Results of Proficiency Test
Total Metals in Polymers
September 2021

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Author: ing. A. Ouwerkerk
Correctors: ing. M. Meijer & ing. G.A. Oosterlaken-Buijs
Report: iis21P06

November 2021

CONTENTS

1 INTRODUCTION

World-wide many consumer products with plastic parts are produced and transported. These plastic parts are produced under strict regulations. For instance, in the European Directive 2011/65/EC maximum concentrations are specified for metals in plastic: the content of Lead (Pb), Mercury (Hg),) and Hexavalent Chromium (CrVI) may not exceed 1000 mg/kg, while the maximum concentration for Cadmium (Cd) may not exceed 100 mg/kg.

Since 1998 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the determination of Metals in plastics every year. Starting with only Cadmium, over the years the scope was extended with other elements. During the annual proficiency testing program 2021/2022 it was decided to continue with the proficiency test for the analysis of Total Metals in Polymers.

In this interlaboratory study 159 laboratories in 35 different countries registered for participation. See appendix 4 for the number of participants per country. In this report the results of the Total Metals in Polymers proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory.
It was decided to send 2 different samples positive on one or more metals labelled #21700 and #21701 of approximately 6 grams each.
The participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

All data presented in this report must be regarded as confidential and for use by the participating companies only. Disclosure of the information in this report is only allowed by means of the entire report. Use of the contents of this report for third parties is only allowed by written permission of the Institute for Interlaboratory Studies. Disclosure of the identity of one or more of the participating companies will be done only after receipt of a written agreement of the companies involved.

2.4 SAMPLES

For the first sample a batch of off-white Polypropylene pieces fortified to be positive on one or more metals was selected. After homogenization 200 small plastic bags were filled with approximately 6 grams and labelled #21700.
The batch was used in previous proficiency tests on Total Metals in Polymers (as sample #14151 in iis14P05 and sample #0650 in iis06P03). Therefore, homogeneity of the subsamples was assumed.

For the second sample a batch of yellow Polypropylene bits (granules) fortified to be positive on one or more metals was selected. After homogenization 200 small plastic bags were filled with approximately 6 grams and labelled #21701.
The homogeneity of the subsamples was checked by determination of Total Cadmium in accordance with EN1122 and Total Chromium in accordance with an in house method on 10 stratified randomly selected subsamples.

	Cadmium in mg/kg	Chromium in mg/kg
sample #21701-1	81.1	106.7
sample #21701-2	81.5	107.1
sample #21701-3	80.0	101.5
sample #21701-4	80.7	102.6
sample #21701-5	81.9	107.8
sample #21701-6	83.0	103.3
sample #21701-7	84.2	106.0
sample #21701-8	79.4	100.3
sample #21701-9	81.8	103.8
sample #21701-10	82.9	105.3

Table 1: homogeneity test results of subsamples #21701

From the above test results the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibility of the reference methods in agreement with the procedure of ISO13528, Annex B2 in the next table.

	Cadmium in mg/kg	Chromium in mg/kg
r (observed)	4.1	7.1
reference method	EN1122:01	Horwitz
0.3 x R (reference method)	6.1	7.0

Table 2: evaluation of the repeatabilities of subsamples #21701

The calculated repeatabilities are in agreement with 0.3 times the corresponding reproducibility of the reference methods. Therefore, homogeneity of the subsamples was assumed.

To each of the participating laboratories one sample labelled #21700 and one sample labelled #21701 were sent on August 18, 2021.

2.5 ANALYZES

The participants were requested to determine on both samples the Total of: Antimony, Cadmium, Chromium, Hexavalent Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Tin and Zinc.
It was also requested to report if the laboratory was accredited for the determined elements and to report some analytical details.

It was explicitly requested to treat the samples as if they were routine samples and to report the test results using the indicated units on the report form and not to round the test results, but report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluations.

To get comparable test results a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the reference test methods (when applicable) that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis-cts/. The participating laboratories are also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisnl.com.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis-cts/. The reported test results are tabulated per determination in appendices 1 and 2 of this report. The laboratories are presented by their code numbers.

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalyzes). Additional or

corrected test results are used for data analysis and the original test results are placed under 'Remarks' in the result tables in appendices 1 or 2. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5).
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test, a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.

The assigned value is determined by consensus based on the test results of the group of participants after rejection of the statistical outliers and/or suspect data.

According to ISO13528 all (original received or corrected) results per determination were submitted to outlier tests. In the iis procedure for proficiency tests, outliers are detected prior to calculation of the mean, standard deviation and reproducibility. For small data sets, Dixon (up to 20 test results) or Grubbs (up to 40 test results) outlier tests can be used. For larger data sets (above 20 test results) Rosner's outlier test can be used. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. In this PT, the criterion of ISO13528, paragraph 9.2.1 was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.

Finally, the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test results are plotted. The corresponding laboratory numbers are on the X-axis. The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also, a normal Gauss curve (dotted line) was projected over the Kernel Density Graph (smooth line) for reference. The Gauss curve is calculated from the consensus value and the corresponding standard deviation.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. EN reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation in this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used, like Horwitz or an estimated reproducibility based on former iis proficiency tests.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate whether the reported test result is fit-for-use.
The z-scores were calculated according to:

$z_{(target)}$ = (test result - average of PT) / target standard deviation

The $z_{(target)}$ scores are listed in the test result tables in appendix 1.

Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore, the usual interpretation of z-scores is as follows:

	$\lvert z \rvert$	< 1	good
1 <	$\lvert z \rvert$	< 2	satisfactory
2 <	$\lvert z \rvert$	< 3	questionable
3 <	$\lvert z \rvert$		unsatisfactory

4 EVALUATION

Some problems were encountered with the dispatch of the samples due to COVID-19 pandemic. Therefore, the reporting time on the data entry portal was extended with one week. Five participants reported test results after the extended reporting date and thirteen other participants did not report any test results. Not all participants were able to report all elements requested.
In total 146 participants reported 797 numerical test results. Observed were 35 outlying test results, which is 4.4%. In proficiency tests outlier percentages of 3% - 7.5% are quite normal.

Not all data sets proved to have a normal Gaussian distribution. These are referred to as “not OK” or “suspect”. The statistical evaluation of these data sets should be used with due care, see also paragraph 3.1.

4.1 EVALUATION PER SAMPLE AND PER ELEMENT

In this section the reported test results are discussed per sample and per element. The test methods which were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original data in appendix 1. The abbreviations, used in these tables, are explained in appendix 5.

Test method EN1122 is considered to be the official test method for the determination of Cadmium in polymers. The precision data mentioned in EN1122 were used to evaluate the Cadmium test results. Unfortunately, a suitable reference test method providing the precision data is not available for all other elements. For these tests the calculated reproducibility was compared against the estimated reproducibility calculated with the Horwitz equation.

sample #21700

Total Cadmium as Cd: This determination was not problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN1122:01.

The majority of participants agreed on a concentration near or below the limit of detection for all other elements mentioned in paragraph 2.5. Therefore, no z-scores were calculated. The test results are given in appendix 2.

sample #21701

Total Antimony as Sb: This determination may be problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility calculated with the Horwitz equation.

Total Cadmium as Cd: This determination was not problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN1122:01.

Total Chromium as Cr: This determination was not problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility calculated with the Horwitz equation.

Chromium as Cr6+: This determination may be problematic. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not agreement with the estimated reproducibility calculated with the Horwitz equation.

Total Lead as Pb: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of statistical outliers is in agreement with the estimated reproducibility calculated with the Horwitz equation.

Total Mercury as Hg: This determination was not problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the estimated reproducibility calculated with the Horwitz equation.

The majority of participants agreed on a concentration near or below the limit of detection for all other elements mentioned in paragraph 2.5. Therefore, no z-scores were calculated. The test results are given in appendix 2.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the reference test method and the reproducibility as found for the group of participating laboratories. The number of significant test results, the average, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility derived from reference methods (in casu EN test method) or estimated using the Horwitz equation are presented in the next tables.

