB08	68,2	61,1	67	65,5	65,45	3,103	4,741
			A57	PZ98	DD02	70,37	73,63	64,27	70,73	69,75	3,934	5,640
			A53	PZ02	DD02	78,4	79,5	84,3	79	80,30	2,704	3,368
As	(µg/g)	1	F05	PD02	DB08	<0,413	<0,413	<0,413	<0,413			
			A55	PD02	DB04	0,0248	0,0257	0,0252	0,0249	0,03	0,000	1,607
			A39	PD02	DB08	0,0301	0,0337	0,0298	0,0277	0,03	0,002	8,213
			A36	PD02	DB10	0,031	0,033	0,032	0,034	0,03	0,001	3,972
			F14	PC01	DB10	0,037	0,035	0,035	0,033	0,04	0,002	4,666
			A82	PD01	DB10	0,036	0,04	0,045	0,04	0,04	0,004	9,157
			F08	PD01	DB10	0,0441	0,0504	0,0472	0,0493	0,05	0,003	5,805
			A79	PD03	DB10	0,054	0,055	0,051	0,05	0,05	0,002	4,534
			F32	PD01	DB10	0,057	0,058	0,063	0,05	0,06	0,005	9,393
			A80	PD03	DB10	0,0959	0,0985	0,0696	0,0767	0,09	0,014	16,700
		2	F05	PD02	DB08	<0,413	<0,413	<0,413	<0,413			
			A55	PD02	DB04	0,0595	0,0592	0,0627	0,0604	0,06	0,002	2,621
			A39	PD02	DB08	0,0635	0,0615	0,0656	0,0585	0,06	0,003	4,854
			F14	PC01	DB10	0,0654	0,0629	0,0629	0,0641	0,06	0,001	1,869
			A36	PD02	DB10	0,064	0,065	0,064	0,066	0,06	0,001	1,479
			F32	PD01	DB10	0,076	0,069	0,074	0,063	0,07	0,006	8,230
			F08	PD01	DB10	0,0687	0,0729	0,0708	0,0729	0,07	0,002	2,819
			A82	PD01	DB10	0,074	0,073	0,071	0,075	0,07	0,002	2,332
As	(µg/g)	3	A79	PD03	DB10	0,087	0,087	0,089	0,086	0,09	0,001	1,442
			A80	PD03	DB10	0,123	0,11	0,147	0,125	0,13	0,015	12,157
			F32	PD01	DB10	0,214	0,214	0,212	0,204	0,21	0,005	2,256
			F08	PD01	DB10	0,2282	0,2197	0,2261	0,2176	0,22	0,005	2,268
			A36	PD02	DB10	0,225	0,225	0,226	0,222	0,22	0,002	0,772
			A55	PD02	DB04	0,225	0,227	0,227	0,221	0,23	0,003	1,257

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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	(µg/g)	3	F14	PC01	DB10	0,228	0,23	0,238	0,232	0,23	0,004	1,862
			A39	PD02	DB08	0,2182	0,251	0,2574	0,2415	0,24	0,017	7,096
			A82	PD01	DB10	0,236	0,251	0,234	0,25	0,24	0,009	3,706
			A80	PD03	DB10	0,246	0,243	0,261	0,228	0,24	0,014	5,533
			A79	PD03	DB10	0,244	0,25	0,248	0,244	0,25	0,003	1,217
			F05	PD02	DB08	0,693	0,632	0,668	0,626	0,65	0,032	4,816
As	(µg/g)	4	F05	PD02	DB08	<0,413	<0,413	<0,413	<0,413			
			F14	PC01	DB10	0,0118	0,0131	0,0141	0,0133	0,01	0,001	7,293
			A55	PD02	DB04	0,0136	0,0136	0,0138	0,0148	0,01	0,001	4,118
			A39	PD02	DB08	0,0159	0,0136	0,015	0,0118	0,01	0,002	12,701
			A36	PD02	DB10	0,013	0,014	0,015	0,015	0,01	0,001	6,719
			A82	PD01	DB10	0,016	0,014	0,016	0,015	0,02	0,001	6,278
			F32	PD01	DB10	0,021	0,015	0,017	0,017	0,02	0,003	14,381
			F08	PD01	DB10	0,0215	0,0204	0,0194	0,0204	0,02	0,001	4,200
			A79	PD03	DB10	0,0392	0,037	0,0361	0,0395	0,04	0,002	4,380
			A80	PD03	DB10	0,0452	0,0817	0,075	0,114	0,08	0,028	35,745
Ba	(µg/g)	1	A39	PD02	DB08	123	119,7	122	119,8	121,13	1,640	1,354
			A49	PD05	DB08	129,73	127,43	128,76	128,91	128,71	0,952	0,740
			A82	PD01	DB08	129	128	132	132	130,25	2,062	1,583
			F14	PC01	DB08	130	137,6	129,8	129,9	131,83	3,851	2,921
			A61x	PC01	DB08	132,2	133,1	133,1	130,7	132,28	1,132	0,856
			A80	PD03	DB10	137	133	140	136	136,50	2,887	2,115
			A65	PD01	DB08	133,9	135,5	139,7	137	136,53	2,466	1,806
		2	A82	PD01	DB08	11,7	11,6	11,5	11,4	11,55	0,129	1,118
			A39	PD02	DB08	13,35	13,19	13,41	13,23	13,30	0,102	0,771
			A49	PD05	DB08	14,33	13,74	13,89	13,87	13,96	0,257	1,842
			A61x	PC01	DB08	13,71	14,49	13,9	14,83	14,23	0,519	3,644
			F14	PC01	DB08	14,5	14,76	13,99	14,64	14,47	0,339	2,341
			A65	PD01	DB08	15,4	14,8	14,5	15,3	15,00	0,424	2,828

