

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

Technical Report QA-RFoliar14

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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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. Important steps on this way are method harmonisation, QA/QC in the laboratories in daily routine and an implementation of a regular (annual) 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*) by 24 laboratories from 21 countries in 1993 organised by France.

The intensive discussion of the forest foliar expert panel in As/Norway (1994) ended with the recommendation of a second test with 4 unknown samples (two spruces, one pine, one oak) during the running level-II monitoring programme. This was organised by Germany in 1995/96 and subsequently discussed by the expert panel in Vienna/Austria in 1997. The expert panel decided to call for a complete repetition and authorised the Landesumweltamt North-Rhine-Westfalia (LUA) to arrange interlaboratory comparison tests on foliage every two years.

The 3rd test (Bartels 1998) with 5 unknown samples and its consequences for the analytical quality management were intensively discussed in Bonn in 1999 and ended with a revision of Part IV "Sampling and analysis of needles and leaves" of the above mentioned manual (Stefan et al. 2000).

52 Laboratories from 29 European countries took part in the 4th Needle/Leaf Interlaboratory Comparison Test 1999/2000. In comparison with the 3rd test, the results show a distinct improvement of analysis quality of European laboratories working on the issue of forestry analysis (Bartels 2000).

The 5th Interlaboratory Comparison Test was also organized by the LUA (Bartels 2002). In general, the results show good analytical quality in the participating laboratories, but it was very surprising that some laboratories have problems with carbon in foliar samples. The results were discussed by the Expert Panel in Prague/Czech Republic in April 2003. The Panel discussed the difficulties that some laboratories encounter in using new laboratory equipment and the lack of experienced technical staff. Good analytical quality can only be obtained by daily practice and with good quality control. This quality practice must also become a tradition for each laboratory and for each member of the staff.

Because of the good results, the Panel has established smaller tolerable limits of $\pm 15\%$ for zinc and manganese and of $\pm 20\%$ for copper.

Following the the retirement of Mr. Bartels from the Panel, the Forest Foliar Coordinating Centre (FFCC) organised the 6th Interlaboratory Comparison Test (Füirst 2004). FFCC conceived a web-based interface to an Oracle database to which data input and validation could be made via internet by the participating laboratories. The results of this Interlaboratory Comparison Test were evaluated according to DIN 38402/42. The results of the 6th Interlaboratory Comparison Test show generally a good analytical quality in foliar analyses. Only a few of the laboratories had to adjust to the results from their ringtest and

others had to change their methods (e.g. dry ashing). Also, a well trained staff is the basis for good results and most of the labs are now using quality control charts.

To improve the quality of foliar analysis, the Expert Panel and the FFCC decided to carry out this ringtest annually. Ringtests should not only be a check of the monitoring data quality, but they should also support the laboratories to get better results before they send the next level II results to the Programme Coordinating Centre (PCC). That was the reason why the 7th Interlaboratory Comparison Test was started in 2004 (Fürost 2005).

Till now, there were no direct connections between the foliage results of the level II survey and the results of the annual interlaboratory tests. To link this quality information directly to the level II datasets, changes were made in the level II submission forms (*.fom and *.foo). At the Task Force Meeting 2005 and at the 9th Expert Panel Meeting 2005 (Newtownmountkenedy / Ireland) these changes were accepted. Also the coded results of the 8th Interlaboratory Comparison Test (Fürost 2006) will be sent to the PCC and the Joint Research Centre (Ispra). With this information it is possible to link quality information with level II monitoring results.

The 9th Interlaboratory Comparison Test (Fürost 2007) was the last one financed within the Forest Focus programme. To avoid the same situation like in the 6th Test (no co financing from EC), other sources for financing must be found for this Interlaboratory test programme in future. A great majority of the participating laboratories agreed to pay a participation fee in future to continue this annual test programme, if there are no other sources for financing. Lower tolerable limits for the mandatory parameters S to $\pm 15\%$ and for P, Ca, Mg and K to $\pm 10\%$ were fixed at the Expert Panel Meeting in Madrid in April 2007, because of the improvement of the data quality in most of the laboratories. The 10th Interlaboratory Test (Fürost 2008) was evaluated with these smaller limits.

The QA/QC-topic is getting more important in ICP-Forests - a separate QA/QC group for laboratories was set up. This group developed the manual "Quality Assurance and Control in Laboratories - A review of possible quality checks and other forms of assistance" in May 2008. The first meeting of the heads of the ICP-Forests laboratories was held in Hamburg in June 2008.

With the start of the Life+ project "*Further development and Implementation of an EU-Level Forest Monitoring System*" (FutMon) in the beginning of 2009, QA/QC activities are financed for all countries participating in this project. The ringtest is open for all laboratories. A new system for qualification and re-qualification started with the 11th test in 2009. After the ringtest each participant will receive a qualification report. It has been decided to qualify the results of each parameter separately. If 50% or more of the results for this parameter for all the samples of the ringtest are within the tolerable limits, the laboratory is qualified. Re-qualification is mandatory for laboratories of the FutMon partners and recommended for ICP-Forests laboratories.

Key quality parameters like ringtest results or limit of quantification (LOQ) per parameter will be submitted with the monitoring data in a separate QA/QC file.

This new qualification system with the re-qualification possibility shows a very positive effect on the result quality. A big improvement from the 11th to the 13th Interlaboratory

Comparison Test (Fürost 2009, 2010, 2011) could be observed, especially for the laboratories of the FutMon partners. The FutMon project (and the financing) ends in June 2011.

At the 3rd Lab Head Meeting (Arcachon/France 2011) a maximum acceptable limit of quantification (LOQ) for all elements were fixed. This was needed to avoid too high LOQ (especially for Cu, Cd, and Pb), because of the use of not sensitive enough multi-element methods (mostly ICP-AES). It seems that this problem is solved now – in the 13th Test 42 results; in the 14th Test 19 results and in the 15th Test only 4 results were above the maximum acceptable limit of quantification.

At the 4th Lab Head Meeting (Zadar/Croatia 2013) the new web-interface for foliage and litterfall ringtests was presented. The update was needed to harmonize the registration-, data submission- and the result pages and to collect the billing information for the participation fee and for the creation of online qualification reports. The interface offers now the possibility for first data checks (decimal errors, non plausible results, max LOQ) before the final evaluation.

2 TASK, MATERIAL, PARTICIPANTS AND EVALUATION

2.1 Task

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

- Informing the participating labs (March/April 2013)
- Registration of 56 participants via internet (15th July 2013)
- Submission of the ring test samples (July/August 2013)
- Submission of the results from the labs (October-December 2013)
- Deadline of data input (1st January 2014)
- Evaluation according to DIN 38402/42 (January/February 2014)
- Submission of the final report and the online qualification reports (February 2014)
- Re-qualification process finished (1st September 2014)

The mandatory parameters S, N, P, Ca, Mg, K and C must be analysed, 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).

For a deeper evaluation - all participant laboratories had to fill a questionnaire with purpose to obtain information about the status of their quality control systems and they were asked, if they plan to analyse monitoring samples (foliar, litterfall or ground vegetation) in 2013/2014 from the growing season 2013.

2.2 Material

In July and August 2013 the Austrian Federal Research Centre for Forests, Natural Hazards and Landscape (BFW) sent four dried and powdered plant samples to 56 laboratories in 25 countries.

The samples consisted of:

1. Spruce needles - *Picea abies* (Austria) - same sample like in the 13th Test (Sample 3)
2. Ash Leaves - *Fraxinus excelsior* (Austria)
3. Pine Needles – *Pinus nigra* (Austria)
4. Spruce needles - *Picea abies* (Austria)

Sample 1 was collected from Walter Wuggenig and his employees in Lavanttal – Carinthia/Austria. **Sample 2** and **Sample 3** were collected in the park area of Schönbrunn – Vienna/Austria and **Sample 4** was collected in Arnoldstein – Carinthia/Austria from

employees of the Austrian Federal Research Centre for Forests. Special thank to all colleagues for collecting and preparing samples for this ringtest.

The further sample preparation (drying and grinding) of the samples were done in the BFW laboratory for air pollution monitoring and plant analyses. Before the samples were sent out they were once more homogenized and were filled in PE-bags. Homogeneity was tested for these samples by analysing the P, K, Ca, Mg, Fe, Mn and, Zn 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.



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2.3 Participants

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

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

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
10th	29	54
11th	28	56
12th	30	56
13th	29	60
14th	28	62
15th	28	61
16th	25	56

With a few exceptions, all laboratories analysed in the 16th 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 2013 and these results will be sent to PCC in 2014 (“ICP-Forests laboratory”)

[illegible]

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
A57														
A58	X	X	X	X	X	X	X	X	X	X	X		X	
A59														
A60	X	X	X	X	X	X	X	X	X	X				
A61	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A62	X	X	X				X							
A65														
A67														
A75														
A79														
A80														
A82														
A83														
A84														
A85														
F01	X		X	X	X	X								
F02	X	X	X	X	X	X	X	X	X	X				
F05	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F06	X	X	X	X	X	X	X	X	X	X	X	X	X	
F07	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F08	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F09		X	X	X	X	X		X	X	X	X			
F11														
F12	X	X	X	X	X	X	X	X	X	X	X	X	X	
F13	X	X	X	X	X	X	X	X	X	X	X	X	X	
F14														
F15	X	X	X	X	X	X	X	X	X	X	X	X	X	
F16	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F18	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F19	X	X	X	X	X	X	X	X	X	X	X			X
F20		X	X	X	X	X		X	X	X	X			
F21														
F22	X		X	X	X	X	X							
F23														
F24	X	X	X	X	X	X	X							
F25	X	X	X	X	X	X	X	X		X	X	X	X	
F26														
F27	X	X	X	X	X	X	X							
F28	X	X	X	X	X	X	X	X	X	X				X
F32	X	X	X	X	X	X	X	X	X	X	X	X	X	X
F33														
S18														

Laboratory A49 paid the participation fee but hasn't submitted results till end of the data submission deadline.



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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	5mg/g
S	80-120	0.5mg/g
P	85-115	0.5mg/g
Ca	85-115	3mg/g
Mg	85-115	0.5mg/g
K	85-115	1mg/kg
Zn	80-120	20µg/g
Mn	80-120	20µg/g
Fe	70-130	20µg/g
Pb	60-140	0.5µg/g
B	70-130	5µg/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 Lab-head meeting in Arcachon (2011).

Table 5: Maximum acceptable limit of quantification and lowest evaluated interlaboratory sample result fixed in Arcachon 2011 (3rd Lab-head meeting)

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	-



Lowest cost elemental analysis

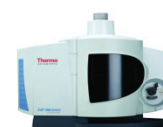
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In case of very low concentrations of copper, cadmium and lead in the interlaboratory comparison test samples these results will be excluded from the qualification report (see table 5). This procedure is needed to avoid wrong qualification results 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).

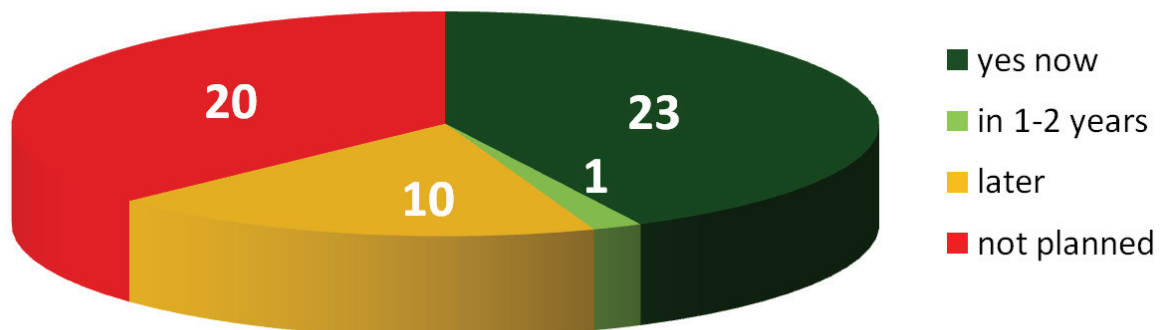
3 RESULTS

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. 54 of the 56 laboratories submit this questionnaire.

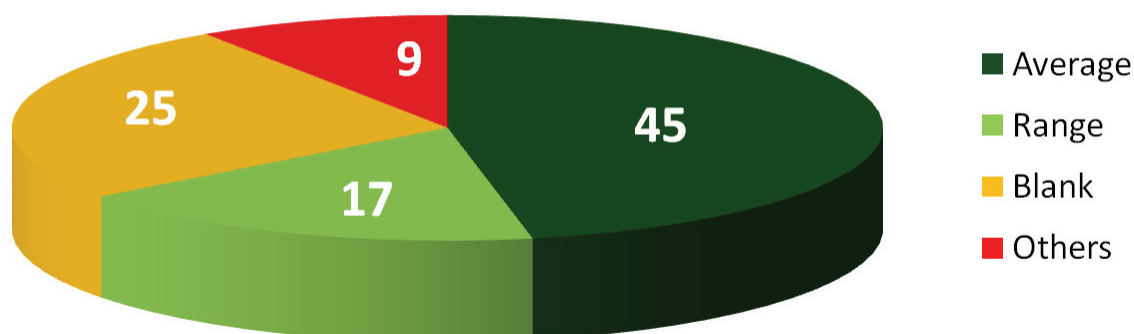
The first questions dealt with the accreditation status of the laboratories and the summarized results are shown in figure 2.

Figure 2: Accreditation status according EN 17025 (n=54)



42.6% of the laboratories are accredited now (23 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. 94.4% of these 54 laboratories are using control charts, and most of them are using average control chart – 3 of this 54 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 16th 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 1st of January 2014. 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:

A67 (78.9%), A56 (77.8%), F11 (77.1%), F22 (75.0%), A84 (70.5%), A75 (69.4%), A57 (61.4%), F26 (57.1%), A34 (50.0%), A85 (50.0%) and A59 (47.9%).

Some results of laboratories 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 the *mandatory* elements are not analyzed.

[illegible]

Labcode	N	S	P	Ca	Mg	K	C	Zn	Mn	Fe	Cu	Pb	Cd	B
F23		<												>>
F24			<<<		<	>								
F25			>											
F26		>>>	<<<<	<<	<	<<								
F27		<							<					
F28		>												
F32				>					>>					
F33										>				
S18														

The following mean element concentrations were found in the test samples and the percentage of the laboratory results out of tolerance are also 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>Ash leaves</i>	Sample 3 <i>Pine needles</i>	Sample 4 <i>Spruce needles</i>
N	mg/g %	14.86 8.16	26.15 0.00	14.67 2.04	16.36 2.04
S	mg/g %	1.13 16.32	3.77 6.12	0.96 18.37	1.12 18.37
P	mg/g %	2.33 17.31	1.37 21.15	1.24 21.15	1.64 15.38
Ca	mg/g %	4.92 15.38	28.85 19.23	4.42 11.54	3.63 19.23
Mg	mg/g %	1.03 7.84	4.08 9.80	1.63 5.88	1.21 11.76
K	mg/g %	9.85 9.62	8.72 13.46	5.64 11.54	7.53 7.69
C	g/100g %	51.25 11.11	47.11 8.89	51.80 11.11	51.84 8.89
Zn	µg/g %	33.91 4.44	13.66 2.22	28.36 6.67	23.11 8.89

Element	Unit	Sample 1 <i>Spruce needles</i>	Sample 2 <i>Ash leaves</i>	Sample 3 <i>Pine needles</i>	Sample 4 <i>Spruce needles</i>
Mn	µg/g %	1039.6 8.70	38.17 6.52	29.91 13.04	1162.2 6.52
Fe	µg/g %	65.22 8.89	77.80 11.11	145.25 8.89	105.39 8.89
Cu	µg/g %	3.48 13.95	7.71 9.30	3.66 18.60	3.25 16.28
Pb	µg/g %	0.11 --	0.35 14.29	0.46 7.14	0.12 --
Cd	ng/g %	82.62 3.23	6.69 --	18.07 --	52.31 6.45
B	µg/g %	16.00 8.33	23.71 4.17	17.59 8.33	21.84 4.17

The lead concentrations of samples 1 and 4 and the cadmium concentrations of samples 2 and 3 were too low for the evaluation. The zinc result of sample 2 was evaluated with the tolerable limits for low concentrations.

3.3 Comparison between the 16th Interlaboratory Comparison Test and former tests

Sample 1 of the 16th and sample 3 of the 13th Interlaboratory Comparison Tests are identical (Spruce 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 13th and 16th Interlaboratory Comparison Test

Element (Unit)	13 th Interlaboratory Comparison Test 2010/11 (Sample 3) Mean <i>Number of Labs</i>	16 th Interlaboratory Comparison Test 2013/14 (Sample 1) Mean <i>Number of Labs</i>
N mg/g	14.87 56	14.86 49
S mg/g	1.14 52	1.13 49
P mg/g	2.36 54	2.33 52
Ca mg/g	4.95 53	4.92 52
Mg mg/g	1.05 53	1.03 51
K mg/g	10.05 53	9.85 52
C g/100g	51.15 48	51.25 45
Zn µg/g	34.47 44	33.91 45

Element (Unit)	13 th Interlaboratory Comparison Test 2010/11 (Sample 3) Mean <i>Number of Labs</i>	16 th Interlaboratory Comparison Test 2013/14 (Sample 1) Mean <i>Number of Labs</i>
Mn $\mu\text{g/g}$	1053 47	1040 46
Fe $\mu\text{g/g}$	66.66 45	65.22 45
Cu $\mu\text{g/g}$	3.52 44	3.48 43
Pb $\mu\text{g/g}$	0.13 28	0.11 28
Cd ng/g	79.60 29	82.62 31
B $\mu\text{g/g}$	16.47 23	16.00 24

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), 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 16th ringtest. The changes of the tolerable results from the 3rd to the 16th test are shown in tables 9a and 9b.



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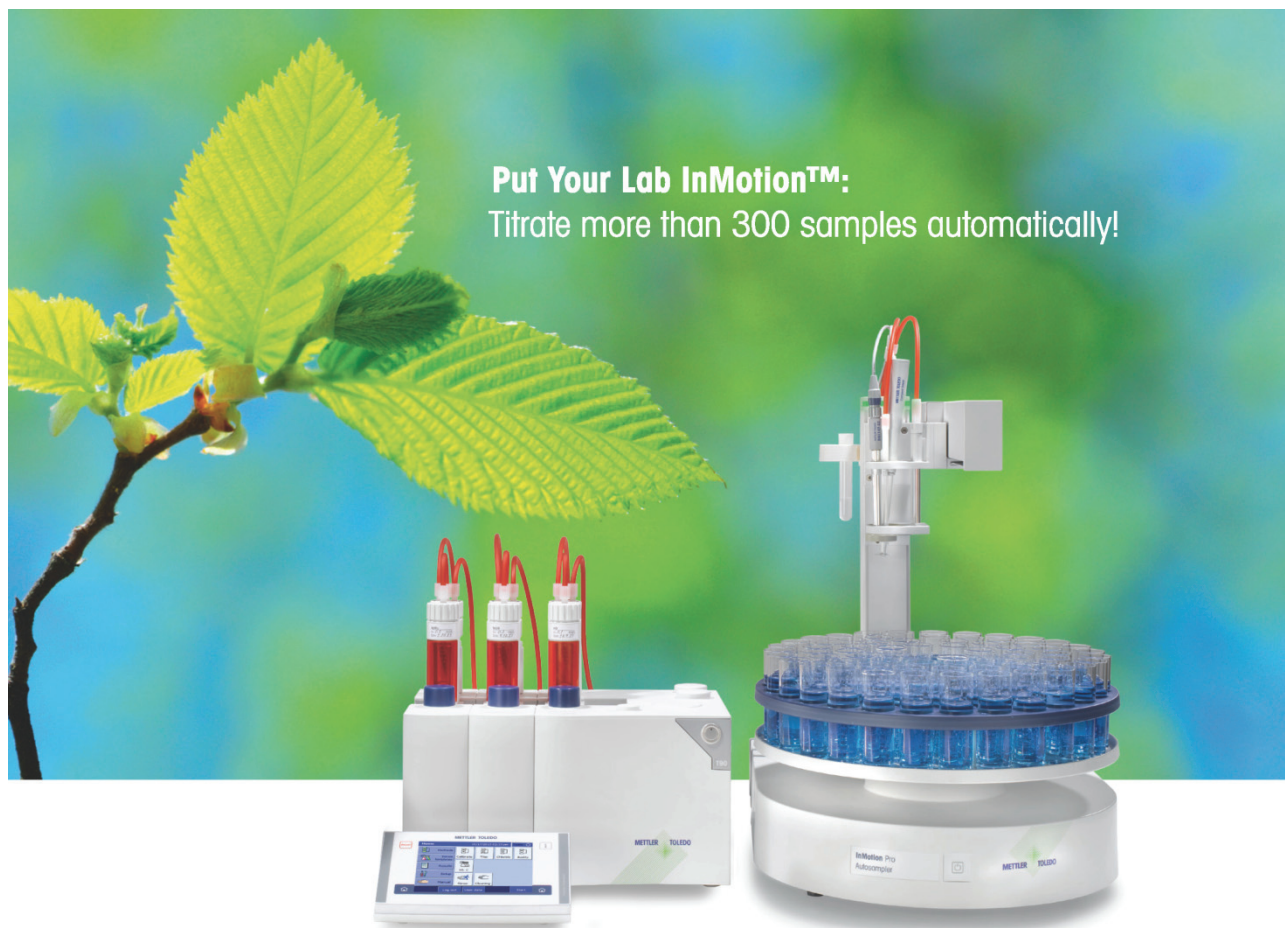
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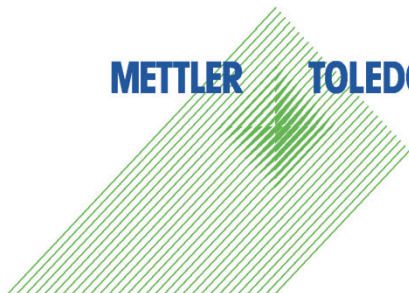


Table 9a: Percentage of non tolerable results from 3rd till 9th test

Element	Tolerable limits (± %)	3 rd Labtest 1997/1998			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		
		Non tolerable (%)	Number of mean values		Non tolerable (%)	Number of mean values		Non tolerable (%)	Number of mean values		Non tolerable (%)	Number of mean values		Non tolerable (%)	Number of mean values		Non tolerable (%)	Number of mean values		Non tolerable (%)	Number of mean values	
N	15/10 ¹⁾	4,4	225		6,6	196		10,1	188		3,0	164		3,2	156		7,3	192		6,1	196	
S	20	14,3	230		9,8	184		14,2	196		11,3	159		10,3	156		10,6	188		8,3	196	
P	15	19,6	250		7,1	196		8,2	196		17,3	168		7,9	164		9,7	196		4,3	208	
Ca	15	16,3	245		6,6	196		8,2	196		6,5	168		11,0	164		10,2	196		4,3	208	
Mg	15	16,7	245		5,1	196		6,1	196		6,5	168		10,4	164		5,9	188		4,3	208	
K	15	20,4	250		6,6	196		4,1	196		7,7	168		4,8	168		5,6	196		3,3	212	
C	10/5 ¹⁾	31,1	164		16,1	124		13,1	107		15,6	128		7,8	116		4,3	140		11,1	144	
Zn	20/15 ²⁾	16,9	225		12,0	183		8,3	192		11,5	148		14,0	143		4,5	156		8,9	168	
Mn	20/15 ²⁾	10,9	229		4,2	192		1,0	196		9,9	152		8,4	143		7,0	172		0,0	176	
Fe	20	23,7	224		17,9	196		19,1	188		8,8	148		10,3	136		7,1	168		9,9	172	
Cu	30/20 ²⁾	16,2	191		20,0	165		9,8	174		9,9	131		14,3	126		8,9	146		10,8	148	
Pb	30	42,4	99		32,1	78		23,9	109		27,8	90		38,0	79		34,7	72		24,0	104	
Cd	30	30,0	77		16,9	65		21,6	88		12,0	83		11,1	81		10,3	97		7,1	112	
B	20	18,2	115		18,4	103		12,5	104		23,8	84		21,1	90		12,8	86		8,3	84	

1) 3rd test / 4th till 9th test2) 3rd till 5th test / 6th till 9th test

Table 9b: Percentage of non tolerable results from the 10th till the 16th test

Element	Tolerable limits (± %)	10 th Labtest 2007/2008		11 th Labtest 2008/2009 ⁴⁾		12 th Labtest 2009/2010 ⁴⁾		13 th Labtest 2010/2011 ⁴⁾		14 th Labtest 2011/2012 ⁴⁾		15 th Labtest 2012/2013 ⁴⁾		16 th Labtest 2013/2014 ⁴⁾	
		Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number	Non tolerable (%)	Number
N	10	2,6	196	10,9	192	7,6	212	4,9	224	8,9	224	6,0	216	3,1	196
S	15 ³⁾	15,4	188	14,4	188	16,5	200	13,9	208	12,7	220	13,9	208	14,8	196
P	10 ³⁾	13,2	204	14,2	204	13,7	212	7,4	216	15,9	220	9,4	224	18,8	208
Ca	10 ³⁾	17,2	204	19,1	204	9,7	216	8,0	212	14,7	224	12,1	224	16,3	208
Mg	10 ³⁾	10,8	204	18,6	204	14,4	216	5,7	212	19,3	228	5,9	220	8,8	204
K	10 ³⁾	16,8	208	17,5	200	6,0	216	8,5	212	21,0	228	18,0	228	9,1	208
C	5	3,2	156	16,9	148	8,5	188	6,3	192	15,4	208	7,7	196	10,0	180
Zn	15	10,2	176	6,7	164	6,4	172	9,7	176	4,4	184	5,4	184	5,6	180
Mn	15	2,8	180	6,5	168	2,7	176	4,8	188	6,8	192	0,5	188	8,7	184
Fe	20	5,7	176	13,1	160	4,8	168	0,0	180	14,1	184	3,7	188	9,4	180
Cu	20	4,9	164	17,1	164	21,3	160	9,1	176	10,3	184	9,1	176	14,5	172
Pb	30	13,0	100	9,8	92	13,3	120	12,5	112	15,6	128	8,6	105 ⁵⁾	10,7	56 ⁵⁾
Cd	30	17,0	100	7,7	104	10,7	112	9,5	116	10,0	140	7,1	140	4,8	62 ⁵⁾
B	20	13,5	96	12,5	88	5,4	92	3,3	92	12,0	100	5,0	100	6,3	96

³⁾ 10th till 16th test⁴⁾ special tolerable limits for low concentrations⁵⁾ sample/s excluded because of too low concentration

3.4 Evaluation by element

3.4.1 Nitrogen

3.1 % of non-tolerable results, a really good result. Only laboratory A82 failed with three samples. This is a clear improvement compared with the last interlaboratory tests (8.9 → 6.0 → 3.1 %). The sample concentrations were quite high, because litterfall samples were absent in this test.

3.4.2 Sulphur

The laboratory A75 failed with all samples, the laboratories A59, A84, A85, F22 and F26 failed in analyzing three of the four samples. In comparison with the last Interlaboratory Comparison Tests the percentage of non-tolerable results is similar high (12.7 → 13.9 → 14.8 %). Sulphur is still a difficult mandatory element for some laboratories.

It seems that the laboratories A84, A85 and F26 have a calibration problem with their CNS-Analyzers. Laboratory A75 is using a not recommended dry ashing method – element losses are possible.

3.4.3 Phosphorus

In comparison with the last Interlaboratory Comparison Tests the percentage of non-tolerable results is high again (15.9 → 9.4 → 18.8%). The laboratories A34, A59, A85, F22, F24 and F26 failed in analyzing three or four samples. A re-qualification is needed for the *ICP-Forests laboratories* F22 and F24.

The laboratories A34 and F24 are using a colorimetric phosphorous determination after an oxidizing digestion. The oxidizing agent (HNO_3 or $\text{HNO}_3/\text{HClO}_4$) can disturb the colorimetric phosphorous determination.

3.4.4 Calcium

In comparison with the last Interlaboratory Test the percentage of non-tolerable results is still high (14.7 → 12.1 → 16.3 %). The laboratories A34, A57, A59, A84 and A85 failed in analyzing three or four samples.

A57 is using X-ray determination method, this laboratory failed with Ca in the last test too. The laboratories A34 and A84 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 C_2H_2 /air flame is used.

3.4.5 Magnesium

In comparison with the last test the percentage of non-tolerable results is a little bit higher (5.9 → 8.8 %). The laboratories A57 and A59 fail with three or four samples. A57 is using X-ray determination method.

3.4.6 Potassium

In comparison with the last tests the percentage of non-tolerable results decrease (21.0 → 18.0 → 9.1 %). The laboratories A59, A75 and A85 failed in analyzing three or four samples.

Laboratory A75 is using a not recommended dry ashing method for pre-treatment and the ICP-AES for the determination, this laboratory failed with K in the last test too. Element losses are well known in the literature for potassium with this pre-treatment method! The pre-treatment method should be changed.

3.4.7 Carbon

The percentage of non tolerable results is similar than in the last Interlaboratory Comparison Test (7.7 → 10.0 %). The laboratories A56, A57, A67 and F18 failed in analyzing all four samples. It seems that these laboratories have calibration problems with their element-analyzers. A re-qualification is needed for the *ICP-Forests laboratory* F18.

3.4.8 Zinc

5.6 % of the results were non-tolerable – the result is similar compared with the last tests (4.4 → 5.4 → 5.6 %). Two laboratories A34 and A67 failed in analyzing three of the four samples.

3.4.9 Manganese

8.7 % of the results were non-tolerable. No laboratory failed with three or four samples.

3.4.10 Iron

In comparison with the last test the percentage of non-tolerable results is higher (3.7 → 9.4 %). The laboratories A84 and A85 failed with all four samples. The laboratory A85 is using a microwave digestion – too low iron concentrations could be observed, if the digestion time and/or the digestion temperature is/are too low.

3.4.11 Copper

14.5 % of the results were non-tolerable. The laboratories A34, A43, A59, A83, A85 and F11 failed in analyzing three or four samples. The laboratories A34, A43 and A83 are using a wet digestion in an open system; contamination could be the reason for the too high results. The laboratory A83 failed with Cu in the last test too.

3.4.12 Lead

For passing this Interlaboratory Test for lead one or both samples (2 and 3) must be within the tolerable limits. The *background* samples 1 (0.11 µg/g) and 4 (0.12 µg/g) were excluded from the evaluation. The concentrations of the other samples were low (0.35 and 0.46 µg/g), mostly suitable methods were used from the laboratories, like flameless AAS or ICP-MS.

In comparison with the last tests the percentage of non-tolerable results is similar (15.6 → 8.6 → 10.7 %). The laboratories A83 and F15 failed with both samples. The laboratory A83 failed with Pb in the last test too. A re-qualification is needed for the *ICP-Forests laboratory* F15.

3.4.13 Cadmium

For passing this Interlaboratory Test for cadmium one or both samples (1 and 4) must be within the tolerable limits. The *background* samples 2 (6.69 ng/g) and 3 (18.07 ng/g) were excluded from the evaluation. In comparison with the last tests the percentage of non-tolerable results is lower (10.0 → 7.1 → 4.8 %). The laboratory F11 failed with both samples.

3.4.14 Boron

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

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4 CONCLUSIONS

56 laboratories in 25 countries participated in the 16th 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 2014 from the vegetation period 2013.

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 Lab-Head Meeting (Arcachon 2011). This problem is fixed now – no laboratory submits higher LOQs than the maximum acceptable.

In case of very low concentrations of copper, cadmium and lead in the interlaboratory comparison test samples, these results will be excluded from the evaluation (this happened for the lead results of the samples 1 and 4 and for the cadmium results of the samples 2 and 3). 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 16th Needle/Leaf Interlaboratory Test not so good than in the test before. But this is mostly influenced by new participants with no experience in this working field. On the other side there are only a few *ICP-Forests laboratories*, which had to do a re-qualification (F15: Pb, F18: C, F22 and F24: P). It seems that regularly ringtest participation and the re-qualification procedure increase the quality of the results!

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

A67 (78.9%), A56 (77.8%), F11 (77.1%), F22 (75.0%), A84 (70.5%), A75 (69.4%), A57 (61.4%), F26 (57.1%), A34 (50.0%), A85 (50.0%) and A59 (47.9%).

A high percentage of non tolerable results could be found for mandatory elements especially sulphur (14.8 %), phosphorous (18.8 %) and calcium (16.3 %).

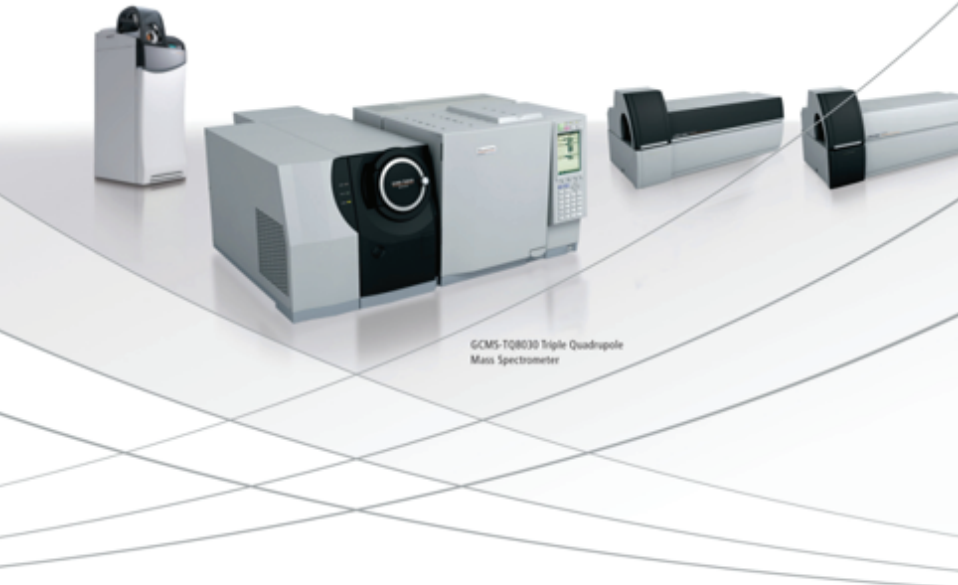
A clear recommendation to ICP-AES can be given and, where ICP-AES is not sensitive enough, ICP-AES with ultrasonic nebulizer, ICP-MS or Flameless AAS should be used. For nitrogen and carbon, element analyzers are the best choice, if a correct calibration is performed.

Some laboratories failed with the same elements like in the last Needle/Leaf Interlaboratory Test: A57 (Ca), A75 (K) and A83 (Cu and Pb). All of these laboratories had to check and validate their method or select a new (better) method. If reference material is needed - FFCC can offer some material (see: <http://bfw.ac.at/rz/bfwcms2.web?dok=5146>).

All interested laboratories are invited to take part in the re-qualification program and/or contact the Google group QA/QC in labs for additional help with their specific problems (see: <http://bfw.ac.at/rz/bfwcms2.web?dok=7520>).

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Method Code – Pretreatment (P)

0 No information

1 No pre-treatment

2 Extractions

2.3 Extraction aqua regia

2.7 Extraction H₂O

2.8 Extraction HNO₃

3 Wet ashings at room pressure (open system)

3.1 Wet ashing HNO₃

3.10 Wet ashing HNO₃ /H₂SO₄

3.11 Wet ashing aqua regia

3.2 Wet ashing HNO₃/HF

3.20 Wet ashing HClO₄/H₂O₂

3.21 Wet ashing HClO₄/H₂SO₄

3.3 Wet ashing HNO₃/HClO₄

3.31 Wet ashing H₂SO₄/H₂O₂

3.32 Wet ashing H₂SO₄/K₂CrO₇

3.4 Wet ashing HNO₃/HClO₄/HF

3.5 Wet ashing HNO₃/H₂O₂

3.50 Kjeldahl H₂SO₄/ Se-catalyst

3.51 Kjeldahl H₂SO₄/Cu-catalyst

3.52 Kjeldahl H₂SO₄/Ti-Cu-catalyst

3.53 Kjeldahl H₂SO₄/Hg-catalyst

3.6 Wet ashing HNO₃/HClO₄ /H₂SO₄

3.7 Wet ashing HNO₃/HClO₄/CaCl₂

3.8 Wet ashing HNO₃/HClO₄/H₂O₂

3.9 Wet ashing HNO₃/HClO₄/HCl

4 Pressure digestions (closed system)

4.1 Pressure digestion HNO₃,

4.2 Pressure digestion HNO₃/HF

4.3 Pressure digestion HNO₃/HClO₄

4.4 Pressure digestion HNO₃/HClO₄/HF

4.5 Pressure digestion HNO₃/H₂O₂

5 Microwave pressure digestions (closed system)

5.1 Microwave digestion HNO₃,

5.2 Microwave digestion HNO₃/HF

5.3 Microwave digestion HNO₃/HClO₄

5.4 Microwave digestion HNO₃/HClO₄/HF

5.5 Microwave digestion HNO₃/H₂O₂,

5.6 Microwave digestion HNO₃/H₂O₂/HF

5.7 Microwave digestion HNO₃/H₂O₂/HCl

5.8 Microwave aqua regia

6 Dry ashings (not recommended)

6.1 Dry ashing dissolution with HNO₃

6.2 Dry ashing dissolution with HNO₃/MgNO₃

6.3 Dry ashing dissolution with HNO₃/HF

6.4 Dry ashing dissolution with HNO₃/HCl

6.5 Dry ashing dissolution with HCl

6.6 Dry ashing dissolution with HCl/HF

6.7 Dry ashing, dissolution with H₂SO₄

7 Oxygen ashings

- 7.1 Oxygen ashing, Schöniger
- 7.2 Oxygen ashing, Wickbold
- 7.3 Oxygen ashing, calorimetric bomb

9 X-ray-pretreatments and other pretreatments

- 9.1 Material pressed (pellet)
- 9.2 Material melted and formed (tablet)
- 9.5 Melting (NaOH)

Method Code – Determination (D)

0 No information

1 No detection

10 Elemental-analyzers

11 Kjeldahl-apparatus

11.1 Kjeldahl-apparatus (Tecator)

11.2 Kjeldahl-apparatus (Gerhardt)

11.3 Kjeldahl-apparatus (Büchi)

12 N-Analyzer

12.1 N-Analyzer (Heraeus/Elementar)

12.2 N-Analyzer (Vario)

12.3 N-Analyzer (Leco)

13 C-Analyzer

13.1 C-Analyzer (Leco)

13.2 TOC Analyzer

13.3 C-Analyzer (Heraeus/Elementar)

14 S-Analyzer

14.1 S-Analyzer (Leco)

15 C/N-Analyzer

15.1 C/N-Analyzer (Carlo-Erba=CE Instruments)

15.2 C/N-Analyzer (Leco)

15.3 C/N-Analyzer (Heraeus/Elementar)

15.4 C/N-Analyzer (Vario)

15.5 C/N-Analyzer (Hekatech)

16 C/S-Analyzer

16.1 C/S-Analyzer (Leco)

17 C/N/S-Analyzer

17.1 C/N/S-Analyzer (Leco)

17.2 C/N/S-Analyzer (Heraeus/Elementar)

17.3 C/N/S-Analyzer (Thermo Electron)

17.4 C/N/S-Analyzer (Carlo-Erba=CE Instruments)

18 C/N/H-Analyzer

18.1 C/N/H-Analyzer (Leco)

18.2 C/H/N-Analyzer (Heraeus/Elementar)

19 C/H/N/S-Analyzer

20 Mono-Atom-Spectrometry-Techniques

21 AAS-flame technique

21.1 AAS-flame technique (C₂H₂/Air)

21.2 AAS-flame technique (C₂H₂/N₂O)

22 AAS-flameless (electrothermal technique)

24 AAS-hydride technique

25 AAS-cold vapor technique

25.1 AAS-LECO/ALTEC Mercury Analyzer

26 AFS-hydride-technique

28 AES-Flame photometer

30 Multi-Atom-Spectrometry-techniques

31 ICP-AES without Ultrasonic nebulisation

32 ICP-AES with Ultrasonic nebulisation

35 ICP-MS

40 Physical techniques

- 41 X-ray-energy dispersive
- 42 X-ray-wavelength dispersive
- 45 Neutron activation analysis (NAA)
- 47 Gamma-spectroscopy
- 48 Laser diffraction

50 UV-VIS-spectrophotometry-techniques

- 51 Colorimetric N-Determination
 - 51.1 Indophenol-blue-method
 - 51.2 Flow Injection (FIAS)-NH₃-Membrane-diffusion 566 nm
 - 51.3 Continuous flow method, Indophenol blue
- 52 Colorimetric S-Determination
 - 52.1 Nephelometry
 - 52.2 Turbidimetry
- 53 Colorimetric P-Determination
 - 53.1 Molybdene-blue-method
 - 53.2 Vanadium-Mo-blue-method
 - 53.3 Continuous flow method, Molybdene-blue
- 54 Colorimetric B-Determination
 - 54.1 Azomethin - H
 - 54.2 Carmine

60 Ion-chromatographic techniques

- 61.1 Anion-Chromatography w. chemical suppression
- 61.2 Anion-Chromatography w. electr. suppression
- 62.1 Cation-Chromatography w. chemical suppression
- 62.2 Cation-Chromatography w. electr. Suppression

70 Electrochemical methods

- 71 Conductimetry
 - 71.1 Conductometric titration
- 72 Potentiometry
 - 72.2 other ion selective electrodes
- 73 Potentiometric titrations
- 74 Stripping potentiometry
- 75 Voltammetry
- 76 Polarography
- 77 Amperometry
- 78 Electrophoresis
- 79 Redox potential

80 Classical analytical techniques

- 81 Gravimetry
- 82 Titration
 - 82.1 NH₄-back titration
 - 82.2 Thiocyanate-titration
 - 82.3 FeNH₄SO₄-Titration
 - 82.4 Barimetric titration
 - 82.5 AgNO₃-Titration

90 other detections

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 table 3)
**	Higher than maximum acceptable limit of quantification

Annex - Results

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

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

Additional parameters

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	3.31	15	13,21	14,44	12,78	12,44	4	13,22	*	0,87	6,61	88,96
2	A46	0	15.2	13,91	13,38	13,09	13,07	4	13,36	*	0,39	2,93	89,94
3	A59	0	0	13,29	13,53	13,38	13,60	4	13,45		0,14	1,05	90,53
4	A43	3.51	11	13,86	14,00	13,42	13,54	4	13,71		0,27	1,97	92,24
5	F12x	1	15.5	14,06	13,31	14,20	13,85	4	13,86		0,39	2,82	93,25
6	A55	1	12.3	13,86	14,24	13,96	13,82	4	13,97		0,19	1,36	94,03
7	A39	1	15.1	14,39	14,42	13,69	14,03	4	14,13		0,34	2,44	95,12
8	A75	1	17.1	14,59	14,31	14,12	13,69	4	14,18		0,38	2,67	95,43
9	S18	1	17.1	14,40	14,40	14,20	14,40	4	14,35		0,10	0,70	96,59
10	F24x	3.52	11	14,24	13,93	14,38	15,18	4	14,43		0,53	3,69	97,14
11	A62x	1	17.1	15,20	14,40	14,10	14,10	4	14,45		0,52	3,60	97,26
12	F33	1	17.2	14,90	14,20	14,40	14,50	4	14,50		0,29	2,03	97,60
13	A56	1	15.3	15,10	14,20	14,50	14,30	4	14,53		0,40	2,78	97,76
14	F02x	1	12.3	14,61	14,56	14,59	14,53	4	14,57		0,04	0,24	98,08
15	F23	3.51	11	14,54	14,66	14,63	14,57	4	14,60		0,05	0,38	98,27
16	F21	1	17	14,80	14,45	14,63	14,77	4	14,66		0,16	1,09	98,69
17	A45x	1	15.3	14,80	14,70	14,70	14,80	4	14,75		0,06	0,39	99,28
18	F06x	1	15.4	14,56	14,80	14,76	14,91	4	14,76		0,15	0,99	99,34
19	A36	3.50	11.2	15,00	14,68	14,79	14,68	4	14,79		0,15	1,02	99,53
20	F27x	1	17.1	14,90	14,79	14,90	14,79	4	14,85		0,06	0,43	99,92
21	F25x	1	15.4	14,99	14,85	14,81	14,78	4	14,86		0,09	0,63	100,00
22	F28x	1	17.3	15,00	14,90	14,70	15,00	4	14,90		0,14	0,95	100,29
23	F15x	1	15.3	15,48	14,81	14,71	14,63	4	14,91		0,39	2,61	100,34
24	F18x	3.51	11.2	14,70	14,90	15,00	15,10	4	14,93		0,17	1,14	100,46
25	F01x	3.51	11.3	14,82	14,93	14,99	15,05	4	14,95		0,10	0,66	100,61
26	F08x	1	15.3	14,94	15,05	15,05	14,94	4	15,00		0,06	0,40	100,94
27	F14	1	15.3	15,10	15,00	15,00	14,90	4	15,00		0,08	0,54	100,96
28	F07x	1	17.1	14,71	15,19	15,02	15,09	4	15,00		0,21	1,38	100,98
29	A83	1	15.2	15,17	14,78	15,09	15,03	4	15,02		0,17	1,12	101,08
30	A58x	1	15.3	15,10	15,00	15,00	15,10	4	15,05		0,06	0,38	101,30
31	F05x	1	17.2	15,10	14,90	15,10	15,10	4	15,05		0,10	0,66	101,30
32	A51	1	17.2	15,09	15,01	15,12	15,06	4	15,07		0,05	0,31	101,43
33	F19x	1	15.2	15,10	15,10	15,10	15,00	4	15,08		0,05	0,33	101,47
34	F16x	1	15.3	15,17	15,22	15,19	14,73	4	15,08		0,23	1,54	101,48
35	A61x	1	15.1	14,79	15,18	14,78	15,64	4	15,10		0,41	2,69	101,62
36	F32x	1	17.2	15,10	14,90	15,30	15,10	4	15,10		0,16	1,08	101,63
37	F22x	0	0	15,37	15,76	14,94	14,56	4	15,16		0,52	3,43	102,02
38	A65	1	18.2	15,20	15,20	15,20	15,10	4	15,18		0,05	0,33	102,14
39	A57	1	15.2	15,21	15,07	15,36	15,29	4	15,23		0,12	0,82	102,53
40	A60x	1	15.1	15,14	15,32	15,16	15,36	4	15,25		0,11	0,73	102,61
41	F13x	1	15.3	15,29	15,28	15,19	15,26	4	15,26		0,05	0,30	102,68
42	A34	3.51	11.1	15,29	15,08	15,30	15,44	4	15,28		0,15	0,97	102,83
43	F26	3.52	11.2	15,37	15,38	15,40	15,40	4	15,39		0,02	0,10	103,57
44	A42	1	18.1	15,51	15,55	15,43	15,51	4	15,50		0,05	0,32	104,33
45	A47x	1	15	15,90	15,69	15,78	16,18	4	15,89		0,21	1,34	106,93
46	A84	1	17.2	15,91	15,99	15,80	16,04	4	15,94		0,10	0,66	107,25
47	F11	1	17.2	16,40	16,20	16,40	16,00	4	16,25		0,19	1,18	109,37
48	A82	1	19	17,50	16,50	16,40	16,20	3	16,37	*	0,15	0,93	110,16
49	A85	5.1	17	15,21	16,42	17,59	16,91	4	16,53	*	1,00	6,07	111,28
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	195	14,86	0,218	1,469
10	% from the mean			
	L		SR	VR
	49		0,696	4,682