Element	unit	n	average	2.8 * sd	R(lit)
Total Cadmium as Cd	mg/kg	137	95.3	13.9	23.8

Table 3: reproducibility of tests on sample #21700

Element	unit	n	average	2.8 * sd	R(target)
Total Antimony as Sb	mg/kg	86	44.4	18.2	11.2
Total Cadmium as Cd	mg/kg	137	73.2	12.8	18.3
Total Chromium as Cr	mg/kg	109	90.9	13.8	20.7
Chromium as Cr6+	mg/kg	48	67.2	18.0	16.0
Total Lead as Pb	mg/kg	138	83.3	14.6	19.2
Total Mercury as Hg	mg/kg	107	56.3	14.4	13.8

Table 4: reproducibilities of tests on sample #21701

Without further statistical calculations, it can be concluded that for many tests there is a good compliance of the group of participants with the reference test methods. The problematic tests have been discussed in paragraphs 4.1 and 5.

4.3 COMPARISON OF THE PROFICIENCY TEST OF SEPTEMBER 2021 WITH PREVIOUS PTS

	September 2021	September 2020	August 2019	September 2018	September 2017
Number of reporting laboratories	146	162	177	166	167
Number of test results	797	519	1253	1471	960
Number of statistical outliers	35	8	42	46	24
Percentage of statistical outliers	4.4%	1.5%	3.4%	3.1%	2.5%

Table 5: comparison with previous proficiency tests

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.

The performance of the determinations of the proficiency tests was compared, expressed as relative standard deviation (RSD) of the PTs, see next table.

Element	September 2021	September 2020	August 2019	September 2018	September 2017	2016 - 2004	Target
Sb	15%	--	--	11-14%	10%	9%	7-9%
Cd	5-6%	7%	7-10%	8-12%	8%	7-12%	9%
Cr	5%	--	8-11%	7%	--	7-24%	7-10%
Cr6+	10%	--	9-22%	6%	--	23-76%	7-9%
Co	--	--	--	--	8%	10-11%	7-10%
Cu	--	8%	--	6%	--	7 - 8%	7-10%
Pb	6%	8%	7%	7%	6%	7-11%	6-9%
Mn	--	--	10%	--	--	--	7-10%
Hg	9%	--	--	9-20%	--	8-46%	7-13%
Ni	--	8%	8%	--	10%	9%	7-10%
Sn	--	--	13%	--	--	--	7-10%

Table 6: development of uncertainties over the years

The RSDs observed in this PT are in line with RSDs observed in previous iis PTS.

4.4 EVALUATION OF THE ANALYTICAL DETAILS

The participants were asked to provide several analytical details which are listed in appendix 3. Based on the reported answers the following can be summarized:

- A vast majority (89%) mentioned that they are ISO/IEC17025 accredited to determine the reported elements.
- For sample #21700 about 73% further cut the sample prior to analysis, 15% used the sample as received and 12% further grinded the sample. For sample #21701 about 68% further cut the sample prior to analysis, 20% used the sample as received and 12% further grinded the sample.

- Almost 95% used 0.5 grams or less of sample intake, mostly 0.1 to 0.2 grams.
- To release the metals from the sample about 82% used Microwave, 13% used Acid Digestion and 5% used Microwave and Acid Digestion.
- In case of Acid Digestion, Nitric Acid or a mixture of Nitric/Hydrochloric Acid was used.
- The technique to quantify the metals was most often ICP-OES (81%) or ICP-MS (37%) followed by other techniques like AAS, XRF, ICP-AES and UV-VIS.

As the majority of the group follow the same analytical procedures no separate statistical analysis has been performed.

5 DISCUSSION

Sample #21700 was used before in Proficiency Tests iis14P05 as sample #14151 and iis06P03 as sample #0650. It is observed that the current PT findings of the polymer sample containing Cadmium show a very similar average concentration level and the observed reproducibility R(calc) has improved over the years.

		#21700			#14151			#0650		
		n	average	R(calc)	n	average	R(calc)	n	average	R(calc)
Total Cadmium as Cd	mg/kg	137	95.3	13.9	167	97.8	18.1	76	96.3	20.4

Table 7: comparison of sample #21700 with sample #14151 and sample #0650

The material of both samples in this PT was Polypropylene. Almost all reporting participants were able to detect Cadmium (Cd), Chromium (Cr), Lead (Pb) and Mercury (Hg) without difficulties. More difficulties were found with the elements Antimony (Sb) and Hexavalent Chromium (Cr6+).

When the results of this interlaboratory study were compared to the European Directive 2011/65/EC in which maximum concentrations are specified for metals in plastic, it was noticed that not all participants would make identical decisions about the acceptability of sample #21700 for Total Cadmium (Cd). Most reporting laboratories would have accepted this sample, except for nineteen participants. Based on the elements Lead (Pb), Mercury (Hg),) and Hexavalent Chromium (Cr6+) all participants would have accepted the sample.

Element	Maximum concentration values tolerated
Cadmium	100 mg/kg
Lead	1000 mg/kg
Mercury	1000 mg/kg
Hexavalent Chromium	1000 mg/kg

Table 8: Restricted metals in plastic according to the European Directive 2011/65/EC

6 CONCLUSION

Each participating laboratory will have to evaluate its performance in this study and decide about any corrective actions if necessary. Therefore, participation on a regular basis in this scheme could be helpful to improve the performance and thus increase of the quality of the analytical results.

APPENDIX 1

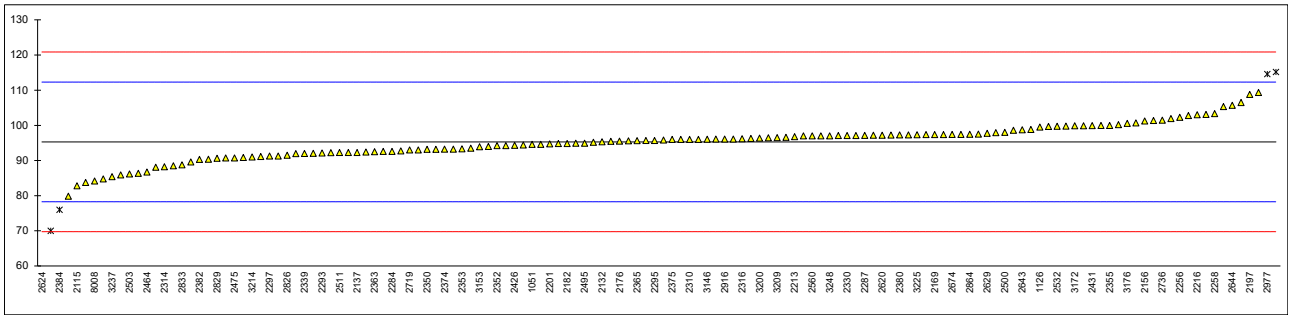
Determination of Total Cadmium as Cd on sample #21700; results in mg/kg