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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)	2	A80	PD03	DB10	16	14,8	15,2	15,8	15,45	0,551	3,565
Ba	(µg/g)	3	A82	PD01	DB08	16,8	16,1	16	15,6	16,13	0,499	3,096
			A39	PD02	DB08	17,86	18,44	18,53	18,5	18,33	0,317	1,730
			A49	PD05	DB08	18,38	18,7	18,77	18,37	18,56	0,210	1,131
			A61x	PC01	DB08	19,42	19,5	19,56	19,62	19,53	0,085	0,438
			A80	PD03	DB10	20,6	19,6	21,1	19,1	20,10	0,913	4,542
			F14	PC01	DB08	20,3	20,12	21,12	20,72	20,57	0,447	2,175
Ba	(µg/g)	4	A65	PD01	DB08	20,9	20,8	20,9	20,7	20,83	0,096	0,460
			A82	PD01	DB08	4,48	4,68	4,45	5,07	4,67	0,286	6,114
			A39	PD02	DB08	6,996	6,974	6,949	6,907	6,96	0,038	0,549
			A49	PD05	DB08	7,1	7,34	7,36	7,26	7,27	0,118	1,627
			A61x	PC01	DB08	7,37	7,34	7,45	7,23	7,35	0,091	1,239
			F14	PC01	DB08	7,901	8,184	7,841	8,011	7,98	0,151	1,887
Bi	(µg/g)	1	A65	PD01	DB08	8,1	8	8	7,9	8,00	0,082	1,021
			A80	PD03	DB10	8,83	8,44	8,17	8,2	8,41	0,305	3,626
			A80	PD03	DB10	<0,007	<0,007	<0,007	<0,007	0,01	0,003	33,467
			F14	PC01	DB10	0,005	0,009	0,012	0,011			
			A80	PD03	DB10	<0,007	<0,007	<0,007	<0,007			
			F14	PC01	DB10	0,009	0,017	0,017	0,008	0,01	0,005	38,623
Bi	(µg/g)	3	A80	PD03	DB10	0,0231	0,0209	0,0228	0,0211	0,02	0,001	5,167
			F14	PC01	DB10	0,019	0,018	0,034	0,02	0,02	0,008	33,162
Bi	(µg/g)	4	A80	PD03	DB10	0,0077	<0,007	0,008	0,0087	0,01	0,001	6,309
			F14	PC01	DB10	0,017	0,009	0,008	0,014	0,01	0,004	35,355
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	1,56	1,59	1,69	1,69	1,63	0,068	4,136
Br	(µg/g)	4	A53	PZ02	DD02	2,48	2,58	2,48	2,48	2,51	0,050	1,996
Cl	(µg/g)	1	A53	PZ02	DD02	430	430	440	440	435,00	5,774	1,327
			F05x	PZ99	DF08	415	444	465	440	441,00	20,510	4,651

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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	A57	PZ98	DD02	460	460	440	460	455,00	10,000	2,198
			F02	PA06	DF08	450	460	460	450	455,00	5,774	1,269
Cl	(µg/g)	2	A57	PZ98	DD02	680	690	680	690	685,00	5,774	0,843
			F02	PA06	DF08	700	700	700	700	700,00	0,000	0,000
			F05x	PZ99	DF08	718	731	723	660	708,00	32,445	4,583
			A53	PZ02	DD02	760	770	760	760	762,50	5,000	0,656
Cl	(µg/g)	3	F05x	PZ99	DF08	384	341	347	313	346,25	29,205	8,435
			A53	PZ02	DD02	340	350	350	350	347,50	5,000	1,439
			F02	PA06	DF08	360	360	360	360	360,00	0,000	0,000
			A57	PZ98	DD02	380	390	380	390	385,00	5,774	1,500
			A57	PZ98	DD02	1430	1420	1390	1410	1412,50	17,078	1,209
Cl	(µg/g)	4	F05x	PZ99	DF08	1583	1533	1593	1511	1555,00	39,362	2,531
			F02	PA06	DF08	1710	1600	1620	1630	1640,00	48,305	2,945
			A53	PZ02	DD02	1670	1700	1690	1710	1692,50	17,078	1,009
		1	A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2			
			A45x	PE99	DB10	0,399	0,339	0,365	0,417	0,38	0,035	9,162
Co	(µg/g)	1	F06x	PD02	DB08	0,398	0,405	0,387	0,364	0,39	0,018	4,616
			A39	PD02	DB08	0,3988	0,4077	0,4141	0,3962	0,40	0,008	2,037
			A55	PD02	DB10	0,449	0,442	0,445	0,439	0,44	0,004	0,963
			A36	PD02	DB10	0,458	0,45	0,448	0,458	0,45	0,005	1,160
			F14	PC01	DB10	0,4611	0,4604	0,4561	0,4732	0,46	0,007	1,587
			F32	PD01	DB10	0,46	0,466	0,474	0,451	0,46	0,010	2,098
			A79	PD03	DB10	0,47	0,467	0,464	0,464	0,47	0,003	0,616
			F08x	PD01	DB10	0,4732	0,469	0,4774	0,4659	0,47	0,005	1,062
			F12x	PC01	DB09	0,52	0,46	0,45	0,46	0,47	0,032	6,776
			A80	PD03	DB10	0,49	0,479	0,498	0,485	0,49	0,008	1,648
			A82	PD01	DB10	0,488	0,531	0,53	0,519	0,52	0,020	3,885
		2	A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2			
			A45x	PE99	DB10	0,308	0,32	0,297	0,293	0,30	0,012	3,982