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	3.31	15	23,34	22,80	26,03	22,22	0	23,60 b	1,68	7,14	90,25
2	A43	3.51	11	24,22	24,22	24,22	24,31	4	24,24	0,04	0,19	92,71
3	A59	0	0	24,88	24,67	24,45	24,43	4	24,61	0,21	0,86	94,11
4	A46	0	15.2	24,41	25,18	24,56	24,52	4	24,67	0,35	1,41	94,34
5	A45x	1	15.3	25,00	24,90	24,90	24,90	4	24,93	0,05	0,20	95,32
6	A39	1	15.1	25,43	25,41	24,75	25,22	4	25,20	0,32	1,25	96,38
7	A56	1	15.3	25,40	24,90	25,70	25,00	4	25,25	0,37	1,46	96,57
8	F18x	3.51	11.2	25,10	25,20	25,60	25,60	4	25,38	0,26	1,04	97,04
9	A55	1	12.3	25,63	25,54	25,28	25,16	4	25,40	0,22	0,86	97,15
10	F23	3.51	11	25,47	25,55	25,53	25,49	4	25,51	0,04	0,14	97,56
11	F15x	1	15.3	25,99	25,91	25,49	25,44	4	25,71	0,28	1,10	98,32
12	F32x	1	17.2	25,80	25,40	26,10	26,10	4	25,85	0,33	1,28	98,86
13	A75	1	17.1	26,41	25,86	25,58	25,69	4	25,89	0,37	1,42	98,99
14	F28x	1	17.3	25,70	25,10	26,60	26,20	4	25,90	0,65	2,50	99,05
15	F02x	1	12.3	25,61	26,05	26,15	25,87	4	25,92	0,24	0,91	99,13
16	A58x	1	15.3	26,00	26,00	26,00	25,80	4	25,95	0,10	0,39	99,24
17	A62x	1	17.1	26,50	26,10	25,90	25,50	4	26,00	0,42	1,60	99,43
18	A36	3.50	11.2	26,33	26,01	25,90	25,80	4	26,01	0,23	0,88	99,47
19	F12x	1	15.5	25,70	25,91	26,46	26,02	4	26,02	0,32	1,23	99,52
20	F21	1	17	26,02	26,26	26,37	25,56	4	26,05	0,36	1,38	99,64
21	F22x	0	0	25,77	26,53	25,88	26,19	4	26,09	0,34	1,31	99,79
22	F24x	3.52	11	25,54	26,22	26,30	26,32	4	26,10	0,37	1,43	99,80
23	F25x	1	15.4	26,16	26,17	26,13	26,18	4	26,16	0,02	0,08	100,05
24	F19x	1	15.2	26,00	26,20	26,20	26,40	4	26,20	0,16	0,62	100,20
25	A60x	1	15.1	26,77	26,44	25,67	26,06	4	26,24	0,48	1,81	100,33
26	F08x	1	15.3	26,24	26,35	26,24	26,14	4	26,24	0,09	0,33	100,37
27	F14	1	15.3	26,00	26,30	26,10	26,60	4	26,25	0,26	1,01	100,39
28	F16x	1	15.3	26,51	25,93	26,29	26,37	4	26,28	0,25	0,94	100,49
29	F05x	1	17.2	26,30	26,20	26,30	26,30	4	26,28	0,05	0,19	100,49
30	F07x	1	17.1	26,10	26,34	26,75	26,24	4	26,36	0,28	1,06	100,80
31	A85	5.1	17	24,51	27,62	25,91	27,62	4	26,42	1,50	5,69	101,02
32	F06x	1	15.4	26,17	26,46	26,59	26,56	4	26,44	0,19	0,71	101,13
33	A61x	1	15.1	26,38	26,66	26,38	26,42	4	26,46	0,13	0,51	101,19
34	A47x	1	15	25,86	26,45	26,73	26,84	4	26,47	0,44	1,66	101,23
35	A83	1	15.2	26,15	26,36	27,23	26,22	4	26,49	0,50	1,89	101,31
36	A84	1	17.2	26,16	26,90	26,57	26,51	4	26,54	0,30	1,14	101,48
37	A51	1	17.2	26,57	26,54	26,49	26,58	4	26,55	0,04	0,15	101,52
38	A34	3.51	11.1	26,56	26,21	26,77	26,69	4	26,56	0,25	0,93	101,57
39	A57	1	15.2	26,03	26,94	26,57	26,82	4	26,59	0,40	1,52	101,69
40	A65	1	18.2	26,40	26,40	26,50	27,50	4	26,70	0,54	2,01	102,11
41	A82	1	19	26,60	26,20	26,90	27,40	4	26,78	0,51	1,89	102,40
42	F13x	1	15.3	26,77	26,76	26,93	26,94	4	26,85	0,10	0,37	102,69
43	F26	3.52	11.2	27,12	26,62	27,19	26,60	4	26,88	0,32	1,18	102,81
44	F01x	3.51	11.3	26,83	26,89	27,07	27,13	4	26,98	0,14	0,53	103,18
45	F27x	1	17.1	27,27	26,84	27,06	26,84	4	27,00	0,21	0,76	103,27
46	S18	1	17.1	26,90	27,20	27,00	27,00	4	27,03	0,13	0,47	103,35
47	F11	1	17.2	27,20	27,10	27,30	27,10	4	27,18	0,10	0,35	103,93
48	A42	1	18.1	27,21	27,23	27,04	27,23	4	27,18	0,09	0,34	103,94
49	F33	1	17.2	27,22	27,44	27,33	27,44	4	27,36	0,11	0,38	104,63
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	192	26,15	0,280	1,071
10	% from the mean			
L			SR	VR
48			0,689	2,633

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	13,31	13,25	13,39	12,67a	3	13,32	0,07	0,53	90,80
2	A75	1	17.1	13,95	13,65	13,57	13,22	4	13,60	0,30	2,21	92,71
3	A46	0	15.2	13,01	13,22	14,01	14,41	4	13,66	0,66	4,82	93,16
4	A67	3.31	15	13,47	14,05	14,19	13,54	4	13,81	0,36	2,61	94,18
5	A55	1	12.3	13,51	13,61	14,10	14,14	4	13,84	0,33	2,36	94,37
6	A39	1	15.1	13,82	13,77	13,94	13,87	4	13,85	0,07	0,52	94,43
7	A62x	1	17.1	16,3a	14,10	13,80	13,70	3	13,87	0,21	1,50	94,55
8	A56	1	15.3	14,00	13,70	13,90	14,20	4	13,95	0,21	1,49	95,12
9	S18	1	17.1	14,10	14,40	14,10	14,20	4	14,20	0,14	1,00	96,82
10	A45x	1	15.3	14,30	14,20	14,20	14,20	4	14,23	0,05	0,35	96,99
11	F21	1	17	14,17	14,09	14,32	14,36	4	14,24	0,13	0,89	97,06
12	A61x	1	15.1	14,54	14,07	13,93	14,41	4	14,24	0,29	2,00	97,08
13	F02x	1	12.3	14,32	14,46	14,38	14,22	4	14,35	0,10	0,71	97,81
14	F12x	1	15.5	13,86	14,45	14,82	14,38	4	14,38	0,40	2,75	98,03
15	F15x	1	15.3	14,37	14,58	14,37	14,24	4	14,39	0,14	0,98	98,12
16	F22x	0	0	14,02	14,19	14,38	15,04	4	14,41	0,45	3,10	98,24
17	F23	3.51	11	14,55	14,47	14,44	14,57	4	14,51	0,06	0,43	98,92
18	F06x	1	15.4	14,42	14,47	14,47	14,80	4	14,54	0,18	1,21	99,14
19	F27x	1	17.1	14,65	14,44	14,54	14,54	4	14,54	0,09	0,59	99,16
20	F07x	1	17.1	14,58	14,56	14,47	14,70	4	14,58	0,09	0,65	99,39
21	A36	3.50	11.2	14,64	14,64	14,53	14,64	4	14,61	0,06	0,38	99,63
22	A51	1	17.2	14,54	14,78	14,52	14,66	4	14,63	0,12	0,82	99,72
23	F05x	1	17.2	14,70	14,60	14,50	14,70	4	14,63	0,10	0,65	99,72
24	F08x	1	15.3	14,57	14,68	14,57	14,78	4	14,65	0,10	0,69	99,88
25	F25x	1	15.4	14,69	14,67	14,60	14,64	4	14,65	0,04	0,27	99,89
26	A57	1	15.2	14,57	14,57	14,63	14,92	4	14,67	0,17	1,14	100,04
27	F19x	1	15.2	14,60	14,60	14,70	14,80	4	14,68	0,10	0,65	100,06
28	F32x	1	17.2	14,50	14,50	14,80	14,90	4	14,68	0,21	1,40	100,06
29	F16x	1	15.3	15,01	14,60	14,53	14,89	4	14,76	0,23	1,55	100,62
30	A65	1	18.2	15,00	14,70	14,80	14,60	4	14,78	0,17	1,16	100,74
31	F14	1	15.3	14,57	15,30	14,80	14,50	4	14,79	0,36	2,45	100,86
32	F24x	3.52	11	13,93	15,20	15,00	15,08	4	14,80	0,59	3,97	100,93
33	A83	1	15.2	14,99	14,38	15,13	14,81	4	14,83	0,33	2,20	101,10
34	A58x	1	15.3	15,10	14,70	14,80	14,80	4	14,85	0,17	1,17	101,25
35	F28x	1	17.3	15,00	14,90	14,80	14,70	4	14,85	0,13	0,87	101,25
36	A60x	1	15.1	14,15	15,35	15,68	14,68	4	14,97	0,68	4,57	102,04
37	F18x	3.51	11.2	14,80	15,00	15,20	14,90	4	14,98	0,17	1,14	102,11
38	A43	3.51	11	14,87	15,44	14,72	14,91	4	14,99	0,31	2,10	102,17
39	F13x	1	15.3	15,00	15,06	14,93	14,96	4	14,99	0,06	0,37	102,19
40	A84	1	17.2	15,30	15,14	15,10	15,00	4	15,14	0,12	0,82	103,20
41	A34	3.51	11.1	15,24	15,10	15,08	15,17	4	15,15	0,07	0,48	103,28
42	A85	5.1	17	16,22	15,78	13,92	15,22	4	15,29	1,00	6,53	104,22
43	A42	1	18.1	15,20	15,48	15,48	15,21	4	15,34	0,16	1,04	104,61
44	F26	3.52	11.2	15,37	15,40	15,38	15,40	4	15,39	0,02	0,10	104,92
45	A47x	1	15	15,68	15,90	16,22	15,80	4	15,90	0,23	1,46	108,41
46	F01x	3.51	11.3	16,02	15,89	15,81	16,07	4	15,95	0,12	0,75	108,74
47	F11	1	17.2	16,00	16,00	15,90	15,90	4	15,95	0,06	0,36	108,75
48	F33	1	17.2	16,17	16,39	15,84	16,06	4	16,12	0,23	1,42	109,88
49	A82	1	19	16,60	17,40	16,40	16,80	0	16,80	b *	2,57	114,55
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	190	14,67	0,217	1,477
10		% from the mean		
L			SR	VR
48			0,613	4,180

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	3.31	15	14,88	14,40	14,76	14,88	4	14,73	0,23	1,54	90,05
2	A46	0	15.2	15,07	15,08	15,76	14,53	4	15,11	0,50	3,33	92,37
3	A59	0	0	15,35	15,07	15,06	14,96	4	15,11	0,17	1,11	92,37
4	A62x	1	17.1	15,50	15,30	15,40	15,30	4	15,38	0,10	0,62	93,99
5	F33	1	17.2	15,71	15,30	15,50	15,40	4	15,48	0,18	1,13	94,62
6	A75	1	17.1	15,76	15,44	15,51	15,42	4	15,53	0,16	1,01	94,96
7	A56	1	15.3	15,50	15,90	15,70	15,60	4	15,68	0,17	1,09	95,83
8	A43	3.51	11	15,76	15,32	16,05	15,84	4	15,74	0,31	1,95	96,24
9	A55	1	12.3	15,53	15,92	15,96	15,98	4	15,85	0,21	1,34	96,88
10	F21	1	17	15,87	16,04	16,06	15,98	4	15,99	0,09	0,53	97,74
11	F14	1	15.3	15,87	15,97	16,51	15,76	4	16,03	0,33	2,08	97,98
12	A45x	1	15.3	16,20	16,00	16,00	16,00	4	16,05	0,10	0,62	98,12
13	A39	1	15.1	16,32	16,07	16,01	16,12	4	16,13	0,13	0,83	98,61
14	F23	3.51	11	16,00	16,27	16,15	16,12	4	16,14	0,11	0,69	98,64
15	S18	1	17.1	16,30	16,00	16,30	16,00	4	16,15	0,17	1,07	98,73
16	F24x	3.52	11	15,76	16,43	16,12	16,35	4	16,17	0,30	1,86	98,82
17	F02x	1	12.3	16,31	16,11	16,20	16,14	4	16,19	0,09	0,55	98,98
18	A36	3.50	11.2	16,30	16,20	16,20	16,09	4	16,20	0,09	0,53	99,02
19	F32x	1	17.2	16,10	16,00	16,30	16,50	4	16,23	0,22	1,37	99,19
20	A83	1	15.2	16,83	15,72	16,55	15,82	4	16,23	0,54	3,36	99,22
21	F08x	1	15.3	16,34	16,23	16,37	16,13	4	16,26	0,11	0,67	99,43
22	F15x	1	15.3	16,35	16,55	16,13	16,15	4	16,30	0,20	1,21	99,62
23	A61x	1	15.1	16,39	16,18	16,16	16,52	4	16,31	0,17	1,06	99,73
24	F12x	1	15.5	15,69	16,45	16,82	16,32	4	16,32	0,47	2,88	99,77
25	F25x	1	15.4	16,33	16,39	16,48	16,39	4	16,40	0,06	0,38	100,25
26	A58x	1	15.3	16,40	16,50	16,40	16,50	4	16,45	0,06	0,35	100,57
27	F27x	1	17.1	16,39	16,71	16,81	16,18	4	16,52	0,29	1,76	101,01
28	A85	5.1	17	17,11	15,32	16,63	17,11	4	16,54	0,85	5,11	101,13
29	F19x	1	15.2	16,60	16,50	16,50	16,60	4	16,55	0,06	0,35	101,18
30	F16x	1	15.3	16,84	16,47	16,67	16,23	4	16,55	0,26	1,59	101,19
31	F05x	1	17.2	16,60	16,60	16,60	16,50	4	16,58	0,05	0,30	101,33
32	F07x	1	17.1	16,58	16,57	16,62	16,57	4	16,59	0,02	0,14	101,39
33	F13x	1	15.3	16,64	16,61	16,61	16,48	4	16,59	0,07	0,43	101,39
34	F22x	0	0	16,45	17,07	15,81	17,01	4	16,59	0,59	3,54	101,39
35	A51	1	17.2	16,56	16,64	16,49	16,75	4	16,61	0,11	0,67	101,54
36	F18x	3.51	11.2	16,50	16,60	16,70	16,70	4	16,63	0,10	0,58	101,64
37	F28x	1	17.3	16,60	16,90	16,60	16,50	4	16,65	0,17	1,04	101,79
38	F06x	1	15.4	16,63	16,76	16,65	16,57	4	16,65	0,08	0,48	101,80
39	A57	1	15.2	16,92	16,49	16,80	16,59	4	16,70	0,20	1,17	102,09
40	A65	1	18.2	16,80	17,60	16,60	16,90	4	16,98	0,43	2,56	103,78
41	A34	3.51	11.1	17,02	17,05	16,93	17,04	4	17,01	0,05	0,32	103,99
42	A42	1	18.1	17,12	17,06	17,16	16,90	4	17,06	0,11	0,67	104,30
43	A60x	1	15.1	16,52	17,63	17,03	17,19	4	17,09	0,46	2,68	104,49
44	A84	1	17.2	17,25	17,20	17,35	17,21	4	17,25	0,07	0,40	105,47
45	F01x	3.51	11.3	17,34	17,11	17,28	17,46	4	17,30	0,15	0,84	105,75
46	F26	3.52	11.2	17,51	17,48	17,49	17,49	4	17,49	0,01	0,07	106,94
47	F11	1	17.2	17,70	17,8a	17,70	17,70	3	17,70	0,00	0,00	108,21
48	A47x	1	15	17,56	17,87	17,43	18,13	4	17,75	0,31	1,77	108,50
49	A82	1	19	18,20	21,50	20,50	20,40	0	20,15	b *	6,91	123,19
50												
51												
52												
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N Mean SI VI
all labs 191 16,36 0,202 1,237
10 % from the mean

* = non tolerable mean because more than +/-

L SR VR
48 0,640 3,909

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A75	6.5	31	0,56	0,58	0,56	0,51	0	0,55	b *	0,03	48,86
2	F22	0	0	0,60	0,68	0,64	0,68	4	0,65	*	0,04	57,48
3	A59	0	0	0,93	0,93	0,96	0,92	4	0,94	*	0,02	82,69
4	A56	4.1	31	1,00	1,00	0,99	0,98	4	1,00		0,01	88,01
5	F13x	9.1	41	1,01	1,00	1,01	1,00	4	1,01		0,01	88,88
6	F06x	5.5	31	1,05	1,05	1,02	1,03	4	1,04		0,02	91,55
7	F24x	1	10	1,05	1,04	1,06	1,07	4	1,06		0,01	93,44
8	F11	5.1	31	1,05	1,07	1,06	1,07	4	1,06		0,01	93,96
9	S18	2.8	31	1,07	1,06	1,08	1,08	4	1,07		0,01	94,93
10	F12x	4.1	32	1,08	1,08	1,09	1,08	4	1,08		0,01	95,73
11	A58x	1	14.1	1,08	1,13	1,04	1,09	4	1,09		0,04	95,95
12	F08x	5.5	32	1,06	1,08	1,12	1,11	4	1,09		0,02	96,57
13	F19x	5.5	31	1,13	1,08	1,09	1,11	4	1,10		0,02	97,50
14	A45x	3.5	31	1,10	1,10	1,11	1,11	4	1,11		0,01	97,72
15	F02x	1	16.1	1,13	1,11	1,08	1,10	4	1,11		0,02	97,72
16	F14	4.1	31	1,11	1,10	1,11	1,11	4	1,11		0,00	97,85
17	F20x	5.5	31	1,11	1,11	1,12	1,12	4	1,12		0,01	98,60
18	F09x	9.1	42	1,12	1,13	1,13	1,10	4	1,12		0,01	99,02
19	A55	5.5	31	1,13	1,13	1,12	1,11	4	1,12		0,01	99,13
20	A82	5.1	31	1,11	1,10	1,13	1,15	4	1,12		0,02	99,27
21	A47x	5.1	31	1,15	1,12	1,11	1,11	4	1,12		0,02	99,27
22	F18x	3.1	31	1,14	1,13	1,13	1,12	4	1,13		0,01	99,93
23	A83	3.3	31	1,11	1,14	1,16	1,14	4	1,14		0,02	100,57
24	F23	5.1	31	1,16	1,23	1,02	1,14	4	1,14		0,09	100,59
25	F07x	4.1	31	1,18	1,10	1,16	1,12	4	1,14		0,04	100,79
26	F33	5.1	35	1,09	1,06	1,22	1,19	4	1,14		0,08	100,90
27	A39	5.5	31	1,14	1,15	1,15	1,15	4	1,15		0,00	101,54
28	A61x	5.1	31	1,19	1,19	1,17	1,08	4	1,15		0,05	102,05
29	F27x	1	17.1	1,13	1,13	1,16	1,20	4	1,15		0,04	102,10
30	F15x	4.1	31	1,18	1,18	1,13	1,13	4	1,16		0,03	102,14
31	A67	3.5	35	1,14	1,20	1,19	1,10	4	1,16		0,05	102,36
32	A46	5.1	31	1,17	1,20	1,16	1,12	4	1,16		0,03	102,80
33	F28x	1	17.3	1,16	1,12	1,20	1,18	4	1,17		0,03	103,02
34	A65	4.1	31	1,17	1,16	1,16	1,17	4	1,17		0,01	103,02
35	A50	3.1	31	1,18	1,17	1,14	1,19	4	1,17		0,02	103,47
36	F16x	4.1	31	1,24	1,13	1,23	1,14	4	1,19		0,06	104,79
37	F25x	3.3	31	1,18	1,21	1,21	1,19	4	1,20		0,02	105,90
38	A53	9.1	42	1,21	1,19	1,20	1,20	4	1,20		0,01	105,99
39	F32x	5.1	31	1,23	1,19	1,21	1,20	4	1,21		0,02	106,78
40	F05x	1	17.2	1,22	1,19	1,22	1,22	4	1,21		0,02	107,23
41	A79	5.7	35	1,19	1,23	1,24	1,27	4	1,23		0,03	108,99
42	A36	5.1	31	1,24	1,25	1,23	1,25	4	1,24		0,01	109,88
43	A60x	5.1	31	1,25	1,29	1,25	1,28	4	1,27		0,02	112,09
44	A57	1	42	1,28	1,28	1,29	1,30	4	1,29		0,01	113,86
45	A51	5.5	31	1,30	1,35	1,30	1,32	4	1,32	*	0,02	116,53
46	A62x	1	16.1	1,33	1,29	1,34	1,35	4	1,33	*	0,03	117,40
47	A85	5.1	17	1,50	1,49	1,51	1,50	0	1,50	b *	0,01	132,65
48	A84	1	17.2	1,90	1,96	1,97	2,10	0	1,98	b *	0,08	175,32
49	F26	0	17.1	2,84	2,64	2,75	2,79	0	2,76	b *	0,09	243,63
50												
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	180	1,13	0,023
15	% from the mean		2,020

L	SR	VR
45	0,107	9,499

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A75	6.5	31	2,36	2,50	2,30	2,24	0	2,35	b *	0,11	4,74	62,30
2	F27x	1	17.1	3,17	3,17	3,01	3,05	4	3,10		0,08	2,66	82,11
3	A59	0	0	3,33	2,98	3,22	3,30	4	3,21	0,16	4,95	85,04	
4	A56	4.1	31	3,23	3,25	3,25	3,26	4	3,25	0,01	0,38	86,12	
5	F02x	1	16.1	3,32	3,25	3,27	3,28	4	3,28	0,03	0,90	86,96	
6	F13x	9.1	41	3,34	3,35	3,38	3,38	4	3,36	0,02	0,61	89,14	
7	F26	0	17.1	3,45	3,54	3,47	3,43	4	3,47	0,05	1,38	92,06	
8	F23	5.1	31	3,78	3,16	3,49	3,48	4	3,48	0,25	7,28	92,19	
9	F06x	5.5	31	3,53	3,54	3,54	3,51	4	3,53	0,01	0,31	93,55	
10	S18	2.8	31	3,59	3,51	3,55	3,58	4	3,55	0,04	1,00	94,23	
11	F09x	9.1	42	3,59	3,62	3,57	3,63	4	3,60	0,03	0,74	95,55	
12	F19x	5.5	31	3,63	3,57	3,62	3,63	4	3,61	0,03	0,80	95,77	
13	F24x	1	10	3,52	3,72	3,50	3,75	4	3,62	0,13	3,64	95,95	
14	F20x	5.5	31	3,62	3,64	3,58	3,64	4	3,62	0,03	0,78	95,97	
15	F08x	5.5	32	3,55	3,59	3,75	3,68	4	3,64	0,09	2,50	96,51	
16	A53	9.1	42	3,65	3,66	3,62	3,64	4	3,64	0,02	0,47	96,59	
17	F18x	3.1	31	3,65	3,66	3,66	3,66	4	3,66	0,01	0,14	96,97	
18	F07x	4.1	31	3,75	3,61	3,70	3,60	4	3,67	0,07	1,97	97,20	
19	A82	5.1	31	3,57	3,73	3,76	3,76	4	3,71	0,09	2,46	98,22	
20	A51	5.5	31	3,73	3,62	3,74	3,77	4	3,71	0,06	1,73	98,45	
21	F14	4.1	31	3,71	3,74	3,73	3,75	4	3,73	0,02	0,42	99,00	
22	A65	4.1	31	3,75	3,73	3,73	3,74	4	3,74	0,01	0,26	99,09	
23	A57	1	42	3,74	3,77	3,79	3,74	4	3,76	0,02	0,65	99,68	
24	A55	5.5	31	3,77	3,77	3,80	3,73	4	3,77	0,03	0,78	99,89	
25	F33	5.1	35	3,81	3,76	3,73	3,79	4	3,77	0,04	0,93	100,01	
26	A45x	3.5	31	3,76	3,78	3,77	3,79	4	3,78	0,01	0,34	100,08	
27	F05x	1	17.2	3,80	3,79	3,76	3,77	4	3,78	0,02	0,48	100,21	
28	F12x	4.1	32	3,87	3,79	3,77	3,81	4	3,81	0,04	1,13	101,01	
29	F28x	1	17.3	3,74	3,80	3,84	3,92	4	3,83	0,08	1,97	101,41	
30	A50	3.1	31	3,85	3,87	3,83	3,83	4	3,85	0,02	0,50	101,94	
31	F15x	4.1	31	3,99	3,95	3,69	3,75	4	3,85	0,15	3,83	101,94	
32	A47x	5.1	31	3,94	3,89	3,87	3,83	4	3,88	0,05	1,18	102,93	
33	A84	1	17.2	3,78	3,98	3,92	3,89	4	3,89	0,08	2,15	103,20	
34	F25x	3.3	31	3,92	3,89	3,88	3,91	4	3,90	0,02	0,47	103,39	
35	A83	3.3	31	3,67	3,94	3,95	4,04	4	3,90	0,16	4,08	103,44	
36	A46	5.1	31	3,94	3,93	4,01	3,82	4	3,93	0,08	2,00	104,06	
37	A61x	5.1	31	3,94	3,95	3,94	3,91	4	3,93	0,02	0,43	104,28	
38	F11	5.1	31	3,90	3,91	4,00	3,93	4	3,94	0,05	1,15	104,32	
39	A58x	1	14.1	3,94	3,95	3,89	3,96	4	3,94	0,03	0,79	104,32	
40	F22	0	0	4,04	3,90	4,33	3,57	4	3,96	0,32	7,97	104,98	
41	A62x	1	16.1	4,00	3,99	4,01	3,99	4	4,00	0,01	0,24	105,98	
42	A36	5.1	31	4,01	4,00	4,03	4,05	4	4,02	0,02	0,55	106,64	
43	A85	5.1	17	4,10	4,09	4,08	4,11	4	4,10	0,01	0,32	108,56	
44	A67	3.5	35	4,19	4,09	4,11	4,12	4	4,13	0,04	1,05	109,43	
45	F32x	5.1	31	4,11	4,17	4,15	4,15	4	4,15	0,03	0,61	109,89	
46	A39	5.5	31	4,20	4,15	4,18	4,16	4	4,17	0,02	0,59	110,61	
47	F16x	4.1	31	4,13	4,28	4,16	4,20	4	4,19	0,06	1,53	111,20	
48	A60x	5.1	31	4,34	4,29	4,33	4,13	4	4,27	0,10	2,32	113,27	
49	A79	5.7	35	4,35	4,37	4,46	4,43	4	4,40	*	0,05	1,22	116,67
50													
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52													
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56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	192	3,77	0,058	1,539
15	% from the mean			

L	SR	VR
48	0,276	7,328

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A75	6.5	31	0,39	0,39	0,42	0,35	0	0,39	b *	0,03	7,41	40,20
2	F22	0	0	0,56	0,64	0,51	0,57	0	0,57	b *	0,05	9,39	59,13
3	A59	0	0	0,68	0,72	0,78	0,79	4	0,74	*	0,05	6,99	77,03
4	A56	4.1	31	0,80	0,82	0,80	0,80	4	0,81	*	0,01	1,04	83,59
5	F06x	5.5	31	0,87	0,84	0,87	0,85	4	0,86		0,01	1,68	88,93
6	F11	5.1	31	0,86	0,86	0,88	0,88	4	0,87		0,01	1,63	90,13
7	F23	5.1	31	0,81	0,82	0,89	0,96	4	0,87		0,07	8,02	90,26
8	A61x	5.1	31	0,93	0,85	0,86	0,86	4	0,87		0,04	4,37	90,75
9	F02x	1	16.1	0,91	0,89	0,89	0,86	4	0,89		0,02	2,21	92,00
10	S18	2.8	31	0,88	0,88	0,89	0,89	4	0,89		0,01	0,79	92,02
11	A45x	3.5	31	0,90	0,90	0,90	0,90	4	0,90		0,00	0,11	93,19
12	F09x	9.1	42	0,90	0,92	0,91	0,89	4	0,90		0,01	1,20	93,71
13	A58x	1	14.1	0,88	0,84	0,94	0,96	4	0,91		0,06	6,09	93,89
14	F19x	5.5	31	0,91	0,91	0,90	0,89	4	0,91		0,01	1,03	93,92
15	F14	4.1	31	0,90	0,92	0,90	0,91	4	0,91		0,01	1,04	94,07
16	F20x	5.5	31	0,91	0,91	0,91	0,90	4	0,91		0,00	0,48	94,12
17	F08x	5.5	32	0,92	0,91	0,93	0,89	4	0,91		0,02	1,95	94,87
18	A47x	5.1	31	0,94	0,95	0,90	0,87	4	0,92		0,04	4,04	94,93
19	F12x	4.1	32	0,92	0,91	0,92	0,92	4	0,92		0,01	0,54	95,19
20	A82	5.1	31	0,92	0,90	0,93	0,93	4	0,92		0,02	1,86	95,45
21	F18x	3.1	31	0,94	0,91	0,92	0,93	4	0,92		0,01	1,52	95,70
22	A55	5.5	31	0,94	0,93	0,93	0,93	4	0,93		0,00	0,45	96,66
23	F15x	4.1	31	0,97	0,96	0,91	0,90	4	0,94		0,04	3,76	97,00
24	F16x	4.1	31	0,85	0,99	0,96	0,96	4	0,94		0,06	6,48	97,59
25	F27x	1	17.1	0,85	1,02	0,91	0,99	4	0,94		0,07	7,73	97,65
26	A50	3.1	31	0,94	0,92	0,98	0,96	4	0,95		0,03	2,72	98,56
27	A65	4.1	31	0,95	0,95	0,95	0,96	4	0,95		0,01	0,52	98,82
28	F07x	4.1	31	1,01	0,95	0,96	0,92	4	0,96		0,04	4,11	99,72
29	A46	5.1	31	0,98	0,98	0,98	0,94	4	0,97		0,02	2,06	100,63
30	A67	3.5	35	0,94	0,97	0,99	0,99	4	0,97		0,02	2,43	100,89
31	A83	3.3	31	0,93	1,09	1,00	0,91	4	0,98		0,08	8,20	101,79
32	F25x	3.3	31	0,99	0,99	0,98	0,98	4	0,99		0,01	0,59	102,19
33	A39	5.5	31	0,99	0,99	0,97	1,00	4	0,99		0,01	1,22	102,58
34	A36	5.1	31	1,00	0,99	1,01	1,01	4	1,00		0,01	0,96	104,00
35	F13x	9.1	41	1,01	1,01	1,01	1,01	4	1,01		0,00	0,00	104,78
36	F05x	1	17.2	1,01	1,03	1,02	1,02	4	1,02		0,01	0,80	105,82
37	F32x	5.1	31	1,03	1,04	1,01	1,02	4	1,03		0,01	1,26	106,34
38	A79	5.7	35	1,01	1,04	1,04	1,04	4	1,03		0,01	1,28	107,01
39	F24x	1	10	1,03	1,08	1,03	1,06	4	1,05		0,02	2,31	108,88
40	A60x	5.1	31	1,06	1,02	1,07	1,11	4	1,06		0,04	3,51	110,33
41	A51	5.5	31	1,06	1,07	1,07	1,09	4	1,07		0,01	1,30	111,47
42	A62x	1	16.1	1,11	1,07	1,08	1,04	4	1,08		0,03	2,69	111,53
43	F33	5.1	35	1,10	1,15	1,03	1,09	4	1,09		0,05	4,51	113,34
44	F28x	1	17.3	1,07	1,15	1,08	1,09	4	1,10		0,04	3,27	113,86
45	A53	9.1	42	1,16	1,13	1,14	1,10	4	1,13	*	0,02	1,88	117,36
46	A57	1	42	1,18	1,19	1,19	1,17	4	1,18	*	0,01	0,81	122,68
47	A85	5.1	17	1,20	1,22	1,18	1,21	4	1,20	*	0,02	1,42	124,75
48	A84	1	17.2	1,64	1,74	1,71	1,70	0	1,70	b *	0,04	2,47	176,11
49	F26	0	17.1	2,78	2,99	2,84	2,75	0	2,84	b *	0,11	3,76	294,64
50													
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	180	0,96	0,024	2,469
15	% from the mean			

L	SR	VR
45	0,093	9,690

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A75	6.5	31	0,44	0,44	0,39a	0,43	0	0,44	b *	0,01	1,32	38,95
2	A59	0	0	0,89	0,86	0,93	0,96	4	0,91	*	0,04	4,83	81,18
3	F23	5.1	31	0,92	0,91	0,93	0,92	4	0,92	*	0,01	0,89	82,07
4	A56	4.1	31	0,96	0,94	0,96	0,93	4	0,95	*	0,01	1,39	84,59
5	F13x	9.1	41	0,96	0,95	0,96	0,95	4	0,96		0,01	0,60	85,20
6	F06x	5.5	31	1,01	0,99	0,97	1,00	4	0,99		0,02	1,67	88,21
7	A58x	1	14.1	1,08	0,94	1,00	1,01	4	1,01		0,06	5,69	89,88
8	F02x	1	16.1	1,03	1,01	1,02	1,04	4	1,03		0,01	1,26	91,44
9	F11	5.1	31	1,02	1,05	1,03	1,03	4	1,03		0,01	1,22	92,11
10	A61x	5.1	31	1,09	1,01	1,01	1,03	4	1,03		0,04	3,51	92,15
11	S18	2.8	31	1,03	1,04	1,05	1,05	4	1,04		0,01	1,17	93,09
12	A67	3.5	35	1,10	1,04	1,07	1,03	4	1,06		0,03	2,98	94,56
13	A45x	3.5	31	1,07	1,06	1,07	1,07	4	1,07		0,01	0,47	95,23
14	F18x	3.1	31	1,07	1,03	1,08	1,10	4	1,07		0,03	2,75	95,45
15	F14	4.1	31	1,08	1,07	1,07	1,08	4	1,07		0,00	0,31	95,74
16	F19x	5.5	31	1,10	1,07	1,06	1,07	4	1,08		0,02	1,61	95,90
17	F08x	5.5	32	1,09	1,07	1,07	1,09	4	1,08		0,01	1,12	96,21
18	F20x	5.5	31	1,08	1,08	1,08	1,08	4	1,08		0,00	0,00	96,35
19	A47x	5.1	31	1,11	1,10	1,07	1,04	4	1,08		0,03	2,93	96,35
20	A55	5.5	31	1,09	1,10	1,09	1,10	4	1,09		0,01	0,49	97,46
21	A82	5.1	31	1,07	1,11	1,10	1,11	4	1,10		0,02	1,72	97,91
22	F09x	9.1	42	1,10	1,10	1,11	1,08	4	1,10		0,01	1,19	97,95
23	F16x	4.1	31	1,15	1,12	1,09	1,05	4	1,10		0,04	3,97	98,18
24	F12x	4.1	32	1,12	1,10	1,09	1,10	4	1,10		0,01	1,14	98,35
25	F15x	4.1	31	1,15	1,14	1,08	1,08	4	1,11		0,04	3,39	99,25
26	F07x	4.1	31	1,13	1,10	1,13	1,10	4	1,12		0,02	1,58	99,47
27	A65	4.1	31	1,12	1,12	1,12	1,12	4	1,12		0,00	0,00	99,91
28	A46	5.1	31	1,15	1,14	1,14	1,08	4	1,13		0,03	2,84	100,58
29	F27x	1	17.1	1,15	1,13	1,16	1,12	4	1,14		0,02	1,72	101,57
30	A83	3.3	31	1,00	1,22	1,18	1,17	4	1,14		0,09	8,26	101,72
31	A50	3.1	31	1,17	1,15	1,13	1,16	4	1,15		0,02	1,48	102,81
32	F33	5.1	35	1,10	1,19	1,10	1,22	4	1,15		0,06	5,37	102,81
33	F25x	3.3	31	1,16	1,17	1,16	1,16	4	1,16		0,01	0,43	103,71
34	F24x	1	10	1,16	1,16	1,18	1,19	4	1,17		0,02	1,42	104,44
35	A79	5.7	35	1,18	1,18	1,15	1,20	4	1,18		0,02	1,53	104,98
36	A39	5.5	31	1,20	1,18	1,19	1,16	4	1,18		0,02	1,39	105,53
37	F05x	1	17.2	1,19	1,19	1,20	1,18	4	1,19		0,01	0,69	106,16
38	F32x	5.1	31	1,21	1,20	1,20	1,19	4	1,20		0,01	0,68	107,05
39	A60x	5.1	31	1,17	1,20	1,20	1,24	4	1,20		0,03	2,18	107,25
40	A53	9.1	42	1,22	1,23	1,19	1,18	4	1,21		0,02	1,93	107,52
41	A36	5.1	31	1,21	1,19	1,21	1,23	4	1,21		0,02	1,35	107,94
42	A51	5.5	31	1,24	1,25	1,27	1,26	4	1,25		0,01	1,07	111,82
43	A57	1	42	1,25	1,26	1,26	1,26	4	1,26		0,01	0,40	112,18
44	A62x	1	16.1	1,24	1,27	1,35	1,28	4	1,29		0,05	3,62	114,63
45	F22	0	0	1,17	1,24	1,42	1,42	4	1,31	*	0,13	9,70	117,09
46	F28x	1	17.3	1,39	1,36	1,39	1,28	4	1,36	*	0,05	3,83	120,88
47	A85	5.1	17	1,40	1,42	1,41	1,38	4	1,40	*	0,02	1,22	125,12
48	A84	1	17.2	1,87	1,87	1,88	1,88	0	1,88	b *	0,01	0,31	167,27
49	F26	0	17.1	2,08	2,01	2,03	2,09	0	2,05	b *	0,04	1,88	183,10
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	184	1,12	0,024	2,177
15	% from the mean			

L	SR	VR
46	0,106	9,452

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	1,45	1,52	1,43	1,55	0	1,49 b *	0,06	3,82	63,76
2	A59	0	0	1,99	2,01	1,90	1,86	4	1,94 *	0,07	3,69	83,15
3	F26	3.5	32	1,98	1,99	2,02	2,09	4	2,02 *	0,05	2,46	86,58
4	F11	5.1	31	2,10	2,08	2,06	2,08	4	2,08 *	0,02	0,79	89,15
5	F13x	9.1	41	2,07	2,11	2,07	2,10	4	2,09 *	0,02	0,99	89,47
6	F06x	5.5	31	2,09	2,14	2,05	2,09	4	2,09 *	0,03	1,67	89,57
7	A62x	3.5	50	2,04	2,17	2,18	2,08	4	2,12	0,07	3,23	90,76
8	F24x	3.1	53.3	2,10	2,12	2,15	2,13	4	2,13	0,02	0,98	91,08
9	F01x	6.5	53.1	2,19	2,27	2,24	2,21	4	2,23	0,04	1,57	95,47
10	F23	6.4	31	2,25	2,24	2,17	2,29	4	2,24	0,05	2,23	95,90
11	F27x	3.3	53.1	2,24	2,22	2,26	2,32	4	2,26	0,04	1,90	96,77
12	F12x	5.1	32	2,24	2,26	2,28	2,26	4	2,26	0,02	0,72	96,87
13	F07x	4.1	31	2,37	2,05	2,36	2,27	4	2,26	0,15	6,51	96,93
14	F28x	5.1	31	2,25	2,30	2,30	2,23	4	2,27	0,03	1,42	97,28
15	F18x	3.1	31	2,30	2,31	2,28	2,28	4	2,29	0,02	0,65	98,26
16	A45x	6.3	31	2,29	2,29	2,30	2,30	4	2,30	0,01	0,25	98,37
17	A43	3.3	50	2,29	2,29	2,29	2,30	4	2,30	0,00	0,17	98,37
18	F02x	5.5	31	2,29	2,31	2,30	2,29	4	2,30	0,01	0,42	98,47
19	S18	2.8	31	2,29	2,28	2,30	2,33	4	2,30	0,02	0,92	98,56
20	A55	5.5	31	2,29	2,31	2,31	2,29	4	2,30	0,01	0,58	98,59
21	F15x	4.1	31	2,40	2,37	2,24	2,25	4	2,32	0,08	3,54	99,22
22	A56	4.1	31	2,34	2,34	2,32	2,30	4	2,32	0,02	0,82	99,53
23	F14	4.1	31	2,33	2,32	2,32	2,32	4	2,32	0,01	0,30	99,57
24	F19x	5.5	31	2,37	2,30	2,30	2,34	4	2,33	0,03	1,46	99,76
25	A50	3.1	31	2,38	2,37	2,26	2,30	4	2,33	0,06	2,47	99,76
26	F05x	5.5	31	2,33	2,33	2,33	2,33	4	2,33	0,00	0,00	99,87
27	F20x	5.5	31	2,32	2,32	2,35	2,34	4	2,33	0,02	0,64	99,97
28	A75	6.5	31	2,26	2,44	2,46	2,20	4	2,34	0,13	5,54	100,30
29	A46	5.1	31	2,37	2,37	2,33	2,32	4	2,35	0,03	1,12	100,62
30	A47x	5.1	31	2,43	2,36	2,32	2,32	4	2,36	0,05	2,20	101,05
31	A58x	5.5	53.1	2,34	2,34	2,37	2,38	4	2,36	0,02	0,87	101,05
32	F33	5.1	35	2,27	2,32	2,39	2,51	4	2,37	0,10	4,39	101,69
33	F08x	5.5	32	2,36	2,37	2,41	2,39	4	2,38	0,02	0,98	102,05
34	A82	5.1	31	2,30	2,28	2,34	2,61	4	2,38	0,15	6,45	102,12
35	A61x	5.1	31	2,45	2,36	2,39	2,40	4	2,40	0,03	1,44	102,83
36	F21	5.1	53.1	2,41	2,41	2,39	2,39	4	2,40	0,01	0,48	102,87
37	A83	3.3	31	2,37	2,38	2,39	2,47	4	2,40	0,04	1,82	102,98
38	A53	9.1	42	2,41	2,41	2,40	2,41	4	2,41	0,01	0,22	103,13
39	F09x	9.1	42	2,43	2,41	2,42	2,44	4	2,42	0,01	0,53	103,93
40	F32x	5.1	31	2,44	2,42	2,44	2,44	4	2,44	0,01	0,41	104,37
41	F25x	3.3	31	2,41	2,46	2,44	2,44	4	2,44	0,02	0,85	104,47
42	A39	5.5	31	2,48	2,45	2,43	2,42	4	2,44	0,03	1,05	104,63
43	A60x	5.1	31	2,45	2,46	2,43	2,44	4	2,45	0,01	0,45	104,83
44	A65	4.1	31	2,48	2,44	2,44	2,47	4	2,46	0,02	0,84	105,33
45	A84	3.6	21.1	2,47	2,53	2,51	2,49	4	2,50	0,03	1,03	107,15
46	A57	1	42	2,50	2,52	2,52	2,54	4	2,52	0,02	0,65	108,01
47	A51	5.5	31	2,66	2,54	2,52	2,40	4	2,53	0,11	4,21	108,44
48	A34	3.3	50	2,59	2,51	2,52	2,51	4	2,53	0,04	1,53	108,55
49	F16x	4.1	31	2,66	2,39	2,69	2,48	4	2,55	0,14	5,47	109,45
50	A36	5.1	31	2,59	2,61	2,56	2,58	4	2,59 *	0,02	0,81	110,80
51	A67	3.5	35	2,79	2,66	2,59	2,42	4	2,62 *	0,15	5,90	112,08
52	F22x	0	0	3,24	2,81	2,78	2,98	0	2,95 b *	0,21	7,14	126,55
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	200	2,33	0,042
10	% from the mean		1,797