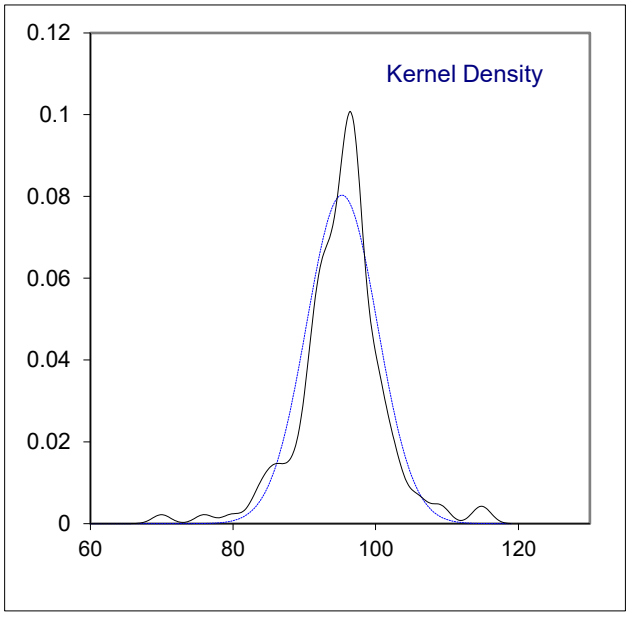
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1002-08.3	92.26		-0.36	2370	EN1122	94.6		-0.08
210		-----		-----	2372	EPA3052	94.9		-0.05
339		88.1		-0.84	2374	EN1122	93.22		-0.24
523	IEC62321-5	99.68		0.52	2375	EN16711-1	96		0.08
551	In house	99.86		0.54	2378	EN1122	97.2		0.23
623	EN1122	96.270		0.12	2379	IEC62321-5	97.27		0.23
826	IEC62321-5	92.74		-0.30	2380	EN16711-1	97.243		0.23
840		-----		-----	2381	CPSC-CH-E1002-08	90.70		-0.54
841		-----		-----	2382	EN1122	90.3		-0.59
1051	EN1122	94.598		-0.08	2384	IEC62321-5	75.97	R(0.05)	-2.27
1126		99.480		0.49	2385	IEC62321-5	99.93		0.55
1527	In house	100.7		0.64	2387	IEC62321-5	83.746		-1.36
2115	EN16711-1	82.82		-1.47	2390	CPSC-CH-E1002-08	115.12	R(0.05)	2.33
2121		-----		-----	2392	IEC62321-5	86.35		-1.05
2129	EN16711-1	99.76		0.53	2406	CPSC-CH-E1002-08	102.80		0.88
2132	EN1122	95.31		0.00	2426	EN16711-1	94.30		-0.12
2137	IEC62321	92.3		-0.35	2431	In house	99.91		0.54
2156	IEC62321-5	101.20		0.70	2444	IEC62321-5	96.11		0.10
2165	EN1122	97.11		0.21	2453	EN1122	109.33		1.65
2169	IEC62321-5	97.395		0.25	2460	CPSC-CH-E1002-08	94.815		-0.06
2175	EPA3052	85.91		-1.10	2464	CPSC-CH-E1002-08	86.74		-1.00
2176	IEC62321-5	95.5		0.03	2475	EN1122	90.7		-0.54
2182	EN1122	94.826		-0.05	2476		-----		-----
2184	EN1122	96.0		0.08	2488	IEC62321-5	100.2		0.58
2197	In house	108.8		1.59	2489	CPSC-CH-E1002-08	95.58		0.03
2199	IEC62321-5	84.739		-1.24	2495	EN16711-1	94.905		-0.04
2201	IEC62321-5	94.73		-0.07	2500	CPSC-CH-E1002-08	98.0	C	0.32
2202	IEC62321-5	98.6		0.39	2503	CPSC-CH-E1002-08	86.21		-1.07
2213	ISO8124-5	96.75		0.17	2509	CPSC-CH-E1002-08	106.4825		1.32
2216	IEC62321-5	103		0.91	2511	CPSC-CH-E1002-08	92.28		-0.35
2218	CPSC-CH-E1002-08	89.6		-0.67	2522	CPSC-CH-E1002-08	98.81		0.41
2230	EPA3051	92.4		-0.34	2529	CPSC-CH-E1002-08	92.57		-0.32
2247	EN1122	94.02		-0.15	2532	EN1122	99.73		0.52
2256	IEC62321-5	102.27		0.82	2560	EN16711-1	97		0.20
2258	CPSC-CH-E1002-08	103.31	C	0.94	2561		-----		-----
2264		-----		-----	2564	CPSC-CH-E1002-08	101.381		0.72
2265	EN16711-1	97.40		0.25	2568	IEC62321-5	97.419		0.25
2284	EN1122	92.62		-0.31	2572	IEC62321-5	97.5		0.26
2287	EN16711-1	97.16		0.22	2573	EN1122	79.83		-1.82
2289	IEC62321-5	94.2		-0.13	2582		-----		-----
2290		-----		-----	2590	EN1122	101.91		0.78
2293	EN1122	92.1		-0.37	2591	EN16711-1	97.921		0.31
2294		-----		-----	2620		97.2		0.23
2295	EN16711-1	95.7		0.05	2624	In house	10.05	R(0.01)	-10.02
2297	EN16711-1	91.28		-0.47	2629	EN1122	97.7		0.28
2310	EN1122	96		0.08	2643	EN16711-1	98.73		0.41
2311	EN16711-1	92.054		-0.38	2644	EN16711-1	105.71		1.23
2313		-----		-----	2665	In house	95.81		0.06
2314	EN1122	88.20		-0.83	2674	EN1122	97.4161		0.25
2316	IEC62321-5	96.2		0.11	2678		-----		-----
2320		-----		-----	2719		93		-0.27
2330	EN1122	97.11		0.21	2734	CPSC-CH-E1002-08	90.34		-0.58
2339	In house	92		-0.39	2736	In house	101.463		0.73
2347	EN1122	97		0.20	2741	In house	93.5		-0.21
2350	IEC62321-5	93.20		-0.24	2773	EN1122	96.0		0.08
2352	EN1122	94.2		-0.13	2794	IEC62321-3-1	88.5		-0.80
2353	IEC62321-5	93.3		-0.23	2826	EN1122	91.5		-0.44
2355	EN1122	100		0.55	2829	EN1122	90.64		-0.55
2357	CPSC-CH-E1002-08	96.1		0.10	2833	IEC62321-3-1	88.78		-0.76
2358	EPA3051	92.3		-0.35	2835	IEC62321-5	Not Detected	C, f-?	-----
2361	EN1122	91.3		-0.47	2853		-----		-----
2363	EPA3052	92.5		-0.33	2864	IEC62321-5	97.46		0.26
2365	EPA3052	95.62		0.04	2885	IEC62321-5	94.43		-0.10
2366	CPSC-CH-E1002-08	95.7		0.05	2910	EN1122	97.39		0.25
2369	EPA3052	103.099		0.92	2916	IEC62321-5	96.1		0.10

lab	method	value	mark	z(targ)	lab	Method	value	mark	z(targ)
2977	ISO17072-2	114.54	R(0.05)	2.26	3200	EN1122	96.3519		0.13
3100	EN1122	97.101		0.21	3209	CPSC-CH-E1002-08	96.54		0.15
3110	EN1122	93.23		-0.24	3210	In house	93.2		-0.24
3116	EN1122	91.966		-0.39	3214	EPA3052	91.0		-0.50
3122	EN1122	70	R(0.01)	-2.97	3216	In house	91.136		-0.49
3146	In house	96.09		0.09	3218	EN1122	95.2		-0.01
3153	EN1122	93.9		-0.16	3225	EN1122	97.3		0.24
3160	CPSC-CH-E1002-08	97.24		0.23	3228	IEC62321-5	96.6		0.15
3163	IEC62321-3-1	97		0.20	3230		-----		-----
3166		-----		-----	3237	EN16711-1	85.4		-1.16
3172	EN16711-1	99.838		0.54	3248	EN1122	97		0.20
3176	IEC62321-5	100.57		0.62	6379	In house	95.46		0.02
3182	EN1122	105.350		1.18	8005	ASTM F963	90.828		-0.52
3185	EN1122	96.43		0.13	8008		84.16		-1.31
3190	IEC62321-5	93		-0.27					

normality	OK	
n	137	
outliers	5	
mean (n)	95.2835	
st.dev. (n)	4.96737	RSD=5%
R(calc.)	13.9086	
st.dev.(EN1122:01)	8.50745	
R(EN1122:01)	23.8209	

Lab 2258 first reported 122.72
Lab 2500 first reported 75.324
Lab 2835 first reported 24.28, possibly a false negative test result??