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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)	2	A55	PD02	DB10	0,346	0,339	0,351	0,352	0,35	0,006	1,713
			F06x	PD02	DB08	0,332	0,349	0,35	0,367	0,35	0,014	4,090
			A39	PD02	DB08	0,357	0,3618	0,3609	0,355	0,36	0,003	0,897
			A36	PD02	DB10	0,36	0,356	0,362	0,361	0,36	0,003	0,731
			A79	PD03	DB10	0,364	0,366	0,365	0,369	0,37	0,002	0,590
			F32	PD01	DB10	0,368	0,374	0,363	0,363	0,37	0,005	1,425
			F12x	PC01	DB09	0,36	0,42	0,32	0,37	0,37	0,041	11,192
			F14	PC01	DB10	0,3693	0,3673	0,372	0,3742	0,37	0,003	0,816
			F08x	PD01	DB10	0,3742	0,3763	0,3784	0,3679	0,37	0,005	1,212
			A80	PD03	DB10	0,404	0,377	0,378	0,386	0,39	0,013	3,236
			A82	PD01	DB10	0,4	0,392	0,394	0,406	0,40	0,006	1,589
Co	(µg/g)	3	A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2	0,07	0,013	19,861
			F06x	PD02	DB08	0,06	0,07	0,08	0,05	0,12	0,026	22,048
			F12x	PC01	DB09	0,11	0,15	0,1	<0,09	0,08	0,002	2,658
			A45x	PE99	DB10	0,0823	0,0846	0,0878	0,0848	0,08	0,003	3,382
			A39	PD02	DB08	0,0879	0,0862	0,0812	0,0843	0,10	0,002	2,268
			A36	PD02	DB10	0,099	0,097	0,1	0,095	0,10	0,004	4,208
			F32	PD01	DB10	0,099	0,095	0,103	0,094	0,10	0,004	4,329
			A80	PD03	DB10	0,0993	0,0965	0,103	0,093	0,10	0,003	3,360
			A55	PD02	DB10	0,101	0,0981	0,0946	0,102	0,10	0,002	2,036
			A79	PD03	DB10	0,101	0,104	0,099	0,101	0,10	0,004	3,419
			F08x	PD01	DB10	0,0987	0,103	0,1019	0,1072	0,10	0,007	6,048
			F14	PC01	DB10	0,117	0,1065	0,102	0,1051	0,11	0,003	2,676
			A82	PD01	DB10	0,113	0,112	0,107	0,108	0,11	0,003	2,676
Co	(µg/g)	4	A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2	0,07	0,013	19,861
			F12x	PC01	DB09	<0,09	<0,09	<0,09	<0,09	0,12	0,026	22,048
			F06x	PD02	DB08	<0,05	<0,05	<0,05	<0,05	0,08	0,002	2,658
			A80	PD03	DB10	<0,02	<0,02	<0,02	<0,02	0,10	0,002	2,268
			F32	PD01	DB10	0,01	0,01	0,011	0,01	0,01	0,001	4,878

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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	A80	PD03	DB10	<0,2	<0,2	<0,2	<0,2	0,15	0,005	3,449
			F18x	PD01	DB10	0,16	0,152	0,148	0,15	0,15	0,022	13,948
			F05x	PD02	DB05	0,184	0,156	0,14	0,137	0,19	0,008	4,098
			F32	PD01	DB10	0,193	0,197	0,183	0,181	0,19	0,008	4,321
			A36	PD02	DB10	0,199	0,186	0,181	0,195	0,20	0,014	6,858
			A45x	PE99	DB10	0,213	0,209	0,2	0,182	0,22	0,007	3,389
			F08	PD01	DB10	0,2082	0,2167	0,2178	0,2262	0,22	0,049	22,132
			F15x	PC01	DB09	0,28	0,22	0,23	0,16	0,23	0,014	5,895
			A55	PD02	DB10	0,229	0,233	0,251	0,218	0,24	0,007	2,940
			F06x	PD02	DB08	0,244	0,24	0,232	0,229	0,24	0,006	2,657
			A79	PD03	DB10	0,231	0,244	0,245	0,24	0,25	0,013	5,372
			A82	PD01	DB10	0,237	0,233	0,253	0,261	0,25	0,005	1,980
			F12x	PC01	DB09	0,26	0,25	0,25	0,25	0,27	0,018	6,886
			F14	PC01	DB10	0,285	0,256	0,28	0,247	0,49	0,016	3,274
			A39	PD02	DB08	0,4673	0,502	0,5006	0,4914	1,58	0,114	7,216
		3	F18x	PD01	DB10	1,66	1,52	1,45	1,69	1,62	0,184	11,370
			F06x	PD02	DB08	1,84	1,61	1,63	1,39	1,88	0,043	2,275
			A36	PD02	DB10	1,94	1,85	1,87	1,85	1,88	0,010	0,509
			F32	PD01	DB10	1,89	1,88	1,89	1,87	1,91	0,026	1,381
			F08	PD01	DB10	1,8832	1,9374	1,896	1,931	1,92	0,178	9,274
			F03	PB05	DB08	2,01	1,8	1,74	2,12	2,03	0,112	5,528
			A45x	PE99	DB10	1,98	2,2	1,96	1,99	2,09	0,254	12,161
			F15x	PC01	DB09	2,11	2,44	1,87	1,94	2,13	0,073	3,450
			F05x	PD02	DB05	2,19	2,18	2,12	2,03	2,16	0,281	13,054
			A49	PD05	DB08	1,942	1,973	2,156	2,554	2,19	0,078	3,576
			A55	PD02	DB10	2,3	2,132	2,14	2,169	2,19	0,153	6,965
			A80	PD03	DB10	2,01	2,37	2,24	2,14	2,19	0,122	5,592
			F12x	PC01	DB09	2,07	2,28	2,31	2,1	2,24	0,273	12,159
			A79	PD03	DB10	2,419	2,53	2,014	2,004	2,24	0,273	12,159