L	SR	VR
50	0,143	6,136

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	0,83	0,82	0,86	0,78	0	0,82	b	*	60,25
2	F26	3.5	32	0,93	1,00	1,00	1,03	0	0,99	b	*	72,52
3	A75	6.5	31	0,85	1,15	1,34	1,22	4	1,14	*	*	83,51
4	F24x	3.1	53.3	1,27	1,06	1,11	1,15	4	1,15	*	*	84,06
5	A59	0	0	1,23	1,09	1,14	1,16	4	1,16	*	*	84,61
6	F13x	9.1	41	1,16	1,16	1,16	1,16	4	1,16	*	*	84,98
7	A62x	3.5	50	1,38	1,15	1,25	1,15	4	1,23			90,29
8	F06x	5.5	31	1,23	1,27	1,24	1,24	4	1,24			91,17
9	A43	3.3	50	1,25	1,25	1,25	1,25	4	1,25			91,42
10	F11	5.1	31	1,23	1,24	1,29	1,27	4	1,26			92,12
11	F21	5.1	53.1	1,29	1,27	1,29	1,28	4	1,28			93,95
12	A53	9.1	42	1,30	1,28	1,29	1,27	4	1,29			94,13
13	S18	2.8	31	1,33	1,28	1,31	1,31	4	1,31			95,63
14	F27x	3.3	53.1	1,29	1,30	1,33	1,31	4	1,31			95,89
15	F02x	5.5	31	1,34	1,33	1,33	1,30	4	1,33			97,06
16	F07x	4.1	31	1,39	1,21	1,37	1,34	4	1,33			97,15
17	A84	3.6	21.1	1,34	1,35	1,35	1,35	4	1,35			98,71
18	F14	4.1	31	1,35	1,35	1,35	1,36	4	1,35			98,95
19	A61x	5.1	31	1,34	1,38	1,36	1,34	4	1,35			99,06
20	F15x	4.1	31	1,41	1,39	1,31	1,32	4	1,36			99,44
21	F20x	5.5	31	1,36	1,36	1,35	1,37	4	1,36			99,63
22	A47x	5.1	31	1,42	1,41	1,32	1,30	4	1,36			99,81
23	F18x	3.1	31	1,36	1,37	1,36	1,36	4	1,36			99,81
24	A45x	6.3	31	1,36	1,37	1,36	1,37	4	1,37			99,99
25	F09x	9.1	42	1,36	1,38	1,37	1,37	4	1,37			100,29
26	A60x	5.1	31	1,39	1,37	1,39	1,33	4	1,37			100,34
27	A56	4.1	31	1,37	1,38	1,37	1,37	4	1,37			100,34
28	F05x	5.5	31	1,38	1,38	1,37	1,37	4	1,38			100,73
29	A57	1	42	1,38	1,39	1,39	1,37	4	1,38			101,27
30	F19x	5.5	31	1,40	1,37	1,39	1,37	4	1,38			101,27
31	F12x	5.1	32	1,40	1,38	1,37	1,38	4	1,38			101,27
32	F28x	5.1	31	1,37	1,38	1,40	1,39	4	1,39			101,53
33	A55	5.5	31	1,38	1,39	1,39	1,39	4	1,39			101,55
34	F08x	5.5	32	1,37	1,40	1,42	1,39	4	1,39			101,93
35	F23	6.4	31	1,37	1,41	1,44	1,38	4	1,40			102,56
36	F01x	6.5	53.1	1,41	1,39	1,40	1,40	4	1,40			102,56
37	A65	4.1	31	1,41	1,41	1,40	1,42	4	1,41			103,29
38	A50	3.1	31	1,40	1,43	1,42	1,40	4	1,41			103,47
39	A46	5.1	31	1,41	1,40	1,43	1,41	4	1,41			103,47
40	F32x	5.1	31	1,40	1,42	1,41	1,45	4	1,42			104,02
41	A82	5.1	31	1,33	1,45	1,45	1,46	4	1,42			104,21
42	A36	5.1	31	1,45	1,45	1,47	1,45	4	1,46			106,59
43	F33	5.1	35	1,45	1,45	1,46	1,47	4	1,46			106,77
44	A39	5.5	31	1,47	1,45	1,47	1,45	4	1,46			106,95
45	A83	3.3	31	1,42	1,47	1,43	1,54	4	1,46			107,25
46	A58x	5.5	53.1	1,48	1,47	1,48	1,49	4	1,48			108,42
47	F16x	4.1	31	1,47	1,49	1,47	1,53	4	1,49			109,04
48	F25x	3.3	31	1,52	1,52	1,52	1,50	4	1,52	*	*	110,98
49	A51	5.5	31	1,70	1,51	1,52	1,44	4	1,54	*	*	113,00
50	A67	3.5	35	1,52	1,50	1,61	1,61	4	1,56	*	*	114,28
51	A34	3.3	50	1,58	1,65a	1,57	1,56	3	1,57	*	*	115,01
52	F22x	0	0	1,85	1,71	1,65	1,71	0	1,73	b	*	126,73
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	195	1,37	0,029
10	% from the mean		2,132

L	SR	VR
49	0,100	7,328

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	0,68	0,72	0,69	0,75	0	0,71	b	*	57,13
2	F26	3.5	32	1,01	0,89	0,92	0,99	4	0,95	*	*	76,64
3	A59	0	0	0,96	1,00	1,04	1,03	4	1,01	*	*	81,07
4	F24x	3.1	53.3	1,07	0,97	0,98	1,03	4	1,01	*	*	81,47
5	F11	5.1	31	1,12	1,10	1,08	1,10	4	1,10	*	*	88,51
6	F06x	5.5	31	1,11	1,09	1,13	1,09	4	1,10	*	*	88,67
7	A43	3.3	50	1,13	1,14	1,12	1,12	4	1,13			90,70
8	A75	6.5	31	1,11	1,16	1,18	1,12	4	1,14			91,93
9	F18x	3.1	31	1,16	1,16	1,15	1,15	4	1,16			92,94
10	F21	5.1	53.1	1,16	1,16	1,17	1,16	4	1,16			93,54
11	A84	3.6	21.1	1,16	1,17	1,17	1,17	4	1,17			93,94
12	F27x	3.3	53.1	1,16	1,18	1,16	1,18	4	1,17			93,96
13	F28x	5.1	31	1,17	1,17	1,20	1,19	4	1,18			95,15
14	F15x	4.1	31	1,24	1,23	1,15	1,15	4	1,19			95,95
15	A56	4.1	31	1,19	1,20	1,19	1,18	4	1,19			95,99
16	F07x	4.1	31	1,26	1,10	1,25	1,18	4	1,19			96,13
17	A45x	6.3	31	1,20	1,19	1,19	1,20	4	1,20			96,15
18	S18	2.8	31	1,19	1,19	1,21	1,21	4	1,20			96,32
19	F12x	5.1	32	1,19	1,19	1,21	1,20	4	1,20			96,36
20	F05x	5.5	31	1,20	1,20	1,20	1,19	4	1,20			96,36
21	F02x	5.5	31	1,21	1,18	1,21	1,19	4	1,20			96,36
22	A47x	5.1	31	1,24	1,24	1,18	1,14	4	1,20			96,56
23	A50	3.1	31	1,20	1,21	1,21	1,19	4	1,20			96,76
24	F14	4.1	31	1,20	1,23	1,20	1,21	4	1,21			97,20
25	F20x	5.5	31	1,22	1,21	1,21	1,21	4	1,21			97,56
26	F23	6.4	31	1,20	1,25	1,18	1,22	4	1,21			97,56
27	A61x	5.1	31	1,20	1,22	1,22	1,23	4	1,22			97,88
28	F01x	6.5	53.1	1,23	1,25	1,22	1,22	4	1,23			98,97
29	F19x	5.5	31	1,25	1,22	1,22	1,23	4	1,23			98,97
30	A46	5.1	31	1,23	1,24	1,25	1,22	4	1,24			99,37
31	A55	5.5	31	1,25	1,27	1,26	1,26	4	1,26			101,32
32	A58x	5.5	53.1	1,26	1,28	1,24	1,27	4	1,26			101,59
33	F08x	5.5	32	1,26	1,28	1,25	1,27	4	1,26			101,63
34	F16x	4.1	31	1,17	1,32	1,28	1,29	4	1,27			101,89
35	A60x	5.1	31	1,28	1,22	1,28	1,35	4	1,28			103,01
36	A65	4.1	31	1,28	1,29	1,28	1,29	4	1,29			103,40
37	A82	5.1	31	1,22	1,29	1,33	1,33	4	1,29			104,00
38	F09x	9.1	42	1,30	1,28	1,30	1,29	4	1,29			104,04
39	F32x	5.1	31	1,30	1,29	1,30	1,29	4	1,30			104,20
40	F13x	9.1	41	1,31	1,31	1,28	1,29	4	1,30			104,40
41	A39	5.5	31	1,30	1,30	1,29	1,32	4	1,30			104,76
42	F33	5.1	35	1,35	1,27	1,32	1,30	4	1,31			105,41
43	A51	5.5	31	1,35	1,33	1,34	1,26	4	1,32			106,21
44	F25x	3.3	31	1,32	1,32	1,33	1,33	4	1,33			106,61
45	A83	3.3	31	1,25	1,46	1,35	1,24	4	1,33			106,67
46	A67	3.5	35	1,29	1,32	1,35	1,35	4	1,33			106,82
47	A36	5.1	31	1,33	1,33	1,33	1,33	4	1,33			107,02
48	A34	3.3	50	1,43	1,51	1,39	1,41	4	1,44	*	*	115,47
49	A53	9.1	42	1,47	1,47	1,48	1,45	4	1,47	*	*	118,02
50	A57	1	42	1,53	1,54	1,55	1,52	4	1,54	*	*	123,51
51	A62x	3.5	50	1,45	1,58	1,48	1,65	4	1,54	*	*	123,91
52	F22x	0	0	1,73	1,69	1,50	1,40	4	1,58	*	*	127,13
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	204	1,24	0,027	2,203
10	% from the mean			

L	SR	VR
51	0,122	9,810

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	0,96	1,09a	0,96	0,93	0	0,95	b	*	58,06
2	F26	3.5	32	1,40	1,33	1,32	1,37	4	1,36	*	*	82,81
3	F24x	3.1	53.3	1,42	1,40	1,38	1,36	4	1,39	*	*	84,95
4	A59	0	0	1,46	1,33	1,42	1,43	4	1,41	*	*	86,17
5	F11	5.1	31	1,47	1,51	1,46	1,46	4	1,48			90,14
6	F06x	5.5	31	1,51	1,48	1,44	1,49	4	1,48			90,37
7	A43	3.3	50	1,47	1,54	1,47	1,47	4	1,48			90,71
8	F28x	5.1	31	1,50	1,53	1,50	1,51	4	1,51			92,28
9	F18x	3.1	31	1,54	1,56	1,55	1,55	4	1,55			94,73
10	F02x	5.5	31	1,49	1,69	1,64	1,43	4	1,56			95,49
11	A62x	3.5	50	1,75	1,48	1,61	1,45	4	1,57			96,10
12	F13x	9.1	41	1,57	1,58	1,58	1,58	4	1,58			96,41
13	F23	6.4	31	1,60	1,50	1,60	1,62	4	1,58			96,56
14	A84	3.6	21.1	1,57	1,58	1,58	1,59	4	1,58			96,56
15	F27x	3.3	53.1	1,56	1,59	1,59	1,58	4	1,58			96,59
16	A45x	6.3	31	1,57	1,59	1,61	1,57	4	1,59			96,87
17	A47x	5.1	31	1,63	1,61	1,58	1,54	4	1,59			97,17
18	F07x	4.1	31	1,68	1,45	1,67	1,60	4	1,60			97,83
19	F15x	4.1	31	1,68	1,66	1,54	1,55	4	1,61			98,24
20	A56	4.1	31	1,62	1,60	1,63	1,60	4	1,61			98,50
21	S18	2.8	31	1,60	1,60	1,64	1,62	4	1,62			98,79
22	A61x	5.1	31	1,62	1,62	1,62	1,62	4	1,62			98,99
23	A75	6.5	31	1,62	1,73	1,54	1,61	4	1,63			99,31
24	F12x	5.1	32	1,65	1,62	1,61	1,63	4	1,63			99,46
25	F05x	5.5	31	1,63	1,63	1,62	1,63	4	1,63			99,46
26	A50	3.1	31	1,64	1,63	1,63	1,62	4	1,63			99,62
27	F14	4.1	31	1,63	1,63	1,62	1,66	4	1,63			99,89
28	F19x	5.5	31	1,65	1,63	1,62	1,65	4	1,64			100,07
29	A46	5.1	31	1,66	1,63	1,66	1,61	4	1,64			100,23
30	F20x	5.5	31	1,64	1,65	1,64	1,64	4	1,64			100,38
31	A55	5.5	31	1,65	1,64	1,64	1,65	4	1,64			100,52
32	F01x	6.5	53.1	1,65	1,64	1,65	1,64	4	1,65			100,53
33	F21	5.1	53.1	1,65	1,67	1,65	1,66	4	1,66			101,30
34	A67	3.5	35	1,72	1,62	1,68	1,62	4	1,66			101,45
35	F33	5.1	35	1,62	1,74	1,66	1,70	4	1,68			102,67
36	A82	5.1	31	1,64	1,70	1,69	1,70	4	1,68			102,82
37	A83	3.3	31	1,57	1,75	1,77	1,68	4	1,69			103,53
38	F08x	5.5	32	1,71	1,73	1,69	1,70	4	1,70			104,15
39	A60x	5.1	31	1,68	1,72	1,70	1,75	4	1,71			104,58
40	A65	4.1	31	1,72	1,73	1,72	1,72	4	1,72			105,27
41	A39	5.5	31	1,76	1,72	1,72	1,77	4	1,74			106,49
42	F25x	3.3	31	1,78	1,70	1,77	1,73	4	1,75			106,64
43	F16x	4.1	31	1,70	1,80	1,71	1,77	4	1,75			106,66
44	A58x	5.5	53.1	1,73	1,77	1,73	1,76	4	1,75			106,80
45	F32x	5.1	31	1,76	1,75	1,76	1,75	4	1,76			107,26
46	F09x	9.1	42	1,78	1,73	1,77	1,79	4	1,77			107,96
47	A51	5.5	31	1,76	1,83	1,78	1,71	4	1,77			108,17
48	A36	5.1	31	1,80	1,76	1,77	1,82	4	1,79			109,24
49	A53	9.1	42	1,84	1,86	1,81	1,80	4	1,83	*	*	111,62
50	A34	3.3	50	1,80	1,83	1,83	1,86	4	1,83	*	*	111,84
51	A57	1	42	1,89	1,90	1,90	1,89	4	1,90	*	*	115,81
52	F22x	0	0	2,15	2,20	2,10	2,08	0	2,13	b	*	130,33
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	200	1,64	0,032
10	% from the mean		1,965
L		SR	VR
50		0,111	6,792

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	2,59	2,62	2,58	2,60	0	2,60	b *	0,02	52,79
2	A59	0	0	4,13	4,21	4,22	3,86	4	4,11	*	0,17	83,43
3	A84	3.6	21.1	4,23	4,39	4,23	4,27	4	4,28	*	0,08	86,97
4	F26	3.5	32	4,32	4,35	4,38	4,39	4	4,36	*	0,03	88,61
5	F11	5.1	31	4,45	4,51	4,44	4,39	4	4,45		0,05	90,39
6	F01x	3.10	21.1	4,44	4,46	4,49	4,53	4	4,48		0,04	91,05
7	F21	5.1	21.1	4,58	4,45	4,57	4,48	4	4,52		0,06	91,86
8	F23	6.4	21.1	4,45	4,71	4,72	4,55	4	4,61		0,13	93,64
9	F19x	5.5	31	4,77	4,58	4,61	4,70	4	4,67		0,09	94,81
10	A42	3.10	21.1	4,67	4,94	4,32	4,87	4	4,70		0,28	95,50
11	F12x	4.1	32	4,69	4,74	4,75	4,73	4	4,73		0,03	96,08
12	F27x	3.3	21.1	4,83	4,70	4,78	4,74	4	4,76		0,06	96,77
13	A43	3.3	21.1	4,79	4,69	4,79	4,79	4	4,77		0,05	96,84
14	A67	3.5	35	4,87	4,76	4,67	4,79	4	4,77		0,08	96,99
15	F15x	4.1	31	4,83	4,79	4,73	4,76	4	4,78		0,04	97,09
16	F20x	5.5	31	4,77	4,76	4,84	4,79	4	4,79		0,04	97,35
17	F05x	5.5	31	4,81	4,80	4,80	4,77	4	4,80		0,02	97,45
18	F14	4.1	31	4,85	4,83	4,83	4,86	4	4,84		0,01	98,37
19	A50	3.1	31	4,91	4,82	4,82	4,82	4	4,84		0,04	98,41
20	F24x	3.1	21.1	5,00	4,58	4,85	5,02	4	4,86		0,20	98,82
21	A56	4.1	31	4,86	4,89	4,93	4,83	4	4,88		0,04	99,09
22	F28x	5.1	31	4,89	4,90	4,90	4,84	4	4,88		0,03	99,19
23	F06x	4.5	31	4,95	4,99	4,83	4,84	4	4,90		0,08	99,63
24	A45x	6.3	31	4,91	4,91	4,91	4,91	4	4,91		0,00	99,79
25	F08x	5.5	32	4,94	4,88	4,92	4,96	4	4,92		0,03	100,04
26	F09x	9.1	42	4,99	5,01	4,89	4,93	4	4,95		0,06	100,69
27	A58x	5.5	21.2	4,95	5,00	4,93	5,00	4	4,97		0,04	101,00
28	A47x	5.1	31	5,03	5,05	4,94	4,91	4	4,98		0,07	101,26
29	A39	5.5	31	5,03	4,89	5,06	4,97	4	4,99		0,07	101,36
30	F02x	5.5	31	4,97	5,03	5,04	4,98	4	5,01		0,04	101,72
31	A51	5.5	31	4,99	5,04	4,98	5,01	4	5,01		0,03	101,72
32	A60x	5.1	31	5,05	4,96	4,95	5,07	4	5,01		0,06	101,77
33	A46	5.1	31	4,91	5,01	5,07	5,05	4	5,01		0,07	101,82
34	A82	5.1	31	5,03	5,01	4,99	5,02	4	5,01		0,02	101,87
35	F07x	4.1	31	5,21	4,53	5,16	5,17	4	5,02		0,33	102,02
36	A55	5.5	31	5,09	5,05	5,07	5,04	4	5,06		0,02	102,85
37	A83	3.3	31	4,91	5,02	5,05	5,28	4	5,07		0,16	102,97
38	F25x	3.3	31	5,03	5,06	5,10	5,09	4	5,07		0,03	103,04
39	A61x	5.1	31	5,12	5,11	5,03	5,03	4	5,07		0,05	103,08
40	F18x	3.1	31	5,08	5,07	5,05	5,11	4	5,08		0,03	103,19
41	F22x	0	0	5,28	4,88	4,80	5,37	4	5,08		0,28	103,29
42	A75	6.5	31	4,95	5,38	5,41	4,70	4	5,11		0,34	103,85
43	S18	2.8	31	5,03	5,12	5,13	5,20	4	5,12		0,07	104,04
44	F33	5.1	35	4,96	4,96	5,33	5,49	4	5,19		0,27	105,37
45	F32x	5.1	31	5,26	5,20	5,25	5,21	4	5,23		0,03	106,29
46	A65	4.1	31	5,18	5,27	5,20	5,28	4	5,23		0,05	106,34
47	F16x	4.1	31	5,04	5,37	5,08	5,69	4	5,29		0,30	107,58
48	A36	5.1	31	5,40	5,41	5,37	5,38	4	5,39		0,02	109,54
49	F13x	9.1	41	5,47	5,47	5,47	5,48	4	5,47	*	0,01	111,22
50	A53	9.1	42	5,46	5,48	5,47	5,53	4	5,48	*	0,03	111,43
51	A57	1	42	5,50	5,54	5,56	5,55	4	5,54	*	0,03	112,54
52	A34	3.3	21.1	6,32	6,18	6,00	6,51	0	6,25	b *	0,22	127,07
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	200	0,083	1,695
10	% from the mean		

L	SR	VR
50	0,295	5,992

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	21,12	19,96	20,10	20,83	0	20,50 b *	0,56	2,74	71,07
2	A59	0	0	25,33	22,63	23,45	23,71	4	23,78 *	1,13	4,76	82,44
3	A42	3.10	21.1	24,92	24,98	24,56	23,99	4	24,61 *	0,45	1,85	85,32
4	F26	3.5	32	24,71	24,87	24,66	24,22	4	24,62 *	0,28	1,13	85,33
5	F01x	3.10	21.1	24,53	24,82	24,67	25,14	4	24,79 *	0,26	1,06	85,94
6	A84	3.6	21.1	25,52	25,45	25,49	25,53	4	25,50 *	0,03	0,14	88,40
7	F07x	4.1	31	26,38	24,17	26,41	26,81	4	25,94 *	1,20	4,62	89,93
8	A43	3.3	21.1	26,46	26,06	26,56	26,45	4	26,38	0,22	0,84	91,46
9	F21	5.1	21.1	26,93	26,95	26,51	26,34	4	26,68	0,31	1,14	92,50
10	F11	5.1	31	26,30	26,30	27,50	26,90	4	26,75	0,57	2,15	92,73
11	F06x	4.5	31	27,70	28,20	27,70	27,80	4	27,85	0,24	0,85	96,55
12	F08x	5.5	32	28,10	28,00	27,83	27,94	4	27,97	0,11	0,40	96,95
13	F09x	9.1	42	27,94	27,98	28,06	28,13	4	28,03	0,08	0,30	97,16
14	F28x	5.1	31	27,61	28,04	28,04	28,58	4	28,07	0,39	1,41	97,30
15	F20x	5.5	31	28,10	28,30	27,70	28,20	4	28,08	0,26	0,94	97,33
16	A56	4.1	31	27,85	28,50	28,13	28,34	4	28,20	0,28	1,01	97,77
17	F22x	0	0	28,21	28,23	29,13	27,45	4	28,26	0,69	2,43	97,95
18	A67	3.5	35	27,20	28,90	28,10	28,90	4	28,28	0,81	2,86	98,02
19	S18	2.8	31	28,34	28,14	28,61	28,14	4	28,31	0,22	0,79	98,13
20	F13x	9.1	41	28,34	28,38	28,38	28,40	4	28,38	0,03	0,09	98,37
21	F19x	5.5	31	28,30	28,20	28,60	28,40	4	28,38	0,17	0,60	98,37
22	A50	3.1	31	28,59	29,31	28,60	27,93	4	28,61	0,56	1,97	99,17
23	A60x	5.1	31	28,41	28,67	28,63	29,01	4	28,68	0,25	0,86	99,43
24	F15x	4.1	31	29,18	28,97	28,09	28,55	4	28,70	0,48	1,68	99,48
25	F23	6.4	21.1	28,66	28,63	28,47	29,15	4	28,73	0,29	1,02	99,59
26	F05x	5.5	31	28,90	28,90	28,80	28,80	4	28,85	0,06	0,20	100,01
27	A45x	6.3	31	29,00	29,20	28,90	29,00	4	29,03	0,13	0,43	100,62
28	F12x	4.1	32	29,37	28,83	28,92	29,04	4	29,04	0,24	0,81	100,67
29	F27x	3.3	21.1	31,04	28,82	28,01	28,46	4	29,08	1,35	4,63	100,82
30	F14	4.1	31	29,04	29,22	29,29	29,20	4	29,19	0,10	0,36	101,18
31	F24x	3.1	21.1	31,00	26,75	29,65	30,25	4	29,41	1,86	6,32	101,96
32	A82	5.1	31	28,90	30,00	29,90	29,80	4	29,65	0,51	1,71	102,79
33	F02x	5.5	31	29,69	29,74	29,53	29,64	4	29,65	0,09	0,30	102,79
34	A58x	5.5	21.2	29,94	29,69	29,52	29,78	4	29,73	0,18	0,59	103,07
35	F25x	3.3	31	29,97	29,78	29,74	29,96	4	29,86	0,12	0,40	103,52
36	A46	5.1	31	30,38	29,32	29,89	29,99	4	29,90	0,44	1,46	103,63
37	A65	4.1	31	29,91	30,00	30,03	29,99	4	29,98	0,05	0,17	103,94
38	A36	5.1	31	30,00	30,00	30,50	30,30	4	30,20	0,24	0,81	104,69
39	A61x	5.1	31	30,39	30,36	30,24	29,97	4	30,24	0,19	0,63	104,83
40	A47x	5.1	31	30,30	30,50	30,20	30,30	4	30,33	0,13	0,41	105,13
41	A75	6.5	31	29,84	32,11	30,89	28,86	4	30,43	1,40	4,59	105,47
42	A51	5.5	31	30,69	31,34	30,81	30,45	4	30,82	0,38	1,22	106,85
43	A83	3.3	31	29,54	31,05	31,01	31,82	4	30,86	0,95	3,09	106,96
44	F33	5.1	35	31,33	31,04	30,23	31,09	4	30,92	0,48	1,55	107,20
45	A39	5.5	31	31,38	30,71	30,81	30,89	4	30,95	0,29	0,95	107,28
46	F16x	4.1	31	30,89	30,80	31,26	31,07	4	31,01	0,20	0,66	107,48
47	F18x	3.1	31	30,80	31,20	31,10	31,50	4	31,15	0,29	0,93	107,98
48	A55	5.5	31	31,41	31,25	30,65	31,37	4	31,17	0,35	1,13	108,05
49	A53	9.1	42	31,20	31,31	31,26	31,25	4	31,26	0,05	0,14	108,35
50	A57	1	42	32,65	32,84	32,98	32,62	4	32,77 *	0,17	0,52	113,61
51	F32x	5.1	31	33,50	33,20	33,30	33,30	4	33,33 *	0,13	0,38	115,52
52	A34	3.3	21.1	40,25	39,66	39,74	39,41	0	39,77 b *	0,35	0,89	137,85
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	200	28,85	0,394	1,365
10	% from the mean			

L	SR	VR
50	2,051	7,110

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	2,26	2,50	2,43	2,19	0	2,35	b *	0,14	53,08
2	A59	0	0	3,40	3,55	3,62	3,56	0	3,53	b *	0,09	79,96
3	A84	3.6	21.1	3,90	3,90	3,88	3,88	4	3,89	*	0,01	88,03
4	F11	5.1	31	3,99	3,89	3,88	3,99	4	3,94	*	0,06	89,13
5	A67	3.5	35	4,12	4,04	4,06	3,98	4	4,05		0,06	91,68
6	F23	6.4	21.1	4,14	4,14	4,19	4,02	4	4,12		0,07	93,32
7	F15x	4.1	31	4,20	4,24	4,11	4,12	4	4,17		0,06	94,34
8	F27x	3.3	21.1	4,15	4,27	4,16	4,26	4	4,21		0,06	95,30
9	F19x	5.5	31	4,29	4,20	4,19	4,19	4	4,22		0,05	95,47
10	A50	3.1	31	4,16	4,24	4,28	4,19	4	4,22		0,05	95,47
11	F18x	3.1	31	4,20	4,30	4,23	4,23	4	4,24		0,04	95,98
12	F05x	5.5	31	4,26	4,26	4,23	4,23	4	4,25		0,02	96,09
13	F01x	3.10	21.1	4,21	4,25	4,23	4,29	4	4,25		0,03	96,09
14	F20x	5.5	31	4,27	4,28	4,21	4,22	4	4,25		0,04	96,09
15	A45x	6.3	31	4,23	4,27	4,29	4,28	4	4,27		0,03	96,60
16	A82	5.1	31	4,27	4,13	4,35	4,33	4	4,27		0,10	96,66
17	F22x	0	0	4,24	4,17	4,15	4,58	4	4,29		0,20	97,00
18	A56	4.1	31	4,28	4,41	4,19	4,33	4	4,30		0,09	97,35
19	F14	4.1	31	4,25	4,39	4,24	4,32	4	4,30		0,07	97,39
20	F12x	4.1	32	4,25	4,37	4,30	4,31	4	4,31		0,05	97,51
21	F21	5.1	21.1	4,28	4,28	4,29	4,39	4	4,31		0,05	97,56
22	A61x	5.1	31	4,33	4,42	4,33	4,31	4	4,35		0,05	98,42
23	A51	5.5	31	4,43	4,36	4,41	4,38	4	4,40		0,03	99,49
24	F28x	5.1	31	4,46	4,48	4,36	4,34	4	4,41		0,07	99,79
25	A47x	5.1	31	4,50	4,47	4,46	4,27	4	4,43		0,10	100,17
26	F06x	4.5	31	4,42	4,42	4,56	4,39	4	4,45		0,08	100,67
27	A39	5.5	31	4,45	4,44	4,46	4,49	4	4,46		0,02	100,92
28	A43	3.3	21.1	4,95	4,23	4,28	4,41	4	4,47		0,33	101,13
29	A53	9.1	42	4,54	4,54	4,42	4,42	4	4,48		0,07	101,41
30	F08x	5.5	32	4,49	4,44	4,54	4,50	4	4,49		0,04	101,67
31	A65	4.1	31	4,55	4,52	4,48	4,51	4	4,52		0,03	102,20
32	F25x	3.3	31	4,49	4,51	4,54	4,56	4	4,53		0,03	102,43
33	F16x	4.1	31	4,80	4,65	4,20	4,50	4	4,54		0,26	102,73
34	A60x	5.1	31	4,64	4,33	4,48	4,71	4	4,54		0,17	102,78
35	F02x	5.5	31	4,56	4,47	4,62	4,52	4	4,54		0,06	102,83
36	F26	3.5	32	4,49	4,38	4,89	4,45	4	4,55		0,23	103,05
37	A46	5.1	31	4,55	4,52	4,61	4,54	4	4,56		0,04	103,11
38	A55	5.5	31	4,52	4,63	4,53	4,55	4	4,56		0,05	103,13
39	F13x	9.1	41	4,55	4,57	4,57	4,56	4	4,56		0,01	103,28
40	F09x	9.1	42	4,61	4,62	4,57	4,54	4	4,58		0,04	103,77
41	A57	1	42	4,55	4,59	4,62	4,58	4	4,59		0,03	103,79
42	S18	2.8	31	4,59	4,59	4,60	4,69	4	4,62		0,05	104,49
43	A42	3.10	21.1	4,48	4,59	4,63	4,78	4	4,62		0,12	104,57
44	F24x	3.1	21.1	4,60	4,72	4,59	4,58	4	4,62		0,07	104,64
45	F33	5.1	35	4,87	4,42	4,67	4,54	4	4,63		0,19	104,69
46	A58x	5.5	21.2	4,62	4,54	4,72	4,62	4	4,63		0,07	104,69
47	A83	3.3	31	4,35	5,09	4,76	4,31	4	4,63		0,37	104,74
48	F07x	4.1	31	5,17	4,16	4,70	4,67	4	4,67		0,41	105,81
49	F32x	5.1	31	4,68	4,70	4,69	4,65	4	4,68		0,02	105,94
50	A36	5.1	31	4,66	4,67	4,69	4,81	4	4,71		0,07	106,56
51	A75	6.5	31	4,97	4,81	5,32	4,35	4	4,86	*	0,40	110,07
52	A34	3.3	21.1	6,73	7,71	7,43	6,79	0	7,17	b *	0,48	162,19
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	196	4,42	0,095	2,159
10	% from the mean			

L	SR	VR
49	0,206	4,666

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	1,92	1,96	1,93	1,94	0	1,94	b *	0,02	53,34
2	A59	0	0	3,03	2,94	3,09	3,12	4	3,05	*	0,08	83,83
3	F01x	3.10	21.1	3,11	3,14	3,15	3,07	4	3,12	*	0,04	85,82
4	A42	3.10	21.1	3,32	3,22	3,10	3,26	4	3,22	*	0,09	88,78
5	A84	3.6	21.1	3,25	3,24	3,23	3,25	4	3,24	*	0,01	89,22
6	F11	5.1	31	3,30	3,35	3,21	3,27	4	3,28		0,06	90,37
7	A67	3.5	35	3,35	3,49	3,23	3,37	4	3,36		0,11	92,50
8	F21	5.1	21.1	3,30	3,35	3,58	3,33	4	3,39		0,13	93,32
9	F23	6.4	21.1	3,42	3,43	3,45	3,34	4	3,41		0,05	93,88
10	F19x	5.5	31	3,49	3,46	3,41	3,47	4	3,46		0,03	95,18
11	F18x	3.1	31	3,44	3,47	3,46	3,48	4	3,46		0,02	95,32
12	A43	3.3	21.1	3,44	3,54	3,44	3,54	4	3,49		0,06	96,08
13	F12x	4.1	32	3,53	3,50	3,46	3,50	4	3,50		0,03	96,28
14	F15x	4.1	31	3,55	3,49	3,53	3,44	4	3,50		0,05	96,42
15	F05x	5.5	31	3,52	3,50	3,50	3,51	4	3,51		0,01	96,56
16	F27x	3.3	21.1	3,43	3,60	3,48	3,57	4	3,52		0,08	96,91
17	F14	4.1	31	3,52	3,54	3,51	3,53	4	3,53		0,01	97,08
18	F20x	5.5	31	3,54	3,54	3,53	3,52	4	3,53		0,01	97,25
19	A50	3.1	31	3,51	3,48	3,64	3,54	4	3,54		0,07	97,52
20	A45x	6.3	31	3,52	3,56	3,54	3,59	4	3,55		0,03	97,80
21	F28x	5.1	31	3,52	3,59	3,60	3,58	4	3,57		0,03	98,28
22	F08x	5.5	32	3,63	3,62	3,54	3,57	4	3,59		0,04	98,88
23	A56	4.1	31	3,58	3,68	3,59	3,53	4	3,59		0,06	98,93
24	F06x	4.5	31	3,67	3,59	3,54	3,59	4	3,60		0,05	99,04
25	F26	3.5	32	3,77	3,46	3,65	3,51	4	3,60		0,14	99,04
26	A47x	5.1	31	3,66	3,65	3,60	3,50	4	3,60		0,07	99,17
27	A61x	5.1	31	3,60	3,63	3,60	3,61	4	3,61		0,01	99,32
28	A82	5.1	31	3,68	3,62	3,65	3,60	4	3,64		0,04	100,14
29	F24x	3.1	21.1	3,70	3,60	3,55	3,72	4	3,64		0,08	100,28
30	A39	5.5	31	3,67	3,67	3,73	3,68	4	3,69		0,03	101,47
31	F09x	9.1	42	3,68	3,72	3,71	3,65	4	3,69		0,03	101,58
32	A51	5.5	31	3,73	3,70	3,68	3,66	4	3,69		0,03	101,65
33	A75	6.5	31	3,64	4,00	3,54	3,68	4	3,72		0,20	102,27
34	A46	5.1	31	3,70	3,70	3,78	3,77	4	3,74		0,04	102,89
35	F16x	4.1	31	3,69	3,98	3,79	3,62	4	3,77		0,16	103,77
36	F07x	4.1	31	3,98	3,34	3,90	3,87	4	3,77		0,29	103,79
37	A55	5.5	31	3,79	3,76	3,77	3,77	4	3,77		0,01	103,84
38	A60x	5.1	31	3,71	3,71	3,92	3,81	4	3,78		0,10	104,16
39	F33	5.1	35	3,70	3,89	3,70	3,88	4	3,79		0,11	104,41
40	F22x	0	0	3,59	4,17	3,84	3,60	4	3,80		0,27	104,61
41	A65	4.1	31	3,84	3,76	3,83	3,82	4	3,81		0,04	104,96
42	F02x	5.5	31	3,46	3,87	3,84	4,09	4	3,82		0,26	105,02
43	S18	2.8	31	3,74	3,84	3,89	3,80	4	3,82		0,06	105,05
44	F25x	3.3	31	3,82	3,83	3,80	3,82	4	3,82		0,01	105,09
45	A58x	5.5	21.2	3,82	3,93	3,90	3,89	4	3,89		0,05	106,95
46	A36	5.1	31	3,89	3,80	3,84	4,01	4	3,89		0,09	106,95
47	F32x	5.1	31	3,92	3,94	3,93	3,92	4	3,93		0,01	108,12
48	A57	1	42	4,03	4,05	4,07	4,02	4	4,04	*	0,02	111,29
49	A83	3.3	31	3,77	4,06	3,89	4,59	4	4,08	*	0,36	112,23
50	F13x	9.1	41	4,10	4,11	4,12	4,11	4	4,11	*	0,01	113,15
51	A53	9.1	42	4,15	4,16	4,11	4,08	4	4,13	*	0,04	113,56
52	A34	3.3	21.1	6,06	5,91	6,20	6,20	0	6,09	b *	0,14	167,72
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	200	3,63	0,074
10	% from the mean		2,044
L		SR	VR
50		0,238	6,546

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	0,91	0,91	0,87	0,96	4	0,91	*	0,04	88,38
2	F11	5.1	31	0,94	0,92	0,92	0,93	4	0,93	*	0,01	89,78
3	F27x	3.3	21.1	0,90	0,94	0,90	1,01	4	0,93		0,05	90,48
4	F06x	5.5	31	0,94	0,96	0,92	0,93	4	0,94		0,02	90,78
5	A85	5.1	31	0,96	0,90	0,92	1,00	4	0,95		0,04	91,53
6	F15x	4.1	31	0,99	0,98	0,96	0,95	4	0,97		0,02	93,95
7	A39	5.5	31	0,99	0,96	1,01	0,96	4	0,98		0,02	94,94
8	A84	3.6	21.1	0,98	1,00	0,98	1,00	4	0,99		0,01	95,58
9	F24x	2.8	21.1	0,96	1,01	0,97	1,01	4	0,99		0,03	95,64
10	A43	3.3	21.1	0,99	0,99	0,99	0,99	4	0,99		0,00	95,88
11	F12x	4.1	32	0,98	1,00	1,00	1,00	4	1,00		0,01	96,37
12	F21	5.1	21.1	1,01	1,00	1,00	0,99	4	1,00		0,01	96,85
13	F23	6.4	21.1	1,02	1,01	0,99	0,99	4	1,00		0,02	96,93
14	A53	9.1	42	1,01	1,00	1,00	1,01	4	1,00		0,01	97,24
15	A83	3.3	31	1,00	1,00	0,99	1,03	4	1,01		0,02	97,51
16	F07x	4.1	31	1,04	0,92	1,04	1,04	4	1,01		0,06	97,56
17	F08x	5.5	32	1,05	1,01	0,97	1,00	4	1,01		0,03	97,58
18	F18x	3.1	31	1,02	1,01	1,01	1,01	4	1,01		0,01	98,06
19	A56	4.1	31	1,01	1,02	1,02	1,01	4	1,01		0,00	98,23
20	F14	4.1	31	1,02	1,02	1,02	1,01	4	1,02		0,00	98,45
21	F28x	5.1	31	1,01	1,03	1,03	1,01	4	1,02		0,01	98,79
22	F02x	5.5	31	1,03	1,02	1,02	1,02	4	1,02		0,01	99,03
23	A45x	6.3	31	1,03	1,03	1,03	1,03	4	1,03		0,00	99,76
24	A47x	5.1	31	1,04	1,02	1,02	1,04	4	1,03		0,01	99,76
25	F09x	9.1	42	1,02	1,01	1,06	1,03	4	1,03		0,02	99,78
26	A61x	5.1	31	1,05	1,04	1,02	1,02	4	1,03		0,02	99,86
27	A46	5.1	31	1,01	1,04	1,05	1,03	4	1,03		0,02	100,00
28	A42	3.10	21.1	1,04	1,04	0,99	1,07	4	1,03		0,03	100,17
29	F19x	5.5	31	1,04	1,01	1,04	1,05	4	1,04		0,02	100,24
30	F20x	5.5	31	1,04	1,03	1,05	1,04	4	1,04		0,01	100,73
31	A58x	5.5	21.1	1,04	1,03	1,05	1,04	4	1,04		0,01	100,73
32	A67	3.5	35	1,07	1,02	1,01	1,07	4	1,04		0,03	100,97
33	F22x	0	0	1,04	1,06	1,06	1,03	4	1,05		0,02	101,45
34	A82	5.1	31	1,06	1,01	1,06	1,06	4	1,05		0,03	101,45
35	F25x	3.3	31	1,03	1,07	1,04	1,06	4	1,05		0,02	101,70
36	F05x	5.5	31	1,05	1,05	1,05	1,05	4	1,05		0,00	101,70
37	F01x	3.10	21.1	1,08	1,03	1,05	1,06	4	1,06		0,02	102,18
38	S18	2.8	31	1,05	1,06	1,06	1,08	4	1,06		0,01	102,57
39	F13x	5.1	31	1,06	1,07	1,07	1,06	4	1,07		0,01	103,15
40	F33	5.1	35	1,04	1,04	1,10	1,13	4	1,08		0,04	104,36
41	F32x	5.1	31	1,08	1,08	1,07	1,08	4	1,08		0,01	104,36
42	A51	5.5	31	1,10	1,11	1,09	1,07	4	1,09		0,02	105,81
43	A55	5.5	31	1,09	1,10	1,10	1,09	4	1,10		0,00	106,10
44	A65	4.1	31	1,10	1,09	1,10	1,10	4	1,10		0,01	106,30
45	A75	6.5	31	1,08	1,15	1,16	1,02	4	1,10		0,07	106,78
46	F26	3.5	32	1,30	1,00	1,09	1,05	0	1,11	c	0,13	107,51
47	F16x	4.1	31	1,12	1,07	1,15	1,12	4	1,11		0,04	107,82
48	A50	3.1	31	1,11	1,13	1,11	1,13	4	1,12		0,01	108,48
49	A60x	5.1	31	1,12	1,14	1,11	1,13	4	1,12		0,01	108,84
50	A36	5.1	31	1,14	1,16	1,14	1,16	4	1,15	*	0,01	111,38
51	A57	1	42	1,17	1,17	1,19	1,18	4	1,18	*	0,01	114,04
52												
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	200	1,03	0,018
10	% from the mean		1,746

L	SR	VR
50	0,056	5,422

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F26	3.5	32	3,16	3,26	3,56	3,41	0	3,35	b *	0,18	5,23	81,99
2	A59	0	0	3,66	3,26	3,45	3,50	0	3,47	b *	0,16	4,75	84,93
3	A43	3.3	21.1	3,62	3,62	3,62	3,61a	3	3,62	*	0,00	0,02	88,71
4	F07x	4.1	31	3,58	3,72	3,69	3,62	4	3,65	*	0,06	1,70	89,49
5	F06x	5.5	31	3,73	3,79	3,71	3,71	4	3,74		0,04	1,01	91,48
6	F01x	3.10	21.1	3,82	3,75	3,76	3,78	4	3,78		0,03	0,82	92,52
7	F11	5.1	31	3,73	3,89	3,68	3,81	4	3,78		0,09	2,44	92,52
8	A42	3.10	21.1	3,71	3,76	3,66	4,05	4	3,80		0,17	4,59	92,97
9	A85	5.1	31	3,95	4,02	3,74	3,75	4	3,87		0,14	3,66	94,67
10	F15x	4.1	31	3,99	3,90	3,85	3,92	4	3,92		0,06	1,48	95,89
11	A39	5.5	31	3,97	3,98	3,92	3,84	4	3,92		0,06	1,64	96,13
12	A67	3.5	35	3,97	3,81	3,96	3,96	4	3,93		0,08	1,96	96,14
13	A61x	5.1	31	3,98	3,98	3,94	3,88	4	3,95		0,04	1,12	96,63
14	F27x	3.3	21.1	3,77	3,86	4,06	4,13	4	3,95		0,17	4,18	96,85
15	A84	3.6	21.1	4,00	4,00	4,03	4,10	4	4,03		0,05	1,21	98,82
16	A56	4.1	31	4,01	4,06	4,04	4,08	4	4,04		0,03	0,80	99,07
17	F09x	9.1	42	4,08	4,05	4,04	4,04	4	4,05		0,02	0,42	99,25
18	F24x	2.8	21.1	4,30	3,97	3,92	4,02	4	4,05		0,17	4,19	99,26
19	F18x	3.1	31	4,10	4,08	4,03	4,02	4	4,06		0,04	0,95	99,38
20	F25x	3.3	31	4,06	4,03	4,06	4,09	4	4,06		0,02	0,60	99,44
21	F05x	5.5	31	4,09	4,07	4,05	4,05	4	4,07		0,02	0,47	99,57
22	F28x	5.1	31	4,04	4,02	4,09	4,15	4	4,08		0,06	1,45	99,81
23	A50	3.1	31	4,10	4,08	4,07	4,06	4	4,08		0,02	0,42	99,87
24	F20x	5.5	31	4,10	4,06	4,08	4,11	4	4,09		0,02	0,54	100,12
25	F02x	5.5	31	4,15	4,10	4,09	4,06	4	4,10		0,04	0,91	100,42
26	A45x	6.3	31	4,10	4,11	4,09	4,10	4	4,10		0,01	0,20	100,42
27	S18	2.8	31	4,13	4,07	4,15	4,06	4	4,10		0,04	1,03	100,49
28	F08x	5.5	32	4,13	4,06	4,24	4,01	4	4,11		0,10	2,42	100,69
29	A47x	5.1	31	4,11	4,11	4,13	4,12	4	4,12		0,01	0,23	100,85
30	F19x	5.5	31	4,15	4,07	4,17	4,10	4	4,12		0,05	1,11	100,97
31	F21	5.1	21.1	4,11	4,16	4,12	4,11	4	4,13		0,02	0,58	101,04
32	F23	6.4	21.1	4,19	4,17	4,12	4,15	4	4,16		0,03	0,72	101,83
33	A46	5.1	31	4,20	4,10	4,16	4,18	4	4,16		0,04	1,04	101,89
34	A83	3.3	31	4,10	4,19	4,07	4,36	4	4,18		0,13	3,18	102,35
35	A53	9.1	42	4,15	4,20	4,20	4,18	4	4,18		0,02	0,57	102,45
36	A82	5.1	31	4,22	4,23	4,12	4,17	4	4,19		0,05	1,21	102,51
37	F14	4.1	31	4,21	4,19	4,19	4,17	4	4,19		0,02	0,41	102,60
38	F16x	4.1	31	4,21	4,15	4,24	4,19	4	4,20		0,04	0,84	102,84
39	F22x	0	0	4,26	4,22	4,23	4,14	4	4,21		0,05	1,22	103,18
40	A65	4.1	31	4,24	4,21	4,23	4,23	4	4,23		0,01	0,30	103,55
41	F13x	5.1	31	4,19	4,24	4,19	4,32	4	4,24		0,06	1,45	103,73
42	F12x	4.1	32	4,28	4,20	4,23	4,24	4	4,24		0,03	0,78	103,79
43	A75	6.5	31	4,25	4,47	4,30	4,00	4	4,26		0,19	4,57	104,22
44	A60x	5.1	31	4,24	4,26	4,24	4,34	4	4,27		0,05	1,16	104,58
45	F32x	5.1	31	4,21	4,33	4,27	4,27	4	4,27		0,05	1,15	104,59
46	F33	5.1	35	4,31	4,35	4,16	4,30	4	4,28		0,08	1,94	104,83
47	A36	5.1	31	4,24	4,32	4,35	4,29	4	4,30		0,05	1,09	105,32
48	A58x	5.5	21.1	4,23	4,36	4,29	4,34	4	4,31		0,06	1,35	105,44
49	A51	5.5	31	4,37	4,37	4,28	4,33	4	4,34		0,04	0,98	106,24
50	A55	5.5	31	4,38	4,40	4,45	4,37	4	4,40		0,04	0,86	107,75
51	A57	1	42	4,72	4,77	4,81	4,70	0	4,75	b *	0,05	1,05	116,34
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	191	4,08	0,057	1,386
10	% from the mean			