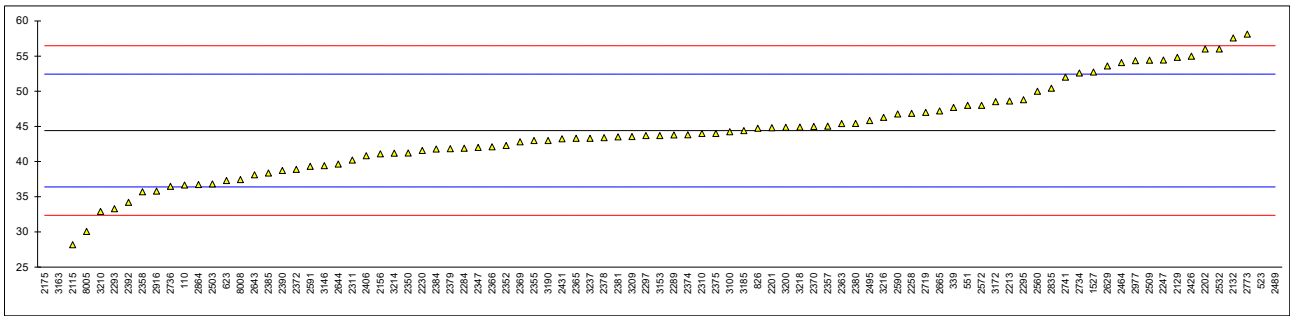
Determination of Total Antimony as Sb on sample #21701; results in mg/kg

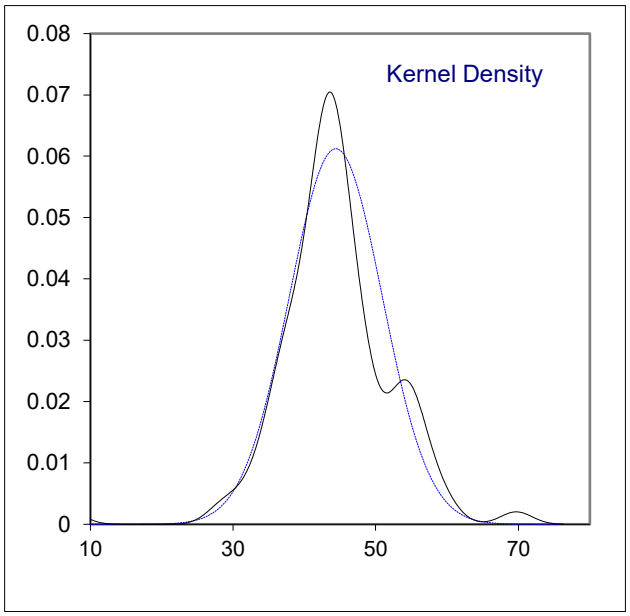
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1002-08.3	36.67		-1.93	2370	EPA3052	45.0		0.15
210		-----		-----	2372	EPA3052	38.9		-1.37
339		47.7		0.82	2374	EN16711-1	43.82		-0.15
523	EPA3052	60.1		3.91	2375	EN16711-1	44		-0.10
551	In house	48.0	C	0.90	2378	EN16711-1	43.4		-0.25
623	In house	37.320		-1.77	2379	IEC62321-5	41.84		-0.64
826	EPA3052	44.74		0.08	2380	EN16711-1	45.426		0.25
840		-----		-----	2381	EN16711-1	43.50		-0.23
841		-----		-----	2382		not analyzed		-----
1051		-----		-----	2384	EPA3051	41.77		-0.66
1126		-----		-----	2385	IEC62321-5	38.39		-1.50
1527	In house	52.72		2.07	2387		-----		-----
2115	EN16711-1	28.18		-4.04	2390	CPSC-CH-E1002-08	38.73		-1.41
2121		-----		-----	2392	IEC62321-5	34.21		-2.54
2129	EN16711-1	54.83		2.60	2406	CPSC-CH-E1002-08	40.84		-0.89
2132	In house	57.56		3.28	2426	EN16711-1	54.98		2.63
2137		-----		-----	2431	In house	43.24		-0.29
2156	IEC62321-5	41.09		-0.83	2444		-----		-----
2165		not applicable		-----	2453		-----		-----
2169		-----		-----	2460		-----		-----
2175	EPA3052	1.63	R(0.01)	-10.66	2464	CPSC-CH-E1002-08	54.07368		2.41
2176		-----		-----	2475		-----		-----
2182		-----		-----	2476		-----		-----
2184		-----		-----	2488		-----		-----
2197		-----		-----	2489	CPSC-CH-E1002-08	69.7	R(0.05)	6.30
2199	IEC62321-5	not analyzed		-----	2495	EN16711-1	45.828		0.35
2201	IEC62321-5	44.80		0.10	2500		-----		-----
2202	EPA3052	56.0		2.89	2503	CPSC-CH-E1002-08	36.82		-1.89
2213	ISO8124-5	48.62		1.05	2509	CPSC-CH-E1002-08	54.4193	C	2.49
2216		-----		-----	2511		-----		-----
2218		-----		-----	2522		-----		-----
2230	EPA3051	41.6		-0.70	2529		-----		-----
2247	ISO8124-5	54.43		2.50	2532	EN16711-1	56		2.89
2256		-----		-----	2560	EN16711-1	50		1.39
2258	CPSC-CH-E1002-08	46.867		0.61	2561		-----		-----
2264		-----		-----	2564		-----		-----
2265	EN16711-1	not analyzed		-----	2568		-----		-----
2284	IEC62321-5	41.91		-0.62	2572	IEC62321-5	48.0	C	0.90
2287		-----		-----	2573		-----		-----
2289	IEC62321-5	43.8		-0.15	2582		-----		-----
2290		-----		-----	2590	EN16711-1	46.78		0.59
2293	EN16711-1	33.3		-2.77	2591	EN16711-1	39.337		-1.26
2294		-----		-----	2620		-----		-----
2295	EN16711-1	48.8		1.09	2624		-----		-----
2297	EN16711-1	43.69		-0.18	2629	IEC62321-5	53.6		2.29
2310	EN16711-1	44		-0.10	2643	EN16711-1	38.11		-1.57
2311	EN16711-1	40.214		-1.04	2644	EN16711-1	39.63		-1.19
2313		-----		-----	2665	In house	47.19		0.69
2314		-----		-----	2674		-----		-----
2316		-----		-----	2678		-----		-----
2320		-----		-----	2719		47		0.65
2330		not applicable		-----	2734	CPSC-CH-E1002-08	52.58		2.04
2339		-----		-----	2736	In house	36.489		-1.97
2347	EPA3052	42		-0.60	2741	In house	52		1.89
2350	EPA3052	41.22		-0.79	2773	In house	58.12		3.42
2352	In house	42.3		-0.52	2794	IEC62321-3-1	not detected	f-?	-----
2353	IEC62321-5	NA		-----	2826		-----		-----
2355	EPA3052	43		-0.35	2829		-----		-----
2357	ISO8124-5	45.06		0.16	2833	IEC62321-3-1	not analyzed		-----
2358	EPA3051	35.7		-2.17	2835	IEC62321-5	50.43		1.50
2361		-----		-----	2853		-----		-----
2363	EPA3052	45.4		0.25	2864	IEC62321-5	36.73		-1.91
2365	EPA3052	43.30		-0.28	2885		-----		-----
2366	CPSC-CH-E1002-08	42.1		-0.57	2910	IEC62321-5	not applicable		-----
2369	EPA3052	42.799		-0.40	2916	IEC62321-5	35.8		-2.14

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
2977	ISO17072-2	54.36		2.48	3200	CPSC-CH-E1002-08	44.8815		0.12
3100	CPSC-CH-E1002-08	44.242		-0.04	3209	CPSC-CH-E1002-08	43.57		-0.21
3110		-----		-----	3210	In house	32.9		-2.87
3116		-----		-----	3214	EPA3052	41.2		-0.80
3122		<5	f-	<-9.82	3216	In house	46.286		0.47
3146	In house	39.41		-1.24	3218	EN16711-1	44.9		0.12
3153	IEC62321-5	43.7		-0.18	3225		-----		-----
3160		-----		-----	3228		-----		-----
3163	IEC62321-3-1	7	C,R(0.01)	-9.32	3230		-----		-----
3166		-----		-----	3237	EN16711-1	43.3		-0.28
3172	EN16711-1	48.523		1.03	3248		-----		-----
3176		-----		-----	6379		-----		-----
3182	IEC62321-5	not analyzed		-----	8005	ASTM F963	30.059		-3.57
3185	In house	44.40		0.00	8008		37.44		-1.74
3190	IEC62321-5	43		-0.35					

normality	OK	
n	86	
outliers	3	
mean (n)	44.4067	
st.dev. (n)	6.51674	RSD=15%
R(calc.)	18.2469	
st.dev.(Horwitz)	4.01423	
R(Horwitz)	11.2399	

Lab 551 first reported 65.408
Lab 2509 first reported 62.6706
Lab 2572 first reported 92.7
Lab 2794 possibly a false negative test result?
Lab 3122 possibly a false negative test result?
Lab 3163 first reported not detected