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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	A65	PD01	DB08	2	1,8	2,6	2,7	2,28	0,443	19,452
			F14	PC01	DB10	2,671	2,077	2,302	2,799	2,46	0,332	13,492
			A82	PD01	DB10	2,26	3,29	2,27	2,42	2,56	0,492	19,224
			A39	PD02	DB08	2,606	2,631	2,71	2,557	2,63	0,064	2,433
			A65	PD01	DB08	<1,1	<1,1	<1,1	<1,1			
Cr	(µg/g)	4	F03	PB05	DB08	<1	<1	<1	<1			
			A49	PD05	DB08	<0,6	<0,6	<0,6	<0,6			
			F18x	PD01	DB10	0,269	0,264	0,261	0,255	0,26	0,006	2,232
			A45x	PE99	DB10	0,282	0,277	0,266	0,269	0,27	0,007	2,679
			F06x	PD02	DB08	0,249	0,259	0,291	0,315	0,28	0,030	10,850
			F15x	PC01	DB09	0,27	0,33	0,34	0,28	0,31	0,035	11,514
			F32	PD01	DB10	0,35	0,31	0,33	0,29	0,32	0,026	8,069
			A36	PD02	DB10	0,325	0,343	0,304	0,312	0,32	0,017	5,305
			F08	PD01	DB10	0,3796	0,3301	0,3269	0,3355	0,34	0,025	7,183
			A80	PD03	DB10	0,276	0,382	0,388	0,346	0,35	0,051	14,787
			F05x	PD02	DB05	0,36	0,357	0,372	0,312	0,35	0,026	7,512
			F12x	PC01	DB09	0,35	0,36	0,39	0,35	0,36	0,019	5,222
			A79	PD03	DB10	0,363	0,386	0,375	0,388	0,38	0,012	3,047
			F14	PC01	DB10	0,416	0,397	0,362	0,391	0,39	0,022	5,713
			A82	PD01	DB10	0,435	0,352	0,436	0,351	0,39	0,049	12,326
			A55	PD02	DB10	0,415	0,48	0,416	0,352	0,42	0,052	12,570
			A39	PD02	DB08	0,5381	0,5237	0,5466	0,5354	0,54	0,009	1,765
Cs	(µg/g)	1	A80	PD03	DB10	0,023	0,0222	0,0233	0,0229	0,02	0,000	2,037
			A82	PD01	DB10	0,024	0,026	0,023	0,025	0,02	0,001	5,269
Cs	(µg/g)	2	A82	PD01	DB10	0,104	0,101	0,108	0,106	0,10	0,003	2,851
			A80	PD03	DB10	0,108	0,101	0,103	0,108	0,11	0,004	3,390
Cs	(µg/g)	3	A80	PD03	DB10	0,032	0,0306	0,0329	0,0298	0,03	0,001	4,434
			A82	PD01	DB10	0,036	0,033	0,035	0,034	0,03	0,001	3,742

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cs	(µg/g)	4	A80	PD03	DB10	<0,005	0,0058	0,006	0,0058	0,01	0,000	1,968
			A82	PD01	DB10	0,007	0,007	0,006	0,006	0,01	0,001	8,882
F	(µg/g)	1	F02	PE01	DF03	<3	<3	<3	<3	1,55	0,336	21,718
			F05	PZ99	DF03	2,03	1,29	1,52	1,35	1,64	0,201	12,278
F	(µg/g)	2	F32x	PB99	DF03	1,42	1,57	1,9	1,65	2,25	0,140	6,241
			F02	PE01	DF03	<3	<3	<3	<3	2,69	0,317	11,770
F	(µg/g)	3	F05	PZ99	DF03	2,12	2,13	2,34	2,39	1,10	0,055	5,022
			F32x	PB99	DF03	2,55	3,15	2,43	2,64	1,73	0,194	11,206
F	(µg/g)	4	F02	PE01	DF03	<3	<3	<3	<3	1,22	0,211	17,241
			F32x	PB99	DF03	<0,829	1,1	1,15	1,04	1,25	0,103	8,308
Hg	(ng/g)	1	F03	PZ98	DA05	<25	<25	<25	<25	20,23	0,236	1,168
			A45x	PZ98	DA05	20,4	20,4	20,2	19,9	21,25	0,500	2,353
Hg	(ng/g)	2	A79	PD03	DB10	22	21	21	21	22,25	0,500	2,247
			F02	PZ98	DA05	22	22	23	22	22,40	0,638	2,847
Hg	(ng/g)	3	A36	PD02	DB03	23	22,9	21,9	21,8	22,78	0,685	3,007
			A82	PZ98	DA05	22	23,6	22,5	23	22,89	0,210	0,918
Hg	(ng/g)	4	A55	PD02	DB03	22,99	22,57	22,99	22,99	23,58	0,862	3,655
			A39	PZ98	DB03	23,9	22,3	24,2	23,9	45,25	0,500	1,105
Hg	(ng/g)	5	A79	PD03	DB10	46	45	45	45	46,10	0,698	1,513
			A45x	PZ98	DA05	46,6	45,5	46,8	45,5	47,50	0,927	1,952
Hg	(ng/g)	6	A39	PZ98	DB03	48,2	48,4	46,7	46,7	48,50	0,577	1,190
			F02	PZ98	DA05	49	48	49	48	50,10	1,309	2,613
Hg	(ng/g)	7	A82	PZ98	DA05	51,8	50,3	48,7	49,6	50,25	2,061	4,101
			F03	PZ98	DA05	49,77	52,1	47,54	51,57	50,58	0,613	1,212
Hg	(ng/g)	8	A36	PD02	DB03	51,2	50	50,1	51	1,105	0,698	1,513
										46,10	0,927	1,952
Hg	(ng/g)	9								47,50	0,577	1,190
										50,10	1,309	2,613
Hg	(ng/g)	10								50,25	2,061	4,101
										50,58	0,613	1,212