L	SR	VR
48	0,179	4,396

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	1,38	1,27	1,43	1,37	4	1,36	*	0,07	4,92	83,61
2	A59	0	0	1,32	1,37	1,42	1,40	4	1,38	*	0,04	3,16	84,53
3	F11	5.1	31	1,46	1,48	1,45	1,50	4	1,47		0,02	1,51	90,36
4	F06x	5.5	31	1,50	1,47	1,53	1,48	4	1,50		0,03	1,77	91,74
5	A67	3.5	35	1,48	1,50	1,51	1,50	4	1,50		0,01	0,84	91,89
6	F27x	3.3	21.1	1,49	1,51	1,51	1,58	4	1,52		0,04	2,62	93,46
7	F15x	4.1	31	1,56	1,56	1,49	1,50	4	1,53		0,04	2,47	93,73
8	A84	3.6	21.1	1,51	1,54	1,53	1,54	4	1,53		0,02	1,11	93,85
9	A43	3.3	21.1	1,55	1,55	1,55	1,55	4	1,55		0,00	0,00	94,93
10	F18x	3.1	31	1,59	1,58	1,47	1,56	4	1,55		0,05	3,53	95,11
11	A39	5.5	31	1,58	1,58	1,56	1,58	4	1,57		0,01	0,74	96,49
12	F24x	2.8	21.1	1,59	1,60	1,57	1,55	4	1,58		0,02	1,41	96,80
13	A82	5.1	31	1,60	1,54	1,61	1,58	4	1,58		0,03	1,96	97,11
14	F07x	4.1	31	1,66	1,45	1,64	1,59	4	1,59		0,09	5,97	97,26
15	F12x	4.1	32	1,58	1,59	1,59	1,59	4	1,59		0,01	0,31	97,41
16	A56	4.1	31	1,59	1,62	1,57	1,59	4	1,59		0,02	1,19	97,72
17	F28x	5.1	31	1,62	1,60	1,59	1,58	4	1,59		0,02	1,12	97,84
18	A45x	6.3	31	1,61	1,60	1,61	1,61	4	1,61		0,01	0,31	98,64
19	F23	6.4	21.1	1,57	1,59	1,64	1,63	4	1,61		0,03	2,06	98,64
20	F05x	5.5	31	1,62	1,62	1,61	1,61	4	1,62		0,01	0,36	99,10
21	A61x	5.1	31	1,61	1,64	1,64	1,60	4	1,62		0,02	1,49	99,47
22	A53	9.1	42	1,67	1,62	1,63	1,59	4	1,63		0,03	2,03	99,87
23	F20x	5.5	31	1,65	1,63	1,63	1,62	4	1,63		0,01	0,77	100,18
24	F25x	3.3	31	1,65	1,60	1,66	1,62	4	1,63		0,03	1,69	100,18
25	F08x	5.5	32	1,64	1,60	1,65	1,67	4	1,64		0,03	1,60	100,51
26	F01x	3.10	21.1	1,68	1,62	1,61	1,66	4	1,64		0,03	2,01	100,79
27	A47x	5.1	31	1,64	1,65	1,67	1,62	4	1,65		0,02	1,27	100,94
28	F02x	5.5	31	1,67	1,61	1,66	1,64	4	1,65		0,03	1,61	100,94
29	F19x	5.5	31	1,68	1,63	1,64	1,64	4	1,65		0,02	1,35	101,10
30	F09x	9.1	42	1,66	1,63	1,67	1,65	4	1,65		0,02	1,15	101,46
31	F22x	0	0	1,67	1,66	1,68	1,61	4	1,66		0,03	1,88	101,56
32	F13x	5.1	31	1,66	1,63	1,66	1,67	4	1,66		0,02	1,05	101,56
33	F14	4.1	31	1,66	1,64	1,69	1,65	4	1,66		0,02	1,42	101,85
34	F16x	4.1	31	1,59	1,71	1,72	1,65	4	1,67		0,06	3,68	102,19
35	A58x	5.5	21.1	1,67	1,67	1,67	1,68	4	1,67		0,01	0,30	102,63
36	S18	2.8	31	1,68	1,68	1,67	1,69	4	1,68		0,01	0,52	103,11
37	A42	3.10	21.1	1,71	1,69	1,70	1,62	4	1,68		0,04	2,45	103,20
38	A50	3.1	31	1,67	1,70	1,70	1,68	4	1,69		0,02	0,89	103,55
39	A65	4.1	31	1,70	1,69	1,70	1,68	4	1,69		0,01	0,57	103,86
40	F21	5.1	21.1	1,68	1,67	1,68	1,74	4	1,69		0,03	1,89	103,86
41	A46	5.1	31	1,68	1,69	1,72	1,70	4	1,70		0,02	1,01	104,16
42	A83	3.3	31	1,64	1,86	1,70	1,59	4	1,70		0,12	6,97	104,26
43	F26	3.5	32	1,72	1,73	1,70	1,71	4	1,72		0,01	0,75	105,24
44	F33	5.1	35	1,80	1,63	1,73	1,72	4	1,72		0,07	4,06	105,54
45	A51	5.5	31	1,73	1,74	1,74	1,70	4	1,73		0,02	1,10	106,00
46	A75	6.5	31	1,79	1,70	1,84	1,63	4	1,74		0,09	5,37	106,77
47	A60x	5.1	31	1,80	1,67	1,76	1,82	4	1,76		0,07	3,81	108,09
48	F32x	5.1	31	1,77	1,75	1,77	1,76	4	1,76		0,01	0,54	108,15
49	A57	1	42	1,77	1,78	1,79	1,76	4	1,78		0,01	0,73	108,92
50	A55	5.5	31	1,78	1,79	1,77	1,80	4	1,79		0,01	0,53	109,55
51	A36	5.1	31	1,79	1,79	1,81	1,80	4	1,80	*	0,01	0,53	110,30
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	204	1,63	0,029	1,799
10	% from the mean			

L	SR	VR
51	0,093	5,722

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	1,08	0,96	0,97	0,91	0	0,98	b *	0,07	7,31	80,94
2	A67	3.5	35	1,09	1,03	1,08	1,02	4	1,06	*	0,04	3,33	87,13
3	F24x	2.8	21.1	1,02	1,07	1,07	1,09	4	1,06	*	0,03	2,81	87,75
4	A59	0	0	1,08	1,02	1,09	1,10	4	1,07	*	0,04	3,35	88,58
5	F11	5.1	31	1,08	1,11	1,07	1,08	4	1,09	*	0,02	1,60	89,61
6	F06x	5.5	31	1,12	1,10	1,07	1,11	4	1,10		0,02	1,96	90,85
7	F15x	4.1	31	1,15	1,12	1,11	1,10	4	1,12		0,02	1,93	92,50
8	F27x	3.3	21.1	1,10	1,11	1,14	1,18	4	1,13		0,03	3,04	93,59
9	A84	3.6	21.1	1,12	1,14	1,17	1,13	4	1,14		0,02	1,78	94,02
10	A39	5.5	31	1,15	1,17	1,16	1,19	4	1,17		0,01	1,26	96,42
11	F18x	3.1	31	1,18	1,16	1,17	1,16	4	1,17		0,01	0,82	96,42
12	A61x	5.1	31	1,17	1,17	1,18	1,20	4	1,18		0,01	1,14	97,27
13	F28x	5.1	31	1,17	1,17	1,19	1,19	4	1,18		0,01	1,08	97,54
14	F07x	4.1	31	1,23	1,08	1,25	1,21	4	1,19		0,08	6,52	98,45
15	A53	9.1	42	1,21	1,20	1,19	1,18	4	1,20		0,01	1,08	98,69
16	A42	3.10	21.1	1,17	1,18	1,22	1,23	4	1,20		0,03	2,35	98,90
17	F12x	4.1	32	1,21	1,19	1,19	1,20	4	1,20		0,01	0,80	98,90
18	F14	4.1	31	1,20	1,20	1,20	1,20	4	1,20		0,00	0,31	98,98
19	A43	3.3	21.1	1,20	1,20	1,20	1,20	4	1,20		0,00	0,13	99,00
20	A45x	6.3	31	1,19	1,19	1,21	1,21	4	1,20		0,01	0,96	99,11
21	F01x	3.10	21.1	1,19	1,20	1,23	1,18	4	1,20		0,02	1,80	99,11
22	F26	3.5	32	1,21	1,21	1,23	1,20	4	1,21		0,01	1,04	100,14
23	A82	5.1	31	1,17	1,23	1,22	1,23	4	1,21		0,03	2,37	100,14
24	A56	4.1	31	1,20	1,30	1,19	1,17	4	1,21		0,06	4,92	100,30
25	F08x	5.5	32	1,19	1,22	1,25	1,20	4	1,21		0,02	1,85	100,32
26	F19x	5.5	31	1,21	1,21	1,21	1,23	4	1,22		0,01	0,82	100,35
27	F09x	9.1	42	1,22	1,21	1,22	1,22	4	1,22		0,01	0,50	100,47
28	F20x	5.5	31	1,21	1,23	1,22	1,21	4	1,22		0,01	0,79	100,55
29	A47x	5.1	31	1,22	1,23	1,21	1,21	4	1,22		0,01	0,79	100,55
30	F21	5.1	21.1	1,23	1,22	1,22	1,21	4	1,22		0,01	0,67	100,76
31	F25x	3.3	31	1,23	1,21	1,21	1,24	4	1,22		0,02	1,23	100,96
32	A58x	5.5	21.1	1,23	1,22	1,23	1,22	4	1,23		0,01	0,47	101,17
33	A83	3.3	31	1,09	1,29	1,20	1,32	4	1,23		0,10	8,17	101,23
34	F22x	0	0	1,22	1,22	1,23	1,24	4	1,23		0,01	0,78	101,38
35	F05x	5.5	31	1,23	1,23	1,23	1,23	4	1,23		0,00	0,00	101,58
36	A46	5.1	31	1,22	1,22	1,25	1,24	4	1,23		0,02	1,22	101,79
37	F13x	5.1	31	1,23	1,25	1,23	1,22	4	1,23		0,01	1,02	101,79
38	F23	6.4	21.1	1,21	1,24	1,25	1,26	4	1,24		0,02	1,74	102,41
39	F33	5.1	35	1,21	1,28	1,22	1,27	4	1,25		0,04	2,82	102,82
40	F02x	5.5	31	1,12	1,27	1,25	1,34	4	1,25		0,09	7,38	102,82
41	S18	2.8	31	1,23	1,25	1,27	1,24	4	1,25		0,02	1,39	102,95
42	A65	4.1	31	1,26	1,26	1,28	1,26	4	1,27		0,01	0,79	104,47
43	A50	3.1	31	1,27	1,26	1,30	1,28	4	1,28		0,02	1,34	105,51
44	A75	6.5	31	1,28	1,34	1,24	1,27	4	1,28		0,04	3,27	105,92
45	F16x	4.1	31	1,32	1,34	1,20	1,27	4	1,28		0,06	4,69	105,96
46	A51	5.5	31	1,28	1,31	1,31	1,28	4	1,30		0,02	1,34	106,95
47	A55	5.5	31	1,30	1,30	1,30	1,30	4	1,30		0,00	0,10	107,08
48	A60x	5.1	31	1,26	1,30	1,33	1,33	4	1,30		0,03	2,52	107,68
49	F32x	5.1	31	1,32	1,30	1,32	1,30	4	1,31		0,01	0,88	108,19
50	A36	5.1	31	1,33	1,31	1,31	1,36	4	1,33		0,02	1,78	109,64
51	A57	1	42	1,34	1,35	1,36	1,34	4	1,35	*	0,01	0,71	111,29
52													
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	200	1,21	0,023	1,899
10	% from the mean			

L	SR	VR
50	0,065	5,407

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	7,96	8,12	8,29	8,09	0	8,12	b *	0,14	82,39
2	A75	6.5	31	8,00	9,63	8,46	7,59	4	8,42	*	0,88	85,49
3	F06x	5.5	31	8,83	8,96	8,71	8,73	4	8,81	*	0,11	89,42
4	A82	5.1	31	8,87	8,68	9,02	9,09	4	8,92		0,18	90,52
5	A34	3.3	90	8,49	9,44	9,44	8,49	4	8,97		0,55	91,02
6	A60x	5.1	31	9,02	9,30	9,11	9,16	4	9,15		0,12	92,87
7	F26	3.5	32	9,13	9,21	9,17	9,22	4	9,18		0,04	93,23
8	A84	3.6	21.1	9,41	9,58	8,72	9,12	4	9,21		0,38	93,50
9	A67	3.5	35	9,72	9,33	9,50	8,82	4	9,34		0,38	94,86
10	A43	3.3	21.1	9,64	9,27	9,27	9,27	4	9,37		0,18	95,09
11	F05x	5.5	31	9,55	9,55	9,52	9,52	4	9,54		0,02	96,81
12	F22x	0	0	9,52	9,52	9,37	9,73	4	9,54		0,15	96,81
13	A85	5.1	31	9,65	9,75	8,99	10,13	4	9,63		0,47	97,78
14	A42	3.10	21.1	9,53	9,54	9,58	10,02	4	9,67		0,24	98,13
15	F18x	3.1	31	9,69	9,74	9,66	9,68	4	9,69		0,03	98,41
16	A56	4.1	31	9,74	9,76	9,79	9,64	4	9,73		0,06	98,82
17	F15x	4.1	31	9,90	9,78	9,59	9,67	4	9,74		0,13	98,84
18	F01x	3.10	21.1	9,59	9,72	9,85	9,79	4	9,74		0,11	98,87
19	F08x	5.5	32	9,62	9,74	9,85	9,76	4	9,74		0,10	98,90
20	F28x	5.1	31	9,92	9,56	9,88	9,65	4	9,75		0,18	99,02
21	F25x	3.3	31	9,72	9,86	9,84	9,67	4	9,77		0,09	99,22
22	S18	2.8	31	9,68	9,75	9,80	9,94	4	9,79		0,11	99,45
23	A46	5.1	35	10,20	9,66	9,58	9,75	4	9,80		0,28	99,48
24	F19x	5.5	31	9,85	9,68	9,87	9,88	4	9,82		0,09	99,71
25	A45x	6.3	31	9,84	9,85	9,82	9,77	4	9,82		0,04	99,71
26	F14	4.1	31	9,82	9,79	9,86	9,83	4	9,82		0,03	99,74
27	F09x	9.1	42	9,80	9,82	9,85	9,91	4	9,84		0,05	99,94
28	A39	5.5	31	9,95	9,70	10,13	9,69	4	9,87		0,21	100,19
29	F07x	4.1	31	10,10	9,51	9,94	9,97	4	9,88		0,25	100,30
30	F20x	5.5	31	9,89	9,93	9,90	9,95	4	9,92		0,03	100,70
31	F27x	3.3	21.1	9,49	10,29	9,82	10,25	4	9,96		0,38	101,14
32	A58x	5.5	21.1	10,00	9,84	10,02	10,03	4	9,97		0,09	101,25
33	A65	4.1	31	10,03	9,91	9,98	10,07	4	10,00		0,07	101,51
34	A61x	5.1	31	10,10	9,98	9,85	10,07	4	10,00		0,11	101,53
35	A47x	5.1	31	10,06	9,84	10,05	10,12	4	10,02		0,12	101,71
36	F12x	4.1	32	9,97	10,06	10,05	10,03	4	10,03		0,04	101,81
37	A50	3.1	31	10,15	10,02	9,85	10,15	4	10,04		0,14	101,96
38	F11	5.1	31	10,20	9,90	10,10	10,00	4	10,05		0,13	102,04
39	F33	5.1	35	9,64	9,81	10,27	10,64	4	10,09		0,45	102,45
40	A57	1	42	10,11	10,20	10,25	10,23	4	10,20		0,06	103,54
41	F23	6.4	28	10,20	10,30	10,10	10,20	4	10,20		0,08	103,56
42	A55	5.5	31	10,20	10,20	10,23	10,24	4	10,22		0,02	103,74
43	A51	5.5	31	10,10	10,30	10,30	10,20	4	10,23		0,10	103,82
44	F21	5.1	21.1	10,22	10,40	10,21	10,16	4	10,25		0,10	104,05
45	F02x	5.5	31	10,40	10,36	10,31	10,37	4	10,36		0,04	105,19
46	A53	9.1	42	10,33	10,38	10,34	10,42	4	10,37		0,04	105,26
47	F32x	5.1	31	10,50	10,40	10,40	10,40	4	10,43		0,05	105,85
48	A83	3.3	31	10,15	10,59	10,28	10,80	4	10,46		0,29	106,15
49	F13x	9.1	41	10,40	10,50	10,50	10,50	4	10,48		0,05	106,36
50	F16x	4.1	31	10,43	10,31	11,52	10,98	4	10,81		0,56	109,76
51	A36	5.1	31	10,89	10,99	10,86	11,00	4	10,94	*	0,07	111,03
52	F24x	2.8	21.1	12,4a	11,12	11,22	10,94	3	11,09	*	0,14	112,63
53												
54												
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	203	9,85	0,170
10	% from the mean		1,721

L	SR	VR
51	0,514	5,218

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	7,24	6,36	6,96	7,35	0	6,98	b *	0,44	6,35	80,00
2	A75	6.5	31	7,36	8,33	6,94	6,71	0	7,34	b *	0,72	9,76	84,10
3	F26	3.5	32	7,46	7,57	7,69	7,88	4	7,65	*	0,18	2,35	87,71
4	A43	3.3	21.1	7,75	7,65	7,85	7,85	4	7,77	*	0,10	1,24	89,10
5	A84	3.6	21.1	8,25	7,51	8,02	7,50	4	7,82	*	0,37	4,80	89,63
6	A82	5.1	31	8,10	8,21	8,24	8,24	4	8,20		0,07	0,81	93,99
7	A34	3.3	90	8,26	7,80	8,03	8,72	4	8,20		0,39	4,79	94,04
8	F06x	5.5	31	8,27	8,43	8,27	8,18	4	8,29		0,10	1,26	95,02
9	F05x	5.5	31	8,33	8,33	8,32	8,31	4	8,32		0,01	0,12	95,42
10	F22x	0	0	8,46	8,13	8,22	8,49	4	8,33		0,18	2,13	95,45
11	A67	3.5	35	8,26	8,09	8,63	8,66	4	8,41		0,28	3,33	96,42
12	A45x	6.3	31	8,76	7,81	8,60	8,65	4	8,46		0,44	5,15	96,94
13	A61x	5.1	31	8,51	8,53	8,50	8,53	4	8,52		0,02	0,19	97,65
14	F08x	5.5	32	8,43	8,54	8,56	8,60	4	8,53		0,07	0,84	97,85
15	F18x	3.1	31	8,38	8,60	8,57	8,64	4	8,55		0,12	1,35	98,00
16	F09x	9.1	42	8,50	8,60	8,51	8,60	4	8,55		0,06	0,65	98,05
17	S18	2.8	31	8,62	8,51	8,60	8,48	4	8,55		0,07	0,80	98,06
18	A56	4.1	31	8,57	8,41	8,53	8,74	4	8,56		0,14	1,58	98,14
19	F23	6.4	28	8,70	8,46	8,64	8,52	4	8,58		0,11	1,28	98,37
20	A58x	5.5	21.1	8,70	8,72	8,55	8,38	4	8,59		0,16	1,84	98,46
21	A60x	5.1	31	8,58	8,60	8,47	8,73	4	8,60		0,11	1,27	98,55
22	F14	4.1	31	8,54	8,59	8,61	8,71	4	8,61		0,07	0,83	98,75
23	F01x	3.10	21.1	8,70	8,76	8,65	8,55	4	8,67		0,09	1,03	99,35
24	F27x	3.3	21.1	8,39	9,15	8,53	8,75	4	8,70		0,33	3,82	99,79
25	F07x	4.1	31	8,90	8,46	8,75	8,80	4	8,73		0,19	2,16	100,08
26	F28x	5.1	31	8,85	8,58	8,84	8,70	4	8,74		0,13	1,46	100,23
27	F20x	5.5	31	8,71	8,65	8,79	8,82	4	8,74		0,08	0,88	100,23
28	F13x	9.1	41	8,69	8,79	8,74	8,79	4	8,75		0,05	0,55	100,35
29	A42	3.10	21.1	8,61	8,75	8,86	8,97	4	8,80		0,15	1,70	100,85
30	A65	4.1	31	8,73	8,79	8,93	8,79	4	8,81		0,08	0,96	101,01
31	A39	5.5	31	9,10	8,72	8,78	8,77	4	8,84		0,17	1,93	101,39
32	F19x	5.5	31	9,03	8,73	8,95	8,75	4	8,87		0,15	1,67	101,64
33	A53	9.1	42	8,79	8,89	8,91	8,88	4	8,87		0,05	0,60	101,67
34	F15x	4.1	31	8,94	8,93	8,82	8,79	4	8,87		0,08	0,86	101,70
35	A57	1	42	8,85	8,94	8,85	8,90	4	8,89		0,04	0,49	101,87
36	A50	3.1	31	9,10	8,66	8,83	8,99	4	8,90		0,19	2,16	101,98
37	A47x	5.1	31	8,95	8,89	8,92	8,86	4	8,91		0,04	0,43	102,10
38	F16x	4.1	31	8,72	9,09	9,01	8,93	4	8,94		0,16	1,79	102,44
39	F25x	3.3	31	8,92	8,83	9,11	9,02	4	8,97		0,12	1,35	102,84
40	F21	5.1	21.1	8,81	9,23	9,05	8,84	4	8,98		0,20	2,19	102,99
41	A46	5.1	35	9,23	9,19	8,70	8,88	4	9,00		0,25	2,82	103,19
42	F11	5.1	31	8,98	8,78	9,18	9,09	4	9,01		0,17	1,91	103,27
43	A55	5.5	31	9,00	9,07	9,00	9,05	4	9,03		0,04	0,41	103,52
44	F33	5.1	35	9,11	9,15	8,68	9,19	4	9,03		0,24	2,63	103,56
45	F12x	4.1	32	9,29	9,02	9,08	9,13	4	9,13		0,12	1,27	104,68
46	F24x	2.8	21.1	9,17	9,22	9,16	9,19	4	9,19		0,03	0,29	105,31
47	A36	5.1	31	9,16	9,34	9,40	9,31	4	9,30		0,10	1,10	106,65
48	F32x	5.1	31	9,27	9,50	9,40	9,34	4	9,38		0,10	1,04	107,51
49	A83	3.3	31	9,42	9,43	9,30	10,1a	3	9,38		0,07	0,76	107,57
50	A51	5.5	31	9,37	9,30	9,41	9,62	4	9,43		0,14	1,46	108,06
51	F02x	5.5	31	9,67	9,64	9,64	9,60	4	9,64	*	0,03	0,30	110,50
52	A85	5.1	31	10,88	10,51	9,52	10,25	0	10,29	b *	0,57	5,59	117,98
53													
54													
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56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	195	8,72	0,135	1,546
10	% from the mean			

L	SR	VR
49	0,408	4,671

14th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	4,40	4,74	4,27	4,34	0	4,44	b *	0,21	4,70	78,68
2	A59	0	0	4,24	4,42	4,87	4,95	0	4,62	b *	0,34	7,45	81,92
3	A75	6.5	31	5,07	5,24	4,78	4,91	4	5,00	*	0,20	3,98	88,66
4	A82	5.1	31	5,02	4,93	5,09	5,08	4	5,03	*	0,07	1,46	89,19
5	A60x	5.1	31	5,25	4,81	5,12	5,28	4	5,11		0,21	4,17	90,66
6	F26	3.5	32	5,17	5,16	5,23	5,22	4	5,20		0,04	0,68	92,11
7	F22x	0	0	5,49	5,17	5,31	5,06	4	5,26		0,19	3,53	93,22
8	F18x	3.1	31	5,18	5,25	5,28	5,38	4	5,27		0,08	1,57	93,49
9	F05x	5.5	31	5,34	5,33	5,33	5,32	4	5,33		0,01	0,15	94,51
10	A67	3.5	35	5,15	5,33	5,46	5,38	4	5,33		0,13	2,47	94,51
11	A84	3.6	21.1	5,33	5,52	5,51	5,10	4	5,36		0,20	3,68	95,11
12	A43	3.3	21.1	5,41	5,31	5,41	5,41	4	5,39		0,05	0,96	95,52
13	F09x	9.1	42	5,47	5,42	5,41	5,42	4	5,43		0,03	0,53	96,29
14	F06x	5.5	31	5,51	5,36	5,49	5,42	4	5,45		0,07	1,26	96,55
15	A56	4.1	31	5,44	5,53	5,41	5,42	4	5,45		0,05	1,00	96,60
16	S18	2.8	31	5,49	5,50	5,48	5,53	4	5,50		0,02	0,39	97,51
17	F08x	5.5	32	5,55	5,48	5,45	5,58	4	5,51		0,06	1,04	97,77
18	A45x	6.3	31	5,54	5,52	5,53	5,51	4	5,53		0,01	0,23	97,97
19	A58x	5.5	21.1	5,58	5,59	5,39	5,54	4	5,53		0,09	1,68	97,97
20	A61x	5.1	31	5,54	5,56	5,53	5,55	4	5,55		0,01	0,23	98,32
21	F23	6.4	28	5,47	5,67	5,62	5,52	4	5,57		0,09	1,64	98,76
22	F24x	2.8	21.1	5,70	5,58	5,50	5,51	4	5,57		0,09	1,65	98,81
23	F25x	3.3	31	5,56	5,57	5,60	5,57	4	5,58		0,02	0,31	98,85
24	F14	4.1	31	5,56	5,69	5,55	5,59	4	5,60		0,06	1,16	99,22
25	F20x	5.5	31	5,67	5,57	5,64	5,58	4	5,62		0,05	0,85	99,56
26	F15x	4.1	31	5,74	5,74	5,48	5,52	4	5,62		0,14	2,48	99,65
27	A34	3.3	90	5,53	5,92	5,53	5,53	4	5,63		0,19	3,47	99,78
28	A65	4.1	31	5,61	5,70	5,66	5,64	4	5,65		0,04	0,67	100,23
29	A39	5.5	31	5,69	5,62	5,71	5,66	4	5,67		0,04	0,72	100,51
30	F11	5.1	31	5,80	5,61	5,59	5,70	4	5,68		0,10	1,69	100,62
31	F19x	5.5	31	5,80	5,60	5,66	5,66	4	5,68		0,08	1,49	100,71
32	F07x	4.1	31	5,89	5,54	5,77	5,60	4	5,70		0,16	2,77	101,06
33	F01x	3.10	21.1	5,79	5,71	5,63	5,68	4	5,70		0,07	1,18	101,11
34	F16x	4.1	31	5,25	5,72	5,95	5,90	4	5,70		0,32	5,62	101,13
35	A50	3.1	31	5,77	5,63	5,73	5,80	4	5,73		0,07	1,29	101,64
36	A46	5.1	35	5,88	5,54	5,85	5,71	4	5,75		0,16	2,71	101,87
37	F27x	3.3	21.1	5,74	6,02	5,60	5,65	4	5,75		0,19	3,28	101,99
38	F12x	4.1	32	5,72	5,76	5,78	5,76	4	5,76		0,03	0,44	102,04
39	F28x	5.1	31	5,73	5,81	5,74	5,82	4	5,77		0,04	0,76	102,37
40	A47x	5.1	31	5,77	5,75	5,85	5,74	4	5,78		0,05	0,86	102,44
41	F33	5.1	35	6,06	5,47	5,82	5,81	4	5,79		0,24	4,19	102,66
42	A42	3.10	21.1	5,81	5,84	5,82	5,89	4	5,84		0,03	0,59	103,52
43	A53	9.1	42	5,90	5,86	5,93	5,83	4	5,88		0,04	0,70	104,28
44	A57	1	42	5,84	5,91	5,94	5,87	4	5,89		0,04	0,75	104,44
45	A55	5.5	31	5,89	5,97	5,94	5,95	4	5,94		0,03	0,58	105,24
46	A51	5.5	31	6,08	5,87	6,00	5,90	4	5,96		0,10	1,61	105,72
47	F32x	5.1	31	5,98	6,06	6,04	6,03	4	6,03		0,03	0,56	106,88
48	A83	3.3	31	5,83	6,74	6,11	5,58	4	6,06		0,50	8,20	107,52
49	F02x	5.5	31	5,78	6,39	6,53	5,90	4	6,15		0,37	5,95	109,05
50	A36	5.1	31	6,14	6,20	6,22	6,18	4	6,19		0,03	0,55	109,67
51	F13x	9.1	41	6,23	6,24	6,28	6,28	4	6,26	*	0,03	0,42	110,95
52	F21	5.1	21.1	6,31	6,37	6,25	6,28	4	6,30	*	0,05	0,81	111,75
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	200	5,64	0,100	1,780
10	% from the mean			

L	SR	VR
50	0,295	5,226

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	6,09	5,80	6,52	6,77	4	6,30	*	0,43	6,88	83,55
2	F26	3.5	32	6,17	6,63	6,41	6,34	4	6,39	*	0,19	2,98	84,77
3	A85	5.1	31	6,73	6,57	7,01	6,61	4	6,73	*	0,20	2,95	89,32
4	F18x	3.1	31	6,81	6,93	6,77	6,95	4	6,87		0,09	1,29	91,11
5	A82	5.1	31	6,67	6,97	6,86	6,96	4	6,87		0,14	2,03	91,11
6	A60x	5.1	31	6,69	6,98	7,06	7,03	4	6,94		0,17	2,50	92,11
7	A75	6.5	31	7,02	6,93	5,91a	6,99	3	6,98		0,05	0,66	92,64
8	A67	3.5	35	7,11	7,05	7,07	7,29	4	7,13		0,11	1,54	94,63
9	F22x	0	0	7,41	7,21	7,08	6,94	4	7,16		0,20	2,79	95,03
10	A84	3.6	21.1	8,31	6,84	6,92	6,93	4	7,25		0,71	9,76	96,21
11	A43	3.3	21.1	7,29	7,35	7,24	7,41	4	7,32		0,07	0,99	97,20
12	F05x	5.5	31	7,34	7,32	7,32	7,32	4	7,33		0,01	0,14	97,22
13	A42	3.10	21.1	7,54	7,66	7,04	7,15	4	7,35		0,30	4,05	97,48
14	F01x	3.10	21.1	7,45	7,36	7,42	7,29	4	7,38		0,07	0,96	97,95
15	A34	3.3	90	7,44	7,22	7,44	7,44	4	7,39		0,11	1,49	98,01
16	F08x	5.5	32	7,40	7,46	7,44	7,38	4	7,42		0,03	0,44	98,46
17	A56	4.1	31	7,46	7,34	7,57	7,35	4	7,43		0,11	1,43	98,57
18	F06x	5.5	31	7,56	7,41	7,31	7,44	4	7,43		0,10	1,39	98,61
19	F23	6.4	28	7,59	7,37	7,54	7,42	4	7,48		0,10	1,37	99,27
20	F14	4.1	31	7,46	7,47	7,48	7,53	4	7,48		0,03	0,43	99,28
21	F25x	3.3	31	7,43	7,51	7,48	7,52	4	7,49		0,04	0,54	99,34
22	S18	2.8	31	7,36	7,52	7,59	7,52	4	7,50		0,10	1,28	99,52
23	F09x	9.1	42	7,49	7,51	7,55	7,51	4	7,52		0,03	0,35	99,75
24	A61x	5.1	31	7,49	7,56	7,53	7,57	4	7,54		0,04	0,51	100,04
25	A58x	5.5	21.1	7,69	7,47	7,53	7,49	4	7,55		0,10	1,32	100,14
26	A45x	6.3	31	7,54	7,52	7,59	7,58	4	7,56		0,03	0,44	100,30
27	A46	5.1	35	7,58	7,49	7,71	7,55	4	7,58		0,09	1,22	100,63
28	F15x	4.1	31	7,80	7,69	7,47	7,45	4	7,60		0,17	2,25	100,90
29	A50	3.1	31	7,59	7,68	7,67	7,57	4	7,63		0,06	0,73	101,23
30	A65	4.1	31	7,66	7,61	7,68	7,57	4	7,63		0,05	0,65	101,26
31	F20x	5.5	31	7,56	7,74	7,60	7,63	4	7,63		0,08	1,01	101,30
32	A39	5.5	31	7,56	7,72	7,55	7,73	4	7,64		0,10	1,30	101,40
33	F19x	5.5	31	7,62	7,65	7,57	7,78	4	7,66		0,09	1,17	101,60
34	F27x	3.3	21.1	8,08	7,59	7,51	7,49	4	7,67		0,28	3,66	101,77
35	F11	5.1	31	7,63	7,88	7,61	7,58	4	7,68		0,14	1,80	101,86
36	F07x	4.1	31	7,86	7,48	7,78	7,67	4	7,70		0,17	2,18	102,18
37	F33	5.1	35	7,43	7,89	7,65	7,92	4	7,72		0,23	2,97	102,49
38	F24x	2.8	21.1	8,00	7,68	7,57	7,69	4	7,74		0,18	2,39	102,66
39	A47x	5.1	31	7,71	7,78	7,74	7,74	4	7,74		0,03	0,37	102,76
40	F21	5.1	21.1	7,64	7,79	7,92	7,68	4	7,76		0,13	1,62	102,96
41	F28x	5.1	31	7,88	7,86	7,52	7,79	4	7,76		0,17	2,15	102,99
42	F12x	4.1	32	7,91	7,84	7,72	7,82	4	7,82		0,08	1,00	103,82
43	A57	1	42	7,79	7,84	7,87	7,84	4	7,84		0,03	0,42	103,98
44	A51	5.5	31	7,86	8,02	8,10	8,03	4	8,00		0,10	1,27	106,21
45	A55	5.5	31	8,00	8,02	8,02	8,04	4	8,02		0,01	0,16	106,45
46	A53	9.1	42	8,05	8,03	8,00	8,02	4	8,02		0,02	0,24	106,50
47	F16x	4.1	31	7,68	7,93	8,12	8,42	4	8,04		0,31	3,88	106,64
48	A83	3.3	31	7,33	8,50	7,86	8,81	4	8,12		0,66	8,16	107,83
49	F02x	5.5	31	7,30	8,32	8,31	8,78	4	8,18		0,62	7,64	108,53
50	F32x	5.1	31	8,24	8,19	8,26	8,18	4	8,22		0,04	0,47	109,06
51	F13x	9.1	41	8,19	8,24	8,22	8,25	4	8,23		0,03	0,32	109,16
52	A36	5.1	31	8,30	8,25	8,28	8,44	4	8,32	*	0,08	1,01	110,39
53													
54													
55													
56													
57													
58													
59													
60													

	N	Mean	SI	VI
all labs	207	7,53	0,144	1,916
10	% from the mean			

* = non tolerable mean because more than +/-

L	SR	VR
52	0,430	5,712

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	1	13.2	47,18	47,70	47,45	47,45	0	47,45	b *	0,21	92,58
2	A56	1	15.3	48,18	47,99	48,11	48,16	0	48,11	b *	0,09	93,88
3	A59	0	0	49,56	49,61	49,33	49,33	4	49,46		0,15	96,51
4	A84	1	17.2	49,84	50,34	49,66	49,89	4	49,93		0,29	97,43
5	A34	1	18.1	50,51	50,35	50,54	50,48	4	50,47		0,08	98,49
6	F25x	1	15.4	50,50	50,50	50,53	50,46	4	50,50		0,03	98,54
7	F21	1	17	50,69	50,75	50,73	50,59	4	50,69		0,07	98,91
8	A47x	1	15	50,52	50,45	51,26	50,59	4	50,71		0,37	98,94
9	F13x	1	15.3	50,69	50,73	50,74	50,68	4	50,71		0,03	98,95
10	F06x	1	15.4	50,78	50,75	50,67	50,70	4	50,73		0,05	98,98
11	S18	1	17.1	50,61	50,75	50,63	50,92	4	50,73		0,14	98,99
12	A61x	1	15.1	50,87	50,90	50,84	50,56	4	50,79		0,16	99,11
13	F11	1	17.2	50,80	50,70	50,90	50,80	4	50,80		0,08	99,13
14	F32x	1	17.2	50,80	50,80	50,80	50,80	4	50,80		0,00	99,13
15	F08x	1	15.3	50,91	50,77	50,82	50,88	4	50,85		0,06	99,22
16	F19x	1	15.2	51,30	51,00	51,10	50,50	4	50,98		0,34	99,47
17	F28x	1	17.3	50,80	51,10	51,20	50,90	4	51,00		0,18	99,52
18	A58x	1	15.3	51,03	51,05	51,01	50,97	4	51,02		0,03	99,55
19	F16x	1	15.3	51,03	51,00	51,00	51,17	4	51,05		0,08	99,62
20	F22x	0	0	50,83	50,90	51,12	51,38	4	51,06		0,25	99,63
21	F15x	1	15.3	51,55	51,67	50,53	50,56	4	51,08		0,62	99,67
22	A45x	1	15.3	51,10	51,00	51,10	51,20	4	51,10		0,08	99,71
23	F02x	1	16.1	51,04	51,27	51,14	51,19	4	51,16		0,10	99,83
24	F05x	1	17.2	51,20	51,10	51,20	51,20	4	51,18		0,05	99,86
25	A85	5.1	17	51,36	48,38a	51,26	51,28	3	51,30		0,05	100,10
26	A60x	1	15.1	50,97	51,53	51,55	51,34	4	51,35		0,27	100,20
27	F07x	1	17.1	51,20	51,12	51,49	51,66	4	51,37		0,25	100,24
28	A39	1	15.1	51,46	51,42	51,42	51,62	4	51,48		0,09	100,46
29	F12x	1	15.5	52,00	50,87	52,00	51,60	4	51,62		0,53	100,72
30	F14	1	15.3	51,70	51,60	51,60	51,70	4	51,65		0,06	100,79
31	F33	1	17.2	51,67	51,64	51,70	51,65	4	51,67		0,03	100,82
32	A65	1	18.2	51,68	51,61	51,73	51,76	4	51,70		0,07	100,88
33	A82	1	19	51,89	51,61	51,65	51,68	4	51,71		0,13	100,90
34	A51	0	17.2	51,83	51,76	51,82	51,86	4	51,82		0,04	101,11
35	A75	1	17.1	51,91	51,84	51,96	51,96	4	51,92		0,06	101,31
36	F23	1	13.3	50,71	53,15	52,07	52,19	4	52,03		1,00	101,53
37	F26	0	17.1	52,30	52,10	52,00	52,20	4	52,15		0,13	101,76
38	A62x	1	17.1	54,40	52,25	51,02	50,93	0	52,15	c	1,62	101,76
39	F27x	1	17.1	52,35	52,25	52,03	52,03	4	52,17		0,16	101,79
40	A42	1	18.1	52,60	52,50	52,30	52,30	4	52,43		0,15	102,30
41	A83	1	15.2	52,58	52,63	52,53	52,44	4	52,55		0,08	102,53
42	F24x	1	10	52,98	53,51	52,63	52,79	4	52,98		0,38	103,38
43	F18x	1	13	53,90	54,40	54,30	54,90	0	54,38	b *	0,41	106,11
44	A57	1	15.2	54,23	54,19	55,01	55,17	0	54,65	b *	0,51	106,64
45	A55	1	13.1	52,90	57,10	58,90	57,20	0	56,53	b *	2,55	110,30
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	155	51,25	0,173	0,337
5		% from the mean		
L			SR	VR
39			0,702	1,369

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A56	1	15.3	44,25	44,11	44,12	44,14	4	44,16	*	0,06	0,15	93,73
2	A67	1	13.2	44,35	44,26	44,36	43,93	4	44,23	*	0,20	0,46	93,88
3	A59	0	0	45,34	45,47	45,36	45,35	4	45,38		0,06	0,13	96,33
4	A84	1	17.2	45,50	45,67	45,44	45,26	4	45,47		0,17	0,37	96,51
5	F25x	1	15.4	46,34	46,33	46,33	46,30	4	46,33		0,02	0,04	98,34
6	A34	1	18.1	46,23	46,39	46,39	46,36	4	46,34		0,08	0,16	98,37
7	F11	1	17.2	46,40	46,50	46,40	46,40	4	46,43		0,05	0,11	98,55
8	F15x	1	15.3	46,93	47,16	46,18	46,14	4	46,60		0,52	1,12	98,92
9	A85	5.1	17	47,43	47,46	44,20	47,45	4	46,64		1,62	3,48	98,99
10	A62x	1	17.1	47,61	46,87	46,25	46,07	4	46,70		0,70	1,49	99,13
11	F06x	1	15.4	46,72	46,76	46,76	46,71	4	46,74		0,03	0,06	99,21
12	A60x	1	15.1	46,86	46,61	46,69	46,99	4	46,79		0,17	0,37	99,32
13	F13x	1	15.3	46,79	46,79	46,80	46,79	4	46,79		0,00	0,01	99,33
14	F32x	1	17.2	46,80	46,70	46,90	46,80	4	46,80		0,08	0,17	99,34
15	F19x	1	15.2	46,60	46,30	47,10	47,40	4	46,85		0,49	1,05	99,45
16	F21	1	17	46,87	46,80	46,92	46,94	4	46,88		0,06	0,13	99,52
17	A61x	1	15.1	46,97	46,83	46,89	46,85	4	46,89		0,06	0,13	99,52
18	A58x	1	15.3	46,98	47,01	46,59	47,02	4	46,90		0,21	0,44	99,56
19	A45x	1	15.3	47,00	46,90	47,00	46,90	4	46,95		0,06	0,12	99,66
20	F16x	1	15.3	46,97	46,97	47,00	46,98	4	46,98		0,01	0,03	99,73
21	F08x	1	15.3	47,10	46,87	47,06	46,94	4	46,99		0,11	0,23	99,75
22	A47x	1	15	46,92	47,11	46,98	47,00	4	47,00		0,08	0,17	99,77
23	S18	1	17.1	46,82	47,21	47,00	47,17	4	47,05		0,18	0,38	99,87
24	F22x	0	0	46,73	46,50	47,56	47,52	4	47,08		0,54	1,15	99,93
25	A39	1	15.1	47,21	47,17	47,34	47,28	4	47,25		0,08	0,16	100,30
26	F12x	1	15.5	47,00	47,10	47,80	47,30	4	47,30		0,36	0,75	100,41
27	F07x	1	17.1	47,46	47,32	47,82	46,86	4	47,37		0,40	0,84	100,54
28	F05x	1	17.2	47,30	47,40	47,50	47,40	4	47,40		0,08	0,17	100,62
29	F28x	1	17.3	47,80	46,90	47,80	47,20	4	47,43		0,45	0,95	100,67
30	A65	1	18.2	47,50	47,35	47,48	47,39	4	47,43		0,07	0,15	100,68
31	F14	1	15.3	47,50	47,70	47,60	47,40	4	47,55		0,13	0,27	100,94
32	F33	1	17.2	47,60	47,69	47,59	47,62	4	47,63		0,05	0,09	101,10
33	F02x	1	16.1	47,67	47,40	47,75	47,84	4	47,67		0,19	0,40	101,18
34	A82	1	19	47,67	47,75	47,58	47,69	4	47,67		0,07	0,15	101,20
35	A51	0	17.2	47,78	47,76	47,83	47,71	4	47,77		0,05	0,10	101,40
36	F23	1	13.3	47,96	47,80	48,38	47,72	4	47,97		0,29	0,61	101,82
37	A75	1	17.1	48,04	48,13	48,26	47,93	4	48,09		0,14	0,29	102,08
38	F27x	1	17.1	48,31	48,31	47,88	47,99	4	48,12		0,22	0,46	102,15
39	F24x	1	10	47,86	48,22	48,46	48,03	4	48,14		0,26	0,54	102,19
40	A55	1	13.1	54,4a	48,40	48,70	47,60	3	48,23		0,57	1,18	102,39
41	F26	0	17.1	48,30	48,20	48,30	48,20	4	48,25		0,06	0,12	102,42
42	A42	1	18.1	48,40	48,30	48,20	48,40	4	48,33		0,10	0,20	102,58
43	A83	1	15.2	48,67	48,57	48,46	48,49	4	48,55		0,09	0,19	103,05
44	A57	1	15.2	50,30	49,64	49,54	50,54	4	50,01	*	0,49	0,98	106,15
45	F18x	1	13	52,10	51,70	52,30	51,80	0	51,98	b *	0,28	0,53	110,33
46													
47													
48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													

* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	175	47,11	0,221	0,468
5	% from the mean			