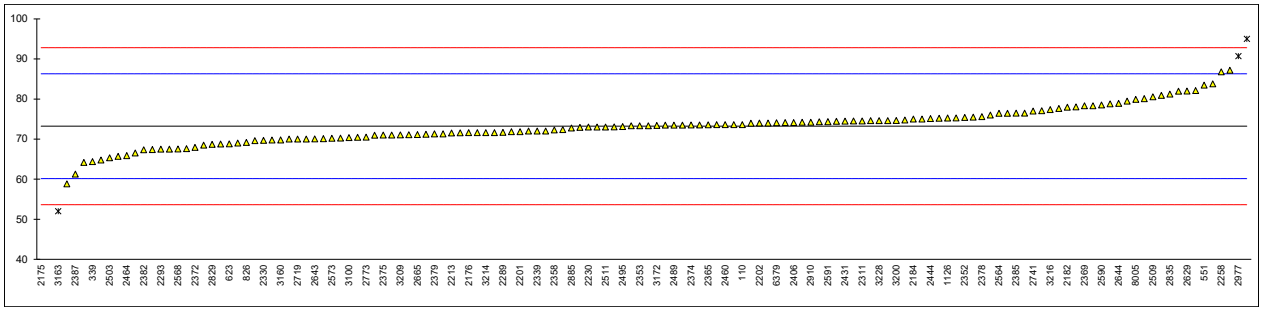
Determination of Total Cadmium as Cd on sample #21701; results in mg/kg

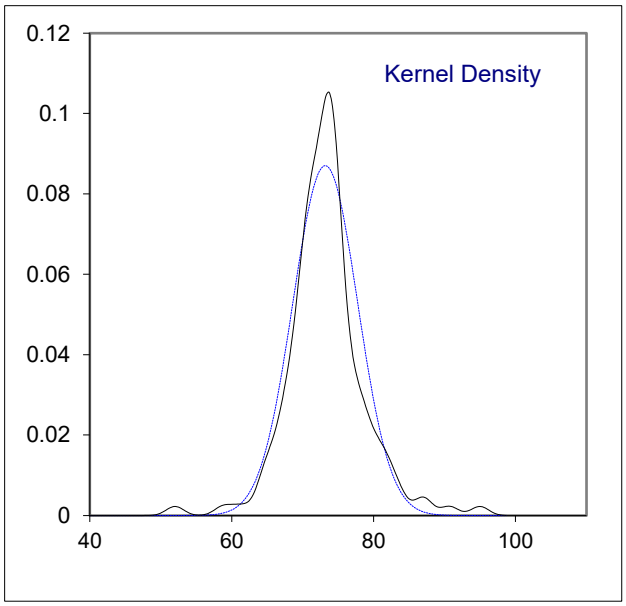
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1002-08.3	73.60		0.06	2370	EN1122	67.4		-0.89
210		-----		-----	2372	EPA3052	67.9		-0.81
339		64.4		-1.35	2374	EN1122	73.52		0.05
523	IEC62321-5	78.32		0.78	2375	EN16711-1	71		-0.34
551	In house	83.48		1.57	2378	EN16711-1	75.6		0.37
623	EN1122	68.81		-0.67	2379	IEC62321-5	71.30		-0.29
826	IEC62321-5	69.14		-0.62	2380	EN16711-1	74.601		0.22
840		-----		-----	2381	CPSC-CH-E1002-08	70.10		-0.47
841		-----		-----	2382	IEC62321-5	67.3		-0.90
1051	EN1122	73.938		0.11	2384	IEC62321-5	64.19		-1.38
1126		75.245		0.31	2385	IEC62321-5	76.48		0.50
1527	In house	79.46		0.96	2387	IEC62321-5	61.256		-1.83
2115	EN16711-1	74.2	C	0.15	2390	CPSC-CH-E1002-08	83.78		1.62
2121		-----		-----	2392	IEC62321-5	64.77		-1.29
2129	EN16711-1	74.57		0.21	2406	CPSC-CH-E1002-08	74.13		0.14
2132	EN1122	73.49		0.05	2426	EN16711-1	72.36		-0.13
2137	IEC62321	70		-0.49	2431	In house	74.48		0.20
2156	IEC62321-5	75.02		0.28	2444	IEC62321-5	75.11		0.29
2165	IEC62321-5	72.93		-0.04	2453	EN1122	81.97		1.34
2169	IEC62321-5	74.446		0.19	2460	CPSC-CH-E1002-08	73.592		0.06
2175	EPA3052	1.24	R(0.01)	-11.01	2464	CPSC-CH-E1002-08	65.8766		-1.12
2176	IEC62321-5	71.6		-0.24	2475	EN1122	72.0		-0.18
2182	EN1122	77.946		0.73	2476		-----		-----
2184	EN1122	75.0		0.28	2488	IEC62321-5	80.1		1.06
2197	In house	87.2		2.14	2489	CPSC-CH-E1002-08	73.5		0.05
2199	IEC62321-5	66.543		-1.02	2495	EN16711-1	73.118		-0.01
2201	IEC62321-5	71.85		-0.21	2500	EN1122	75.3	C	0.32
2202	IEC62321-5	74.0		0.12	2503	CPSC-CH-E1002-08	65.35		-1.20
2213	ISO8124-5	71.52		-0.26	2509	CPSC-CH-E1002-08	80.5357		1.12
2216	IEC62321-5	76		0.43	2511	CPSC-CH-E1002-08	73.0		-0.03
2218	CPSC-CH-E1002-08	69.6		-0.55	2522	CPSC-CH-E1002-08	77.63		0.68
2230	EPA3051	73		-0.03	2529	CPSC-CH-E1002-08	69.74		-0.53
2247	CPSC-CH-E1002-08	78.03		0.74	2532	EN1122	77.1		0.60
2256	IEC62321-5	76.49		0.50	2560	EN16711-1	74		0.12
2258	CPSC-CH-E1002-08	86.803		2.08	2561		-----		-----
2264		-----		-----	2564	CPSC-CH-E1002-08	76.409		0.49
2265	EN16711-1	71.83		-0.21	2568	IEC62321-5	67.528		-0.87
2284	EN1122	73.32		0.02	2572	IEC62321-5	78.8		0.86
2287	EN16711-1	74.75		0.24	2573	CPSC-CH-E1002-08	70.22		-0.45
2289	IEC62321-5	71.7		-0.23	2582		-----		-----
2290		-----		-----	2590	EN1122	78.52		0.82
2293	EN16711-1	67.5		-0.87	2591	EN16711-1	74.351		0.18
2294		-----		-----	2620		74.5		0.20
2295	EN16711-1	74.3		0.17	2624	In house	5.55	R(0.01)	-10.35
2297	EN16711-1	70.26		-0.45	2629	IEC62321-5	82.0		1.35
2310	EN1122	69		-0.64	2643	EN16711-1	70.04		-0.48
2311	EN16711-1	74.53		0.20	2644	EN16711-1	78.91		0.87
2313		-----		-----	2665	In house	71.14		-0.31
2314	CPSC-CH-E1002-08	71.10		-0.32	2674	IEC62321-5	74.1107		0.14
2316	IEC62321-5	67.6		-0.86	2678		-----		-----
2320		-----		-----	2719		70		-0.49
2330	EN1122	69.67		-0.54	2734	CPSC-CH-E1002-08	68.48		-0.72
2339	In house	72		-0.18	2736	In house	76.430		0.50
2347	IEC62321-5	73		-0.03	2741	In house	77		0.58
2350	IEC62321-5	70.96		-0.34	2773	EN1122	70.51		-0.41
2352	EN1122	75.4		0.34	2794	IEC62321-3-1	58.8		-2.20
2353	IEC62321-5	73.3		0.02	2826	EN1122	75.2		0.31
2355	EN1122	72		-0.18	2829	EN1122	68.69		-0.69
2357	ISO8124-5	71.55		-0.25	2833	IEC62321-5	73.53		0.05
2358	EPA3051	72.3		-0.14	2835	IEC62321-5	81.22		1.23
2361	EN1122	71.3		-0.29	2853		-----		-----
2363	EPA3052	73.3		0.02	2864	IEC62321-5	73.51		0.05
2365	EPA3052	73.58		0.06	2885	IEC62321-5	72.75		-0.07
2366	CPSC-CH-E1002-08	73.6		0.06	2910	IEC62321-5	74.21		0.16
2369	EPA3052	78.312		0.78	2916	IEC62321-5	71.2		-0.30