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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	(µg/g)	2	A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2	0,02	0,001	6,005
			A36	PD02	DB10	0,021	0,02	0,023	0,022	0,02	0,000	1,769
			A55	PD02	DB10	0,0225	0,0232	0,0225	0,0232	0,03	0,005	18,211
			F32	PD01	DB10	0,026	0,028	0,035	0,023	0,04	0,002	6,264
			F14	PC01	DB10	0,0374	0,035	0,0406	0,0367	0,04	0,003	8,970
			A80	PD03	DB10	0,0373	0,0354	0,0348	0,0422	0,04	0,001	1,496
			F08	PD01	DB10	0,0391	0,0381	0,0381	0,0391	0,04	0,001	1,642
			A39	PD02	DB08	0,0415	0,0425	0,042	0,0409	0,04	0,001	1,642
			A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2	0,15	0,003	2,322
			A36	PD02	DB10	0,147	0,14	0,146	0,147	0,15	0,005	3,144
Mo	(µg/g)	3	A55	PD02	DB10	0,1507	0,1471	0,1423	0,1407	0,15	0,007	4,747
			F32	PD01	DB10	0,151	0,148	0,164	0,15	0,16	0,004	2,703
			A80	PD03	DB10	0,158	0,153	0,16	0,151	0,16	0,001	0,862
			F08	PD01	DB10	0,1582	0,1603	0,1592	0,1571	0,16	0,010	6,116
			A39	PD02	DB08	0,1512	0,1729	0,1567	0,1676	0,17	0,014	8,440
			F14	PC01	DB10	0,1687	0,1507	0,1757	0,1845	0,20	0,005	2,590
			A49	PD05	DB08	<1,2	<1,2	<1,2	<1,2	0,22	0,006	2,885
			A55	PD02	DB10	0,1966	0,2022	0,2065	0,2085	0,22	0,021	9,439
			A36	PD02	DB10	0,208	0,216	0,223	0,218	0,23	0,007	3,093
			A39	PD02	DB08	0,1962	0,2139	0,2416	0,2362	0,24	0,031	12,582
Mo	(µg/g)	4	F14	PC01	DB10	0,24	0,2384	0,2239	0,2345	0,24	0,002	0,847
			F32	PD01	DB10	0,231	0,228	0,288	0,223	0,24	0,013	5,183
			F08	PD01	DB10	0,243	0,2452	0,2409	0,2452	0,25	0,013	5,183
			A80	PD03	DB10	0,267	0,252	0,236	0,246	0,25	0,013	5,183
			F03	PB05	DB08	<50	<50	<50	<50	7,10	0,502	7,066
			A53	PZ02	DD02	<35	<35	<35	<35	7,10	0,502	7,066
			A55	PD02	DB08	<25	<25	<25	<25	7,10	0,502	7,066
			F12x	PC01	DB08	<13	<13	<13	<13	7,10	0,502	7,066
			A39	PD02	DB08	6,552	7,683	6,841	7,318	7,10	0,502	7,066
			F03	PB05	DB08	<50	<50	<50	<50	7,10	0,502	7,066
Na	(µg/g)	1	A53	PZ02	DD02	<35	<35	<35	<35	7,10	0,502	7,066
			A55	PD02	DB08	<25	<25	<25	<25	7,10	0,502	7,066
			F12x	PC01	DB08	<13	<13	<13	<13	7,10	0,502	7,066
			A39	PD02	DB08	6,552	7,683	6,841	7,318	7,10	0,502	7,066
			F03	PB05	DB08	<50	<50	<50	<50	7,10	0,502	7,066

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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)	1	F18x	PD01	DB08	7,3	7,07	6,95	7,45	7,19	0,225	3,126
			A60	PD01	DB08	8,514	8,771	8,021	7,638	8,24	0,506	6,141
			F06x	PD02	DB08	11	12,5	11,4	11	11,48	0,709	6,178
			A49	PD05	DB08	11,45	12	12,31	13,12	12,22	0,697	5,708
			F05x	PD02	DB01	12,8	14,9	13	11,7	13,10	1,329	10,146
			A36	PD02	DB08	17,9	16,1	17,4	18,1	17,38	0,900	5,177
			A65	PD01	DB08	23,8	21,6	19,3	19,6	21,08	2,084	9,888
			A83	PD01	DB08	37,33	37,39	25,51	21,47	30,43	8,176	26,873
			A50	PC01	DB08	51,6	46,8	42,6	48,5	47,38	3,753	7,921
			F15x	PC01	DB08	66	73	55	45	59,75	12,312	20,606
			F14x	PC01	DB08	105,9	106,2	110,1	112,7	108,73	3,268	3,006
Na	(µg/g)	2	F03	PB05	DB08	<50	<50	<50	<50	35,40	0,424	1,198
			A53	PZ02	DD02	<35	35,1	<35	35,7	28,88	0,486	1,682
			F18x	PD01	DB08	29	29,5	28,6	28,4	30,00	0,000	0,000
			F12x	PC01	DB08	30	30	30	30	31,18	1,502	4,818
			F06x	PD02	DB08	30,6	33,4	30,6	30,1	31,40	0,082	0,260
			F05x	PD02	DB01	31,5	31,4	31,4	31,3	32,25	0,500	1,550
			A55	PD02	DB08	33	32	32	32	35,66	1,098	3,079
			A39	PD02	DB08	36,37	35,53	34,16	36,58	36,15	2,804	7,756
			A60	PD01	DB08	32,898	34,791	37,939	38,972	36,39	1,590	4,370
			A49	PD05	DB08	34,19	36,87	36,53	37,97	39,13	0,822	2,101
			A36	PD02	DB08	40,3	38,8	39	38,4	41,30	0,442	1,071
			F14x	PC01	DB08	41,12	41,79	40,78	41,51	44,03	2,153	4,891
			A65	PD01	DB08	44,5	45,8	44,9	40,9	56,84	10,232	18,000
			A83	PD01	DB08	44,26	59,88	54,51	68,72	63,25	16,132	25,506
Na	(µg/g)	3	F15x	PC01	DB08	41	77	73	62	64,13	2,846	4,439
			A50	PC01	DB08	66	59,9	65,6	65			
			F03	PB05	DB08	<50	<50	<50	<50			
Na	(µg/g)		A53	PZ02	DD02	<35	<35	<35	<35			