L	SR	VR
44	1,034	2,195

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	1	13.2	48,56	48,26	48,42	48,54	0	48,45	b *	0,14	93,53
2	A56	1	15.3	49,24	48,94	48,81	49,12	0	49,03	b *	0,19	94,66
3	A84	1	17.2	50,33	50,24	50,00	50,06	4	50,16		0,16	96,84
4	A59	0	0	50,27	50,07	50,34	50,34	4	50,26		0,13	97,03
5	F28x	1	17.3	51,30	51,30	50,28	50,40	4	50,82		0,56	98,12
6	F13x	1	15.3	50,89	50,88	50,90	50,89	4	50,89		0,01	98,25
7	A34	1	18.1	51,06	51,03	51,19	51,34	4	51,16		0,14	98,76
8	F06x	1	15.4	51,19	51,19	51,13	51,20	4	51,18		0,03	98,81
9	F25x	1	15.4	51,23	51,27	51,21	51,22	4	51,23		0,03	98,91
10	F11	1	17.2	51,30	51,30	51,40	51,30	4	51,33		0,05	99,09
11	A47x	1	15	51,17	51,30	51,45	51,47	4	51,35		0,14	99,14
12	F32x	1	17.2	51,30	51,30	51,40	51,40	4	51,35		0,06	99,14
13	S18	1	17.1	51,45	51,50	51,08	51,41	4	51,36		0,19	99,16
14	A58x	1	15.3	51,45	51,36	51,36	51,30	4	51,37		0,06	99,17
15	F08x	1	15.3	51,51	51,33	51,44	51,42	4	51,43		0,07	99,29
16	F21	1	17	51,52	51,55	51,48	51,54	4	51,52		0,03	99,47
17	A85	5.1	17	51,99	51,08	51,14	52,04	4	51,56		0,52	99,55
18	A61x	1	15.1	51,72	51,47	51,54	51,64	4	51,59		0,11	99,61
19	F15x	1	15.3	52,17	52,11	51,10	51,11	4	51,62		0,60	99,67
20	F16x	1	15.3	51,54	51,59	51,78	51,62	4	51,63		0,10	99,69
21	A39	1	15.1	51,77	51,58	51,69	51,56	4	51,65		0,10	99,72
22	A45x	1	15.3	51,60	51,70	51,70	51,70	4	51,68		0,05	99,77
23	F02x	1	16.1	51,65	52,02	51,53	51,74	4	51,74		0,21	99,88
24	F07x	1	17.1	51,88	51,88	50,74	52,45	4	51,74		0,72	99,89
25	A60x	1	15.1	51,65	51,94	51,85	51,81	4	51,81		0,12	100,03
26	F19x	1	15.2	52,00	51,40	51,90	52,00	4	51,83		0,29	100,06
27	F05x	1	17.2	51,90	51,80	51,90	51,80	4	51,85		0,06	100,11
28	F12x	1	15.5	51,20	52,20	52,10	51,90	4	51,85		0,45	100,11
29	F22x	0	0	51,89	51,36	52,16	52,09	4	51,88		0,36	100,15
30	A62x	1	17.1	60,46a	52,66	51,97	51,41	3	52,01		0,63	100,42
31	F14	1	15.3	52,10	52,00	52,00	52,00	4	52,03		0,05	100,44
32	A65	1	18.2	52,23	52,16	52,14	52,26	4	52,20		0,06	100,78
33	A51	0	17.2	52,28	52,36	52,38	52,32	4	52,34		0,04	101,04
34	F33	1	17.2	52,34	52,37	52,35	52,37	4	52,36		0,01	101,09
35	A82	1	19	52,50	52,49	52,36	52,53	4	52,47		0,08	101,30
36	F26	0	17.1	52,50	52,50	52,60	52,70	4	52,58		0,10	101,51
37	A42	1	18.1	52,60	52,80	52,70	52,50	4	52,65		0,13	101,65
38	F23	1	13.3	52,73	52,70	52,80	52,95	4	52,80		0,11	101,93
39	F27x	1	17.1	52,86	52,86	52,97	52,75	4	52,86		0,09	102,06
40	A75	1	17.1	52,98	52,86	52,91	52,91	4	52,92		0,05	102,16
41	A83	1	15.2	53,19	53,17	53,23	53,03	4	53,16		0,09	102,63
42	F24x	1	10	53,57	53,72	53,87	53,65	4	53,70		0,13	103,68
43	A57	1	15.2	54,80	54,85	55,25	55,58	0	55,12	b *	0,37	106,42
44	F18x	1	13	55,70	55,60	56,20	54,90	0	55,60	b *	0,54	107,35
45	A55	1	13.1	61,10	56,10	56,60	57,90	0	57,93	b *	2,25	111,84
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	159	51,80	0,173	0,333
5	% from the mean			

L	SR	VR
40	0,732	1,413

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	1	13.2	48,77	48,08	48,38	48,45	4	48,42	*	0,28	0,58	93,40
2	A56	1	15.3	48,29	48,83	48,74	48,53	4	48,60	*	0,24	0,49	93,74
3	A59	0	0	50,23	50,07	50,03	49,51	4	49,96		0,31	0,62	96,37
4	A84	1	17.2	49,79	50,29	50,17	50,12	4	50,09		0,21	0,42	96,62
5	F13x	1	15.3	50,75	50,72	50,72	50,75	4	50,74		0,02	0,03	97,86
6	A62x	1	17.1	51,22	50,90	50,78	50,25	4	50,79		0,40	0,79	97,96
7	F25x	1	15.4	50,98	51,09	51,00	50,98	4	51,01		0,05	0,10	98,40
8	F02x	1	16.1	50,19	50,67	51,61	51,80	4	51,07		0,77	1,50	98,50
9	F32x	1	17.2	51,10	51,10	51,20	51,20	4	51,15		0,06	0,11	98,66
10	F11	1	17.2	51,10	51,20	51,30	51,20	4	51,20		0,08	0,16	98,76
11	F15x	1	15.3	51,23	51,41	51,06	51,11	4	51,20		0,16	0,30	98,76
12	S18	1	17.1	51,14	51,39	51,49	51,29	4	51,33		0,15	0,29	99,01
13	F21	1	17	51,28	51,49	51,44	51,16	4	51,34		0,15	0,29	99,03
14	F06x	1	15.4	51,30	51,43	51,41	51,24	4	51,35		0,09	0,18	99,04
15	F08x	1	15.3	51,47	51,42	51,35	51,26	4	51,38		0,09	0,18	99,10
16	A58x	1	15.3	51,34	51,48	51,40	51,42	4	51,41		0,06	0,11	99,16
17	A61x	1	15.1	51,42	51,36	51,42	51,59	4	51,45		0,10	0,19	99,24
18	F19x	1	15.2	51,10	51,90	51,90	51,10	4	51,50		0,46	0,90	99,34
19	A47x	1	15	51,20	51,60	51,39	51,89	4	51,52		0,30	0,57	99,38
20	F22x	0	0	51,16	51,26	51,75	52,08	4	51,56		0,43	0,84	99,46
21	A85	5.1	17	51,79	51,05	51,87	51,88	4	51,65		0,40	0,78	99,62
22	A34	1	18.1	51,73	51,85	51,55	51,56	4	51,67		0,14	0,28	99,67
23	A39	1	15.1	51,61	51,74	51,74	51,76	4	51,71		0,07	0,13	99,75
24	F05x	1	17.2	51,70	51,70	51,80	51,70	4	51,73		0,05	0,10	99,77
25	F28x	1	17.3	51,60	51,90	51,80	51,70	4	51,75		0,13	0,25	99,82
26	F16x	1	15.3	51,80	51,71	51,73	51,81	4	51,76		0,05	0,10	99,84
27	A45x	1	15.3	51,80	51,80	51,80	51,80	4	51,80		0,00	0,00	99,92
28	A60x	1	15.1	52,05	51,74	52,04	51,84	4	51,92		0,15	0,29	100,14
29	F12x	1	15.5	51,20	52,10	52,60	52,00	4	51,98		0,58	1,11	100,25
30	A51	0	17.2	52,09	52,10	52,20	52,14	4	52,13		0,05	0,10	100,56
31	F14	1	15.3	52,20	52,10	52,20	52,20	4	52,18		0,05	0,10	100,64
32	F07x	1	17.1	52,09	52,02	52,04	52,60	4	52,19		0,28	0,53	100,66
33	F33	1	17.2	52,19	52,17	52,26	52,22	4	52,21		0,04	0,08	100,71
34	A82	1	19	52,46	52,58	52,52	52,45	4	52,50		0,06	0,11	101,27
35	A75	1	17.1	52,61	52,66	52,65	52,78	4	52,68		0,07	0,14	101,60
36	F26	0	17.1	52,80	52,80	52,70	52,60	4	52,73		0,10	0,18	101,70
37	F23	1	13.3	52,32	52,66	53,74	52,26	4	52,75		0,69	1,30	101,74
38	A42	1	18.1	53,00	52,70	52,80	52,80	4	52,83		0,13	0,24	101,89
39	A65	1	18.2	52,39	54,92	52,38	52,33	4	53,01		1,28	2,41	102,24
40	A83	1	15.2	53,24	52,86	53,13	52,98	4	53,05		0,17	0,31	102,33
41	F27x	1	17.1	53,32	53,00	53,32	52,78	4	53,11		0,26	0,50	102,43
42	A55	1	13.1	56,70	52,10	53,30	53,30	4	53,85		1,98	3,68	103,87
43	F24x	1	10	53,97	53,79	53,83	53,90	4	53,87		0,08	0,15	103,91
44	A57	1	15.2	53,98	55,40	55,34	56,02	4	55,19	*	0,86	1,56	106,45
45	F18x	1	13	55,70	55,90	55,30	55,80	4	55,68	*	0,26	0,47	107,39
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	180	51,84	0,274	0,529
5	% from the mean			

L	SR	VR
45	1,332	2,570

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	3.5	35	27,60	26,00	26,60	29,70	4	27,48	1,62	5,91	81,03
2	A84	3.6	21.1	28,65	28,66	29,07	29,35	4	28,93	0,34	1,17	85,33
3	A80	5.1	35	30,80	29,50	29,00	29,70	4	29,75	0,76	2,55	87,74
4	A79	5.7	35	30,60	30,50	30,80	31,10	4	30,75	0,26	0,86	90,69
5	A58x	5.5	21.1	32,07	30,82	31,68	32,14	4	31,68	0,61	1,91	93,42
6	F07x	4.1	31	32,79	28,80	32,01	33,18	4	31,70	1,99	6,28	93,48
7	F20x	5.5	31	31,80	31,80	32,10	32,00	4	31,93	0,15	0,47	94,15
8	A60x	5.1	31	31,67	32,27	30,28	33,65	4	31,97	1,40	4,37	94,27
9	F27	3.3	21.1	32,50	32,45	31,97	31,28	4	32,05	0,57	1,77	94,52
10	F19x	5.5	31	32,30	31,40	32,50	33,10	4	32,33	0,70	2,18	95,33
11	A59	0	0	30,86	31,46	36,01	31,64	4	32,49	2,37	7,29	95,83
12	F06x	5.5	31	32,60	33,10	32,30	32,20	4	32,55	0,40	1,24	96,00
13	A45x	6.3	31	32,60	32,60	32,60	32,60	4	32,60	0,00	0,00	96,15
14	F02x	5.5	31	32,60	33,10	32,60	32,20	4	32,63	0,37	1,13	96,22
15	F12x	4.1	32	32,70	32,50	32,90	32,70	4	32,70	0,16	0,50	96,44
16	A50	3.1	31	31,70	34,10	31,20	34,50	4	32,88	1,67	5,07	96,96
17	A39	5.5	31	33,60	33,26	32,82	34,03	4	33,43	0,51	1,53	98,58
18	A83	3.3	31	33,21	33,53	33,21	33,90	4	33,46	0,33	0,98	98,69
19	F14	4.1	31	33,80	33,70	33,90	33,80	4	33,80	0,08	0,24	99,68
20	A75	6.5	31	35,00	35,95	33,80	30,50	4	33,81	2,38	7,03	99,72
21	A51	5.5	31	33,60	35,30	33,50	33,20	4	33,90	0,95	2,80	99,98
22	F11	5.1	31	33,70	34,10	33,80	34,00	4	33,90	0,18	0,54	99,98
23	F09x	9.1	42	33,95	34,17	33,86	34,20	4	34,04	0,17	0,49	100,40
24	A65	4.1	31	34,20	34,10	33,90	34,00	4	34,05	0,13	0,38	100,42
25	A85	5.1	31	35,70	32,75	33,80	35,05	4	34,33	1,31	3,83	101,23
26	F15x	4.1	31	34,30	35,20	33,90	34,50	4	34,48	0,54	1,58	101,68
27	F13x	9.1	41	34,40	34,10	35,00	34,60	4	34,53	0,38	1,09	101,82
28	F25x	3.3	31	34,25	34,68	34,65	34,55	4	34,53	0,20	0,57	101,84
29	F05x	5.5	31	34,80	34,70	34,60	35,10	4	34,80	0,22	0,62	102,63
30	F33	5.1	35	33,76	34,12	35,78	36,51	4	35,04	1,32	3,75	103,35
31	A55	5.5	31	35,16	35,14	35,12	34,83	4	35,06	0,16	0,44	103,41
32	A47x	5.1	31	35,50	35,60	34,10	35,40	4	35,15	0,70	2,00	103,67
33	F23	6.4	21.1	36,03	34,34	35,71	35,18	4	35,32	0,74	2,09	104,15
34	F28x	5.1	31	34,55	35,61	35,93	35,30	4	35,35	0,59	1,67	104,25
35	A61x	5.1	31	35,66	35,98	35,49	34,68	4	35,45	0,55	1,56	104,56
36	A53	9.1	42	36,10	36,30	35,90	36,10	4	36,10	0,16	0,45	106,47
37	A82	5.1	31	34,70	37,20	36,10	37,00	4	36,25	1,14	3,14	106,91
38	A46	5.1	35	36,57	36,41	35,72	37,53	4	36,56	0,75	2,04	107,82
39	F32x	5.1	31	36,70	36,50	36,50	36,80	4	36,63	0,15	0,41	108,02
40	F08x	5.5	32	36,32	37,09	36,58	37,18	4	36,79	0,41	1,12	108,51
41	F16x	4.1	31	37,96	34,74	38,74	35,78	4	36,81	1,86	5,06	108,55
42	A57	1	42	37,30	37,87	37,60	37,80	4	37,64	0,26	0,68	111,02
43	F18x	3.1	31	36,70	38,20	42,90	34,80	4	38,15	3,46	9,07	112,51
44	A36	5.1	31	38,80	38,20	37,70	38,00	4	38,18	0,46	1,22	112,59
45	A34	3.3	21.1	45,39	45,39	47,43	46,92	0	46,28	1,05	2,27	136,50
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	176	33,91	0,760	2,242
15	% from the mean			

L	SR	VR
44	2,320	6,841

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A58x	5.5	21.1	11,62	10,25	10,12	11,68	4	10,92	0,85	7,77	79,91
2	A67	3.5	35	10,90	10,60	11,30	11,00	4	10,95	0,29	2,64	80,14
3	A84	3.6	21.1	11,29	11,55	11,38	11,65	4	11,47	0,16	1,42	83,93
4	F02x	5.5	31	11,90	11,60	11,70	11,30	4	11,63	0,25	2,15	85,09
5	A80	5.1	35	12,00	12,70	12,10	11,40	4	12,05	0,53	4,42	88,20
6	A79	5.7	35	12,10	12,30	12,40	12,20	4	12,25	0,13	1,05	89,66
7	F27	3.3	21.1	13,30	12,01	12,93	10,80	4	12,26	1,11	9,09	89,73
8	A51	5.5	31	11,80	12,80	12,40	12,20	4	12,30	0,42	3,38	90,03
9	A45x	6.3	31	12,40	12,60	12,60	12,70	4	12,58	0,13	1,00	92,04
10	F09x	9.1	42	12,58	12,74	12,68	12,63	4	12,66	0,07	0,54	92,64
11	F13x	9.1	41	12,90	12,70	12,50	12,70	4	12,70	0,16	1,29	92,95
12	F07x	4.1	31	13,60	11,57	12,71	13,07	4	12,74	0,86	6,75	93,23
13	A60x	5.1	31	12,22	11,91	14,70	12,55	4	12,84	1,26	9,83	94,01
14	F20x	5.5	31	12,80	12,90	12,90	12,90	4	12,88	0,05	0,39	94,23
15	A61x	5.1	31	13,00	12,94	13,07	13,00	4	13,00	0,05	0,39	95,16
16	A65	4.1	31	13,00	13,10	13,10	13,10	4	13,08	0,05	0,38	95,70
17	A50	3.1	31	13,60	12,70	13,50	13,30	4	13,28	0,40	3,04	97,16
18	A47x	5.1	31	13,60	13,70	12,90	13,00	4	13,30	0,41	3,07	97,35
19	F06x	5.5	31	13,10	13,70	13,30	13,30	4	13,35	0,25	1,89	97,71
20	F14	4.1	31	13,30	13,30	13,50	13,50	4	13,40	0,12	0,86	98,08
21	F08x	5.5	32	13,61	13,53	13,41	13,48	4	13,51	0,08	0,63	98,86
22	A59	0	0	13,19	12,19	12,02	16,73	4	13,53	2,19	16,21	99,05
23	F19x	5.5	31	14,10	13,50	13,00	13,60	4	13,55	0,45	3,33	99,17
24	A75	6.5	31	13,90	13,21	14,32	12,95	4	13,60	0,63	4,62	99,50
25	A83	3.3	31	13,71	14,94	13,06	13,98	4	13,92	0,78	5,61	101,90
26	A39	5.5	31	14,37	13,65	13,90	13,97	4	13,97	0,30	2,13	102,25
27	F12x	4.1	32	14,20	13,80	14,00	14,00	4	14,00	0,16	1,17	102,47
28	F15x	4.1	31	14,00	14,00	14,20	13,90	4	14,03	0,13	0,90	102,65
29	A55	5.5	31	14,47	14,49	13,88	13,88	4	14,18	0,35	2,44	103,79
30	F11	5.1	31	14,50	13,90	14,40	14,20	4	14,25	0,26	1,86	104,30
31	F23	6.4	21.1	14,24	14,45	14,29	14,19	4	14,29	0,11	0,79	104,61
32	F05x	5.5	31	15,00	14,60	14,40	14,30	4	14,58	0,31	2,12	106,68
33	A82	5.1	31	13,50	15,10	15,10	15,00	4	14,68	0,78	5,35	107,41
34	F32x	5.1	31	15,10	14,90	14,60	14,50	4	14,78	0,28	1,86	108,14
35	A53	9.1	42	15,00	14,60	14,70	14,80	4	14,78	0,17	1,16	108,14
36	F28x	5.1	31	14,00	14,80	15,00	15,40	4	14,80	0,59	3,98	108,32
37	A36	5.1	31	14,70	14,90	14,60	15,00	4	14,80	0,18	1,23	108,32
38	F33	5.1	35	15,18	14,89	14,64	15,18	4	14,97	0,26	1,74	109,59
39	F25x	3.3	31	15,26	15,08	14,86	15,07	4	15,07	0,16	1,09	110,28
40	A34	3.3	21.1	14,79	14,79	15,81	15,30	4	15,17	0,49	3,22	111,05
41	F16x	4.1	31	15,16	14,89	15,93	15,28	4	15,32	0,44	2,88	112,09
42	A85	5.1	31	15,20	14,55	17,15	15,55	4	15,61	1,11	7,08	114,27
43	F18x	3.1	31	14,10	15,20	17,80	15,80	4	15,73	1,55	9,87	115,09
44	A46	5.1	35	14,88	17,95	15,24	16,09	4	16,04	1,37	8,55	117,40
45	A57	1	42	15,80	16,13	16,27	16,13	4	16,08	0,20	1,24	117,71
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* = non tolerable mean because more than +/-

limit for low concentration

	N	Mean	SI	VI
all labs	180	13,66	0,464	3,398
20		% from the mean		

L	SR	VR
45	1,309	9,584

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	3.5	35	21,50	22,00	21,70	21,80	0	21,75 b *	0,21	0,96	76,71
2	A84	3.6	21.1	24,57	24,34	24,24	24,30	4	24,36	0,14	0,59	85,92
3	A80	5.1	35	26,20	25,70	23,80	24,30	4	25,00	1,13	4,54	88,17
4	A59	0	0	23,28	25,87	25,77	25,17	4	25,02	1,20	4,80	88,25
5	A75	6.5	31	25,35	25,14	24,82	25,14	4	25,11	0,22	0,87	88,56
6	F07x	4.1	31	27,12	24,59	26,64	26,09	4	26,11	1,10	4,20	92,08
7	A50	3.1	31	26,60	26,60	26,50	25,60	4	26,33	0,49	1,84	92,84
8	A45x	6.3	31	26,80	26,40	26,70	26,00	4	26,48	0,36	1,36	93,37
9	F20x	5.5	31	26,90	26,50	26,50	26,40	4	26,58	0,22	0,83	93,72
10	F02x	5.5	31	27,10	26,70	26,60	27,10	4	26,88	0,26	0,98	94,78
11	A79	5.7	35	27,10	27,10	26,80	26,90	4	26,98	0,15	0,56	95,13
12	F06x	5.5	31	27,20	26,70	27,40	26,80	4	27,03	0,33	1,22	95,31
13	F28x	5.1	31	27,61	26,66	27,19	27,29	4	27,19	0,40	1,46	95,88
14	F19x	5.5	31	27,70	27,70	26,80	26,70	4	27,23	0,55	2,02	96,01
15	F27	3.3	21.1	27,56	27,27	27,31	27,11	4	27,31	0,19	0,68	96,32
16	F08x	5.5	32	27,46	27,91	27,74	27,24	4	27,59	0,30	1,07	97,30
17	F12x	4.1	32	27,40	28,00	27,70	27,70	4	27,70	0,24	0,88	97,69
18	A60x	5.1	31	28,43	25,71	25,58	31,54	4	27,82	2,81	10,10	98,10
19	F14	4.1	31	27,40	27,70	27,70	28,50	4	27,83	0,47	1,70	98,13
20	A58x	5.5	21.1	27,02	28,60	28,43	28,00	4	28,01	0,71	2,53	98,79
21	A39	5.5	31	28,29	28,26	28,23	28,24	4	28,25	0,03	0,09	99,64
22	A51	5.5	31	28,10	28,30	28,60	28,30	4	28,33	0,21	0,73	99,89
23	F09x	9.1	42	28,48	28,58	28,23	28,37	4	28,41	0,15	0,53	100,20
24	A65	4.1	31	28,60	28,70	28,50	28,40	4	28,55	0,13	0,45	100,69
25	F05x	5.5	31	28,70	28,90	28,50	28,20	4	28,58	0,30	1,04	100,77
26	F11	5.1	31	28,20	28,40	28,90	29,00	4	28,63	0,39	1,35	100,95
27	A61x	5.1	31	28,69	28,40	28,60	28,93	4	28,65	0,22	0,77	101,05
28	A82	5.1	31	28,90	28,70	29,60	29,00	4	29,05	0,39	1,33	102,45
29	F15x	4.1	31	29,80	29,40	28,70	28,60	4	29,13	0,57	1,97	102,71
30	A47x	5.1	31	29,10	28,30	29,30	30,50	4	29,30	0,91	3,10	103,33
31	F33	5.1	35	30,56	28,42	29,57	28,75	4	29,33	0,95	3,26	103,42
32	F25x	3.3	31	29,23	29,26	29,96	29,70	4	29,54	0,35	1,20	104,17
33	A55	5.5	31	29,42	29,84	29,61	29,59	4	29,62	0,17	0,58	104,44
34	F16x	4.1	31	31,61	30,30	29,79	27,08	4	29,70	1,90	6,41	104,72
35	F18x	3.1	31	29,10	31,60	29,30	28,80	4	29,70	1,28	4,32	104,74
36	A85	5.1	31	30,25	28,35	27,30	34,10	4	30,00	2,99	9,98	105,80
37	F23	6.4	21.1	30,92	30,08	30,40	28,71	4	30,03	0,94	3,14	105,90
38	A83	3.3	31	28,79	32,31	30,71	28,66	4	30,12	1,74	5,77	106,21
39	F13x	9.1	41	30,00	30,30	30,40	30,10	4	30,20	0,18	0,60	106,51
40	A46	5.1	35	30,68	30,50	31,04	30,92	4	30,79	0,24	0,79	108,57
41	A53	9.1	42	31,20	30,90	31,00	31,00	4	31,03	0,13	0,41	109,42
42	F32x	5.1	31	31,60	31,50	31,60	31,40	4	31,53	0,10	0,30	111,18
43	A36	5.1	31	31,80	31,50	31,60	31,40	4	31,58	0,17	0,54	111,36
44	A57	1	42	32,57	32,70	32,77	32,97	4	32,75 *	0,17	0,51	115,51
45	A34	3.3	21.1	35,70	35,19	38,25	37,23	0	36,59 b *	1,40	3,84	129,05
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	172	28,36	0,602
15	% from the mean		2,123

L	SR	VR
43	1,893	6,677

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A67	3.5	35	18,10	16,50	18,40	17,00	0	17,50 b *	0,90	5,13	75,73
2	A80	5.1	35	19,50	20,30	19,10	18,80	4	19,43 *	0,65	3,35	84,06
3	A84	3.6	21.1	19,41	19,45	19,40	19,48	4	19,43 *	0,04	0,20	84,09
4	F07x	4.1	31	22,19	19,64	21,83	21,20	4	21,22	1,13	5,31	91,80
5	F20x	5.5	31	21,70	21,70	21,60	21,30	4	21,58	0,19	0,88	93,36
6	F19x	5.5	31	21,70	21,80	21,60	21,90	4	21,75	0,13	0,59	94,12
7	A79	5.7	35	21,60	21,90	21,70	21,80	4	21,75	0,13	0,59	94,12
8	F06x	5.5	31	22,50	21,80	21,10	21,90	4	21,83	0,57	2,63	94,44
9	A50	3.1	31	21,60	22,50	21,80	21,60	4	21,88	0,43	1,95	94,66
10	A75	6.5	31	22,91	22,18	21,03	21,39	4	21,88	0,84	3,84	94,67
11	F27	3.3	21.1	22,06	21,57	22,66	21,38	4	21,92	0,57	2,61	94,84
12	A45x	6.3	31	21,10	22,80	22,00	21,80	4	21,93	0,70	3,19	94,87
13	F14	4.1	31	21,70	21,90	22,00	22,70	4	22,08	0,43	1,97	95,52
14	F08x	5.5	32	22,16	21,97	22,31	22,05	4	22,12	0,15	0,67	95,73
15	A47x	5.1	31	22,10	22,50	22,40	21,70	4	22,18	0,36	1,62	95,96
16	A60x	5.1	31	21,92	21,00	22,76	23,56	4	22,31	1,10	4,94	96,54
17	F02x	5.5	31	20,10	22,50	23,30	24,20	4	22,53	1,76	7,81	97,47
18	F12x	4.1	32	22,40	23,00	22,40	22,60	4	22,60	0,28	1,25	97,80
19	A51	5.5	31	22,60	23,00	22,60	22,50	4	22,68	0,22	0,98	98,12
20	A39	5.5	31	22,93	22,82	22,88	22,66	4	22,82	0,12	0,51	98,77
21	F23	6.4	21.1	22,45	22,97	23,08	23,18	4	22,92	0,32	1,42	99,18
22	A65	4.1	31	23,10	22,80	22,90	22,90	4	22,93	0,13	0,55	99,20
23	A85	5.1	31	24,45	22,20	21,60	23,75	4	23,00	1,32	5,76	99,53
24	F11	5.1	31	23,60	22,90	22,80	22,90	4	23,05	0,37	1,60	99,74
25	A55	5.5	31	23,01	23,03	22,79	23,43	4	23,07	0,27	1,16	99,81
26	A61x	5.1	31	23,09	23,48	23,13	23,13	4	23,21	0,18	0,80	100,43
27	F33	5.1	35	22,54	24,18	22,86	23,38	4	23,24	0,72	3,08	100,56
28	F28x	5.1	31	22,98	23,70	22,98	23,62	4	23,32	0,39	1,68	100,92
29	F05x	5.5	31	23,80	23,30	23,30	23,40	4	23,45	0,24	1,02	101,47
30	A59	0	0	29,35	20,20	22,78	22,40	0	23,68 c	3,95	16,66	102,48
31	F15x	4.1	31	24,10	23,70	24,10	23,30	4	23,80	0,38	1,61	102,99
32	F18x	3.1	31	23,30	23,00	24,70	24,80	4	23,95	0,93	3,89	103,64
33	A83	3.3	31	21,28	24,69	23,16	26,81	4	23,99	2,34	9,77	103,79
34	F13x	9.1	41	23,70	24,20	24,00	24,10	4	24,00	0,22	0,90	103,85
35	A46	5.1	35	23,59	24,24	24,23	27,61a	3	24,02	0,37	1,55	103,94
36	A82	5.1	31	23,80	24,60	24,30	24,40	4	24,28	0,34	1,40	105,04
37	F16x	4.1	31	23,69	24,08	25,04	24,62	4	24,36	0,59	2,44	105,40
38	F25x	3.3	31	24,01	25,94	24,03	24,36	4	24,59	0,92	3,73	106,38
39	A53	9.1	42	24,70	24,70	24,70	24,30	4	24,60	0,20	0,81	106,45
40	F09x	9.1	42	25,15	24,86	25,02	24,91	4	24,99	0,13	0,51	108,12
41	A36	5.1	31	25,40	24,10	25,50	25,50	4	25,13	0,68	2,73	108,72
42	F32x	5.1	31	25,70	25,40	25,60	25,20	4	25,48	0,22	0,87	110,24
43	A58x	5.5	21.1	25,11	25,76	25,34	26,32	4	25,63	0,53	2,07	110,92
44	A57	1	42	25,80	25,70	25,83	25,83	4	25,79	0,06	0,24	111,60
45	A34	3.3	21.1	25,75	26,27	28,33	28,84	4	27,30 *	1,52	5,55	118,12
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	171	23,11	0,539	2,333
15	% from the mean			

L	SR	VR
43	1,574	6,811

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	882	770	828	821	0	825	b *	45,63	5,53	79,36
2	F27	3.3	21.1	948	874	832	848	4	875	*	51,14	5,84	84,21
3	A59	0	0	979	982	881	873	4	929		59,43	6,40	89,34
4	A84	3.6	21.1	939	935	928	940	4	936		5,77	0,62	90,00
5	A43	3.3	21.1	974	943	969	972	4	965		14,48	1,50	92,78
6	A45x	6.3	31	996	962	1000	968	4	982		19,28	1,96	94,41
7	A39	5.5	31	982	969	1013	964	4	982		21,92	2,23	94,46
8	F11	5.1	31	976	1000	981	983	4	985		10,42	1,06	94,75
9	F12x	5.1	32	980	989	988	990	4	987		4,57	0,46	94,92
10	A60x	5.1	31	983	993	974	998	4	987		10,74	1,09	94,93
11	A67	3.5	35	1000	978	974	1000	4	988		13,95	1,41	95,04
12	F14	4.1	31	988	990	993	992	4	991		2,22	0,22	95,30
13	F15x	4.1	31	1011	1008	984	1002	4	1001		12,09	1,21	96,31
14	A79	5.7	35	997	999	1008	1016	4	1005		8,76	0,87	96,67
15	F23	6.4	31	1027	990	1014	1011	4	1011		15,33	1,52	97,20
16	A50	3.1	31	1035	1019	1016	1017	4	1022		8,92	0,87	98,28
17	F18x	3.1	31	1030	1030	1030	1030	4	1030		0,00	0,00	99,08
18	A80	5.1	35	1057	1006	1038	1036	4	1034		21,08	2,04	99,48
19	F08x	5.5	32	1025	1048	1031	1040	4	1036		10,25	0,99	99,67
20	F06x	5.5	31	1040	1060	1020	1030	4	1038		17,08	1,65	99,80
21	A56	4.1	31	1034	1047	1044	1037	4	1041		6,03	0,58	100,09
22	F19x	5.5	31	1050	1020	1050	1050	4	1043		15,00	1,44	100,28
23	A46	5.1	35	1035	1033	1049	1068	4	1046		16,15	1,54	100,64
24	A61x	5.1	31	1066	1055	1066	1044	4	1058		10,36	0,98	101,73
25	F28x	5.1	31	1038	1044	1084	1074	4	1060		22,67	2,14	101,94
26	F09x	9.1	42	1061	1072	1049	1056	4	1060		9,62	0,91	101,95
27	F20x	5.5	31	1050	1060	1060	1070	4	1060		8,16	0,77	101,96
28	A58x	5.5	21.1	1055	1035	1092	1068	4	1063		23,66	2,23	102,21
29	A75	6.5	31	1038	1100	1135	984	4	1064		66,96	6,29	102,37
30	F05x	5.5	31	1070	1070	1070	1070	4	1070		0,00	0,00	102,92
31	A57	1	42	1062	1070	1073	1076	4	1070		6,02	0,56	102,95
32	A53	9.1	42	1070	1070	1071	1072	4	1071		0,77	0,07	102,99
33	A82	5.1	31	1039	1080	1079	1093	4	1073		23,39	2,18	103,19
34	A47x	5.1	31	1078	1076	1071	1085	4	1078		5,80	0,54	103,64
35	A83	3.3	31	1111	1071	1028	1140	4	1088		48,72	4,48	104,61
36	F13x	5.1	31	1084	1084	1094	1094	4	1089		5,77	0,53	104,75
37	A65	4.1	31	1093	1100	1089	1107	4	1097		7,93	0,72	105,54
38	F02x	5.5	31	1096	1102	1098	1096	4	1098		2,83	0,26	105,62
39	F33	5.1	35	1052	1065	1120	1164	4	1100		52,01	4,73	105,81
40	F07x	4.1	31	1120	1024	1121	1141	4	1102		52,56	4,77	105,95
41	A51	5.5	31	1110	1123	1108	1099	4	1110		9,90	0,89	106,77
42	A55	5.5	31	1108	1123	1126	1111	4	1117		8,83	0,79	107,44
43	F16x	4.1	31	1092	1180	1138	1118	4	1132		37,13	3,28	108,89
44	A36	5.1	31	1136	1133	1135	1135	4	1135		1,26	0,11	109,15
45	F32x	5.1	31	1235	1234	1241	1230	0	1235	b *	4,55	0,37	118,79
46	A34	3.3	21.1	1316	1306	1285	1295	0	1301	b *	13,17	1,01	125,09
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	172	1039,6	17,418	1,675
15	% from the mean			

L	SR	VR
43	56,806	5,464

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F15x	4.1	31	32,00	31,00	36,00	31,00	4	32,50	2,38	7,32	85,16
2	F27	3.3	21.1	34,71	32,09	29,18	36,71	4	33,17	3,27	9,84	86,92
3	F19x	5.5	31	33,70	33,00	33,60	33,20	4	33,38	0,33	0,99	87,45
4	A84	3.6	21.1	32,85	33,89	33,95	32,87	4	33,39	0,61	1,83	87,49
5	F20x	5.5	31	33,20	33,50	33,40	33,50	4	33,40	0,14	0,42	87,51
6	A58x	5.5	21.1	33,51	33,47	33,60	33,31	4	33,47	0,12	0,36	87,70
7	A34	3.3	21.1	33,66	34,68	34,68	33,66	4	34,17	0,59	1,72	89,53
8	A83	3.3	31	33,22	34,42	33,55	36,19	4	34,35	1,33	3,87	89,99
9	F02x	5.5	31	36,00	35,00	34,00	33,00	4	34,50	1,29	3,74	90,40
10	A47x	5.1	31	35,90	34,90	35,70	32,30	4	34,70	1,66	4,78	90,92
11	A43	3.3	21.1	35,21	35,21	33,70	35,20	4	34,83	0,75	2,16	91,26
12	F11	5.1	31	35,10	34,80	36,50	35,70	4	35,53	0,75	2,11	93,08
13	F14	4.1	31	35,50	35,70	35,60	36,00	4	35,70	0,22	0,61	93,54
14	A85	5.1	31	36,10	38,95	35,75	37,05	4	36,96	1,43	3,88	96,85
15	A61x	5.1	31	36,99	37,44	36,89	36,80	4	37,03	0,28	0,77	97,03
16	A60x	5.1	31	36,79	37,36	37,22	37,46	4	37,21	0,30	0,79	97,49
17	A67	3.5	35	36,80	36,80	37,70	38,60	4	37,48	0,86	2,30	98,19
18	F18x	3.1	31	37,60	37,60	37,20	37,70	4	37,53	0,22	0,59	98,32
19	F28x	5.1	31	39,60	37,46	36,39	37,46	4	37,73	1,35	3,57	98,85
20	F23	6.4	31	36,99	38,63	38,10	38,00	4	37,93	0,68	1,81	99,38
21	F08x	5.5	32	37,58	37,88	38,31	38,15	4	37,98	0,32	0,84	99,51
22	A79	5.7	35	37,60	38,60	39,20	38,20	4	38,40	0,67	1,75	100,62
23	A45x	6.3	31	38,50	38,40	38,50	38,30	4	38,43	0,10	0,25	100,68
24	A82	5.1	31	37,60	38,80	39,40	38,70	4	38,63	0,75	1,94	101,21
25	F05x	5.5	31	38,70	38,70	38,50	38,90	4	38,70	0,16	0,42	101,40
26	A39	5.5	31	41,29	38,23	37,61	38,70	4	38,96	1,62	4,15	102,07
27	F33	5.1	35	40,00	39,70	38,30	38,90	4	39,23	0,77	1,97	102,78
28	F13x	5.1	31	39,20	39,60	39,60	39,40	4	39,45	0,19	0,49	103,37
29	F06x	5.5	31	40,00	40,20	39,90	39,60	4	39,93	0,25	0,63	104,61
30	F09x	9.1	42	39,96	39,88	40,15	40,13	4	40,03	0,13	0,33	104,89
31	F12x	5.1	32	41,00	39,70	39,70	40,00	4	40,10	0,62	1,54	105,07
32	A56	4.1	31	41,00	41,00	40,00	39,00	4	40,25	0,96	2,38	105,46
33	A51	5.5	31	40,40	40,10	39,90	41,60	4	40,50	0,76	1,88	106,12
34	A36	5.1	31	41,00	40,40	40,70	40,50	4	40,65	0,26	0,65	106,51
35	A50	3.1	31	41,70	41,80	40,20	39,80	4	40,88	1,02	2,51	107,10
36	A55	5.5	31	41,56	41,41	40,64	40,27	4	40,97	0,62	1,51	107,35
37	A65	4.1	31	42,00	41,00	41,00	41,00	4	41,25	0,50	1,21	108,08
38	A53	9.1	42	42,10	41,20	42,00	41,40	4	41,68	0,44	1,06	109,20
39	F16x	4.1	31	41,17	42,42	41,85	42,17	4	41,90	0,54	1,29	109,79
40	F32x	5.1	31	42,40	41,90	41,90	42,90	4	42,28	0,48	1,13	110,77
41	A80	5.1	35	41,20	43,80	42,90	41,40	4	42,33	1,24	2,93	110,90
42	A57	1	42	42,77	43,03	43,20	43,03	4	43,01	0,18	0,41	112,69
43	A46	5.1	35	40,23	43,00	46,54	42,77	4	43,14	2,59	6,01	113,02
44	A59	0	0	55,28a	48,19	48,09	48,34	3	48,21	0,13	0,26	126,31
45	F07x	4.1	31	53,15	45,70	47,23	52,74	0	49,71	b	*	130,24
46	A75	6.5	31	72,95	99,38	86,69	66,07	0	81,27	b	*	212,95
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	175	38,17	0,770
15	% from the mean		2,017

L	SR	VR
44	3,399	8,893

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F15x	4.1	31	22,00	25,00	28,00	20,00	4	23,75	*	3,50	14,74	79,41
2	F02x	5.5	31	26,00	25,00	24,00	24,00	4	24,75	*	0,96	3,87	82,75
3	A47x	5.1	31	24,70	24,50	25,60	25,60	4	25,10	*	0,58	2,32	83,92
4	A83	3.3	31	24,17	26,89	26,61	24,58	4	25,56		1,39	5,42	85,46
5	A43	3.3	21.1	26,81	26,29	26,29	26,31	4	26,43		0,26	0,97	88,35
6	F27	3.3	21.1	27,53	27,37	25,51	28,70	4	27,28		1,32	4,84	91,20
7	F19x	5.5	31	27,50	27,60	27,70	27,50	4	27,58		0,10	0,35	92,19
8	F20x	5.5	31	28,00	27,30	27,30	27,80	4	27,60		0,36	1,29	92,28
9	A67	3.5	35	27,60	28,10	28,30	28,50	4	28,13		0,39	1,37	94,03
10	A84	3.6	21.1	29,96	28,02	27,82	26,94	4	28,18		1,28	4,53	94,23
11	F18x	3.1	31	29,20	29,10	27,00	29,60	4	28,73		1,17	4,07	96,04
12	F28x	5.1	31	28,65	28,56	28,56	29,62	4	28,85		0,52	1,79	96,45
13	F11	5.1	31	29,10	28,20	29,00	29,20	4	28,88		0,46	1,58	96,54
14	F07x	4.1	31	31,38	25,95	30,34	29,07	4	29,19		2,35	8,07	97,58
15	A39	5.5	31	29,77	29,41	29,71	29,65	4	29,63		0,16	0,53	99,08
16	A82	5.1	31	28,20	29,80	30,80	30,20	4	29,75		1,11	3,74	99,47
17	F14	4.1	31	30,00	30,20	29,50	29,40	4	29,78		0,39	1,30	99,55
18	A34	3.3	21.1	30,60	29,58	30,60	29,58	4	30,09		0,59	1,96	100,60
19	F09x	9.1	42	29,83	29,96	30,37	30,48	4	30,16		0,31	1,04	100,84
20	F12x	5.1	32	29,50	31,30	29,90	30,00	4	30,18		0,78	2,59	100,89
21	A79	5.7	35	30,20	29,90	30,60	30,30	4	30,25		0,29	0,95	101,14
22	A61x	5.1	31	29,85	30,46	30,43	30,32	4	30,27		0,28	0,94	101,19
23	F33	5.1	35	31,30	28,90	30,60	30,50	4	30,33		1,01	3,35	101,39
24	A45x	6.3	31	30,30	30,10	30,50	30,50	4	30,35		0,19	0,63	101,47
25	F05x	5.5	31	30,60	30,60	30,30	30,30	4	30,45		0,17	0,57	101,81
26	F23	6.4	31	30,40	30,71	30,29	30,50	4	30,48		0,18	0,59	101,89
27	A46	5.1	35	29,88	30,55	31,00	30,96	4	30,60		0,52	1,70	102,30
28	F13x	5.1	31	30,40	31,00	31,10	30,50	4	30,75		0,35	1,14	102,81
29	A55	5.5	31	30,58	30,87	30,66	30,98	4	30,77		0,18	0,60	102,88
30	A80	5.1	35	32,10	31,20	30,00	30,60	4	30,98		0,90	2,89	103,56
31	A56	4.1	31	31,00	32,00	31,00	30,00	4	31,00		0,82	2,63	103,64
32	A51	5.5	31	31,90	30,70	30,80	30,80	4	31,05		0,57	1,83	103,81
33	F08x	5.5	32	31,07	31,16	31,43	31,30	4	31,24		0,16	0,50	104,45
34	A85	5.1	31	30,40	32,70	30,30	31,90	4	31,33		1,17	3,74	104,73
35	A58x	5.5	21.1	32,10	30,52	31,98	30,76	4	31,34		0,82	2,60	104,78
36	F16x	4.1	31	29,53	33,37	31,14	32,88	4	31,73		1,75	5,52	106,09
37	A65	4.1	31	33,00	31,00	32,00	31,00	4	31,75		0,96	3,02	106,15
38	F06x	5.5	31	31,60	31,70	33,20	31,30	4	31,95		0,85	2,66	106,82
39	A60x	5.1	31	29,54	28,73	36,88	32,76	4	31,98		3,70	11,57	106,91
40	A50	3.1	31	32,30	31,80	34,50	31,70	4	32,58		1,31	4,02	108,91
41	A36	5.1	31	32,50	32,50	33,60	33,30	4	32,98		0,56	1,70	110,25
42	A53	9.1	42	34,20	33,50	34,00	33,30	4	33,75		0,42	1,25	112,84
43	F32x	5.1	31	33,90	34,00	33,80	33,90	4	33,90		0,08	0,24	113,34
44	A57	1	42	34,67	34,67	34,93	34,53	4	34,70	*	0,17	0,48	116,01
45	A59	0	0	39,82	40,91	41,36	40,54	0	40,66	b *	0,65	1,60	135,93
46	A75	6.5	31	69,13	53,42	61,80	57,09	0	60,36	b *	6,78	11,23	201,81
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	176	29,91	0,804	2,687
15	% from the mean			