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
2977	ISO17072-2	90.70	R(0.05)	2.68	3200	EN1122	74.6285		0.22
3100	EN1122	70.363		-0.43	3209	CPSC-CH-E1002-08	71.06		-0.33
3110	EN1122	73.02		-0.03	3210	In house	67.5		-0.87
3116		-----		-----	3214	EPA3052	71.6		-0.24
3122	EN1122	95	R(0.01)	3.34	3216	In house	77.325		0.63
3146	In house	73.59		0.06	3218	EN1122	71.6		-0.24
3153	EN1122	71.6		-0.24	3225	EN1122	82.1		1.36
3160	CPSC-CH-E1002-08	69.79		-0.52	3228	IEC62321-5	74.6		0.22
3163	IEC62321-3-1	52	C,R(0.01)	-3.24	3230		-----		-----
3166		-----		-----	3237	EN16711-1	65.7		-1.15
3172	EN16711-1	73.396		0.03	3248	EN1122	70		-0.49
3176	IEC62321-5	70.47		-0.42	6379	In house	74.079		0.14
3182	EN1122	80.920		1.18	8005	ASTM F963	79.912		1.03
3185	EN1122	75.48		0.35	8008		68.76		-0.68
3190	IEC62321-5	71		-0.34					

normality	suspect	
n	137	
outliers	5	
mean (n)	73.1930	
st.dev. (n)	4.58371	RSD=6%
R(calc.)	12.8344	
st.dev.(EN1122:01)	6.53509	
R(EN1122:01)	18.2982	

Lab 2115 first reported 50.78
Lab 2500 first reported 98.014
Lab 3163 first reported not detected





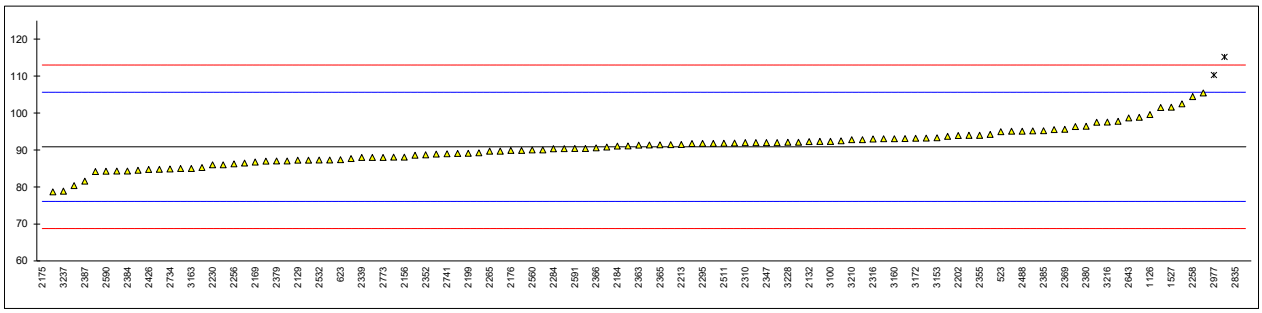
Determination of Total Chromium as Cr on sample #21701; results in mg/kg

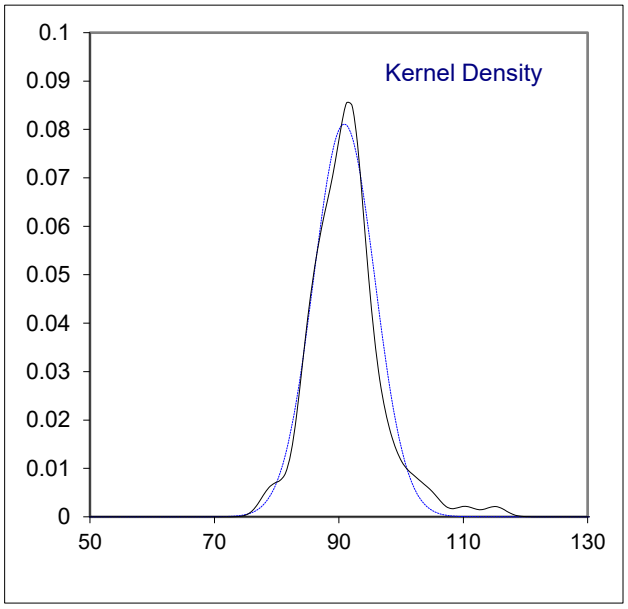
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1002-08.3	84.53		-0.86	2370	EPA3052	89.7		-0.16
210		-----		-----	2372	EPA3052	88.6		-0.31
339		84.8		-0.82	2374	EN16711-1	92.13		0.17
523	IEC62321-5	95.0		0.56	2375	EN16711-1	92		0.15
551	In house	95.501		0.63	2378	EN16711-1	89.1		-0.24
623	In house	87.36		-0.48	2379	IEC62321-5	87.04		-0.52
826	IEC62321-5	95.08		0.57	2380	EN16711-1	96.447		0.76
840		-----		-----	2381	EN16711-1	90.83		-0.01
841		-----		-----	2382	IEC62321-5	93.1		0.30
1051		-----		-----	2384	IEC62321-5	84.33		-0.89
1126		99.62		1.19	2385	IEC62321-5	95.23		0.59
1527	In house	101.6		1.45	2387	IEC62321-5	81.603		-1.26
2115	EN16711-1	84.19		-0.91	2390	CPSC-CH-E1002-08	105.41		1.97
2121		-----		-----	2392	IEC62321-5	91.77		0.12
2129	EN16711-1	87.28		-0.49	2406	CPSC-CH-E1002-08	88.91		-0.27
2132	In house	92.28		0.19	2426	EN16711-1	84.74		-0.83
2137	IEC62321	90.4		-0.06	2431	In house	92.02		0.16
2156	IEC62321-5	88.12		-0.37	2444		-----		-----
2165	IEC62321-5	92.81		0.26	2453		-----		-----
2169	IEC62321-5	86.782		-0.56	2460		-----		-----
2175	EPA3052	0.99	R(0.01)	-12.19	2464	CPSC-CH-E1002-08	87.3098		-0.48
2176	IEC62321-5	89.9		-0.13	2475		-----		-----
2182		-----		-----	2476		-----		-----
2184	CPSC-CH-E1002-08	91.1		0.03	2488	IEC62321-5	95.1		0.57
2197	In house	91.9		0.14	2489	CPSC-CH-E1002-08	84.3		-0.89
2199	IEC62321-5	89.138		-0.24	2495	EN16711-1	not detected	f-?	-----
2201	IEC62321-5	92.50		0.22	2500		-----		-----
2202	IEC62321-5	93.9		0.41	2503	CPSC-CH-E1002-08	80.4		-1.42
2213	ISO8124-5	91.5		0.08	2509	CPSC-CH-E1002-08	102.4909		1.57
2216	IEC62321-5	85		-0.80	2511	CPSC-CH-E1002-08	91.84		0.13
2218		-----		-----	2522		-----		-----
2230	EPA3051	86		-0.66	2529	CPSC-CH-E1002-08	91.12		0.03
2247	IEC62321-5	97.78		0.94	2532	EN16711-1	87.3		-0.48
2256	IEC62321-5	86.28		-0.62	2560	EN16711-1	90		-0.12
2258	CPSC-CH-E1002-08	104.47		1.84	2561		-----		-----
2264		-----		-----	2564		-----		-----
2265	EN16711-1	89.69		-0.16	2568		-----		-----
2284	IEC62321-5	90.36		-0.07	2572	IEC62321-5	97.5		0.90
2287	EN16711-1	88.10		-0.38	2573		-----		-----
2289	IEC62321-5	91.4		0.07	2582		-----		-----
2290		-----		-----	2590	EN16711-1	84.27		-0.90
2293	EN16711-1	78.7		-1.65	2591	EN16711-1	90.426		-0.06
2294		-----		-----	2620		-----		-----
2295	EN16711-1	91.8		0.13	2624		-----		-----
2297	EN16711-1	87.28		-0.49	2629	IEC62321-5	88.0		-0.39
2310	EN16711-1	92		0.15	2643	EN16711-1	98.68		1.06
2311	EN16711-1	94.21		0.45	2644	EN16711-1	115.16	R(0.01)	3.29
2313		-----		-----	2665	In house	87.05		-0.52
2314		-----		-----	2674	IEC62321-5	93.7292		0.39
2316	IEC62321-5	93	C	0.29	2678		-----		-----
2320		-----		-----	2719		87		-0.53
2330		not applicable		-----	2734	CPSC-CH-E1002-08	84.89		-0.81
2339	In house	88		-0.39	2736	In house	95.168		0.58
2347	IEC62321-5	92		0.15	2741	In house	89		-0.25
2350	IEC62321-5	101.5		1.44	2773	In house	88.0		-0.39
2352	IEC62321-5	88.7		-0.30	2794	IEC62321-3-1	218	R(0.01)	17.24
2353	IEC62321-5	NA		-----	2826		-----		-----
2355	IEC62321-5	94		0.42	2829		-----		-----
2357	ISO8124-5	93.21		0.32	2833	IEC62321-3-1	Not quantify		-----
2358	EPA3051	86.5		-0.59	2835	IEC62321-5	144.87	C,R(0.01)	7.32
2361		-----		-----	2853		-----		-----
2363	EPA3052	91.3		0.06	2864	IEC62321-5	98.84		1.08
2365	EPA3052	91.43		0.08	2885		-----		-----
2366	CPSC-CH-E1002-08	90.6		-0.04	2910	IEC62321-5	93.08		0.30
2369	EPA3052	95.601		0.64	2916	IEC62321-5	90		-0.12