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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	F12x	PC01	DB08	20	20	20	20	20,00	0,000	0,000
			F18x	PD01	DB08	22,2	21,3	21,8	22	21,83	0,386	1,770
			F06x	PD02	DB08	23,7	22	23,4	23,6	23,18	0,793	3,423
			F05x	PD02	DB01	23,9	24,3	25	24,7	24,48	0,479	1,956
			A49	PD05	DB08	25,34	27,17	26,19	26,06	26,19	0,753	2,874
			A55	PD02	DB08	27	27	27	26	26,75	0,500	1,869
			A60	PD01	DB08	28,47	26,31	26,038	26,942	26,94	1,088	4,039
			A65	PD01	DB08	30	30,2	31,5	30	30,43	0,723	2,376
			A39	PD02	DB08	30,03	31,7	32	29,07	30,70	1,390	4,527
			A36	PD02	DB08	33,9	33,1	34,9	29,9	32,95	2,163	6,563
			F14x	PC01	DB08	40,13	40,02	39,91	41,31	40,34	0,651	1,614
			A83	PD01	DB08	47,34	40,17	50,22	60,04	49,44	8,232	16,650
			F15x	PC01	DB08	62	51	56	58	56,75	4,573	8,059
			A50	PC01	DB08	62,7	61,2	62	62,8	62,18	0,741	1,192
Na	(µg/g)	4	F03	PB05	DB08	<50	<50	<50	<50			
			A53	PZ02	DD02	<35	<35	<35	<35			
			A55	PD02	DB08	<25	<25	<25	<25			
			F12x	PC01	DB08	<13	<13	<13	<13			
			F18x	PD01	DB08	9,65	7,42	6,97	6,92	7,74	1,293	16,706
			F06x	PD02	DB08	7,61	8,02	9,67	9,44	8,69	1,023	11,776
			A60	PD01	DB08	9,112	9,738	9,468	8,784	9,28	0,416	4,485
			F05x	PD02	DB01	8,95	11,2	10,7	8,67	9,88	1,257	12,728
			A49	PD05	DB08	10,39	11,22	9,62	9,33	10,14	0,848	8,359
			F14x	PC01	DB08	11,68	12,76	12,21	11,61	12,07	0,535	4,436
			A65	PD01	DB08	13,6	13,5	13,4	11,1	12,90	1,203	9,324
			A36	PD02	DB08	16,8	14,2	15,1	16,4	15,63	1,195	7,651
			A39	PD02	DB08	25,61	24,17	24,18	26,02	25,00	0,962	3,847
			A83	PD01	DB08	39,29	26,84	22,93	35,61	31,17	7,578	24,315
			F15x	PC01	DB08	44	54	35	39	43,00	8,206	19,083

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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)	4	A50	PC01	DB08	50	51,7	55,5	57,8	53,75	3,546	6,598
Ni	(µg/g)	1	A55	PD02	DB10	1,404	1,395	1,396	1,356	1,39	0,022	1,553
			A45x	PE99	DB10	1,54	1,42	1,43	1,49	1,47	0,056	3,808
			A39	PD02	DB08	1,486	1,534	1,54	1,543	1,53	0,027	1,754
			F06x	PD02	DB09	1,57	1,63	1,6	1,56	1,59	0,032	1,989
			A49	PD05	DB08	1,65	1,57	1,61	1,66	1,62	0,041	2,535
			F15	PC01	DB09	1,88	1,55	1,52	1,61	1,64	0,164	10,019
			A36	PD02	DB10	1,64	1,67	1,62	1,66	1,65	0,022	1,346
			F19x	PD02	DB08	1,65	1,66	1,66	1,66	1,66	0,005	0,302
			A79	PD03	DB10	1,682	1,693	1,651	1,658	1,67	0,020	1,184
			F03	PB05	DB08	1,65	1,64	1,64	1,83	1,69	0,093	5,530
			F05x	PD02	DB08	1,66	1,71	1,72	1,7	1,70	0,026	1,549
			A82	PD01	DB10	1,64	1,76	1,7	1,71	1,70	0,049	2,892
			F12x	PC01	DB09	1,75	1,67	1,76	1,71	1,72	0,041	2,388
			F14	PC01	DB10	1,723	1,722	1,762	1,722	1,73	0,020	1,145
			A65	PD01	DB08	1,8	1,7	1,8	1,8	1,78	0,050	2,817
			F08	PD01	DB10	1,8342	1,7891	1,8825	1,8321	1,83	0,038	2,081
			A80	PD03	DB10	1,83	1,77	1,85	2	1,86	0,098	5,249
			F18x	PD01	DB10	2,08	2,13	1,97	1,79	1,99	0,151	7,560
			F27	PD04	DB01	2,642	1,941	2,423	1,847	2,21	0,381	17,226
			A83	PD01	DB08	2,261	2,221	2,424	2,75	2,41	0,241	9,967
Ni	(µg/g)	2	A49	PD05	DB08	1,89	1,77	1,88	1,87	1,85	0,056	3,001
			F06x	PD02	DB09	1,99	1,98	1,94	1,95	1,97	0,024	1,211
			A45x	PE99	DB10	1,93	1,97	1,97	2,02	1,97	0,037	1,868
			A55	PD02	DB10	1,986	1,94	2,03	2,045	2,00	0,047	2,366
			F27	PD04	DB01	2,603	1,589	2,603	1,453	2,06	0,627	30,415
			A39	PD02	DB08	2,058	2,064	2,088	2,077	2,07	0,013	0,648
			A36	PD02	DB10	2,19	2,21	2,09	2,19	2,17	0,054	2,496
			F19x	PD02	DB08	2,24	2,13	2,19	2,2	2,19	0,045	2,076