L	SR	VR
44	2,386	7,978

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	931	873	927	893	0	906	b *	27,83	3,07	77,91
2	F27	3.3	21.1	996	946	982	1084	4	1002		58,29	5,82	86,22
3	A67	3.5	35	1030	998	1030	1010	4	1017		15,79	1,55	87,51
4	A84	3.6	21.1	1032	1013	1016	1021	4	1021		8,41	0,82	87,81
5	A39	5.5	31	1061	1071	1052	1069	4	1063		8,55	0,80	91,50
6	A59	0	0	1158	1033	1074	1070	4	1084		52,96	4,89	93,25
7	A45x	6.3	31	1080	1120	1140	1020	4	1090		52,92	4,85	93,79
8	F15x	4.1	31	1125	1100	1099	1069	4	1098		22,91	2,09	94,50
9	A60x	5.1	31	1080	1097	1122	1098	4	1099		17,43	1,59	94,58
10	A43	3.3	21.1	1094	1109	1104	1110	4	1104		7,32	0,66	95,01
11	F11	5.1	31	1110	1130	1090	1090	4	1105		19,15	1,73	95,08
12	F14	4.1	31	1101	1110	1112	1112	4	1109		5,25	0,47	95,40
13	F12x	5.1	32	1138	1127	1112	1130	4	1127		10,87	0,97	96,95
14	F06x	5.5	31	1180	1150	1040	1150	4	1130		61,64	5,46	97,23
15	A80	5.1	35	1142	1158	1118	1105	4	1131		23,77	2,10	97,29
16	A50	3.1	31	1138	1122	1145	1127	4	1133	10,42	0,92	97,49	
17	F08x	5.5	32	1127	1134	1149	1141	4	1138	9,51	0,84	97,91	
18	F18x	3.1	31	1140	1140	1140	1150	4	1143	5,00	0,44	98,30	
19	A46	5.1	35	1139	1092	1159	1196	4	1147	43,33	3,78	98,65	
20	A56	4.1	31	1157	1144	1154	1139	4	1149	8,43	0,73	98,82	
21	A75	6.5	31	1161	1212	1106	1134	4	1153	45,42	3,94	99,23	
22	A61x	5.1	31	1150	1158	1158	1155	4	1155	4,06	0,35	99,40	
23	F09x	9.1	42	1143	1164	1156	1162	4	1156	9,50	0,82	99,51	
24	A82	5.1	31	1128	1187	1165	1178	4	1165	25,96	2,23	100,20	
25	F20x	5.5	31	1160	1180	1180	1170	4	1173	9,57	0,82	100,89	
26	F19x	5.5	31	1170	1170	1170	1190	4	1175	10,00	0,85	101,10	
27	F05x	5.5	31	1180	1180	1190	1190	4	1185	5,77	0,49	101,96	
28	F23	6.4	31	1180	1185	1206	1185	4	1189	11,58	0,97	102,31	
29	A57	1	42	1183	1189	1194	1192	4	1190	4,80	0,40	102,35	
30	A65	4.1	31	1202	1191	1205	1187	4	1196	8,62	0,72	102,93	
31	A53	9.1	42	1203	1204	1199	1203	4	1202	2,22	0,18	103,45	
32	F28x	5.1	31	1202	1192	1202	1224	4	1205	13,39	1,11	103,69	
33	F13x	5.1	31	1202	1212	1212	1202	4	1207	5,77	0,48	103,85	
34	A58x	5.5	21.1	1204	1204	1199	1230	4	1209	14,16	1,17	104,04	
35	F33	5.1	35	1168	1244	1201	1229	4	1210	33,50	2,77	104,14	
36	A79	5.7	35	1194	1224	1209	1215	4	1211	12,61	1,04	104,16	
37	A47x	5.1	31	1225	1234	1201	1194	4	1214	19,05	1,57	104,41	
38	F07x	4.1	31	1235	1139	1275	1270	4	1230	63,06	5,13	105,81	
39	A51	5.5	31	1244	1231	1238	1225	4	1235	8,27	0,67	106,22	
40	A36	5.1	31	1247	1216	1234	1266	4	1241	21,09	1,70	106,76	
41	F02x	5.5	31	1138	1278	1252	1313	4	1245	75,74	6,08	107,15	
42	F16x	4.1	31	1256	1310	1161	1294	4	1255	66,79	5,32	108,01	
43	A83	3.3	31	1161	1356	1288	1239	4	1261	82,13	6,51	108,50	
44	A55	5.5	31	1275	1270	1260	1275	4	1270	7,07	0,56	109,28	
45	A34	3.3	21.1	1370	1370	1380,2σ	1370	3	1370	*	0,00	0,00	117,87
46	F32x	5.1	31	1398	1398	1407	1403	0	1402	b *	4,36	0,31	120,59
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	175	1162,2	22,775	1,960
15	% from the mean			

L	SR	VR
44	72,422	6,225

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	44,95	42,55	41,75	43,40	0	43,16	b *	1,37	66,18
2	A84	3.6	21.1	49,26	49,44	48,48	48,44	0	48,91	b *	0,52	74,99
3	F20x	5.5	31	58,00	57,60	56,70	56,20	4	57,13		0,82	87,59
4	F27	3.3	21.1	54,36	60,34	63,26	53,88	4	57,96		4,60	88,88
5	A53	9.1	42	57,80	58,80	56,70	59,10	4	58,10		1,09	89,09
6	A45	6.3	31	59,00	59,80	57,50	58,10	4	58,60		1,01	89,86
7	F19x	5.5	31	57,80	55,20	65,70	56,80	4	58,88		4,67	90,28
8	A55	5.5	35	60,80	58,63	59,33	59,59	4	59,59		0,90	91,37
9	F11	4.1	31	60,60	60,10	60,20	61,10	4	60,50		0,45	92,77
10	F13x	5.1	31	62,00	62,50	60,50	59,10	4	61,03		1,54	93,57
11	F12x	4.1	32	58,00	60,00	67,00	60,00	4	61,25		3,95	93,92
12	F02x	5.5	31	61,00	62,00	63,00	60,00	4	61,50		1,29	94,30
13	F18x	3.1	31	64,90	62,20	60,80	58,90	4	61,70		2,53	94,61
14	A59	0	0	68,30	71,29	54,87	54,38	4	62,21		8,85	95,39
15	A60x	5.1	31	61,86	85,004a	60,82	64,26	3	62,32		1,76	95,55
16	A67	3.5	35	70,20	62,00	60,20	57,50	4	62,48		5,47	95,80
17	A58x	5.5	21.1	62,15	63,70	68,40	61,82	4	64,02		3,03	98,16
18	F07x	4.1	31	64,49	57,14	66,06	69,33	4	64,26		5,15	98,53
19	F15x	4.1	31	66,00	64,00	64,00	64,00	4	64,50		1,00	98,90
20	A79	5.7	35	61,70	65,20	62,80	69,10	4	64,70		3,28	99,21
21	F09x	9.1	42	67,43	63,64	65,29	63,29	4	64,91		1,89	99,54
22	A39	5.5	31	63,87	66,41	63,90	65,66	4	64,96		1,28	99,61
23	F05x	5.5	31	66,20	65,20	64,70	64,30	4	65,10		0,82	99,82
24	A82	5.1	31	64,40	63,90	66,10	66,60	4	65,25		1,30	100,05
25	F14	4.1	31	65,80	65,20	66,50	65,40	4	65,73		0,57	100,78
26	F06x	5.5	31	66,10	67,40	64,50	65,30	4	65,83		1,24	100,94
27	A83	3.3	31	64,87	64,66	67,81	67,39	4	66,18		1,65	101,48
28	A61x	5.1	31	65,95	66,54	67,32	67,30	4	66,78		0,66	102,40
29	F25x	3.3	31	64,64	65,15	69,57	68,09	4	66,86		2,36	102,53
30	F23	6.4	21.1	67,52	67,52	66,21	67,08	4	67,08		0,62	102,86
31	A80	5.1	35	68,50	64,10	67,30	68,50	4	67,10		2,08	102,89
32	F28x	5.1	31	68,60	64,50	68,50	67,00	4	67,15		1,91	102,97
33	F16x	4.1	31	64,28	66,76	69,05	69,89	4	67,50		2,52	103,50
34	F08x	5.5	32	68,09	67,14	67,54	67,73	4	67,63		0,39	103,70
35	A47x	5.1	31	70,60	67,90	70,90	65,30	4	68,68		2,62	105,31
36	A50	3.1	31	68,20	69,30	68,60	69,10	4	68,80		0,50	105,50
37	A46	5.1	35	69,84	71,35	69,72	64,86	4	68,94		2,82	105,72
38	A65	4.1	31	71,00	71,00	69,00	69,00	4	70,00		1,15	107,34
39	F32x	5.1	31	72,90	71,00	70,00	69,90	4	70,95		1,39	108,79
40	A36	5.1	31	76,00	73,60	72,70	71,30	4	73,40		1,97	112,55
41	F33	5.1	35	70,70	72,00	75,10	80,10	4	74,48		4,18	114,20
42	A57	1	42	74,63	74,67	74,90	77,07a	3	74,73		0,15	114,60
43	A51	5.5	31	78,60	76,40	76,30	75,70	4	76,75		1,27	117,69
44	A56	4.1	32	90,00	81,00	83,00	85,00	0	84,75	b *	3,86	129,95
45	A34	3.3	21.1	104,04	96,90	104,04	98,94	0	101,0	b *	3,63	154,84
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	162	65,22	2,116
20	% from the mean		3,244

L	SR	VR
41	4,727	7,243

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	49,45	50,05	48,85	49,85	0	49,55	b *	0,53	63,69
2	A84	3.6	21.1	61,22	61,30	61,40	61,26	4	61,29	*	0,08	78,78
3	F20x	5.5	31	66,10	67,30	65,70	67,20	4	66,58		0,80	85,57
4	F19x	5.5	31	66,70	65,90	68,50	66,70	4	66,95		1,10	86,05
5	A50	3.1	31	68,20	68,40	69,50	68,20	4	68,58		0,62	88,14
6	F12x	4.1	32	69,00	68,00	69,00	69,00	4	68,75		0,50	88,37
7	F27	3.3	21.1	68,72	68,71	74,33	70,46	4	70,56		2,65	90,69
8	A67	3.5	35	73,00	71,70	72,20	68,70	4	71,40		1,88	91,77
9	A58x	5.5	21.1	74,05	69,25	73,46	70,50	4	71,82		2,31	92,30
10	A59	0	0	81,37	72,49	70,00	66,53	4	72,60		6,34	93,31
11	A39	5.5	31	72,17	72,77	73,49	72,64	4	72,77		0,55	93,53
12	F13x	5.1	31	73,80	73,20	73,40	71,30	4	72,93		1,11	93,73
13	F18x	3.1	31	73,30	71,70	73,10	77,20	4	73,83		2,36	94,89
14	F02x	5.5	31	75,00	76,00	76,00	72,00	4	74,75		1,89	96,08
15	A61x	5.1	31	74,88	74,86	74,98	74,95	4	74,92		0,06	96,29
16	A53	9.1	42	77,00	77,40	74,90	77,10	4	76,60		1,15	98,45
17	F06x	5.5	31	76,10	77,00	77,10	76,50	4	76,68		0,46	98,55
18	F05x	5.5	31	77,60	77,00	76,80	76,20	4	76,90		0,58	98,84
19	F14	4.1	31	78,60	75,90	78,30	75,60	4	77,10		1,57	99,10
20	F07x	4.1	31	82,50	69,70	78,37	77,90	4	77,12		5,36	99,12
21	A60x	5.1	31	73,40	74,73	84,15	76,24	4	77,13		4,82	99,14
22	F08x	5.5	32	78,41	77,34	77,78	78,68	4	78,05		0,60	100,32
23	A45	6.3	31	77,60	79,10	78,80	78,80	4	78,58		0,67	100,99
24	A79	5.7	35	77,60	79,70	78,90	78,70	4	78,73		0,87	101,19
25	A82	5.1	31	77,80	80,20	79,90	79,20	4	79,28		1,07	101,89
26	F28x	5.1	31	79,90	80,50	79,70	77,70	4	79,45		1,22	102,12
27	A47x	5.1	31	82,60	80,00	78,60	78,90	4	80,03		1,82	102,86
28	F11	4.1	31	79,90	78,30	82,70	81,40	4	80,58		1,90	103,56
29	F15x	4.1	31	82,00	81,00	80,00	80,00	4	80,75		0,96	103,79
30	A83	3.3	31	79,96	81,56	76,47	87,16	4	81,29		4,45	104,48
31	F23	6.4	21.1	84,70	83,30	78,70	78,70	4	81,35		3,11	104,56
32	F09x	9.1	42	83,77	85,46	78,97	81,88	4	82,52		2,78	106,06
33	A55	5.5	35	83,89	83,32	79,28	84,11	4	82,65		2,27	106,23
34	A65	4.1	31	84,00	82,00	85,00	82,00	4	83,25		1,50	107,00
35	F16x	4.1	31	85,56	80,36	80,21	87,29	4	83,36		3,62	107,14
36	F25x	3.3	31	83,64	83,39	85,24	86,99	4	84,82		1,67	109,01
37	A36	5.1	31	85,90	86,70	86,10	85,00	4	85,93		0,70	110,44
38	F32x	5.1	31	85,40	86,20	86,30	85,90	4	85,95		0,40	110,47
39	A80	5.1	35	84,70	88,90	86,30	84,10	4	86,00		2,14	110,54
40	A46	5.1	35	89,25	90,01	86,25	87,85	4	88,34		1,66	113,54
41	A51	5.5	31	87,90	90,80	87,80	87,70	4	88,55		1,50	113,81
42	A56	4.1	32	89,00	95,00	92,00	89,00	4	91,25		2,87	117,28
43	A57	1	42	112,40	112,50	112,70	111,30	0	112,5	b *	0,15	144,64
44	A34	3.3	21.1	121,38	118,32	116,28	121,38	0	119,3	b *	2,50	153,39
45	F33	5.1	35	163,00	164,80	161,50	159,60	0	162,2	b *	2,21	208,51
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	164	77,80	1,804	2,319
20		% from the mean		
L			SR	VR
41			6,600	8,483

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A85	5.1	31	105,35	97,55	94,45	91,45	0	97,20	b	*	66,92
2	A84	3.6	21.1	105,21	102,38	108,59	104,81	4	105,24	*	*	72,46
3	A50	3.1	31	110,00	113,00	113,00	120,00	4	114,00	*	*	78,49
4	F27	3.3	21.1	122,45	123,34	129,69	130,29	4	126,44			87,05
5	F19x	5.5	31	124,00	128,00	130,00	124,00	4	126,50			87,09
6	A59	0	0	125,60	139,50	121,10	120,30	4	126,63			87,18
7	A67	3.5	35	129,00	129,00	129,00	125,00	4	128,00			88,13
8	F20x	5.5	31	127,00	125,00	134,00	128,00	4	128,50			88,47
9	F13x	5.1	31	134,50	133,50	130,30	129,30	4	131,90			90,81
10	F12x	4.1	32	132,00	136,00	135,00	135,00	4	134,50			92,60
11	A45	6.3	31	137,00	138,00	136,00	136,00	4	136,75			94,15
12	F18x	3.1	31	138,00	140,00	134,00	139,00	4	137,75			94,84
13	F05x	5.5	31	141,00	140,00	138,00	138,00	4	139,25			95,87
14	A60x	5.1	31	140,33	133,03	143,02	144,96	4	140,33			96,62
15	F15x	4.1	31	144,00	156,00	138,00	134,00	4	143,00			98,45
16	A39	5.5	31	140,25	141,42	144,05	147,81	4	143,38			98,72
17	F28x	5.1	31	143,90	144,90	146,00	142,80	4	144,40			99,42
18	F02x	5.5	31	147,00	141,00	145,00	145,00	4	144,50			99,49
19	F06x	5.5	31	145,00	145,00	145,00	144,00	4	144,75			99,66
20	A61x	5.1	31	144,60	144,20	145,81	145,16	4	144,94			99,79
21	A58x	5.5	21.1	147,85	143,48	148,48	141,86	4	145,42			100,12
22	A83	3.3	31	149,10	143,20	146,50	142,90	4	145,43			100,12
23	F07x	4.1	31	147,50	135,50	152,90	149,00	4	146,23			100,67
24	F11	4.1	31	146,00	153,00	143,00	144,00	4	146,50			100,86
25	F16x	4.1	31	145,80	153,30	142,50	146,90	4	147,13			101,29
26	F23	6.4	21.1	149,20	145,50	141,00	153,10	4	147,20			101,35
27	F14	4.1	31	148,00	149,00	148,00	147,00	4	148,00			101,90
28	F08x	5.5	32	146,96	150,05	148,59	149,42	4	148,76			102,42
29	A53	9.1	42	150,70	146,00	155,40	146,40	4	149,63			103,02
30	A79	5.7	35	152,00	147,00	150,00	152,00	4	150,25			103,45
31	F25x	3.3	31	148,00	154,00	148,40	151,60	4	150,50			103,62
32	A80	5.1	35	156,00	148,00	149,00	151,00	4	151,00			103,96
33	A46	5.1	35	155,36	154,51	148,07	147,29	4	151,31			104,17
34	A82	5.1	31	152,00	153,00	154,00	151,00	4	152,50			104,99
35	A47x	5.1	31	153,00	157,00	150,00	150,00	4	152,50			104,99
36	A65	4.1	31	152,00	155,00	149,00	155,00	4	152,75			105,17
37	F09x	9.1	42	153,78	149,98	157,09	152,36	4	153,30			105,55
38	A51	5.5	31	153,00	158,00	156,00	157,00	4	156,00			107,40
39	A55	5.5	35	155,90	160,30	158,50	158,20	4	158,23			108,94
40	F33	5.1	35	166,70	152,20	159,30	155,60	4	158,45			109,09
41	A36	5.1	31	159,90	158,00	160,60	157,10	4	158,90			109,40
42	A34	3.3	21.1	157,08	170,34	160,14	161,16	4	162,18			111,66
43	F32x	5.1	31	168,00	168,00	164,00	164,00	4	166,00			114,29
44	A56	4.1	32	171,00	182,00	157,00	169,00	4	169,75			116,87
45	A57	1	42	181,40	182,70	183,30	181,10	4	182,13	*	*	125,39
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	176	145,25	3,415	2,351
20	% from the mean			

L	SR	VR
44	13,993	9,634

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A50	3.1	31	69,50	68,30	69,00	68,40	0	68,80	b *	0,56	65,28
2	A85	5.1	31	76,95	77,50	76,90	80,45a	0	77,12	b *	0,33	73,17
3	A84	3.6	21.1	82,11	80,29	81,58	87,41	4	82,85	*	3,14	78,61
4	F19x	5.5	31	93,90	90,00	91,70	88,20	4	90,95		2,43	86,30
5	A67	3.5	35	89,50	91,90	93,80	90,00	4	91,30		1,96	86,63
6	A45	6.3	31	93,80	87,60	96,10	90,00	4	91,88		3,80	87,18
7	F20x	5.5	31	91,90	90,50	93,50	97,70	4	93,40		3,12	88,62
8	F13x	5.1	31	96,20	96,40	93,90	93,00	4	94,88		1,69	90,02
9	F27	3.3	21.1	94,31	93,86	98,88	102,17	4	97,31		3,96	92,33
10	F18x	3.1	31	109,00	95,40	94,20	93,60	4	98,05		7,34	93,03
11	A53	9.1	42	97,80	102,50	97,90	97,90	4	99,03		2,32	93,96
12	A59	0	0	99,78	109,15	97,54	90,50	4	99,24		7,70	94,17
13	F12x	4.1	32	101,00	103,00	98,00	100,00	4	100,50		2,08	95,36
14	F23	6.4	21.1	103,00	101,00	101,00	101,00	4	101,50		1,00	96,31
15	F11	4.1	31	100,00	101,00	102,00	103,00	4	101,50		1,29	96,31
16	F15x	4.1	31	105,00	101,00	101,00	102,00	4	102,25		1,89	97,02
17	A60x	5.1	31	101,40	102,65	106,12	101,14	4	102,83		2,29	97,57
18	F25x	3.3	31	101,30	101,20	107,80	105,30	4	103,90		3,23	98,58
19	A80	5.1	35	108,00	107,00	102,00	102,00	4	104,75		3,20	99,39
20	F28x	5.1	31	106,00	105,00	103,70	105,10	4	104,95		0,95	99,58
21	A61x	5.1	31	106,34	105,26	106,56	105,79	4	105,99		0,58	100,57
22	F05x	5.5	31	107,00	107,00	106,00	104,00	4	106,00		1,41	100,58
23	F02x	5.5	31	98,00	111,00	106,00	111,00	4	106,50		6,14	101,05
24	A39	5.5	31	111,19	105,45	105,53	106,75	4	107,23		2,71	101,74
25	F14	4.1	31	111,00	106,00	107,00	105,00	4	107,25		2,63	101,76
26	A58x	5.5	21.1	102,05	108,20	111,80	107,59	4	107,41		4,03	101,92
27	A83	3.3	31	99,61	111,70	106,30	112,50	4	107,53		5,95	102,03
28	F07x	4.1	31	108,90	95,06	114,20	112,10	4	107,57		8,62	102,06
29	F16x	4.1	31	110,40	109,00	110,50	106,50	4	109,10		1,86	103,52
30	A57	1	42	109,10	109,50	110,30	109,60	4	109,63		0,50	104,02
31	A82	5.1	31	107,00	110,00	113,00	109,00	4	109,75		2,50	104,14
32	A46	5.1	35	112,41	107,19	108,60	111,17	4	109,84		2,38	104,22
33	F06x	5.5	31	114,00	113,00	109,00	106,00	4	110,50		3,70	104,85
34	A47x	5.1	31	117,00	111,00	111,00	106,00	4	111,25		4,50	105,56
35	A79	5.7	35	109,00	112,00	113,00	111,00	4	111,25		1,71	105,56
36	F08x	5.5	32	110,37	111,47	111,83	112,20	4	111,47		0,79	105,76
37	F33	5.1	35	109,10	114,10	108,30	115,00	4	111,63		3,41	105,91
38	A55	5.5	35	112,50	112,30	112,50	112,20	4	112,38		0,15	106,63
39	A65	4.1	31	112,00	109,00	112,00	122,00	4	113,75		5,68	107,93
40	A51	5.5	31	114,00	115,00	114,00	115,00	4	114,50		0,58	108,64
41	F32x	5.1	31	117,00	114,00	115,00	116,00	4	115,50		1,29	109,59
42	A36	5.1	31	113,90	115,50	113,40	119,30	4	115,53		2,67	109,62
43	F09x	9.1	42	118,10	120,23	121,12	117,47	4	119,23		1,73	113,13
44	A34	3.3	21.1	127,72	124,63	123,60	122,57	4	124,63		2,23	118,25
45	A56	4.1	32	141,00	140,00	138,00	145,00	0	141,0	b *	2,94	133,79
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	168	105,39	2,884	2,736
20		% from the mean		
	L	SR	VR	
	42	8,344	7,917	

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	0,04	0,04	0,03	0,02	0	0,03	b *	0,01	0,93
2	F11	5.1	35	2,05	1,87	1,85	1,65	0	1,86	b *	0,16	53,31
3	A84	3.6	21.1	2,90	2,79	2,80	3,00	4	2,87		0,10	82,44
4	A79	5.7	35	2,92	2,90	2,90	2,92	4	2,91		0,01	83,63
5	A57	1	42	2,97	3,10	3,10	3,17	4	3,09		0,08	88,66
6	F12x	4.1	32	3,08	3,15	3,07	3,10	4	3,10		0,04	89,09
7	F07x	4.1	31	3,12	3,01	3,22	3,24	4	3,15		0,11	90,42
8	F09x	9.1	42	3,27	3,22	3,26	3,18	4	3,23		0,04	92,91
9	A39	5.5	31	3,26	3,27	3,22	3,24	4	3,25		0,02	93,34
10	F06x	5.5	31	3,33	3,28	3,22	3,22	4	3,26		0,05	93,76
11	A80	5.1	35	3,40	3,24	3,31	3,23	4	3,30		0,08	94,70
12	F15x	4.1	32	3,40	3,30	3,20	3,30	4	3,30		0,08	94,84
13	A45x	6.3	31	3,31	3,33	3,23	3,36	4	3,31		0,06	95,06
14	F19x	5.5	31	3,24	3,23	3,24	3,54	4	3,31		0,15	95,20
15	F08x	5.5	32	3,36	3,39	3,33	3,43	4	3,38		0,04	97,02
16	A50	3.1	31	3,30	3,60	3,90	2,90	4	3,43		0,43	98,44
17	A67	3.5	35	3,54	3,33	3,32	3,57	4	3,44		0,13	98,87
18	F14	4.1	31	3,44	3,49	3,62	3,25	4	3,45		0,15	99,15
19	F20x	5.5	31	3,44	3,48	3,52	3,45	4	3,47		0,04	99,80
20	F32x	5.1	31	3,47	3,49	3,49	3,49	4	3,49		0,01	100,16
21	F05x	5.5	31	3,50	3,46	3,49	3,49	4	3,49		0,02	100,16
22	A55	5.5	35	3,49	3,49	3,52	3,48	4	3,49		0,02	100,40
23	A46	5.1	35	3,58	3,55	3,44	3,47	4	3,51		0,07	100,88
24	A36	5.1	31	3,53	3,41	3,72	3,39	4	3,51		0,15	100,95
25	F25x	3.3	31	3,48	3,56	3,54	3,50	4	3,52		0,04	101,17
26	F13x	5.1	31	3,60	3,45	3,47	3,56	4	3,52		0,07	101,17
27	A58x	5.5	22	3,44	3,63	3,48	3,60	4	3,54		0,09	101,67
28	A61x	5.1	31	3,56	3,55	3,65	3,57	4	3,58		0,05	102,94
29	A51	5.5	31	3,64	3,58	3,63	3,53	4	3,60		0,05	103,32
30	F18x	3.1	35	3,59	3,13	4,50	3,18	0	3,60	c	0,63	103,46
31	A82	5.1	35	3,67	3,58	3,58	3,70	4	3,63		0,07	104,41
32	A65	4.1	31	3,70	3,60	3,70	3,70	4	3,68		0,05	105,62
33	F33	5.1	35	3,56	3,65	3,83	3,92	4	3,74		0,16	107,49
34	F02	5.5	31	3,74	3,79	3,82	3,82	4	3,79		0,04	109,00
35	A47	5.1	31	3,72	3,95	3,48	4,08	4	3,81		0,26	109,43
36	F23	6.4	21.1	3,84	3,95	3,63	3,84	4	3,82		0,13	109,64
37	F28	5.1	31	3,51	4,04	3,90	3,85	4	3,83		0,22	109,93
38	A53	9.1	42	3,87	3,88	3,80	3,93	4	3,87		0,05	111,22
39	F16x	4.1	31	3,75	4,15	3,69	3,92	4	3,88		0,21	111,45
40	A85	5.1	31	4,24	4,22	4,26	4,21	4	4,23	*	0,02	121,64
41	A43	3.3	21.1	4,69	4,51	4,17	4,51	0	4,47	b *	0,22	128,45
42	A83	3.3	31	5,45	5,49	5,17	5,59	0	5,43	b *	0,18	155,92
43	A34	3.3	21.1	7,65	7,65	7,14	6,63	0	7,27	b *	0,49	208,87
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	148	3,48	0,092	2,633
20	% from the mean			

L	SR	VR
37	0,283	8,140

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	0,05a	0,04	0,04	0,04	0	0,04	b *	0,00	0,52
2	F11	5.1	35	5,50	5,27	5,32	5,32	0	5,35	b *	0,10	69,41
3	A79	5.7	35	6,21	6,10	6,09	6,03	4	6,11	*	0,07	79,20
4	A39	5.5	31	6,88	7,11	6,86	6,75	4	6,90		0,15	89,48
5	A67	3.5	35	6,82	6,79	7,06	7,23	4	6,98		0,21	90,44
6	A36	5.1	31	7,28	6,71	6,59	7,55	4	7,03		0,46	91,19
7	F19x	5.5	31	7,08	6,99	7,04	7,03	4	7,04		0,04	91,22
8	A45x	6.3	31	7,06	7,11	7,13	7,15	4	7,11		0,04	92,23
9	F18x	3.1	35	7,69	6,53	7,55	6,70	4	7,12		0,59	92,29
10	F20x	5.5	31	7,07	7,13	7,21	7,15	4	7,14		0,06	92,58
11	F06x	5.5	31	7,10	7,28	7,24	7,13	4	7,19		0,09	93,20
12	F07x	4.1	31	8,14	6,79	6,88	7,14	4	7,24		0,62	93,83
13	F14	4.1	31	7,47	7,25	7,49	6,95	4	7,29		0,25	94,53
14	F08x	5.5	32	7,22	7,41	7,39	7,31	4	7,33		0,09	95,06
15	F12x	4.1	32	7,57	7,36	7,26	7,39	4	7,40		0,13	95,89
16	F09x	9.1	42	7,48	7,59	7,51	7,47	4	7,51		0,05	97,44
17	A50	3.1	31	7,70	6,80	8,00	7,60	4	7,53		0,51	97,58
18	A84	3.6	21.1	7,52	7,58	7,79	7,47	4	7,59		0,14	98,37
19	A58x	5.5	22	7,76	7,49	7,47	7,68	4	7,60		0,14	98,55
20	F25x	3.3	31	7,52	7,74	7,59	7,61	4	7,62		0,09	98,74
21	A46	5.1	35	7,42	7,74	7,59	7,79	4	7,64		0,17	99,00
22	A80	5.1	35	8,02	7,86	7,44	7,22	4	7,64		0,37	99,00
23	F05x	5.5	31	7,78	7,59	7,58	7,69	4	7,66		0,09	99,33
24	F13x	5.1	31	7,62	7,68	7,70	7,70	4	7,68		0,04	99,52
25	A55	5.5	35	7,80	7,80	7,59	7,69	4	7,72		0,10	100,11
26	A65	4.1	31	7,70	7,80	7,90	7,80	4	7,80		0,08	101,14
27	F23	6.4	21.1	7,49	7,71	8,13	7,89	4	7,81		0,27	101,21
28	F32x	5.1	31	7,78	7,95	7,88	7,95	4	7,89		0,08	102,31
29	A51	5.5	31	7,76	7,86	7,94	8,15	4	7,93		0,17	102,79
30	A53	9.1	42	7,91	7,99	8,05	7,87	4	7,96		0,08	103,15
31	F15x	4.1	32	7,90	8,10	8,80	7,20	4	8,00		0,66	103,73
32	F33	5.1	35	8,10	8,05	7,85	8,03	4	8,01		0,11	103,83
33	A61x	5.1	31	8,04	8,25	8,28	8,28	4	8,21		0,12	106,44
34	A82	5.1	35	8,13	8,09	8,33	8,29	4	8,21		0,12	106,45
35	F02	5.5	31	8,19	8,21	8,18	8,27	4	8,21		0,04	106,49
36	F16x	4.1	31	8,18	8,46	8,15	8,39	4	8,30		0,15	107,56
37	A43	3.3	21.1	8,55	8,05	8,55	8,45	4	8,40		0,24	108,92
38	F28	5.1	31	8,46	8,02	8,78	8,88	4	8,54		0,39	110,67
39	A57	1	42	8,67	8,63	8,70	8,53	4	8,63		0,07	111,94
40	A47	5.1	31	8,81	8,81	8,19	9,30	4	8,78		0,45	113,82
41	A83	3.3	31	8,80	9,15	9,06	8,57	4	8,90		0,26	115,35
42	A85	5.1	31	8,95	8,05	9,40	9,20	4	8,90		0,60	115,41
43	A34	3.3	21.1	14,28	14,28	14,28	14,28	0	14,28	b *	0,00	185,17
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	160	7,71	0,210
20	% from the mean		2,717

L	SR	VR
40	0,602	7,809

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	0,02	0,02	0,02	0,03a	0	0,02	b *	0,00	0,00	0,55
2	F11	5.1	35	1,77	1,75	1,61	1,61	0	1,69	b *	0,09	5,16	46,07
3	A50	3.1	31	2,80	2,50	2,30	2,70	4	2,58	b *	0,22	8,61	70,40
4	A79	5.7	35	3,12	3,16	3,15	3,11	4	3,14		0,02	0,76	85,72
5	A57	1	42	3,20	3,13	3,17	3,07	4	3,14		0,06	1,79	85,92
6	A84	3.6	21.1	3,09	3,38	3,19	2,99	4	3,16		0,17	5,26	86,46
7	A58x	5.5	22	3,17	3,23	3,26	3,19	4	3,21		0,04	1,25	87,83
8	A36	5.1	31	3,52	3,34	3,19	3,04	4	3,27		0,21	6,28	89,47
9	F08x	5.5	32	3,29	3,34	3,31	3,27	4	3,30		0,03	0,96	90,34
10	F18x	3.1	35	3,12	3,75	3,18	3,19	4	3,31		0,29	8,91	90,50
11	F12x	4.1	32	3,29	3,41	3,28	3,33	4	3,33		0,06	1,78	90,98
12	A39	5.5	31	3,37	3,35	3,36	3,37	4	3,36		0,01	0,18	91,89
13	F06x	5.5	31	3,41	3,34	3,44	3,32	4	3,38		0,06	1,68	92,35
14	F19x	5.5	31	3,45	3,39	3,46	3,37	4	3,42		0,04	1,29	93,44
15	F09x	9.1	42	3,42	3,39	3,45	3,46	4	3,43		0,03	0,89	93,73
16	F07x	4.1	31	3,84	3,30	3,32	3,27	4	3,43		0,27	7,94	93,86
17	A45x	6.3	31	3,37	3,49	3,44	3,47	4	3,44		0,05	1,53	94,12
18	A80	5.1	35	3,61	3,54	3,35	3,48	4	3,50		0,11	3,16	95,56
19	A61x	5.1	31	3,56	3,52	3,56	3,49	4	3,53		0,03	0,93	96,53
20	F20x	5.5	31	3,65	3,57	3,56	3,47	4	3,56		0,07	2,07	97,40
21	F13x	5.1	31	3,56	3,56	3,63	3,59	4	3,59		0,03	0,93	98,02
22	F23	6.4	21.1	3,52	3,52	3,68	3,68	4	3,60		0,09	2,57	98,43
23	A46	5.1	35	3,62	3,67	3,59	3,59	4	3,62		0,04	1,04	98,91
24	A67	3.5	35	3,93	3,66	3,44	3,45	4	3,62		0,23	6,36	98,98
25	F14	4.1	31	3,83	3,72	3,25	3,79	4	3,65		0,27	7,37	99,73
26	A55	5.5	35	3,70	3,68	3,60	3,65	4	3,66		0,04	1,16	100,02
27	F32x	5.1	31	3,72	3,66	3,70	3,72	4	3,70		0,03	0,76	101,16
28	A51	5.5	31	4,00	3,61	3,57	3,73	4	3,73		0,19	5,20	101,92
29	A82	5.1	35	3,75	3,88	3,90	3,84	4	3,84		0,07	1,77	104,98
30	F16x	4.1	31	3,56	4,09	3,88	3,88	4	3,85		0,22	5,66	105,30
31	F15x	4.1	32	3,60	4,10	3,40	4,40	4	3,88		0,46	11,80	105,95
32	F25x	3.3	31	4,04	3,84	3,81	4,01	4	3,93		0,12	2,97	107,32
33	F02	5.5	31	3,99	4,01	4,04	3,94	4	4,00		0,04	1,05	109,23
34	A65	4.1	31	3,80	4,50	3,90	3,80	4	4,00		0,34	8,42	109,37
35	F33	5.1	35	4,11	3,83	4,21	3,89	4	4,01		0,18	4,48	109,64
36	F28	5.1	31	4,13	4,23	3,87	4,23	4	4,12		0,17	4,13	112,51
37	F05x	5.5	31	4,35	4,20	4,04	4,19	4	4,20		0,13	3,02	114,70
38	A53	9.1	42	4,25	4,30	4,25	4,24	4	4,26		0,03	0,64	116,47
39	A47	5.1	31	4,97	4,46	4,02	4,89	4	4,59	*	0,44	9,56	125,36
40	A43	3.3	21.1	4,65	4,64	4,64	4,65	4	4,65	*	0,01	0,12	127,00
41	A85	5.1	31	5,35	4,55	4,60	4,30	4	4,70	*	0,45	9,63	128,50
42	A83	3.3	31	6,23	6,20	5,99	5,50	0	5,98	b *	0,34	5,63	163,55
43	A34	3.3	21.1	7,65	7,65	7,65	7,65	0	7,65	b *	0,00	0,00	209,16
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	156	3,66	0,137	3,747
20	% from the mean			

L	SR	VR
39	0,442	12,088

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A59	0	0	0,02	0,02	0,02	0,03a	0	0,02	b *	0,00	0,62
2	F11	5.1	35	1,41	1,46	1,35	1,37	0	1,40	b *	0,05	43,00
3	A84	3.6	21.1	2,60	2,60	2,90	2,70	4	2,70		0,14	83,07
4	A57	1	42	2,67	2,83	2,77	2,73	4	2,75		0,07	84,61
5	A79	5.7	35	2,74	2,84	2,78	2,76	4	2,78		0,04	85,53
6	A50	3.1	31	2,70	3,80	2,20	2,90	4	2,90		0,67	89,22
7	A39	5.5	31	3,02	3,03	2,98	3,05	4	3,02		0,03	92,94
8	A58x	5.5	22	2,99	3,08	3,08	2,96	4	3,03		0,06	93,15
9	F18x	3.1	35	2,86	2,81	3,20	3,24	4	3,03		0,22	93,15
10	F12x	4.1	32	3,02	3,11	2,96	3,03	4	3,03		0,06	93,22
11	F19x	5.5	31	3,04	3,03	3,00	3,07	4	3,04		0,03	93,38
12	A67	3.5	35	3,04	3,22	3,01	2,89	4	3,04		0,14	93,53
13	F06x	5.5	31	3,14	3,11	2,98	3,04	4	3,07		0,07	94,38
14	A45x	6.3	31	3,06	3,07	3,11	3,06	4	3,08		0,02	94,61
15	A80	5.1	35	3,33	3,12	2,99	2,95	4	3,10		0,17	95,30
16	F07x	4.1	31	3,42	2,96	3,02	3,01	4	3,10		0,22	95,48
17	A36	5.1	31	3,33	3,16	3,06	2,95	4	3,13		0,16	96,15
18	F08x	5.5	32	3,19	3,15	3,12	3,10	4	3,14		0,04	96,64
19	F14	4.1	31	3,41	2,84	2,96	3,38	4	3,15		0,29	96,84
20	F20x	5.5	31	3,12	3,18	3,14	3,17	4	3,15		0,03	96,99
21	A61x	5.1	31	3,20	3,19	3,16	3,14	4	3,17		0,03	97,60
22	A46	5.1	35	3,10	3,24	3,27	3,35	4	3,24		0,10	99,68
23	F05x	5.5	31	3,29	3,24	3,21	3,22	4	3,24		0,04	99,68
24	F09x	9.1	42	3,24	3,26	3,30	3,32	4	3,28		0,04	100,89
25	A55	5.5	35	3,30	3,27	3,31	3,27	4	3,29		0,02	101,18
26	F13x	5.1	31	3,42	3,44	3,32	3,20	4	3,35		0,11	102,91
27	F32x	5.1	31	3,33	3,34	3,35	3,40	4	3,36		0,03	103,22
28	F25x	3.3	31	3,37	3,28	3,57	3,26	4	3,37		0,14	103,68
29	A51	5.5	31	3,37	3,36	3,40	3,36	4	3,37		0,02	103,76
30	A65	4.1	31	3,40	3,50	3,40	3,40	4	3,43		0,05	105,37
31	F23	6.4	21.1	3,70	3,15	3,25	3,72	4	3,46		0,30	106,30
32	F33	5.1	35	3,34	3,54	3,42	3,53	4	3,46		0,10	106,37
33	F16x	4.1	31	3,52	3,34	3,58	3,48	4	3,48		0,10	107,06
34	F28	5.1	31	3,51	3,51	3,44	3,83	4	3,57		0,17	109,91
35	A82	5.1	35	3,54	3,75	3,59	3,58	4	3,61		0,09	111,21
36	F15x	4.1	32	2,90	4,50	3,20	4,10	0	3,68	c	0,75	113,07
37	F02	5.5	31	3,39	3,74	3,68	3,90	4	3,68		0,21	113,14
38	A53	9.1	42	3,74	3,68	3,74	3,72	4	3,72		0,03	114,45
39	A85	5.1	31	4,10	4,25	4,00	3,80	4	4,04	*	0,19	124,22
40	A43	3.3	21.1	4,17	4,17	4,17	4,201a	3	4,17	*	0,00	128,23
41	A83	3.3	31	4,12	5,21	5,02	4,53	0	4,72	b *	0,49	145,19
42	A47	5.1	31	4,70	5,36	4,62	4,90	0	4,90	b *	0,33	150,60
43	A34	3.3	21.1	7,21	7,21	6,69a	7,21	0	7,21	b *	0,00	221,83
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	147	3,25	0,114	3,518
20	% from the mean			

L	SR	VR
37	0,319	9,806

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A79	5.7	35	0,05	0,05	0,05	0,05	4	0,05	0,00	3,32	47,02
2	A82	5.1	35	0,06	0,06	0,06	0,05	4	0,06	0,00	2,57	51,96
3	F16x	4.1	35	0,07	0,06	0,06	0,06	4	0,06	0,00	6,57	60,55
4	A55	5.5	22	0,06	0,06	0,07	0,07	4	0,06	0,00	1,75	61,17
5	F18x	3.1	35	0,07	0,06	0,08	0,08	4	0,07	0,01	12,10	68,09
6	A46	5.1	35	0,08	0,07	0,07	0,07	4	0,07	0,01	6,89	69,90
7	A36	5.1	35	0,09	0,09	0,08	0,08	4	0,09	0,00	3,08	80,53
8	F32x	5.1	22	0,10	0,11	0,10	0,10	4	0,10	0,01	5,92	94,23
9	F08x	5.5	35	0,11	0,10	0,11	0,10	4	0,11	0,00	2,95	99,66
10	F23	5.1	22	0,11	0,12	0,10	0,10	4	0,11	0,01	8,91	101,55
11	A61x	5.1	31	0,10	0,12	0,13	0,11	4	0,11	0,01	10,25	108,16
12	F14	4.1	22	0,14	0,11	0,14	0,11	4	0,12	0,02	14,59	116,19
13	F33	5.1	35	0,13	0,14	0,15	0,13	4	0,14	0,01	6,96	131,78
14	A39	5.5	31	0,14	0,14	0,15	0,15	4	0,14	0,01	4,74	136,43
15	A51	5.5	22	0,17	0,15	0,16	0,16	4	0,16	0,01	4,98	154,92
16	F05x	5.5	22	0,20	0,14	0,14	0,19	4	0,17	0,03	18,02	158,70
17	F06x	5.5	31	0,22	0,19	0,12	0,15	4	0,17	0,04	25,65	159,17
18	A83	3.3	31	2,60	2,63	3,06	2,79	0	2,77 b	0,21	7,58	2616,42
19												
20												
21	F25x	3.3	31	<,5	<,5	<,5	<,5					
22	F15x	4.1	32	<,5	<,5	<,5	<,5					
23	F02	5.5	22	<,5	<,5	<,5	<,5					
24	F12x	4.1	32	<,38	<,38	<,38	<,38					
25	F13x	5.1	22	<,33	<,33	<,33	<,33					
26	F11	5.1	35	<,3	<,3	<,3	<,3					
27	A80	5.1	35	<,25	<,25	<,25	<,25					
28	A67	3.5	35	<,1	<,1	<,1	<,1					
29	F07x	4.1	31	<,2	0,21	<,2	<,2					
30	A45x	6.3	35	<,09	<,09	<,09	<,09					
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N Mean Si Vi
all labs 68 0,11 0,010 9,522

Lower than the lowest evaluated ringtest result (< 0.20)