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
2977	ISO17072-2	110.29	R(0.05)	2.63	3200	CPSC-CH-E1002-08	93.9808		0.42
3100	CPSC-CH-E1002-08	92.363		0.20	3209	CPSC-CH-E1002-08	91.48		0.08
3110		-----		-----	3210	In house	92.8		0.26
3116		-----		-----	3214	EPA3052	89.9		-0.13
3122		<5	f-?	<-11.64	3216	In house	97.552		0.91
3146	In house	96.35		0.74	3218	EN16711-1	91.8		0.13
3153	IEC62321-5	93.3		0.33	3225		-----		-----
3160	CPSC-CH-E1002-08	93.09		0.30	3228	IEC62321-5	92.1		0.17
3163	IEC62321-3-1	85	C	-0.80	3230		-----		-----
3166		-----		-----	3237	EN16711-1	78.9		-1.62
3172	EN16711-1	93.197		0.31	3248		-----		-----
3176	IEC62321-5	92.35		0.20	6379	In house	90.440		-0.06
3182	IEC62321-5	not analyzed		-----	8005	ASTM F963	85.288		-0.76
3185	In house	89.24		-0.22	8008		87.69		-0.43
3190	IEC62321-5	86		-0.66					

normality	OK	
n	109	
outliers	5	
mean (n)	90.8759	
st.dev. (n)	4.91961	RSD=5%
R(calc.)	13.7749	
st.dev.(Horwitz)	7.37552	
R(Horwitz)	20.6515	

Lab 2316 first reported 117.8
Lab 2495 possibly a false negative test result?
Lab 2835 first reported 118.78
Lab 3122 possibly a false negative test result?
Lab 3163 first reported not detected





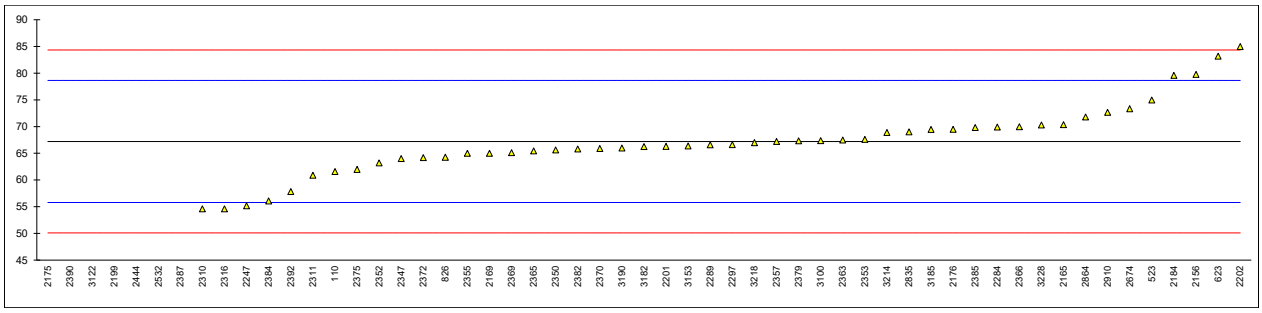
Determination of Chromium as Cr6+ on sample #21701; results in mg/kg

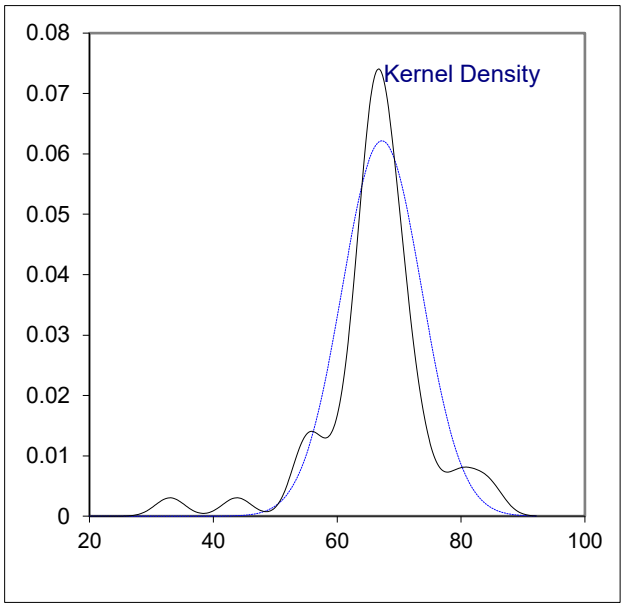
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	IEC 62321-7-2	61.598		-0.98	2370	IEC62321-7-2	65.9		-0.23
210		-----		-----	2372	IEC62321-7-2	64.2		-0.53
339		non analysé		-----	2374		not applicable		-----
523	IEC62321-7-2	75.0	C	1.36	2375	IEC62321-7-2	62		-0.91
551		-----		-----	2378		out of capability		-----
623	IEC62321-7-2	83.2	C	2.80	2379	IEC62321-7-2	67.335		0.02
826	IEC62321-7-2	64.272		-0.52	2380		-----		-----
840		-----		-----	2381	EN16711-1	Out Cap		-----
841		-----		-----	2382	IEC62321-7-2	65.8		-0.25
1051		-----		-----	2384	IEC62321-7-2	56.10		-1.95
1126		-----		-----	2385	IEC62321-7-2	69.83		0.46
1527		-----		-----	2387	IEC62321-7-2	43.799	R(0.05)	-4.10
2115		-----		-----	2390	CPSC-CH-E1002-08	1.38	C,R(0.01)	-11.53
2121		-----		-----	2392	IEC62321-7-2	57.85		-1.64
2129	IEC62321-7-2	not analyzed		-----	2406		-----		-----
2132		-----		-----	2426	EN16711-1	Not Analyzed	C	-----
2137		-----		-----	2431		-----		-----
2156	IEC62321-7-2	79.79		2.20	2444	IEC62321-7-2	11.61	C,R(0.01)	-9.74
2165	IEC62321-7-2	70.35		0.55	2453		-----		-----
2169	IEC62321-7-2	65.024		-0.38	2460		-----		-----
2175	EPA3060a	1.19	R(0.01)	-11.57	2464		-----		-----
2176	IEC62321-7-2	69.5		0.40	2475		-----		-----
2182		-----		-----	2476		-----		-----
2184	IEC62321-7-2	79.6		2.17	2488		-----		-----
2197		-----		-----	2489		-----		-----
2199	IEC62321-7-2	11.579	C,R(0.01)	-9.75	2495	EN16711-1	not detected	f-?	-----
2201	IEC62321-7-2	66.30		-0.16	2500		-----		-----
2202	IEC62321-7-2	85.0		3.12	2503		-----		-----
2213		-----		-----	2509		-----		-----
2216	In house	None Detected	f-?	-----	2511		-----		-----
2218		-----		-----	2522		-----		-----
2230	IEC62321-7-2	NA		-----	2529		-----		-----
2247	IEC62321-7-2	55.17	C	-2.11	2532	IEC62321-7-2	33.0	R(0.01)	-5.99
2256		-----		-----	2560	EN16711-1	Not analyzed		-----
2258		-----		-----	2561		-----		-----
2264		-----		-----	2564		-----		-----
2265	EN16711-1	not analyzed		-----	2568		-----		-----
2284	IEC62321-7-2	69.92		0.47	2572		-----		-----
2287		-----		-----	2573		-----		-----
2289	IEC62321-7-2	66.6		-0.11	2582		-----		-----
2290		-----		-----	2590		-----		-----
2293		-----		-----	2591		-----		-----
2294		-----		-----	2620		-----		-----
2295		-----		-----	2624		-----		-----
2297	EN16711-1	66.63		-0.10	2629		-----		-----
2310	IEC62321-7-2	54.6		-2.21	2643		-----		-----
2311	IEC62321-7-2	60.9	C	-1.11	2644		-----		-----
2313		-----		-----	2665		not analyzed		-----
2314		-----		-----	2674	IEC62321-7-2	73.3591		1.08
2316	IEC62321-7-2	54.6	C	-2.21	2678		-----		-----
2320		-----		-----	2719		-----		-----
2330		not applicable		-----	2734	CPSC-CH-E1002-08	Not determined		-----
2339		-----		-----	2736		-----		-----
2347	IEC62321-7-2	64		-0.56	2741		-----		-----
2350	IEC62321-7-2	65.63		-0.28	2773		-----		-----
2352	IEC62321-7-2	63.2		-0.70	2794		not analyzed		-----
2353	IEC62321-7-2	67.6		0.07	2826		-----		-----
2355	IEC62321-7-2	65		-0.39	2829		-----		-----
2357	IEC62321-7-2	67.2		0.00	2833		not applicable		-----
2358	In house	N/A		-----	2835	IEC62321-7-2	69.005		0.31
2361		-----		-----	2853		-----		-----
2363	IEC62321-7-2	67.5		0.05	2864	IEC62321-7-2	71.80	C	0.80
2365	IEC62321-7-2	65.47		-0.31	2885		-----		-----
2366	IEC62321-7-2	70		0.49	2910	IEC62321-7-2	72.68		0.96
2369	IEC62321-7-2	65.108		-0.37	2916		-----		-----