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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	A79	PD03	DB10	2,158	2,28	2,185	2,173	2,20	0,055	2,507
			F05x	PD02	DB08	2,25	2,25	2,18	2,21	2,22	0,034	1,531
			F15	PC01	DB09	2,3	2,23	2,27	2,12	2,23	0,079	3,531
			F12x	PC01	DB09	2,28	2,22	2,26	2,2	2,24	0,037	1,630
			F18x	PD01	DB10	2,24	2,22	2,26	2,26	2,25	0,019	0,853
			F03	PB05	DB08	2,21	2,19	2,47	2,26	2,28	0,128	5,626
			F08	PD01	DB10	2,2812	2,3055	2,2664	2,2886	2,29	0,016	0,711
			F14	PC01	DB10	2,306	2,332	2,297	2,264	2,30	0,028	1,221
			A83	PD01	DB08	2,187	2,256	2,753	2,402	2,40	0,252	10,508
			A65	PD01	DB08	2,4	2,4	2,4	2,6	2,45	0,100	4,082
			A80	PD03	DB10	2,49	2,47	2,55	2,42	2,48	0,054	2,166
			A82	PD01	DB10	2,86	2,78	2,87	2,9	2,85	0,051	1,796
Ni	(µg/g)	3	A45x	PE99	DB10	2,08	1,94	1,92	1,95	1,97	0,073	3,688
			A83	PD01	DB08	2,405	2,008	1,618	2,254	2,07	0,344	16,590
			F05x	PD02	DB08	2,05	2,02	2,08	2,19	2,09	0,074	3,557
			A39	PD02	DB08	2,067	2,055	2,117	2,127	2,09	0,036	1,711
			F06x	PD02	DB09	2,19	2,13	2,04	2,05	2,10	0,071	3,372
			F19x	PD02	DB08	2,19	2,15	2,05	2,1	2,12	0,061	2,863
			F18x	PD01	DB10	2,14	2,12	2,13	2,13	2,13	0,008	0,383
			F03	PB05	DB08	2,09	2,13	2,11	2,27	2,15	0,082	3,798
			A55	PD02	DB10	2,434	2,13	2,083	2,085	2,18	0,169	7,729
			F12x	PC01	DB09	2,2	2,22	2,26	2,18	2,22	0,034	1,542
			A36	PD02	DB10	2,26	2,25	2,21	2,22	2,24	0,024	1,065
			A80	PD03	DB10	2,29	2,21	2,34	2,16	2,25	0,080	3,574
			F15	PC01	DB09	2,26	2,32	2,14	2,31	2,26	0,083	3,660
			F27	PD04	DB01	2,623	3,122	1,55	1,839	2,28	0,720	31,518
			A79	PD03	DB10	2,341	2,5	2,227	2,218	2,32	0,132	5,665
			A49	PD05	DB08	2,3	2,36	2,36	2,43	2,36	0,053	2,250
			F14	PC01	DB10	2,625	2,258	2,404	2,311	2,40	0,162	6,751

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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	F08	PD01	DB10	2,4459	2,4119	2,4374	2,4958	2,45	0,035	1,436
			A65	PD01	DB08	2,5	2,5	2,6	2,9	2,63	0,189	7,211
			A82	PD01	DB10	5,07	4,8	4,78	4,73	4,85	0,153	3,155
			F03	PB05	DB08	<1	<1	<1	<1			
Ni	(µg/g)	4	A49	PD05	DB08	<0,9	<0,9	<0,9	<0,9	0,33	0,039	11,567
			A55	PD02	DB10	0,3156	0,3701	0,3636	0,2895	0,48	0,024	4,969
			A45x	PE99	DB10	0,493	0,458	0,503	0,457	0,52	0,016	3,174
			F08	PD01	DB10	0,5118	0,5	0,5387	0,5226	0,55	0,035	6,352
			F05x	PD02	DB08	0,553	0,506	0,545	0,591	0,55	0,010	1,739
			F18x	PD01	DB10	0,549	0,538	0,553	0,561	0,55	0,017	3,091
			F15	PC01	DB09	0,57	0,56	0,55	0,53	0,57	0,039	6,746
			F12x	PC01	DB09	0,61	0,52	0,59	0,57	0,57	0,028	4,958
			A79	PD03	DB10	0,5948	0,5991	0,5563	0,5416	0,58	0,018	3,086
			A36	PD02	DB10	0,602	0,592	0,57	0,564	0,59	0,017	2,854
			A39	PD02	DB08	0,6082	0,6029	0,5855	0,5712	0,61	0,024	3,972
			F14	PC01	DB10	0,593	0,603	0,596	0,645	0,61	0,011	1,784
			A82	PD01	DB10	0,623	0,601	0,618	0,603	0,63	0,054	8,631
			F19x	PD02	DB08	0,681	0,553	0,628	0,647	0,65	0,033	5,183
			A80	PD03	DB10	0,638	0,677	0,666	0,602	0,65	0,055	8,541
			F06x	PD02	DB09	0,591	0,634	0,724	0,647	0,91	0,472	51,864
			F27	PD04	DB01	0,47	1,545	0,651	0,973	1,10	0,000	0,000
			A65	PD01	DB08	1,1	1,1	1,1	1,1	2,32	0,257	11,099
			A83	PD01	DB08	2,303	2,173	2,11	2,684			
Rb	(µg/g)	1	A80	PD03	DB10	3,46	3,33	3,4	3,39	3,40	0,053	1,568
			F14	PC01	DB10	3,392	4,089	3,661	3,566	3,68	0,296	8,061
Rb	(µg/g)	2	A80	PD03	DB10	17,5	16,3	16,8	17,2	16,95	0,520	3,066
			F14	PC01	DB10	17,46	19,19	16,28	17,87	17,70	1,200	6,782
Rb	(µg/g)	3	A80	PD03	DB10	7,71	7,38	7,86	7,23	7,55	0,290	3,848
			F14	PC01	DB10	8,33	7,81	8,46	7,47	8,02	0,461	5,744