L SR VR
17 0,040 38,036

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A61x	5.1	31	0,24	0,28	0,26	0,23	4	0,25	0,02	8,98	72,69
2	A79	5.7	35	0,28	0,27	0,27	0,27	4	0,27	0,01	2,14	78,33
3	F07x	4.1	31	0,26	0,28	0,30	0,25	4	0,27	0,02	8,46	79,15
4	F05x	5.5	22	0,29	0,29	0,28	0,218σ	3	0,29	0,01	2,85	82,87
5	A82	5.1	35	0,31	0,30	0,30	0,29	4	0,30	0,01	3,18	85,90
6	A45x	6.3	35	0,32	0,34	0,32	0,30	4	0,32	0,01	4,56	92,11
7	A55	5.5	22	0,34	0,32	0,33	0,33	4	0,33	0,01	2,60	94,57
8	A36	5.1	35	0,33	0,33	0,33	0,33	4	0,33	0,00	0,53	94,86
9	F16x	4.1	35	0,32	0,34	0,34	0,33	4	0,33	0,01	2,29	96,18
10	F18x	3.1	35	0,37	0,32	0,34	0,32	4	0,34	0,02	6,30	97,24
11	A80	5.1	35	0,34	0,35	0,34	0,32	4	0,34	0,01	4,29	97,46
12	A67	3.5	35	0,34	0,33	0,33	0,35	4	0,34	0,01	3,21	97,46
13	F23	5.1	22	0,32	0,39	0,33	0,35	4	0,35	0,03	8,91	100,34
14	A46	5.1	35	0,34	0,40	0,32	0,33	4	0,35	0,04	10,69	100,85
15	F14	4.1	22	0,36	0,36	0,38	0,37	4	0,37	0,01	1,99	106,19
16	F08x	5.5	35	0,38	0,37	0,38	0,38	4	0,38	0,01	1,82	108,57
17	F32x	5.1	22	0,38	0,38	0,37	0,38	4	0,38	0,01	2,05	108,79
18	F33	5.1	35	0,42	0,40	0,41	0,39	4	0,40	0,01	2,67	116,73
19	F06x	5.5	31	0,41	0,34	0,47	0,39	4	0,41	0,05	12,94	117,02
20	A51	5.5	22	0,47	0,48	0,46	0,46	4	0,47	0,01	2,00	135,14
21	F02	5.5	22	0,50	0,61σ	0,50	0,50	3	0,50	0,00	0,00	144,38
22	F15x	4.1	32	0,60	0,70	0,60	0,70	0	0,65	b *	0,06	8,88
23	A83	3.3	31	6,04	6,29	5,40	6,11	0	5,96	b *	0,39	6,53
24												
25												
26	F25x	3.3	31	<,5	<,5	<,5	<,5					
27	F13x	5.1	22	<,33	<,33	<,33	<,33					
28	F11	5.1	35	<,3	<,3	<,3	<,3					
29	F12x	4.1	32	<,38	<,38	0,46	0,46					
30	A39	5.5	31	<,09	<,09	<,09	<,09					
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* = non tolerable mean because more than +/-

limit for low concentrations

N	Mean	SI	VI
all labs	82	0,35	0,015
40	% from the mean		4,275

L	SR	VR
21	0,061	17,630

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A39	5.5	31	0,29	0,32	0,31	0,31	4	0,31	0,02	5,28	67,53
2	A82	5.1	35	0,38	0,37	0,37	0,36	4	0,37	0,01	1,88	81,41
3	A79	5.7	35	0,39	0,39	0,39	0,39	4	0,39	0,00	0,77	85,03
4	F07x	4.1	31	0,41	0,35	0,37	0,43	4	0,39	0,04	9,36	85,38
5	A61x	5.1	31	0,40	0,37	0,43	0,39	4	0,40	0,02	5,71	86,95
6	A45x	6.3	35	0,40	0,41	0,39	0,39	4	0,40	0,01	2,13	87,50
7	F11	5.1	35	0,41	0,40	0,40	0,41	4	0,41	0,01	2,17	88,92
8	F18x	3.1	35	0,42	0,43	0,42	0,42	4	0,42	0,01	1,46	92,38
9	F13x	5.1	22	0,39	0,43	0,41	0,47	4	0,43	0,03	8,04	93,20
10	A36	5.1	35	0,45	0,44	0,44	0,45	4	0,45	0,00	1,07	97,81
11	F14	4.1	22	0,46	0,43	0,45	0,46	4	0,45	0,01	3,22	98,68
12	A46	5.1	35	0,47	0,46	0,44	0,44	4	0,45	0,01	2,63	99,07
13	A80	5.1	35	0,46	0,47	0,43	0,45	4	0,45	0,02	3,81	99,29
14	A55	5.5	22	0,46	0,46	0,46	0,47	4	0,46	0,01	1,42	100,93
15	A67	3.5	35	0,47	0,46	0,46	0,46	4	0,46	0,00	0,93	101,75
16	F32x	5.1	22	0,45	0,48	0,47	0,46	4	0,47	0,01	2,50	102,08
17	F06x	5.5	31	0,47	0,49	0,46	0,46	4	0,47	0,01	2,58	102,79
18	F08x	5.5	35	0,46	0,48	0,47	0,47	4	0,47	0,00	0,97	102,85
19	F16x	4.1	35	0,45	0,48	0,52	0,43	4	0,47	0,04	8,20	102,92
20	F12x	4.1	32	0,48	0,46	0,47	0,47	4	0,47	0,01	1,74	103,07
21	F05x	5.5	22	0,51	0,50	0,52	0,49	4	0,51	0,01	2,56	110,96
22	A51	5.5	22	0,52	0,50	0,53	0,56	4	0,53	0,03	5,38	115,90
23	F33	5.1	35	0,54	0,53	0,57	0,53	4	0,54	0,02	3,94	118,36
24	F23	5.1	22	0,67	0,62	0,56	0,64	4	0,62	0,05	7,46	136,51
25	F02	5.5	22	0,59	0,70	0,60	0,64	4	0,63	0,05	7,89	138,70
26	F15x	4.1	32	0,80	0,70	0,80	0,90	0	0,80	b *	10,21	175,44
27	A83	3.3	31	2,53	2,19	2,29	1,90	0	2,23	b *	11,68	488,37
28												
29												
30	F25x	3.3	31	<,5	<,5	<,5	<,5					
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* = non tolerable mean because more than +/-

limit for low concentrations

N	Mean	SI	VI
all labs	100	0,46	3,825
40	% from the mean		

L	SR	VR
25	0,072	15,788

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	5.1	35	0,07	0,07	0,07	0,07	4	0,07	0,00	2,47	55,46
2	A79	5.7	35	0,08	0,08	0,08	0,08	4	0,08	0,00	1,86	64,27
3	F18x	3.1	35	0,09	0,09	0,11	0,09	4	0,09	0,01	8,73	75,40
4	A45x	6.3	35	0,10	0,10	0,11	0,09	4	0,10	0,01	8,75	78,29
5	F16x	4.1	35	0,09	0,11	0,10	0,10	4	0,10	0,01	9,23	79,39
6	A55	5.5	22	0,10	0,10	0,10	0,10	4	0,10	0,00	2,40	79,99
7	A46	5.1	35	0,10	0,10	0,10	0,10	4	0,10	0,00	2,50	80,49
8	A36	5.1	35	0,10	0,10	0,10	0,10	4	0,10	0,00	1,24	81,09
9	A39	5.5	31	0,12	0,10	0,11	0,12	4	0,11	0,01	8,59	86,76
10	A67	3.5	35	0,12	0,12	0,12	0,13	4	0,12	0,01	5,36	96,51
11	F32x	5.1	22	0,14	0,14	0,13	0,13	4	0,13	0,00	2,51	107,32
12	F23	5.1	22	0,14	0,14	0,13	0,15	4	0,14	0,01	5,83	112,13
13	F08x	5.5	35	0,15	0,16	0,16	0,14	4	0,15	0,01	4,48	119,93
14	F14	4.1	22	0,13	0,15	0,18	0,14	4	0,15	0,02	12,65	122,14
15	F33	5.1	35	0,15	0,16	0,16	0,17	4	0,16	0,01	3,57	127,74
16	A61x	5.1	31	0,16	0,15	0,18	0,15	4	0,16	0,01	7,27	128,54
17	A51	5.5	22	0,13	0,16	0,19	0,16	4	0,16	0,02	13,92	129,55
18	F05x	5.5	22	0,18	0,24	0,25	0,20	4	0,22	0,03	13,71	175,00
19	A83	3.3	31	2,80	2,62	2,20	2,40	0	2,50 b	0,26	10,31	2005,85
20												
21												
22	F12x	4.1	32	<,38	0,44	0,41	0,43					
23	F07x	4.1	31	0,21	0,22	0,23	<,2					
24	F25x	3.3	31	<,5	<,5	<,5	<,5					
25	F15x	4.1	32	<,5	<,5	<,5	<,5					
26	F02	5.5	22	<,5	<,5	<,5	<,5					
27	F13x	5.1	22	<,33	<,33	<,33	<,33					
28	F11	5.1	35	<,3	<,3	<,3	<,3					
29	A80	5.1	35	<,25	<,25	<,25	<,25					
30	F06x	5.5	31	<,1	<,1	<,1	<,1					
31												
32												
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	N	Mean	SI	VI
all labs	72	0,12	0,009	7,049
	30	% from the mean		

* = non tolerable mean because more than +/-

Lower than the lowest evaluated ringtest result (< 0.20)

	L	SR	VR
	18	0,037	29,958

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F05x	5.5	22	58,50	53,60	61,00	62,10	0	58,80	b	3,78	6,43	71,17
2	F06x	5.5	31	60,00	59,00	64,00	58,00	0	60,25	b	2,63	4,37	72,92
3	A79	5.7	35	73,10	71,60	72,30	71,90	4	72,23		0,65	0,90	87,41
4	F02	5.5	22	80,00	80,00	70,00	70,00	4	75,00		5,77	7,70	90,77
5	F08x	5.5	35	75,77	77,88	76,83	77,88	4	77,09		1,01	1,31	93,30
6	A67	3.5	35	75,90	78,30	78,60	75,80	4	77,15		1,51	1,95	93,38
7	F12x	4.1	32	80,40	72,50	80,80	80,00	4	78,43		3,96	5,05	94,92
8	F32x	5.1	22	79,00	79,00	78,00	78,00	4	78,50		0,58	0,74	95,01
9	F15x	4.1	32	82,00	77,00	79,00	78,00	4	79,00		2,16	2,73	95,61
10	A80	5.1	35	80,40	77,90	79,90	79,00	4	79,30		1,10	1,39	95,98
11	A82	5.1	35	79,87	80,03	79,04	79,69	4	79,66		0,44	0,55	96,41
12	A61x	5.1	31	83,00	81,00	79,00	81,80	4	81,20		1,68	2,07	98,28
13	A36	5.1	35	82,30	80,50	83,60	80,50	4	81,73		1,51	1,85	98,91
14	F28	5.1	31	84,27	76,79	81,75	84,39	4	81,80		3,56	4,35	99,01
15	A83	3.3	31	73,92	76,13	90,07	90,28	4	82,60		8,79	10,65	99,97
16	F16x	4.1	35	83,15	83,92	81,39	83,53	4	83,00		1,12	1,35	100,45
17	F13x	5.1	22	80,00	87,30	84,20	81,00	4	83,13		3,31	3,98	100,61
18	F14	4.1	22	81,00	83,00	84,00	85,00	4	83,25		1,71	2,05	100,76
19	A45x	6.3	35	80,40	81,70	84,10	87,70	4	83,48		3,21	3,84	101,03
20	F07x	4.1	31	89,20	85,60	81,50	80,20	4	84,13		4,09	4,86	101,82
21	F18x	3.1	35	86,00	80,00	90,90	80,00	4	84,23		5,27	6,26	101,94
22	A55	5.5	26	86,36	83,72	85,41	83,72	4	84,80		1,31	1,54	102,64
23	F23	5.1	22	82,17	87,00	90,20	82,60	4	85,49		3,82	4,47	103,47
24	A51	5.5	22	84,00	84,00	96,00	80,00	4	86,00		6,93	8,06	104,09
25	F27	3.3	22	90,73	81,79	84,03	87,99	4	86,14		3,99	4,64	104,25
26	A39	5.5	31	86,52	86,80	87,08	85,84	4	86,56		0,53	0,61	104,76
27	A58x	5.5	22	87,77	86,89	86,72	85,73	4	86,78		0,84	0,96	105,03
28	A46	5.1	35	93,00	90,68	80,29	89,53	4	88,38		5,58	6,31	106,96
29	F33	5.1	35	86,20	87,68	90,43	100,08	4	91,10		6,24	6,85	110,26
30	F25x	3.3	31	93,50	93,40	92,80	93,70	4	93,35		0,39	0,41	112,98
31	F11	5.1	31	155,00	143,00	140,00	152,00	0	147,5	b *	7,14	4,84	178,52
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	112	82,62	2,895	3,503
30	% from the mean			

L	SR	VR
28	4,689	5,675

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F14	4.1	22	2,00	3,00	3,00	2,00	4	2,50	0,58	23,09	37,35
2	A79	5.7	35	4,94	4,81	5,24	4,90	4	4,97	0,19	3,75	74,29
3	F08x	5.5	35	5,29	4,78	4,98	5,29	4	5,09	0,25	4,92	75,99
4	F32x	5.1	22	5,00	5,00	6,00	6,00	4	5,50	0,58	10,50	82,17
5	F23	5.1	22	6,20	5,46	5,28	5,65	4	5,65	0,40	7,05	84,37
6	F18x	3.1	35	5,90	5,40	6,10	5,40	4	5,70	0,36	6,24	85,16
7	F16x	4.1	35	5,55	5,85	5,55	5,85	4	5,70	0,17	3,03	85,18
8	A82	5.1	35	5,96	5,65	6,25	5,95	4	5,95	0,24	4,08	88,92
9	A36	5.1	35	7,11	6,69	6,69	5,94	4	6,61	0,49	7,37	98,71
10	A61x	5.1	31	7,10	6,80	6,80	6,70	4	6,85	0,17	2,53	102,34
11	A55	5.5	26	8,00	8,20	8,00	8,60	4	8,20	0,28	3,45	122,51
12	A46	5.1	35	8,27	10,28	5,81	9,51	4	8,47	1,96	23,10	126,50
13	A39	5.5	31	11,76	10,96	11,20	10,08	4	11,00	0,70	6,35	164,34
14	F33	5.1	35	12,64	11,69	10,20	11,57	4	11,53	1,00	8,72	172,18
15	F27	3.3	22	13,79	8,29	22,87	5,48	0	12,61 c	7,66	60,78	188,35
16	A58x	5.5	22	33,23	37,53	35,39	31,21	0	34,34 b	2,73	7,94	513,03
17	F11	5.1	31	105,00	128,00	114,00	124,00	0	117,8 b	10,34	8,78	1759,15
18												
19												
20	A83	3.3	31	<50	<50	<50	<50					
21	A67	3.5	35	<50	<50	<50	<50					
22	F25x	3.3	31	<50	<50	<50	<50					
23	F28	5.1	31	<44	<44	<44	<44					
24	F06x	5.5	31	<40	<40	<40	<40					
25	F13x	5.1	22	<40	<40	<40	<40					
26	F05x	5.5	22	<25	<25	<25	<25					
27	F07x	4.1	31	<20	<20	<20	<20					
28	F02	5.5	22	<20	<20	<20	<20					
29	F12x	4.1	32	<17	<17	<17	<17					
30	A45x	6.3	35	<12	<12	<12	<12					
31	A51	5.5	22	<10	<10	<10	<10					
32	F15x	4.1	32	<10	<10	<10	<10					
33	A80	5.1	35	<10	<10	<10	<10					
34												
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N Mean Si Vi
all labs 56 6,69 0,526 7,858

Lower than the lowest evaluated ringtest result (< 20)

L SR VR
14 2,410 36,005

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F14	4.1	22	13,00	13,00	15,00	15,00	4	14,00	1,15	8,25	77,46
2	A79	5.7	35	15,40	14,40	14,30	14,80	4	14,73	0,50	3,39	81,47
3	A82	5.1	35	15,19	14,45	15,05	14,93	4	14,90	0,32	2,13	82,46
4	A51	5.5	22	17,00	15,00	14,00	14,00	4	15,00	1,41	9,43	82,99
5	F08x	5.5	35	15,19	14,68	15,72	14,68	4	15,07	0,50	3,33	83,36
6	A80	5.1	35	15,60	17,30	14,20	15,30	4	15,60	1,28	8,23	86,31
7	F15x	4.1	32	14,00	17,00	14,00	19,00	4	16,00	2,45	15,31	88,53
8	A36	5.1	35	17,10	15,40	16,00	16,40	4	16,23	0,71	4,40	89,77
9	F16x	4.1	35	17,10	16,35	15,79	16,27	4	16,38	0,54	3,31	90,61
10	F18x	3.1	35	16,10	17,50	15,80	16,50	4	16,48	0,74	4,50	91,15
11	F32x	5.1	22	17,00	18,00	17,00	18,00	4	17,50	0,58	3,30	96,82
12	A55	5.5	26	17,35	17,88	17,03	17,98	4	17,56	0,45	2,55	97,16
13	A46	5.1	35	18,16	19,42	17,72	15,31	4	17,65	1,72	9,74	97,67
14	A61x	5.1	31	15,70	19,00	18,90	18,60	4	18,05	1,58	8,73	99,87
15	F12x	4.1	32	18,70	17,60	18,40	18,00	4	18,18	0,48	2,63	100,56
16	F23	5.1	22	18,30	20,60	22,40	19,10	4	20,10	1,81	8,98	111,21
17	A39	5.5	31	21,00	20,70	20,44	20,55	4	20,67	0,24	1,18	114,38
18	A58x	5.5	22	21,29	20,65	22,84	20,13	4	21,23	1,18	5,54	117,45
19	F33	5.1	35	22,43	20,45	23,41	19,23	4	21,38	1,89	8,84	118,29
20	F27	3.3	22	28,72	27,79	18,68	17,06	4	23,06	6,04	26,21	127,60
21	F07x	4.1	31	23,20	26,30	21,20	22,10	4	23,20	2,22	9,58	128,36
22	A45x	6.3	35	24,50	24,50	24,10	25,60	4	24,68	0,64	2,61	136,52
23	F11	5.1	31	74,00	84,00	89,00	81,00	4	82,00 <i>b</i>	6,27	7,65	453,69
24												
25												
26	A83	3.3	31	<50	<50	<50	<50					
27	F25x	3.3	31	<50	<50	<50	<50					
28	A67	3.5	35	<50	<50	<50	<50					
29	F28	5.1	31	<44	<44	<44	<44					
30	F06x	5.5	31	<40	<40	<40	<40					
31	F13x	5.1	22	<40	<40	<40	<40					
32	F05x	5.5	22	<25	<25	<25	<25					
33	F02	5.5	22	<20	20,00	<20	<20					
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	N	Mean	SI	VI
all labs	88	18,07	1,293	7,152

Lower than the lowest evaluated ringtest result (< 20)

L	SR	VR
22	3,108	17,198

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F05x	5.5	22	30,50	30,80	28,9a	30,40	0	30,57 b *	0,21	0,68	58,44
2	F23	5.1	22	39,52	35,43	34,88	37,22	4	36,76	2,09	5,69	70,28
3	F02	5.5	22	40,00	40,00	40,00	40,00	4	40,00	0,00	0,00	76,47
4	A82	5.1	35	47,76	46,43	46,19	46,10	4	46,62	0,77	1,66	89,13
5	A79	5.7	35	48,10	50,10	47,60	48,90	4	48,68	1,09	2,24	93,06
6	F13x	5.1	22	48,10	49,10	50,20	48,10	4	48,88	1,00	2,05	93,44
7	F15x	4.1	32	50,00	46,00	49,00	52,00	4	49,25	2,50	5,08	94,16
8	A80	5.1	35	51,70	50,30	50,30	47,80	4	50,03	1,62	3,25	95,64
9	F18x	3.1	35	50,10	51,30	50,20	50,00	4	50,40	0,61	1,20	96,35
10	F14	4.1	22	51,00	51,00	50,00	50,00	4	50,50	0,58	1,14	96,55
11	F08x	5.5	35	51,31	49,22	50,26	52,36	4	50,79	1,35	2,66	97,09
12	F12x	4.1	32	50,00	57,70	50,00	45,90	4	50,90	4,93	9,68	97,31
13	F07x	4.1	31	51,60	55,80	51,80	47,40	4	51,65	3,43	6,64	98,74
14	A61x	5.1	31	53,90	53,20	50,80	50,10	4	52,00	1,83	3,53	99,41
15	A55	5.5	26	52,10	51,90	52,20	52,30	4	52,13	0,17	0,33	99,65
16	F32x	5.1	22	53,00	53,00	52,00	53,00	4	52,75	0,50	0,95	100,85
17	F16x	4.1	35	52,79	54,41	53,96	49,93	4	52,77	2,01	3,82	100,89
18	A51	5.5	22	60,00	53,00	50,00	49,00	4	53,00	4,97	9,37	101,32
19	A36	5.1	35	51,60	54,40	54,20	52,10	4	53,08	1,43	2,70	101,47
20	A39	5.5	31	56,00	56,56	55,44	56,56	4	56,14	0,54	0,96	107,33
21	A45x	6.3	35	56,10	56,50	56,60	55,50	4	56,18	0,50	0,89	107,39
22	F28	5.1	31	56,54	54,59	55,79	57,95	4	56,22	1,41	2,50	107,47
23	A46	5.1	35	56,05	57,62	59,19	54,79	4	56,91	1,91	3,35	108,80
24	F33	5.1	35	56,10	58,21	61,32	55,98	4	57,90	2,50	4,31	110,70
25	F27	3.3	22	63,31	59,77	63,83	52,31	4	59,81	5,31	8,88	114,33
26	F25x	3.3	31	63,10	61,70	63,20	61,50	4	62,38	0,90	1,44	119,25
27	A58x	5.5	22	66,74	63,51	65,43	61,47	4	64,29	2,30	3,58	122,90
28	F11	5.1	31	112,00	120,00	106,00	119,00	0	114,3 b *	6,55	5,73	218,42
29												
30												
31	A67	3.5	35	<50	<50	<50	<50					
32	A83	3.3	31	<50	<50	<50	<50					
33	F06x	5.5	31	<40	<40	<40	<40					
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	104	52,31	1,779	3,401
	30	% from the mean		
L			SR	VR
26			5,922	11,322

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	3.1	31	11,30	12,10	11,60	12,80	4	11,95	0,66	5,49	74,69
2	F14	4.1	31	13,30	13,50	13,40	13,30	4	13,38	0,10	0,72	83,59
3	A59	0	0	13,35	13,49	13,55	13,38	4	13,44	0,09	0,70	84,01
4	A85	5.1	31	12,70	14,90	13,70	12,80	4	13,53	1,02	7,55	84,53
5	A39	5.5	31	14,78	14,69	15,15	14,89	4	14,88	0,20	1,33	92,98
6	A46	5.1	31	16,24	15,30	15,41	15,49	4	15,61	0,43	2,74	97,56
7	F08x	5.5	32	15,66	15,89	15,47	16,05	4	15,77	0,25	1,62	98,54
8	F16x	4.1	35	15,90	13,48	17,48	16,32	4	15,80	1,68	10,65	98,72
9	A67	3.5	35	15,20	14,80	17,80	16,00	4	15,95	1,33	8,34	99,69
10	F28x	5.1	31	16,15	15,87	15,96	16,24	4	16,05	0,17	1,06	100,33
11	F07x	4.1	31	16,52	14,76	16,37	16,72	4	16,09	0,90	5,59	100,58
12	A55	5.5	35	15,73	16,06	16,57	16,33	4	16,17	0,36	2,23	101,08
13	F18x	3.1	31	16,40	16,30	16,20	16,20	4	16,28	0,10	0,59	101,72
14	F19x	5.5	31	16,40	16,10	16,10	16,50	4	16,28	0,21	1,27	101,72
15	F20x	5.5	31	16,20	16,20	16,40	16,40	4	16,30	0,12	0,71	101,87
16	A65	4.1	31	16,30	16,00	16,20	17,20	4	16,43	0,53	3,24	102,65
17	A61x	5.1	31	16,71	16,84	16,54	16,58	4	16,67	0,14	0,81	104,16
18	F32x	5.1	31	17,10	16,90	16,80	16,80	4	16,90	0,14	0,84	105,62
19	F05x	5.5	31	17,20	17,00	17,00	16,80	4	17,00	0,16	0,96	106,25
20	F33	5.1	35	16,41	16,80	17,58	18,06	4	17,21	0,75	4,33	107,58
21	A36	5.1	31	17,60	17,60	15,60	18,50	4	17,33	1,23	7,08	108,28
22	A79	5.7	35	17,50	17,50	17,50	18,00	4	17,63	0,25	1,42	110,15
23	A47	5.1	31	17,10	17,80	18,40	17,80	4	17,78	0,53	2,99	111,09
24	F23	5.1	31	20,75	20,86	18,49	18,38	4	19,62	1,37	6,98	122,62
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N	Mean	SI	VI	
all labs	96	16,00	0,529	3,307
	20	% from the mean		

* = non tolerable mean because more than +/-

L	SR	VR
24	1,646	10,287

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F14	4.1	31	19,70	19,30	19,50	19,70	4	19,55	0,19	0,98	82,45
2	A50	3.1	31	19,50	20,30	19,20	20,00	4	19,75	0,49	2,50	83,29
3	A59	0	0	20,71	18,20	19,99	20,66	4	19,89	1,17	5,90	83,88
4	A85	5.1	31	18,80	22,10	19,65	20,45	4	20,25	1,41	6,94	85,40
5	F08x	5.5	32	21,29	20,93	20,87	21,11	4	21,05	0,19	0,91	88,78
6	A39	5.5	31	23,38	22,88	22,21	22,66	4	22,78	0,48	2,13	96,08
7	F07x	4.1	31	23,25	21,14	23,54	23,45	4	22,85	1,14	5,00	96,35
8	F28x	5.1	31	22,38	23,47	23,43	23,59	4	23,22	0,56	2,42	97,91
9	A46	5.1	31	24,74	22,69	22,96	22,86	4	23,31	0,96	4,11	98,32
10	F18x	3.1	31	23,50	23,40	23,20	23,50	4	23,40	0,14	0,60	98,69
11	A47	5.1	31	22,40	21,70	25,60	24,40	4	23,53	1,80	7,63	99,21
12	F20x	5.5	31	23,80	23,90	23,70	23,90	4	23,83	0,10	0,40	100,48
13	A61x	5.1	31	23,91	23,96	23,95	23,60	4	23,85	0,17	0,72	100,60
14	F16x	4.1	35	23,90	23,17	23,86	25,43	4	24,09	0,95	3,96	101,60
15	A55	5.5	35	23,43	24,43	24,30	24,36	4	24,13	0,47	1,95	101,76
16	F19x	5.5	31	24,40	23,90	24,30	24,10	4	24,18	0,22	0,92	101,95
17	F32x	5.1	31	24,00	24,60	24,50	24,60	4	24,43	0,29	1,18	103,01
18	A67	3.5	35	25,20	24,60	26,30	26,30	4	25,60	0,84	3,30	107,96
19	A36	5.1	31	25,70	24,70	25,20	26,90	4	25,63	0,94	3,68	108,07
20	A65	4.1	31	23,90	26,70	29,30	23,40	4	25,83	2,73	10,59	108,91
21	F05x	5.5	31	26,20	25,90	25,90	25,70	4	25,93	0,21	0,80	109,33
22	A79	5.7	35	26,00	26,80	27,10	26,70	4	26,65	0,47	1,75	112,39
23	F33	5.1	35	26,66	27,40	25,90	27,37	4	26,83	0,71	2,64	113,16
24	F23	5.1	31	29,33	28,70	27,63	28,55	4	28,55	*	2,46	120,42
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	96	23,71	0,723	3,048
	20	% from the mean		

	L	SR	VR
24		2,362	9,961

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	A50	3.1	31	12,30	13,50	11,80	12,60	4	12,55	0,71	5,69	71,34
2	A85	5.1	31	13,65	12,75	13,90	13,65	4	13,49	0,51	3,75	76,67
3	A59	0	0	13,57	14,19	15,15	15,27	4	14,55	0,81	5,57	82,68
4	F14	4.1	31	14,80	15,30	14,70	14,80	4	14,90	0,27	1,82	84,70
5	F08x	5.5	32	15,84	16,25	16,01	15,71	4	15,95	0,23	1,45	90,68
6	A39	5.5	31	17,09	17,17	16,95	17,25	4	17,12	0,13	0,75	97,29
7	A55	5.5	35	17,25	17,16	17,13	17,11	4	17,16	0,06	0,36	97,56
8	A67	3.5	35	18,10	16,20	18,80	16,20	4	17,33	1,33	7,68	98,49
9	F16x	4.1	35	14,39	17,92	19,95	18,71	4	17,74	2,39	13,45	100,86
10	F07x	4.1	31	18,19	16,24	18,64	18,12	4	17,80	1,06	5,98	101,17
11	A61x	5.1	31	17,75	17,79	17,93	17,80	4	17,82	0,08	0,43	101,29
12	A46	5.1	31	19,08	17,53	17,58	17,29	4	17,87	0,82	4,57	101,58
13	A79	5.7	35	17,30	18,10	18,10	18,20	4	17,93	0,42	2,34	101,90
14	F28x	5.1	31	18,12	17,66	18,15	18,31	4	18,06	0,28	1,56	102,66
15	F18x	3.1	31	18,10	18,10	18,10	18,10	4	18,10	0,00	0,00	102,89
16	F20x	5.5	31	18,40	18,40	18,00	18,30	4	18,28	0,19	1,04	103,89
17	F19x	5.5	31	18,60	18,80	18,20	18,30	4	18,48	0,28	1,49	105,02
18	F05x	5.5	31	18,90	18,70	18,50	18,50	4	18,65	0,19	1,03	106,02
19	F32x	5.1	31	18,80	18,90	18,90	18,70	4	18,83	0,10	0,51	107,01
20	F33	5.1	35	19,93	18,45	19,74	19,22	4	19,34	0,66	3,42	109,91
21	A47	5.1	31	18,60	19,60	18,90	20,90	4	19,50	1,02	5,25	110,85
22	A65	4.1	31	21,30	20,10	17,40	20,20	4	19,75	1,66	8,40	112,27
23	A36	5.1	31	19,30	21,10	19,80	20,80	4	20,25	0,84	4,16	115,11
24	F23	5.1	31	20,40	20,82	22,77	19,14	4	20,78	1,51	7,24	118,14
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* = non tolerable mean because more than +/-

N	Mean	SI	VI
all labs	96	17,59	0,647
20	% from the mean	3,680	

L	SR	VR
24	2,035	11,567

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

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	F14	4.1	31	17,70	17,80	17,90	17,90	4	17,83	0,10	0,54	81,61
2	A85	5.1	31	18,15	17,95	18,10	17,99	4	18,05	0,09	0,52	82,63
3	A50	3.1	31	19,80	17,60	16,70	20,00	4	18,53	1,63	8,81	84,82
4	A59	0	0	18,07	17,40	19,27	19,70	4	18,61	1,06	5,70	85,21
5	F05x	5.5	31	19,80	20,00	20,00	20,00	4	19,95	0,10	0,50	91,34
6	A39	5.5	31	21,08	20,48	20,95	20,89	4	20,85	0,26	1,23	95,47
7	F08x	5.5	32	20,73	21,15	21,26	20,83	4	20,99	0,25	1,20	96,12
8	A67	3.5	35	22,00	20,90	21,60	20,40	4	21,23	0,71	3,36	97,18
9	F28x	5.1	31	21,47	21,06	21,05	21,48	4	21,27	0,25	1,16	97,37
10	A55	5.5	35	21,52	21,42	21,44	21,74	4	21,53	0,15	0,68	98,58
11	F07x	4.1	31	21,63	19,81	22,63	22,18	4	21,56	1,24	5,74	98,73
12	A46	5.1	31	23,87	20,75	20,94	21,00	4	21,64	1,49	6,89	99,08
13	F18x	3.1	31	21,50	21,80	21,60	21,80	4	21,68	0,15	0,69	99,24
14	F20x	5.5	31	22,30	22,20	22,00	21,70	4	22,05	0,26	1,20	100,96
15	F19x	5.5	31	22,40	22,10	22,20	22,10	4	22,20	0,14	0,64	101,65
16	A61x	5.1	31	21,96	22,25	22,42	22,28	4	22,23	0,19	0,87	101,77
17	F32x	5.1	31	23,10	22,90	23,20	23,00	4	23,05	0,13	0,56	105,54
18	F33	5.1	35	22,63	24,02	22,89	23,56	4	23,28	0,63	2,72	106,57
19	F16x	4.1	35	26,41	21,67	24,77	20,57	4	23,36	2,70	11,58	106,93
20	A36	5.1	31	25,80	24,10	23,00	21,10	4	23,50	1,97	8,39	107,60
21	A79	5.7	35	23,30	24,20	24,20	23,40	4	23,78	0,49	2,07	108,86
22	A47	5.1	31	25,60	22,50	24,10	24,20	4	24,10	1,27	5,26	110,35
23	F23	5.1	31	26,22	25,07	26,01	25,77	4	25,77	0,50	1,94	117,98
24	A65	4.1	31	24,20	23,00	30,50	31,00	4	27,18	*	4,16	124,42
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* = non tolerable mean because more than +/-

	N	Mean	SI	VI
all labs	96	21,84	0,831	3,803
	20	% from the mean		

L	SR	VR
24	2,282	10,449

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	1	F33	5.1	35	74,43	74,99	78,32	79,27	76,75	2,401	3,128
			A67	3.5	35	86,8	84,4	81,6	74,9	81,93	5,143	6,278
			F06x	5.5	31	90,9	90,2	88,1	86,8	89,00	1,889	2,122
			A80	5.1	35	93,8	88,4	89,5	89,3	90,25	2,415	2,675
			A60	5.1	31	92	91	87	92	90,50	2,380	2,630
			F15x	4.1	31	95	96	89	88	92,00	4,082	4,437
			F05x	5.5	31	92,1	93,8	92,5	93,2	92,90	0,753	0,810
			A79	5.7	35	92,2	92,6	94,9	96,3	94,00	1,941	2,065
			F16x	4.1	31	96,5	91,1	103	89,4	95,00	6,132	6,455
			F18x	3.1	31	94,4	97,1	97,9	92,9	95,58	2,329	2,436
			F25x	3.3	31	95,1	97,4	94,3	96,9	95,93	1,466	1,528
			A59	0	0	91,29	93,48	109,69	89,87	96,08	9,192	9,567
			A61x	5.1	31	96,93	96,048	97,682	94,766	96,36	1,253	1,300
			A83	3.3	31	94,9	98,24	96,74	98,68	97,14	1,709	1,759
			A45x	6.3	31	98,2	96,6	98,1	98,4	97,83	0,826	0,845
			A39	5.5	31	99,3006	99,0671	99,3952	99,363	99,28	0,148	0,149
			A55	5.5	35	101,6	98,46	97,76	101,2	99,76	1,928	1,933
			A65	4.1	31	101	97	99	104	100,25	2,986	2,979
			A36	5.1	31	103,2	103,3	104,9	104,1	103,88	0,793	0,764
			A51	5.5	31	112	105	103	103	105,75	4,272	4,040
			A53	9.1	42	111,5	109,1	98,5	112,1	107,80	6,334	5,876
Al	(µg/g)	2	F14	4.1	31	111	115	113	112	112,75	1,708	1,515
			A57	1	42	126,1	125,2	125	124,1	125,10	0,821	0,656
			A67	3.5	35	22,6	24,9	25,6	25,8	24,73	1,468	5,938
			F33	5.1	35	27,72	27,56	32,71	29	29,25	2,397	8,194
			A60	5.1	31	40	40	36	41	39,25	2,217	5,649
			F15x	4.1	31	40	44	39	40	40,75	2,217	5,441
			A80	5.1	35	44,4	47,2	39,8	38,5	42,48	4,041	9,514
			F06x	5.5	31	40,9	43,9	43,1	42,7	42,65	1,269	2,975

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	2	A36	5.1	31	43,8	42,9	48,2	46,4	45,33	2,424	5,348
			A61x	5.1	31	44,659	45,48	45,431	45,973	45,39	0,543	1,196
			F16x	4.1	31	44	44,7	42,8	51,6	45,78	3,962	8,655
			F18x	3.1	31	45,9	49,1	50,4	45,3	47,68	2,466	5,173
			F25x	3.3	31	48,7	47,8	48,8	48,2	48,38	0,465	0,960
			A39	5.5	31	50,6696	48,236	47,815	47,625	48,59	1,412	2,906
			A79	5.7	35	49,1	50,1	49,1	49,3	49,40	0,476	0,964
			A55	5.5	35	46,61	50,42	51,46	52,42	50,23	2,546	5,069
			F05x	5.5	31	52	50,1	50,1	49,3	50,38	1,147	2,277
			A59	0	0	38,67	41,54	42,12	84,63	51,74	21,978	42,479
			A45x	6.3	31	52,4	53,4	53,8	53,8	53,35	0,661	1,239
			A51	5.5	31	54,1	53,3	53,3	55,1	53,95	0,854	1,584
			A65	4.1	31	49	58	68	45	55,00	10,231	18,601
			A83	3.3	31	55,15	56,45	59,52	57,64	57,19	1,857	3,246
			F14	4.1	31	62,4	71,9	66,9	71,6	68,20	4,494	6,589
			A57	1	42	105,5	106,1	104,9	103	104,88	1,343	1,280
			A53	9.1	42	108	115,4	113,3	126,7	115,85	7,875	6,798
Al	(µg/g)	3	A67	3.5	35	37,5	39,8	40,1	40,1	39,38	1,258	3,195
			F33	5.1	35	57,07	56,01	62,79	52,53	57,10	4,260	7,461
			A60	5.1	31	71	69	71	70	70,25	0,957	1,363
			F18x	3.1	31	69,4	74,5	71	72,4	71,83	2,164	3,013
			F05x	5.5	31	76,8	75,1	74,4	74,4	75,18	1,132	1,506
			A80	5.1	35	93,4	90	74,3	75,4	83,28	9,837	11,813
			F06x	5.5	31	84,4	79,8	85,7	84,5	83,60	2,601	3,112
			A61x	5.1	31	80,253	80,34	87,003	88,282	83,97	4,273	5,089
			A59	0	0	72,72	82,03	100,27	88,43	85,86	11,570	13,475
			A39	5.5	31	88,3022	88,0632	88,8009	88,444	88,40	0,309	0,349
			A83	3.3	31	86,39	96,66	90,89	81,97	88,98	6,284	7,063
			F25x	3.3	31	89,1	92,2	89,7	91,9	90,73	1,554	1,713

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	3	A51	5.5	31	88,5	94,9	93,7	93,2	92,58	2,809	3,034
			A45x	6.3	31	93,9	93,5	93,9	91,3	93,15	1,248	1,339
			F16x	4.1	31	94,4	100,3	92,6	93,9	95,30	3,419	3,587
			F15x	4.1	31	104	112	90	103	102,25	9,106	8,905
			A36	5.1	31	103,9	102,2	103,9	104,5	103,63	0,991	0,957
			A79	5.7	35	109	109	110	113	110,25	1,893	1,717
			A55	5.5	35	111,5	113,9	112,8	113,3	112,88	1,021	0,905
			A65	4.1	31	125	112	100	115	113,00	10,296	9,111
			F14	4.1	31	129	141	124	129	130,75	7,228	5,528
			A57	1	42	133	128,8	130,3	135,7	131,95	3,045	2,307
			A53	9.1	42	168,7	186,7	171,7	164,3	172,85	9,721	5,624
Al	(µg/g)	4	A67	3.5	35	82,3	78,8	81,7	79,2	80,50	1,757	2,182
			F33	5.1	35	84,22	92,32	85,09	89,56	87,80	3,816	4,347
			A80	5.1	35	111	107	100	97,5	103,88	6,223	5,991
			F05x	5.5	31	105	104	104	103	104,00	0,816	0,785
			F06x	5.5	31	106	105	104	102	104,25	1,708	1,638
			A60	5.1	31	103	101	111	108	105,75	4,573	4,325
			A61x	5.1	31	107,179	105,712	108,493	105,866	106,81	1,299	1,217
			F18x	3.1	31	106	107	108	107	107,00	0,816	0,763
			F15x	4.1	31	111	109	108	106	108,50	2,082	1,919
			A59	0	0	107,85	97,96	112,37	121,57	109,94	9,816	8,929
			F16x	4.1	31	103,4	114,7	118,5	115,3	112,98	6,598	5,840
			A39	5.5	31	116,73	116,15	113,1	114,09	115,02	1,708	1,485
			F25x	3.3	31	113,4	116,1	116,5	116,1	115,53	1,429	1,237
			A51	5.5	31	119	119	120	117	118,75	1,258	1,060
			A79	5.7	35	117	120	119	119	118,75	1,258	1,060
			A83	3.3	31	110,8	122	116,3	129,2	119,58	7,879	6,589
			A36	5.1	31	118,8	121,8	119,8	124,2	121,15	2,385	1,969
			A57	1	42	121,1	120,4	121,1	122,1	121,18	0,699	0,577

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Al	(µg/g)	4	A55	5.5	35	122,9	122,1	122,3	122,1	122,35	0,379	0,309
			A45x	6.3	31	115	115	129	132	122,75	9,032	7,358
			F14	4.1	31	142	146	133	141	140,50	5,447	3,877
			A65	4.1	31	130	122	158	159	142,25	19,050	13,392
			A53	9.1	42	150,6	140,5	138	142,7	142,95	5,449	3,812
As	(µg/g)	1	F05x	5.5	22	<,413	<,413	<,413	<,413			
			A79	5.7	35	0,0132	0,0133	0,0124	0,0139	0,01	0,001	4,670
			A55	5.5	35	0,0138	0,0138	0,0131	0,013	0,01	0,000	3,240
			A82	5.1	35	0,016	0,013	0,013	0,014	0,01	0,001	10,102
			A39	5.5	31	0,0135	0,0167	0,0137	0,0126	0,01	0,002	12,617
			F32x	5.1	35	0,015	0,016	0,018	0,017	0,02	0,001	7,824
			A36	5.1	35	0,017	0,016	0,017	0,017	0,02	0,001	2,985
			F16x	4.1	35	0,0378	0,0445	0,0328	0,0343	0,04	0,005	13,940
			F33	5.1	35	0,053	0,05	0,043	0,048	0,05	0,004	8,666
			A80	5.1	35	0,0625	0,0773	0,0861	0,0706	0,07	0,010	13,514
As	(µg/g)	2	F05x	5.5	22	<,413	<,413	<,413	<,413			
			A39	5.5	31	0,0986	0,0943	0,0896	0,0883	0,09	0,005	5,073
			A79	5.7	35	0,128	0,129	0,135	0,127	0,13	0,004	2,770
			A36	5.1	35	0,133	0,131	0,132	0,131	0,13	0,001	0,727
			F33	5.1	35	0,143	0,133	0,133	0,13	0,13	0,006	4,214
			F32x	5.1	35	0,132	0,137	0,13	0,15	0,14	0,009	6,554
			A82	5.1	35	0,143	0,145	0,144	0,149	0,15	0,003	1,811
			A55	5.5	35	0,15	0,151	0,146	0,153	0,15	0,003	1,963
			F16x	4.1	35	0,1408	0,1526	0,1684	0,1648	0,16	0,013	8,008
			A80	5.1	35	0,179	0,211	0,211	0,213	0,20	0,016	8,040
As	(µg/g)	3	F05x	5.5	22	<,413	<,413	<,413	<,413			
			A39	5.5	31	0,089	0,0844	0,0846	0,0817	0,08	0,003	3,558
			F33	5.1	35	0,086	0,087	0,095	0,1	0,09	0,007	7,264
			A55	5.5	35	0,1	0,101	0,101	0,0966	0,10	0,002	2,095

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
As	(µg/g)	3	F32x	5.1	35	0,101	0,102	0,101	0,099	0,10	0,001	1,249
			A36	5.1	35	0,103	0,101	0,104	0,104	0,10	0,001	1,373
			A79	5.7	35	0,105	0,103	0,106	0,107	0,11	0,002	1,623
			A82	5.1	35	0,104	0,105	0,11	0,109	0,11	0,003	2,751
			F16x	4.1	35	0,1336	0,1511	0,1276	0,1388	0,14	0,010	7,253
			A80	5.1	35	0,171	0,156	0,166	0,17	0,17	0,007	4,132
As	(µg/g)	4	F05x	5.5	22	<,413	<,413	<,413	<,413			
			A39	5.5	31	0,0346	0,0377	0,0322	0,0332	0,03	0,002	6,957
			A55	5.5	35	0,0376	0,0371	0,0378	0,0374	0,04	0,000	0,797
			A36	5.1	35	0,039	0,039	0,039	0,039	0,04	0,000	0,000
			F32x	5.1	35	0,041	0,039	0,04	0,038	0,04	0,001	3,268
			A79	5.7	35	0,04	0,0397	0,0392	0,0396	0,04	0,000	0,834
			A82	5.1	35	0,039	0,044	0,039	0,038	0,04	0,003	6,770
			F33	5.1	35	0,05	0,047	0,054	0,043	0,05	0,005	9,597
			F16x	4.1	35	0,0381	0,0605	0,0493	0,0512	0,05	0,009	18,471
			A80	5.1	35	0,111	0,103	0,1	0,101	0,10	0,005	4,811
Ba	(µg/g)	1	A80	5.1	35	40,1	38,2	41,3	41,1	40,18	1,417	3,528
			A65	4.1	31	40,3	40,5	40,5	40,9	40,55	0,252	0,621
			A82	5.1	31	40,4	39,9	40,9	41,8	40,75	0,810	1,989
			A61x	5.1	31	41,257	40,9	40,823	41,029	41,00	0,190	0,463
			F16x	4.1	35	42,79	41	43,64	38,99	41,61	2,062	4,955
			A39	5.5	31	41,9065	41,305	42,4488	41,6508	41,83	0,482	1,152
Ba	(µg/g)	2	A61x	5.1	31	20,096	20,261	20,172	20,871	20,35	0,354	1,739
			A65	4.1	31	21,3	21,4	21,6	21,3	21,40	0,141	0,661
			F16x	4.1	35	21,44	21,98	21,76	21,8	21,75	0,225	1,033
			A80	5.1	35	21,1	22,3	22,4	21,6	21,85	0,614	2,809
			A39	5.5	31	22,434	21,5222	21,858	21,863	21,92	0,378	1,726
			A82	5.1	31	21,4	22	22,1	22,2	21,93	0,359	1,639

16th Needle/Leaf Interlaboratory Comparison Test 2013/2014

Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ba	(µg/g)	3	A61x	5.1	31	2,134	2,227	2,418	2,271	2,26	0,118	5,231
			A80	5.1	35	2,61	2,54	2,44	2,51	2,53	0,070	2,791
			A65	4.1	31	2,6	2,6	2,5	2,5	2,55	0,058	2,264
			A82	5.1	31	2,54	2,57	2,66	2,67	2,61	0,065	2,483
			F16x	4.1	35	2,664	2,956	2,806	2,817	2,81	0,119	4,244
			A39	5.5	31	3,2992	3,2619	3,2281	3,3498	3,28	0,052	1,589
Ba	(µg/g)	4	A80	5.1	35	20,9	21,2	21,3	21,3	21,18	0,189	0,894
			A61x	5.1	31	21,408	21,2	21,25	21,439	21,32	0,117	0,549
			A65	4.1	31	21,6	21,3	21,8	21,1	21,45	0,311	1,449
			A82	5.1	31	21,3	22	21,8	22	21,78	0,330	1,517
			A39	5.5	31	23,3	23,147	22,885	22,9471	23,07	0,190	0,823
			F16x	4.1	35	23,27	23,84	23,48	22,11	23,18	0,748	3,228
Bi	(µg/g)	1	A80	5.1	35	<,007	<,007	<,007	<,007			
			F16x	4.1	35	0,001	0,001	0,0011	0,0012	0,001	0,000	8,906
Bi	(µg/g)	2	A80	5.1	35	<,007	<,007	0,0079	<,007			
			F16x	4.1	35	0,0063	0,0067	0,0058	0,0063	0,006	0,000	5,873
Bi	(µg/g)	3	F16x	4.1	35	0,0198	0,0213	0,0162	0,0185	0,019	0,002	11,404
			A80	5.1	35	0,0212	0,0189	0,0183	0,02	0,020	0,001	6,521
Bi	(µg/g)	4	A80	5.1	35	<,007	<,007	<,007	<,007			
			F16x	4.1	35	0,0021	0,002	0,0017	0,0016	0,002	0,000	12,867
Cl	(µg/g)	1	F05x	0	73	308	340	339	331	329,50	14,888	4,519
			A53	9.1	42	341	333	334	336	336,00	3,559	1,059
			A57	1	42	400	400	400	400	400,00	0,000	0,000
			F02	2.8	82	410	450	450	420	432,50	20,616	4,767
Cl	(µg/g)	2	A57	1	42	2470	2490	2540	2510	2502,50	29,861	1,193
			F05x	0	73	2722	2615	2757	2758	2713,00	67,444	2,486
			A53	9.1	42	2817	2807	2814	2829	2816,75	9,179	0,326
			F02	2.8	82	2840	2830	2850	2830	2837,50	9,574	0,337