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Rb	(µg/g)	4	F14	PC01	DB10	3,45	3,64	3,92	3,44	3,61	0,225	6,220
			A80	PD03	DB10	3,81	3,73	3,65	3,61	3,70	0,089	2,397
Sb	(µg/g)	1	F14	PC01	DB10	<0,1	<0,1	<0,1	<0,1	<0,1		
			A80	PD03	DB10	<0,025	<0,025	<0,025	<0,025	<0,025		
			A79	PD03	DB10	0,021	0,021	0,021	0,02	0,02	0,001	2,410
Sb	(µg/g)	2	A80	PD03	DB10	0,0321	0,0277	<0,025	0,0275	0,03	0,003	8,935
			A79	PD03	DB10	0,027	0,029	0,028	0,028	0,03	0,001	2,916
			F14	PC01	DB10	0,1	0,06	0,05	0,1	0,08	0,026	33,935
Sb	(µg/g)	3	A79	PD03	DB10	0,229	0,224	0,233	0,224	0,23	0,004	1,916
			A80	PD03	DB10	0,253	0,233	0,236	0,25	0,24	0,010	4,101
			F14	PC01	DB10	0,553	0,576	0,506	0,476	0,53	0,045	8,556
Sb	(µg/g)	4	A80	PD03	DB10	0,0274	0,0305	0,0349	0,0308	0,03	0,003	9,961
			A79	PD03	DB10	0,0342	0,0354	0,0334	0,0313	0,03	0,002	5,138
			F14	PC01	DB10	0,069	0,052	0,054	0,045	0,06	0,010	18,363
Se	(µg/g)	1	A80	PD03	DB10	0,23	<0,2	<0,2	<0,2	0,23		
			A39	PD02	DB08	<0,01	<0,01	<0,01	<0,01			
			A55	PD02	DB04	0,0121	0,0139	0,0113	0,0114	0,01	0,001	9,888
			A36	PD02	DB10	0,012	0,014	0,013	0,012	0,01	0,001	7,509
			A82	PD01	DB10	0,023	0,016	0,015	0,014	0,02	0,004	24,015
			F14	PC01	DB10	0,016	0,023	0,028	0,018	0,02	0,005	25,306
			F08	PD01	DB10	0,0218	0,0211	0,0233	0,0222	0,02	0,001	4,164
		2	A80	PD03	DB10	<0,2	<0,2	<0,2	<0,2			
			A39	PD02	DB08	0,013	0,012	0,0118	0,013	0,01	0,001	5,143
			A55	PD02	DB04	0,0153	0,0154	0,0156	0,0159	0,02	0,000	1,701
			A36	PD02	DB10	0,024	0,024	0,022	0,024	0,02	0,001	4,255
		3	A82	PD01	DB10	0,024	0,029	0,023	0,024	0,03	0,003	10,832
			F08	PD01	DB10	0,0268	0,0291	0,0302	0,0315	0,03	0,002	6,774
			F14	PC01	DB10	0,039	0,047	0,038	0,039	0,04	0,004	10,290
			A80	PD03	DB10	<0,2	<0,2	<0,2	<0,2			

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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)	2	A80	PD03	DB10	13,1	12,2	12,5	12,7	12,63	0,377	2,990
			A53	PZ02	DD02	12,7	12,5	12,8	12,7	12,68	0,126	0,993
			A55	PD02	DB08	12,82	12,68	12,66	12,71	12,72	0,071	0,561
			A65	PD01	DB08	12,7	12,7	12,7	13,2	12,83	0,250	1,949
			A55	PD02	DB08	<10	<10	<10	<10			
Sr	(µg/g)	3	A39	PD02	DB08	3,999	4,155	4,005	4,112	4,07	0,078	1,917
			A80	PD03	DB10	4,29	4,11	4,34	4,06	4,20	0,136	3,236
			F14	PC01	DB08	4,278	4,212	4,418	4,367	4,32	0,092	2,124
			A65	PD01	DB08	4,5	4,5	4,5	4,5	4,50	0,000	0,000
			A53	PZ02	DD02	5,2	4,9	4,8	4,8	4,93	0,189	3,844
			F14	PC01	DB08	17,51	18,3	17,65	18,16	17,91	0,384	2,144
			A55	PD02	DB08	18,46	18,47	18,43	18,04	18,35	0,207	1,130
Ti	(µg/g)	1	A65	PD01	DB08	18,6	18,1	18,4	18,4	18,38	0,206	1,122
			A53	PZ02	DD02	18,3	18,4	18,6	18,5	18,45	0,129	0,700
			A80	PD03	DB10	19,7	19	18,4	18,3	18,85	0,645	3,424
			A39	PD02	DB08	19,82	20,56	20,04	20,05	20,12	0,314	1,558
			A39	PD02	DB08	1,015	1,07	1,002	1,055	1,04	0,032	3,111
			A65	PD01	DB08	1,5	1,3	1,4	1,5	1,43	0,096	6,719
			A80	PD03	DB10	1,68	1,63	1,97	1,64	1,73	0,161	9,332
Ti	(µg/g)	2	F14	PC01	DB08	2,047	2,071	2,105	1,984	2,05	0,051	2,488
			A65	PD01	DB08	23,9	24,9	27,8	28,4	26,25	2,189	8,338
			A80	PD03	DB10	31	28,8	29,2	31,9	30,23	1,471	4,865
			A39	PD02	DB08	38,96	39,32	39,22	39,41	39,23	0,194	0,496
			F14	PC01	DB08	46,07	47,97	45,38	47,83	46,81	1,288	2,752
Ti	(µg/g)	3	A65	PD01	DB08	2	2	2,1	2,2	2,08	0,096	4,614
			A80	PD03	DB10	2,2	2,21	2,29	2,12	2,21	0,070	3,153
			F14	PC01	DB08	2,222	2,299	2,205	2,314	2,26	0,054	2,411
			A39	PD02	DB08	2,449	2,369	2,371	2,409	2,40	0,038	1,575
			A65	PD01	DB08	<1,1	1,6	1,3	1,9	1,60	0,300	18,750

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Additional parameters

Element	Unit	Sample no.	Lab no.	Method code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Y	(µg/g)	1	F14	PC01	DB10	0,047	0,032	0,031	0,048	0,04	0,009	23,432
Y	(µg/g)	2	F14	PC01	DB10	0,078	0,074	0,075	0,05	0,07	0,013	18,694
Y	(µg/g)	3	F14	PC01	DB10	0,025	0,028	0,028	0,031	0,03	0,002	8,748
Y	(µg/g)	4	F14	PC01	DB10	0,106	0,122	0,098	0,14	0,12	0,019	15,943

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