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cl	(µg/g)	3	A53	9.1	42	77	65	60	54	64,00	9,764	15,256
			F05x	0	73	101	110	95	89	98,75	8,958	9,072
			F02	2.8	82	150	140	130	130	137,50	9,574	6,963
			A57	1	42	160	160	160	160	160,00	0,000	0,000
Cl	(µg/g)	4	F05x	0	73	389	399	336	373	374,25	27,657	7,390
			A53	9.1	42	406	407	402	401	404,00	2,944	0,729
			A57	1	42	440	440	450	440	442,50	5,000	1,130
			F02	2.8	82	490	480	480	480	482,50	5,000	1,036
Co	(µg/g)	1	F33	5.1	35	0,352	0,346	0,362	0,371	0,36	0,011	3,082
			A79	5.7	35	0,428	0,437	0,434	0,435	0,43	0,004	0,893
			F06x	5.5	31	0,438	0,449	0,433	0,475	0,45	0,019	4,174
			A45x	6.3	35	0,45	0,444	0,471	0,443	0,45	0,013	2,885
			A39	5.5	31	0,453	0,4575	0,4567	0,4558	0,46	0,002	0,430
			A80	5.1	35	0,481	0,455	0,467	0,466	0,47	0,011	2,281
			A55	5.5	35	0,47	0,471	0,472	0,465	0,47	0,003	0,662
			A61x	5.1	31	0,47	0,473	0,472	0,468	0,47	0,002	0,471
			A36	5.1	35	0,478	0,476	0,476	0,471	0,48	0,003	0,628
			F16x	4.1	35	0,5063	0,4841	0,4648	0,4617	0,48	0,021	4,297
			F32x	5.1	35	0,506	0,496	0,5	0,503	0,50	0,004	0,852
			A82	5.1	35	0,496	0,502	0,497	0,519	0,50	0,011	2,117
			F12x	4.1	32	0,58	0,51	0,55	0,55	0,55	0,029	5,246
Co	(µg/g)	2	F12x	4.1	32	<,1	<,1	<,1	<,1			
			A61x	5.1	31	0,03	0,033	0,033	0,033	0,03	0,002	4,651
			A79	5.7	35	0,0421	0,0425	0,0422	0,0423	0,04	0,000	0,404
			F32x	5.1	35	0,041	0,042	0,046	0,044	0,04	0,002	5,127
			A36	5.1	35	0,044	0,045	0,046	0,044	0,04	0,001	2,140
			F33	5.1	35	0,05	0,046	0,045	0,044	0,05	0,003	5,686
			A80	5.1	35	0,0455	0,0499	0,0452	0,0467	0,05	0,002	4,592
			A82	5.1	35	0,048	0,049	0,05	0,048	0,05	0,001	1,964

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Co	(µg/g)	2	A39	5.5	31	0,0518	0,0486	0,054	0,0448	0,05	0,004	8,039
			A55	5.5	35	0,0509	0,0505	0,0518	0,0524	0,05	0,001	1,674
			A45x	6.3	35	0,0677	0,0665	0,0664	0,0685	0,07	0,001	1,498
			F16x	4.1	35	0,0695	0,0828	0,0608	0,0843	0,07	0,011	15,088
			F06x	5.5	31	0,125	0,084	0,163	0,115	0,12	0,033	26,753
Co	(µg/g)	3	F33	5.1	35	0,086	0,078	0,087	0,081	0,08	0,004	5,112
			A80	5.1	35	0,113	0,11	0,105	0,107	0,11	0,004	3,218
			A79	5.7	35	0,111	0,108	0,109	0,11	0,11	0,001	1,179
			A36	5.1	35	0,11	0,11	0,11	0,112	0,11	0,001	0,905
			A45x	6.3	35	0,115	0,11	0,107	0,116	0,11	0,004	3,788
			F32x	5.1	35	0,114	0,113	0,111	0,11	0,11	0,002	1,630
			F16x	4.1	35	0,1069	0,1167	0,1103	0,1151	0,11	0,004	3,996
			A55	5.5	35	0,113	0,112	0,113	0,111	0,11	0,001	0,853
			A39	5.5	31	0,1134	0,1155	0,1197	0,1206	0,12	0,003	2,916
			A61x	5.1	31	0,119	0,116	0,116	0,12	0,12	0,002	1,751
			A82	5.1	35	0,12	0,122	0,122	0,122	0,12	0,001	0,823
			F12x	4.1	32	0,15	0,18	0,19	0,17	0,17	0,017	9,900
			F06x	5.5	31	0,198	0,178	0,181	0,199	0,19	0,011	5,844
Co	(µg/g)	4	F33	5.1	35	0,444	0,469	0,457	0,471	0,46	0,012	2,710
			A39	5.5	31	0,6	0,6014	0,5894	0,5947	0,60	0,005	0,918
			A45x	6.3	35	0,599	0,613	0,628	0,567	0,60	0,026	4,324
			A80	5.1	35	0,631	0,622	0,593	0,583	0,61	0,023	3,771
			A79	5.7	35	0,606	0,615	0,611	0,612	0,61	0,004	0,612
			A61x	5.1	31	0,609	0,615	0,619	0,62	0,62	0,005	0,811
			A55	5.5	35	0,629	0,622	0,625	0,623	0,62	0,003	0,496
			A36	5.1	35	0,631	0,631	0,624	0,625	0,63	0,004	0,601
			F16x	4.1	35	0,5364	0,6562	0,6844	0,6441	0,63	0,065	10,285
			F06x	5.5	31	0,667	0,655	0,654	0,64	0,65	0,011	1,689
			F32x	5.1	35	0,658	0,664	0,658	0,662	0,66	0,003	0,454

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Co	(µg/g)	4	F12x	4.1	32	0,72	0,69	0,71	0,71	0,71	0,013	1,779
			A82	5.1	35	0,716	0,741	0,718	0,72	0,72	0,012	1,605
Cr	(µg/g)	1	A67	3.5	35	1,95	1,88	1,9	1,71	1,86	0,104	5,604
			F18x	3.1	35	2,43	1,9	2,35	2,21	2,22	0,233	10,503
			F33	5.1	35	2,22	2,39	2,37	2,58	2,39	0,148	6,178
			F19x	5.5	31	2,6	2,12	3,46	2,58	2,69	0,559	20,787
			F06x	5.5	31	3,34	3,38	3,26	3,17	3,29	0,093	2,825
			F12x	4.1	32	3,28	3,32	3,3	3,3	3,30	0,016	0,495
			A79	5.7	35	3,14	3,84	3,19	3,39	3,39	0,319	9,406
			F15x	4.1	32	3,6	3,4	3,3	3,6	3,48	0,150	4,317
			F16x	4.1	35	3,711	3,441	3,262	3,508	3,48	0,185	5,329
			A36	5.1	35	3,54	3,64	3,39	3,64	3,55	0,118	3,326
			F32x	5.1	35	3,76	3,69	3,5	3,47	3,61	0,142	3,939
			A39	5.5	31	3,578	3,789	3,556	3,548	3,62	0,115	3,175
			A55	5.5	42	3,831	3,719	3,616	3,607	3,69	0,105	2,842
			A80	5.1	35	3,8	3,59	3,67	3,75	3,70	0,092	2,489
			A61x	5.1	31	3,821	3,621	3,613	3,877	3,73	0,136	3,641
			A45x	6.3	35	3,63	3,78	3,88	3,91	3,80	0,126	3,322
			A65	4.1	31	4	3,8	3,7	3,7	3,80	0,141	3,722
			F05x	5.5	22	3,78	3,93	3,94	3,94	3,90	0,078	2,013
			A51	5.5	31	4,04	3,96	4,12	3,97	4,02	0,074	1,842
			A82	5.1	35	4,094	3,919	4,08	4,276	4,09	0,146	3,567
Cr	(µg/g)	2	F15x	4.1	32	<2	<2	<2	<2			
			A65	4.1	31	<,2	<,2	<,2	<,2			
			F19x	5.5	31	0,624	0,633	0,569	0,709	0,63	0,058	9,088
			F06x	5.5	31	0,708	0,723	0,782	0,747	0,74	0,032	4,362
			F12x	4.1	32	0,76	0,76	0,71	0,74	0,74	0,024	3,182
			A39	5.5	31	0,8294	0,7518	0,7585	0,7406	0,77	0,040	5,225
			A67	3.5	35	0,75	0,83	0,71	0,81	0,78	0,055	7,107

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cr	(µg/g)	2	F18x	3.1	35	0,819	0,724	0,835	0,741	0,78	0,055	7,103
			A45x	6.3	35	0,805	0,786	0,777	0,834	0,80	0,025	3,148
			F32x	5.1	35	0,821	0,813	0,852	0,839	0,83	0,018	2,117
			A79	5.7	35	0,873	0,854	0,855	0,861	0,86	0,009	1,014
			F33	5.1	35	0,93	0,89	0,93	0,89	0,91	0,023	2,538
			A80	5.1	35	0,919	1,02	0,904	0,83	0,92	0,078	8,516
			A36	5.1	35	0,927	0,936	0,946	0,916	0,93	0,013	1,373
			A61x	5.1	31	0,938	0,962	0,96	0,967	0,96	0,013	1,342
			A51	5.5	31	0,99	1,02	0,97	0,96	0,99	0,026	2,686
			A82	5.1	35	0,986	1,08	0,985	1,026	1,02	0,045	4,393
			A55	5.5	42	1,074	0,9933	0,9878	1,033	1,02	0,040	3,921
			F16x	4.1	35	0,9743	1,003	1,196	1,09	1,07	0,100	9,360
			F05x	5.5	22	1,21	1,12	1,14	1,1	1,14	0,048	4,190
Cr	(µg/g)	3	A67	3.5	35	1,94	2,17	2,09	1,95	2,04	0,112	5,485
			F19x	5.5	31	1,83	2,71	2,46	2,08	2,27	0,391	17,239
			F18x	3.1	35	2,05	2,63	2,11	2,8	2,40	0,374	15,597
			F06x	5.5	31	2,51	2,85	2,53	2,46	2,59	0,177	6,858
			F33	5.1	35	2,71	2,66	2,68	2,69	2,69	0,021	0,775
			A45x	6.3	35	2,93	2,81	2,61	3,26	2,90	0,272	9,386
			F12x	4.1	32	2,98	3,02	3,08	3,03	3,03	0,041	1,359
			F16x	4.1	35	3,088	3,336	3,029	3,015	3,12	0,149	4,793
			A65	4.1	31	3	3,5	2,8	3,2	3,13	0,299	9,555
			F32x	5.1	35	3,32	3,21	3,24	3,18	3,24	0,060	1,860
			A61x	5.1	31	3,307	3,24	3,307	3,38	3,31	0,057	1,728
			A36	5.1	35	3,22	3,32	3,41	3,34	3,32	0,078	2,362
			A80	5.1	35	3,49	2,97	3,49	3,53	3,37	0,267	7,933
			A51	5.5	31	3,29	3,15	3,79	3,59	3,46	0,289	8,367
			A79	5.7	35	3,79	3,2	3,54	3,29	3,46	0,266	7,689
			A39	5.5	31	3,7176	3,5285	3,4334	3,3285	3,50	0,165	4,721

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cr	(µg/g)	3	F15x	4.1	32	3,7	4,6	3	2,8	3,53	0,814	23,091
			F05x	5.5	22	3,51	3,6	3,75	3,58	3,61	0,101	2,798
			A55	5.5	42	3,522	3,903	3,734	3,57	3,68	0,173	4,696
			A82	5.1	35	4,213	4,792	4,603	4,196	4,45	0,295	6,627
Cr	(µg/g)	4	A67	3.5	35	4,2	4,59	4,7	4,1	4,40	0,292	6,644
			F18x	3.1	35	6,24	4,47	5,06	4,88	5,16	0,760	14,713
			F19x	5.5	31	5,72	4,87	5,77	4,44	5,20	0,654	12,570
			F33	5.1	35	5,21	5,44	5,11	5,93	5,42	0,365	6,740
			F06x	5.5	31	6,97	6,78	6,94	6,76	6,86	0,108	1,571
			F12x	4.1	32	7,25	7,39	7,06	7,24	7,24	0,135	1,870
			A80	5.1	35	8	8	6,69	6,75	7,36	0,739	10,046
			F32x	5.1	35	7,61	7,3	7,44	7,64	7,50	0,158	2,113
			A61x	5.1	31	7,627	7,695	7,56	7,621	7,63	0,055	0,724
			A36	5.1	35	7,57	7,86	7,45	7,84	7,68	0,202	2,637
			A79	5.7	35	7,47	7,71	7,84	7,79	7,70	0,164	2,129
			F16x	4.1	35	6,502	7,652	8,29	8,475	7,73	0,891	11,529
			F15x	4.1	32	8,1	7,9	7,8	7,8	7,90	0,141	1,790
			A65	4.1	31	7,8	7,5	7,3	9,1	7,93	0,810	10,219
			A45x	6.3	35	7,96	7,9	8,07	7,92	7,96	0,076	0,953
			F05x	5.5	22	7,84	8,39	7,83	8,12	8,05	0,266	3,311
			A39	5.5	31	8,0007	8,255	8,2029	8,0816	8,14	0,115	1,418
			A51	5.5	31	8,14	8,07	8,37	8,14	8,18	0,131	1,600
			A55	5.5	42	8,43	8,393	8,325	8,235	8,35	0,086	1,027
			A82	5.1	35	10,147	9,986	10,378	9,828	10,08	0,235	2,329
Cs	(µg/g)	1	A80	5.1	35	0,0224	0,0216	0,026	0,0259	0,02	0,002	9,611
			A82	5.1	35	0,025	0,025	0,024	0,023	0,02	0,001	3,948
Cs	(µg/g)	2	A80	5.1	35	0,0108	0,0116	0,0124	0,012	0,01	0,001	5,839
			A82	5.1	35	0,012	0,013	0,012	0,013	0,01	0,001	4,619

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Cs	(µg/g)	3	A80	5.1	35	0,0166	0,016	0,0175	0,0177	0,02	0,001	4,683
			A82	5.1	35	0,017	0,017	0,018	0,018	0,02	0,001	3,299
Cs	(µg/g)	4	A80	5.1	35	0,0423	0,0428	0,048	0,0479	0,05	0,003	6,905
			A82	5.1	35	0,044	0,052	0,051	0,05	0,05	0,004	7,297
F	(µg/g)	1	F02	7.1	72.2	<3	<3	<3	<3			
			F32x	9.5	72.2	1,45	1,38	1,66	1,75	1,56	0,174	11,140
F	(µg/g)	2	F02	7.1	72.2	<3	<3	<3	<3			
			F32x	9.5	72.2	1,6	1,9	1,42	1,58	1,63	0,200	12,323
F	(µg/g)	3	F02	7.1	72.2	<3	<3	<3	<3			
			F32x	9.5	72.2	2,76	2,72	3,09	2,69	2,82	0,186	6,592
F	(µg/g)	4	F02	7.1	72.2	<3	<3	<3	<3			
			F32x	9.5	72.2	1,74	1,73	1,82	1,81	1,78	0,047	2,622
Hg	(ng/g)	1	F02	1	25.1	10,1	10,5	9,2	9,7	9,88	0,556	5,631
			A39	1	25	12,4	12,6	12,1	12,1	12,30	0,245	1,991
			A79	5.7	35	15,2	15,3	15,2	15,4	15,28	0,096	0,627
			A80	1	25.1	16,4	15,6	15,6	15,4	15,75	0,443	2,816
			F28	1	25.1	15,9	15,8	15,8	15,9	15,85	0,058	0,364
			A45x	1	20	17	15,4	16	15,8	16,05	0,681	4,241
			A55	5.5	25	18,8	16,9	17,1	17,5	17,58	0,854	4,859
Hg	(ng/g)	2	A39	1	25	21,6	21,6	19,6	21,3	21,03	0,960	4,568
			F02	1	25.1	21,6	21,5	20,9	20,1	21,03	0,690	3,281
			A79	5.7	35	25,3	25,7	26	25,2	25,55	0,370	1,447
			A45x	1	20	25,4	25,8	26,4	25,9	25,88	0,411	1,590
			A80	1	25.1	28,7	25,8	25,3	29	27,20	1,920	7,059
			F28	1	25.1	29	29,1	29,33	29,11	29,14	0,139	0,478
			A55	5.5	25	30,3	30,5	29,2	29,6	29,90	0,606	2,025
Hg	(ng/g)	3	F02	1	25.1	8,2	9,9	8,7	9	8,95	0,714	7,979
			A39	1	25	12,4	11,3	11,3	10,8	11,45	0,676	5,902
			A79	5.7	35	12,6	12,2	12	12,2	12,25	0,252	2,054

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Hg	(ng/g)	3	A45x	1	20	12,1	13,1	13,2	12,9	12,83	0,499	3,892
			A80	1	25.1	13,5	13,3	13,1	13,3	13,30	0,163	1,228
			F28	1	25.1	13,54	13,86	13,65	13,75	13,70	0,137	0,999
			A55	5.5	25	14,4	14,4	14,4	13,9	14,28	0,250	1,751
Hg	(ng/g)	4	F02	1	25.1	14,1	14,7	14,9	14,1	14,45	0,412	2,853
			A39	1	25	18,6	17,6	16	18,6	17,70	1,227	6,935
			A45x	1	20	18,2	18	18,7	19	18,48	0,457	2,475
			A79	5.7	35	18,3	18,6	18,5	20,1	18,88	0,826	4,377
			A55	5.5	25	20,5	19,89	17,2	18,9	19,12	1,441	7,537
			A80	1	25.1	20,2	20,2	20,4	20,3	20,28	0,096	0,472
			F28	1	25.1	20,5	21	21,1	20,6	20,80	0,294	1,415
Li	(µg/g)	1	A61x	5.1	31	0,0355	0,0372	0,0399	0,0195	0,03	0,009	27,848
Li	(µg/g)	2	A61x	5.1	31	0,0564	0,0575	0,0575	0,0566	0,06	0,001	1,023
Li	(µg/g)	3	A61x	5.1	31	0,0271	0,0272	0,027	0,0294	0,03	0,001	4,166
Li	(µg/g)	4	A61x	5.1	31	0,0376	0,0349	0,0376	0,037	0,04	0,001	3,485
Mo	(µg/g)	1	A61x	5.1	31	0,205	0,206	0,209	0,202	0,21	0,003	1,405
			A79	5.7	35	0,222	0,224	0,225	0,224	0,22	0,001	0,562
			A55	5.5	35	0,235	0,216	0,221	0,227	0,22	0,008	3,640
			A45x	6.3	35	0,219	0,232	0,226	0,235	0,23	0,007	3,101
			A36	5.1	35	0,248	0,241	0,237	0,238	0,24	0,005	2,061
			A80	5.1	35	0,258	0,232	0,286	0,247	0,26	0,023	8,918
			F16x	4.1	35	0,2808	0,294	0,2921	0,2789	0,29	0,008	2,688
Mo	(µg/g)	2	A61x	5.1	31	0,702	0,707	0,701	0,699	0,70	0,003	0,485
			A79	5.7	35	0,751	0,767	0,761	0,76	0,76	0,007	0,869
			A55	5.5	35	0,806	0,821	0,81	0,802	0,81	0,008	1,010
			A36	5.1	35	0,811	0,817	0,812	0,815	0,81	0,003	0,338
			F16x	4.1	35	0,7871	0,8329	0,8787	0,844	0,84	0,038	4,524
			A80	5.1	35	0,807	0,868	0,858	0,857	0,85	0,027	3,239
			A45x	6.3	35	0,869	0,873	0,871	0,879	0,87	0,004	0,495

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Mo	(µg/g)	3	A55	5.5	35	0,384	0,384	0,389	0,386	0,39	0,002	0,613
			A61x	5.1	31	0,369	0,399	0,389	0,399	0,39	0,014	3,636
			F16x	4.1	35	0,4062	0,4062	0,3552	0,4236	0,40	0,030	7,431
			A79	5.7	35	0,386	0,394	0,409	0,424	0,40	0,017	4,166
			A36	5.1	35	0,395	0,409	0,411	0,403	0,40	0,007	1,777
			A45x	6.3	35	0,424	0,4	0,395	0,425	0,41	0,016	3,826
			A80	5.1	35	0,412	0,431	0,379	0,466	0,42	0,036	8,616
Mo	(µg/g)	4	A61x	5.1	31	0,292	0,297	0,311	0,303	0,30	0,008	2,720
			A55	5.5	35	0,314	0,312	0,312	0,312	0,31	0,001	0,320
			A80	5.1	35	0,319	0,323	0,312	0,301	0,31	0,010	3,072
			A45x	6.3	35	0,325	0,298	0,322	0,318	0,32	0,012	3,856
			A36	5.1	35	0,32	0,33	0,331	0,323	0,33	0,005	1,642
			A79	5.7	35	0,326	0,334	0,33	0,335	0,33	0,004	1,242
			F16x	4.1	35	0,3587	0,3894	0,3833	0,3928	0,38	0,015	4,044
Na	(µg/g)	1	F15x	4.1	31	<40	<40	<40	<40			
			A55	5.5	31	<25	<25	<25	<25			
			A65	4.1	31	<6	<6	<6	<6			
			F16x	4.1	35	<5	<5	<5	<5			
			F18x	3.1	31	3,36	3,01	2,91	3,02	3,08	0,196	6,386
			F33	5.1	35	4,03	3,86	3,9	3,66	3,86	0,153	3,968
			A60	5.1	31	5,883	5,575	5,203	7,049	5,93	0,798	13,457
			A36	5.1	31	7,29	6,01	7,59	6,94	6,96	0,685	9,849
			F06x	5.5	31	15,2	6,95	6,68	3,8	8,16	4,907	60,149
			F25x	3.3	31	9,87	10,86	9,83	10,79	10,34	0,564	5,455
			F05x	5.5	21.1	11,3	12,6	9,57	15,2	12,17	2,372	19,497
			A39	5.5	31	15,3608	16,43	15,47	16,671	15,98	0,664	4,156
			A67	3.5	35	28,4	28,4	25,8	23,5	26,53	2,360	8,897
			A34	3.3	90	35,7	35,7	35,7	35,7	35,70	0,000	0,000
			F28x	5.1	31	46,771	45,708	46,8	47,8	46,77	0,854	1,827

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Na	(µg/g)	1	A83	3.3	31	68,8	56,51	62,78	55,96	61,01	6,043	9,905
			A56	4.1	31	93	79	80	81	83,25	6,551	7,869
Na	(µg/g)	2	F15x	4.1	31	<40	<40	<40	<40			
			A55	5.5	31	<25	<25	<25	<25			
			F16x	4.1	35	5,2	5,9	5,4	5,5	5,50	0,294	5,353
			F33	5.1	35	6,95	6,09	6,43	6	6,37	0,430	6,757
			F18x	3.1	31	7,98	7,48	8,07	7,36	7,72	0,355	4,592
			A65	4.1	31	7	9	9	8	8,25	0,957	11,605
			A60	5.1	31	10,942	10,429	11,003	8,617	10,25	1,117	10,902
			F06x	5.5	31	6,48	13,3	13,4	13,4	11,65	3,444	29,572
			A36	5.1	31	14,4	14,4	15,8	13,4	14,50	0,987	6,804
			F25x	3.3	31	15,38	14,2	14,01	15,68	14,82	0,835	5,638
			F05x	5.5	21.1	16	21,2	22,9	21,8	20,48	3,065	14,971
			A39	5.5	31	25,402	24,209	22,901	24,248	24,19	1,022	4,225
			A67	3.5	35	28,5	28,5	29,7	30	29,18	0,789	2,704
			F28x	5.1	31	43,881	40,67	42,811	41,74	42,28	1,382	3,269
			A83	3.3	31	68,72	56,95	59,24	64,68	62,40	5,318	8,522
			A34	3.3	90	66,3	66,3	66,3	66,3	66,30	0,000	0,000
			A56	4.1	31	80	86	83	98	86,75	7,890	9,095
Na	(µg/g)	3	F15x	4.1	31	<40	<40	<40	<40			
			A55	5.5	31	<25	<25	<25	<25			
			F16x	4.1	35	7,1	7,9	6,6	7,9	7,38	0,640	8,673
			F33	5.1	35	8,63	7,71	7,82	8,42	8,15	0,449	5,517
			F18x	3.1	31	8,96	8,26	8,22	8,57	8,50	0,343	4,031
			A60	5.1	31	10,483	13,111	9,215	10,62	10,86	1,630	15,015
			A65	4.1	31	15	13	12	13	13,25	1,258	9,497
			F25x	3.3	31	13,28	14,81	13,12	13,07	13,57	0,832	6,128
			A36	5.1	31	15	14,8	16,4	13,6	14,95	1,147	7,675
			F05x	5.5	21.1	12,5	14,2	19,5	14,5	15,18	3,015	19,867

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Na	(µg/g)	3	F06x	5.5	31	16,5	14	18,4	15,6	16,13	1,836	11,383
			A39	5.5	31	26,715	28,755	25,738	27,711	27,23	1,297	4,764
			A67	3.5	35	28,3	29,5	29,6	28,9	29,08	0,602	2,071
			A34	3.3	90	35,7	35,7	35,7	35,7	35,70	0,000	0,000
			F28x	5.1	31	42,312	42,312	41,3	41,225	41,79	0,607	1,452
			A83	3.3	31	53,34	62,33	58,5	63,49	59,42	4,577	7,703
			A56	4.1	31	81	91	78	76	81,50	6,658	8,170
Na	(µg/g)	4	A55	5.5	31	<25	<25	<25	<25			
			F16x	4.1	35	<5	<5	<5	<5			
			A65	4.1	31	<6	<6	7	9			
			F18x	3.1	31	3,42	3,28	3,89	3,37	3,49	0,273	7,819
			F33	5.1	35	4,84	4,63	4,97	4,37	4,70	0,262	5,576
			A60	5.1	31	5,24	5,354	7,915	6,503	6,25	1,246	19,930
			A36	5.1	31	10,2	8,78	10	8,41	9,35	0,886	9,475
			F25x	3.3	31	11,68	11,54	10	10,24	10,87	0,868	7,986
			F05x	5.5	21.1	11,3	7,1	13,9	13,2	11,38	3,054	26,852
			F06x	5.5	31	12,3	11,4	14	12,5	12,55	1,079	8,594
			A39	5.5	31	20,952	20,838	20,387	22,316	21,12	0,832	3,938
			A67	3.5	35	25,2	23,2	25,1	24,2	24,43	0,932	3,817
			F15x	4.1	31	41	<40	72	40			
			A34	3.3	90	36,05	25,75	25,75	25,75	28,33	5,150	18,182
			F28x	5.1	31	37,242	37,242	38,306	39,6	38,10	1,120	2,940
			A83	3.3	31	60,13	56,43	65,92	61,35	60,96	3,914	6,421
			A56	4.1	31	70	84	80	69	75,75	7,411	9,783
Ni	(µg/g)	1	F33	5.1	35	1,8	1,7	1,89	1,73	1,78	0,084	4,745
			A67	3.5	35	3,24	3,05	3,04	2,86	3,05	0,155	5,093
			F19x	5.5	31	3,21	2,95	3,1	3,08	3,09	0,107	3,456
			A39	5.5	31	3,2724	3,3211	3,3317	3,3147	3,31	0,026	0,786
			A79	5.7	35	3,32	3,64	3,42	3,44	3,46	0,134	3,880

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	1	F18x	3.1	35	3,46	3,09	4,24	3,03	3,46	0,557	16,116
			F15x	4.1	32	3,6	3,4	3,3	3,6	3,48	0,150	4,317
			F06x	5.5	31	3,44	3,64	3,38	3,46	3,48	0,112	3,217
			F12x	4.1	32	3,66	3,45	3,55	3,55	3,55	0,086	2,415
			F05x	5.5	31	3,56	3,66	3,83	3,69	3,69	0,112	3,026
			A45x	6.3	35	3,7	3,81	3,78	3,71	3,75	0,054	1,428
			A55	5.5	35	3,782	3,776	3,784	3,715	3,76	0,033	0,877
			A36	5.1	35	3,84	3,84	3,77	3,81	3,82	0,033	0,869
			A61x	5.1	31	3,825	3,876	3,834	3,82	3,84	0,025	0,664
			A80	5.1	35	3,9	3,67	4,13	4,04	3,94	0,200	5,093
			A82	5.1	35	3,882	4,015	4,028	4,071	4,00	0,082	2,040
			F25x	3.3	31	4,03	4,15	4,18	4,13	4,12	0,065	1,577
			F16x	4.1	35	4,081	4,274	4,056	4,189	4,15	0,101	2,429
			A65	4.1	31	4,2	4,1	4,1	4,2	4,15	0,058	1,391
			A51	5.5	31	4,33	4,09	4,21	4,49	4,28	0,171	3,993
Ni	(µg/g)	2	F15x	4.1	32	<2	<2	<2	<2			
			F33	5.1	35	0,68	0,68	0,69	0,67	0,68	0,008	1,201
			F19x	5.5	31	1,11	1,11	1,06	1,11	1,10	0,025	2,278
			F12x	4.1	32	1,16	1,12	1,12	1,13	1,13	0,019	1,671
			A79	5.7	35	1,15	1,15	1,18	1,16	1,16	0,014	1,219
			A61x	5.1	31	1,206	1,261	1,219	1,201	1,22	0,027	2,230
			F05x	5.5	31	1,23	1,24	1,32	1,18	1,24	0,058	4,664
			A36	5.1	35	1,28	1,29	1,28	1,27	1,28	0,008	0,638
			A67	3.5	35	1,27	1,21	1,31	1,35	1,29	0,060	4,648
			A39	5.5	31	1,2922	1,2219	1,3026	1,3566	1,29	0,055	4,280
			A65	4.1	31	1,3	1,3	1,3	1,3	1,30	0,000	0,000
			F18x	3.1	35	1,56	1,13	1,46	1,11	1,32	0,229	17,413
			F25x	3.3	31	1,36	1,32	1,33	1,33	1,34	0,017	1,297
			A80	5.1	35	1,29	1,42	1,33	1,49	1,38	0,090	6,507

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	2	A51	5.5	31	1,37	1,34	1,39	1,44	1,39	0,042	3,035
			A82	5.1	35	1,371	1,414	1,431	1,416	1,41	0,026	1,833
			F06x	5.5	31	1,51	1,45	1,51	1,55	1,51	0,041	2,740
			A45x	6.3	35	1,51	1,53	1,54	1,51	1,52	0,015	0,985
			A55	5.5	35	1,583	1,561	1,593	1,58	1,58	0,013	0,847
			F16x	4.1	35	1,716	1,913	2,264	2,19	2,02	0,253	12,529
Ni	(µg/g)	3	F15x	4.1	32	<2	<2	<2	<2			
			A65	4.1	31	<1,1	<1,1	<1,1	1,2			
			F33	5.1	35	0,52	0,44	0,49	0,48	0,48	0,033	6,848
			A67	3.5	35	0,663	0,708	0,68	0,691	0,69	0,019	2,759
			F19x	5.5	31	0,734	0,847	0,855	0,75	0,80	0,063	7,954
			F18x	3.1	35	0,84	0,899	0,809	0,886	0,86	0,042	4,844
			F05x	5.5	31	0,943	0,849	0,919	0,877	0,90	0,042	4,688
			F12x	4.1	32	0,84	0,96	0,97	0,92	0,92	0,059	6,405
			A79	5.7	35	0,986	0,987	1	0,987	0,99	0,007	0,675
			A36	5.1	35	1,03	1,03	1,04	1,04	1,04	0,006	0,558
			A80	5.1	35	1,07	1,07	1,02	1,03	1,05	0,026	2,511
			A61x	5.1	31	1,051	1,066	1,085	1,076	1,07	0,015	1,362
			A55	5.5	35	1,083	1,083	1,068	1,086	1,08	0,008	0,752
			A45x	6.3	35	1,07	1	1,17	1,09	1,08	0,070	6,461
			A51	5.5	31	1,09	1,17	1,19	1,1	1,14	0,050	4,388
			A82	5.1	35	1,083	1,145	1,144	1,221	1,15	0,057	4,921
			A39	5.5	31	1,1525	1,1561	1,1754	1,1268	1,15	0,020	1,733
			F25x	3.3	31	1,18	1,22	1,23	1,21	1,21	0,022	1,785
			F06x	5.5	31	1,25	1,17	1,25	1,21	1,22	0,038	3,139
			F16x	4.1	35	1,339	1,851	1,274	1,489	1,49	0,258	17,339
Ni	(µg/g)	4	F33	5.1	35	4,12	4,33	4,12	4,38	4,24	0,137	3,238
			F18x	3.1	35	6,94	6,94	7,83	6,96	7,17	0,442	6,163
			A67	3.5	35	7,12	7,23	7,63	7,1	7,27	0,247	3,394

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Ni	(µg/g)	4	F19x	5.5	31	7,69	7,47	7,63	7,49	7,57	0,107	1,415
			A39	5.5	31	8,0514	8,1735	7,9842	7,8178	8,01	0,148	1,853
			F06x	5.5	31	8,51	8,26	8,06	8,37	8,30	0,190	2,288
			A79	5.7	35	8,43	8,51	8,44	8,59	8,49	0,074	0,873
			F15x	4.1	32	8,2	8,5	8,5	8,8	8,50	0,245	2,882
			F12x	4.1	32	8,54	8,6	8,58	8,58	8,58	0,025	0,293
			A80	5.1	35	9,02	8,78	8,85	8,18	8,71	0,366	4,201
			F05x	5.5	31	8,86	8,8	8,75	8,58	8,75	0,120	1,376
			A45x	6.3	35	8,78	8,74	8,88	8,92	8,83	0,084	0,952
			A55	5.5	35	8,765	8,835	8,824	8,9	8,83	0,055	0,626
			A36	5.1	35	8,92	8,88	8,92	9,06	8,95	0,079	0,883
			A61x	5.1	31	9,181	8,687	9,314	9,019	9,05	0,271	2,989
			A51	5.5	31	9,07	9,09	9,29	9,19	9,16	0,101	1,106
			F16x	4.1	35	8,184	9,593	9,647	9,974	9,35	0,795	8,503
			F25x	3.3	31	9,88	9,73	9,92	9,7	9,81	0,109	1,109
			A65	4.1	31	9,8	9,9	9,9	9,8	9,85	0,058	0,586
			A82	5.1	35	10,116	10,697	10,127	10,198	10,28	0,277	2,697
Rb	(µg/g)	1	A80	5.1	35	10,2	9,68	10,2	10,2	10,07	0,260	2,582
			F16x	4.1	35	10,69	10,32	10,73	10,33	10,52	0,223	2,119
Rb	(µg/g)	2	F16x	4.1	35	2,122	2,335	2,114	2,287	2,21	0,113	5,111
			A80	5.1	35	2,28	2,42	2,37	2,3	2,34	0,064	2,753
Rb	(µg/g)	3	A80	5.1	35	1,65	1,62	1,54	1,57	1,60	0,049	3,093
			F16x	4.1	35	1,695	1,641	1,6	1,598	1,63	0,046	2,788
Rb	(µg/g)	4	A80	5.1	35	12,6	12,6	12,5	12,3	12,50	0,141	1,131
			F16x	4.1	35	12,7	13,11	13,33	13,5	13,16	0,346	2,627
Sb	(µg/g)	1	A80	5.1	35	<,025	<,025	<,025	<,025			
			F16x	4.1	35	0,0064	0,0066	0,0064	0,0065	0,01	0,000	1,479
			A79	5.7	35	0,0068	0,0066	0,0061	0,0066	0,01	0,000	4,576

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Sb	(µg/g)	2	F16x	4.1	35	0,0487	0,0457	0,0508	0,0457	0,05	0,002	5,218
			A79	5.7	35	0,0481	0,0484	0,0508	0,0476	0,05	0,001	2,919
			A80	5.1	35	0,054	0,058	0,0624	0,0665	0,06	0,005	8,983
Sb	(µg/g)	3	A79	5.7	35	0,132	0,135	0,132	0,131	0,13	0,002	1,307
			F16x	4.1	35	0,1417	0,145	0,1444	0,1457	0,14	0,002	1,213
			A80	5.1	35	0,154	0,155	0,164	0,152	0,16	0,005	3,402
Sb	(µg/g)	4	A80	5.1	35	<,025	<,025	<,025	<,025			
			F16x	4.1	35	0,0089	0,0084	0,0092	0,009	0,01	0,000	3,835
			A79	5.7	35	0,009	0,009	0,0094	0,0096	0,01	0,000	3,243
Se	(µg/g)	1	A80	5.1	35	<,2	<,2	<,2	<,2			
			A36	5.1	35	<,025	<,025	<,025	<,025			
			A82	5.1	35	<,011	<,011	<,011	<,011			
			A39	5.5	31	0,0091	0,0085	0,0116	0,0105	0,01	0,001	14,067
Se	(µg/g)	2	A39	5.5	31	0,2041	0,2105	0,2195	0,2207	0,21	0,008	3,675
			A82	5.1	35	0,229	0,21	0,223	0,216	0,22	0,008	3,766
			A36	5.1	35	0,229	0,241	0,232	0,234	0,23	0,005	2,179
			A80	5.1	35	0,272	0,295	0,266	0,238	0,27	0,023	8,756
Se	(µg/g)	3	A80	5.1	35	<,2	<,2	<,2	<,2			
			A82	5.1	35	0,027	0,02	0,025	0,023	0,02	0,003	12,573
			A36	5.1	35	0,028	0,03	0,029	0,028	0,03	0,001	3,330
			A39	5.5	31	0,2332	0,2282	0,2239	0,2268	0,23	0,004	1,705
Se	(µg/g)	4	A80	5.1	35	<,2	<,2	<,2	<,2			
			A36	5.1	35	<,025	<,025	<,025	<,025			
			A82	5.1	35	<,011	<,011	<,011	<,011			
			A39	5.5	31	0,0083	0,0079	0,0105	0,0086	0,01	0,001	13,064
Si	(µg/g)	1	A53	9.1	42	2479	2450	2458	2539	2481,50	40,237	1,621
			F16x	6.3	31	4404	4409	4307	4406	4381,50	49,709	1,135
Si	(µg/g)	2	A53	9.1	42	2328	2384	2360	2327	2349,75	27,500	1,170
			F16x	6.3	31	2611	2588	2599	2600	2599,50	9,399	0,362

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Si	(µg/g)	3	A53	9.1	42	440	430	426	394	422,50	19,891	4,708
			F16x	6.3	31	641,1	698,2	658	697,5	673,70	28,728	4,264
Si	(µg/g)	4	A53	9.1	42	2845	2866	2845	2926	2870,50	38,301	1,334
			F16x	6.3	31	5539	5610	5438	5547	5533,50	71,145	1,286
Sn	(µg/g)	1	A80	5.1	35	<,05	<,05	<,05	<,05			
			F16x	4.1	35	0,0203	0,0171	0,0178	0,0207	0,02	0,002	9,441
Sn	(µg/g)	2	F16x	4.1	35	0,1077	0,0903	0,0942	0,0937	0,10	0,008	7,962
			A80	5.1	35	0,0929	0,104	0,102	0,0997	0,10	0,005	4,848
Sn	(µg/g)	3	A80	5.1	35	0,27	0,262	0,257	0,266	0,26	0,006	2,108
			F16x	4.1	35	0,2731	0,2782	0,2779	0,2974	0,28	0,011	3,819
Sn	(µg/g)	4	A80	5.1	35	<,05	<,05	<,05	<,05			
			F16x	4.1	35	0,0281	0,0338	0,0216	0,0229	0,03	0,006	20,907
Sr	(µg/g)	1	A39	5.5	31	10,942	10,744	10,866	11,061	10,90	0,133	1,221
			A53	9.1	42	11,99	11,97	11,91	11,95	11,96	0,034	0,286
			A80	5.1	35	12,7	12,1	12,6	12,5	12,48	0,263	2,108
			A65	4.1	31	13,2	13,2	13,1	13,3	13,20	0,082	0,619
			F16x	4.1	35	13,51	13,32	13,89	13,46	13,55	0,244	1,799
Sr	(µg/g)	2	A39	5.5	31	49,347	48,146	48,566	48,688	48,69	0,498	1,022
			A53	9.1	42	48,88	49,13	49,25	48,93	49,05	0,173	0,352
			A65	4.1	31	52,8	53,9	54,5	53,3	53,63	0,737	1,374
			A80	5.1	35	53,2	57,1	56,4	54,3	55,25	1,812	3,280
			F16x	4.1	35	54,54	54,96	57,6	58,15	56,31	1,826	3,243
Sr	(µg/g)	3	A39	5.5	31	5,4835	5,4666	5,5053	5,5011	5,49	0,018	0,323
			A80	5.1	35	6,42	6,24	6,01	6,17	6,21	0,170	2,736
			A53	9.1	42	6,39	6,37	6,56	6,38	6,43	0,090	1,407
			A65	4.1	31	7,1	6,7	6,4	6,7	6,73	0,287	4,271
			F16x	4.1	35	7,133	6,93	6,767	6,588	6,85	0,232	3,390
Sr	(µg/g)	4	A39	5.5	31	6,4722	6,4448	6,3854	6,4596	6,44	0,038	0,596
			A80	5.1	35	7,27	7,34	7,28	7,21	7,28	0,053	0,732

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
Sr	(µg/g)	4	A53	9.1	42	7,38	7,27	7,5	7,43	7,40	0,097	1,309
			F16x	4.1	35	8,083	7,37	8,282	8,061	7,95	0,399	5,014
			A65	4.1	31	8	7,7	8,9	8,7	8,33	0,568	6,822
Ti	(µg/g)	1	A80	5.1	35	1,19	1,02	0,698	0,674	0,90	0,252	28,125
Ti	(µg/g)	2	A80	5.1	35	2,01	2,14	1,94	1,63	1,93	0,216	11,217
Ti	(µg/g)	3	A80	5.1	35	3,67	3,63	3,5	3,25	3,51	0,189	5,394
Ti	(µg/g)	4	A80	5.1	35	1,27	1,17	0,949	0,955	1,09	0,160	14,737
Tl	(µg/g)	1	A80	5.1	35	<,02	<,02	<,02	<,02			
			F16x	4.1	35	0,0035	0,0034	0,0042	0,0042	0,004	0,000	11,371
			A79	5.7	35	0,0043	0,0038	0,0037	0,0037	0,004	0,000	7,412
Tl	(µg/g)	2	A80	5.1	35	<,02	<,02	<,02	<,02			
			A79	5.7	35	0,0021	0,002	0,002	0,0018	0,002	0,000	6,371
			F16x	4.1	35	0,0024	0,0025	0,0025	0,0026	0,003	0,000	3,266
Tl	(µg/g)	3	A80	5.1	35	<,02	<,02	<,02	<,02			
			A79	5.7	35	0,0025	0,002	0,0019	0,0019	0,002	0,000	13,842
			F16x	4.1	35	0,0024	0,0021	0,0021	0,0022	0,002	0,000	6,428
Tl	(µg/g)	4	A80	5.1	35	<,02	<,02	<,02	<,02			
			A79	5.7	35	0,015	0,0148	0,0149	0,0207	0,016	0,003	17,744
			F16x	4.1	35	0,0162	0,0178	0,0166	0,0168	0,017	0,001	4,040
V	(µg/g)	1	A80	5.1	35	<,05	<,05	<,05	<,05			
			A79	5.7	35	0,0461	0,0475	0,0431	0,0459	0,05	0,002	4,037
			A82	5.1	35	0,063	0,055	0,06	0,058	0,06	0,003	5,706
			F16x	4.1	35	0,0812	0,0854	0,0593	0,0672	0,07	0,012	16,566
			F33	5.1	35	0,072	0,088	0,086	0,075	0,08	0,008	9,884
			A39	5.5	31	0,306	0,3508	0,3298	0,283	0,32	0,029	9,244
V	(µg/g)	2	A39	5.5	31	0,0286	0,0237	0,0255	0,0202	0,02	0,004	14,323
			A80	5.1	35	0,0917	0,0983	0,089	0,0851	0,09	0,006	6,103
			A79	5.7	35	0,0908	0,095	0,0955	0,0938	0,09	0,002	2,248
			A82	5.1	35	0,105	0,109	0,112	0,107	0,11	0,003	2,759

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Additional parameters

Element	Unit	Sample no.	Lab no.	Methode code		Replicates				Mean	Si	Vi
				P	D	1	2	3	4			
V	(µg/g)	2	F16x	4.1	35	0,1141	0,1399	0,1664	0,1287	0,14	0,022	16,102
			F33	5.1	35	0,165	0,156	0,16	0,152	0,16	0,006	3,514
V	(µg/g)	3	A80	5.1	35	0,204	0,196	0,177	0,178	0,19	0,013	7,100
			F33	5.1	35	0,205	0,214	0,2	0,186	0,20	0,012	5,814
			A39	5.5	31	0,215	0,1962	0,2256	0,1893	0,21	0,017	8,097
			F16x	4.1	35	0,2131	0,2263	0,1982	0,2207	0,21	0,012	5,678
			A79	5.7	35	0,224	0,227	0,231	0,239	0,23	0,006	2,823
			A82	5.1	35	0,222	0,24	0,234	0,234	0,23	0,008	3,247
V	(µg/g)	4	A80	5.1	35	0,0796	0,0808	0,066	0,0669	0,07	0,008	10,859
			F33	5.1	35	0,077	0,068	0,075	0,075	0,07	0,004	5,353
			A79	5.7	35	0,1	0,105	0,105	0,105	0,10	0,003	2,410
			A82	5.1	35	0,103	0,119	0,109	0,112	0,11	0,007	6,006
			F16x	4.1	35	0,174	0,1708	0,1663	0,1641	0,17	0,004	2,636
			A39	5.5	31	0,3693	0,357	0,3559	0,3948	0,37	0,018	4,897

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