lab	method	value	mark	z(targ)	lab	Method	value	mark	z(targ)
2977		-----		-----	3200		-----		-----
3100	CPSC-CH-E1002-08	67.35635		0.02	3209		-----		-----
3110		-----		-----	3210		-----		-----
3116		-----		-----	3214	IEC62321-7-2	68.9		0.30
3122		3.7	R(0.01)	-11.13	3216	In house	not analyzed		-----
3146		-----		-----	3218	IEC62321-7-2	67.0		-0.04
3153	IEC62321-7-2	66.4		-0.14	3225		-----		-----
3160		-----		-----	3228	IEC62321-7-2	70.3		0.54
3163		not analyzed		-----	3230		-----		-----
3166		-----		-----	3237		-----		-----
3172		-----		-----	3248		-----		-----
3176		-----		-----	6379		-----		-----
3182	IEC62321-7-2	66.250		-0.17	8005		-----		-----
3185	IEC62321-7-2	69.47		0.40	8008		-----		-----
3190	IEC62321-7-2	66		-0.21					

normality	suspect	
n	48	
outliers	7	
mean (n)	67.2145	
st.dev. (n)	6.41808	RSD=10%
R(calc.)	17.9706	
st.dev.(Horwitz)	5.70851	
R(Horwitz)	15.9838	

Lab 523 first reported 89.0
Lab 623 first reported 86.93
Lab 2199 first reported 18.3
Lab 2216 possibly a false negative test result?
Lab 2247 first reported 33.4
Lab 2311 first reported 46.42
Lab 2316 first reported 45.0
Lab 2390 first reported ND
Lab 2426 first reported Not Detected
Lab 2444 first reported 0
Lab 2495 possibly a false negative test result?
Lab 2864 first reported 88.27





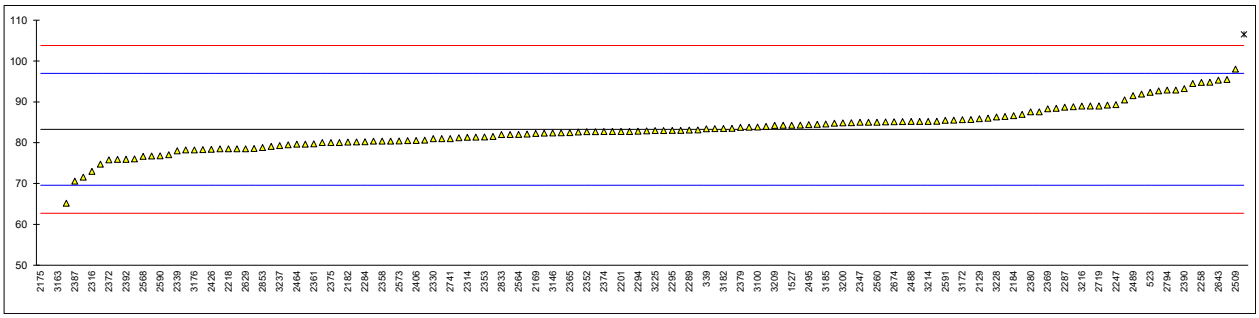
Determination of Total Lead as Pb on sample #21701; results in mg/kg

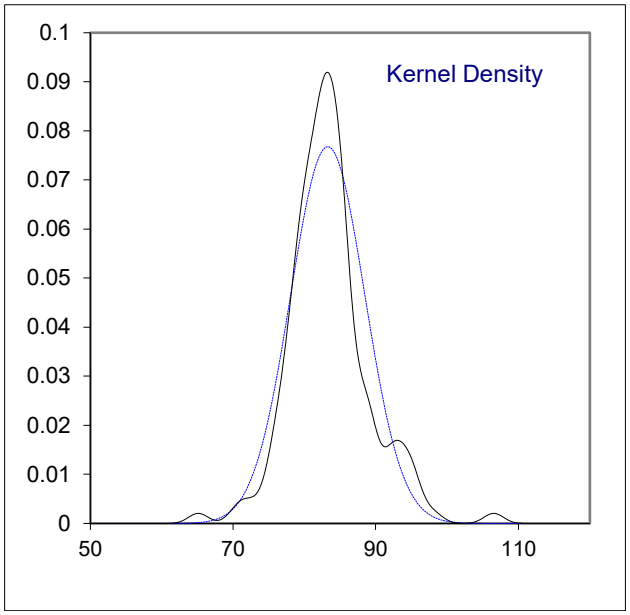
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1002-08.3	79.65		-0.53	2370	CPSC-CH-E1002-08.3	80.4		-0.42
210		-----		-----	2372	EPA3052	75.8		-1.09
339		83.4		0.02	2374	CPSC-CH-E1002-08.3	82.73		-0.08
523	IEC62321-5	92.34		1.32	2375	EN16711-1	80		-0.48
551	In house	95.457		1.78	2378	EN16711-1	82.9		-0.06
623	In house	78.55		-0.69	2379	IEC62321-5	83.77		0.07
826	IEC62321-5	83.14		-0.02	2380	EN16711-1	87.566		0.63
840		-----		-----	2381	CPSC-CH-E1002-08.1	81.38		-0.28
841		-----		-----	2382	IEC62321-5	82.4		-0.13
1051	CPSC-CH-E1002-08.3	83.430		0.02	2384	IEC62321-5	71.57		-1.71
1126		94.81		1.68	2385	IEC62321-5	87.57		0.63
1527	In house	84.27		0.14	2387	IEC62321-5	70.573		-1.86
2115	EN16711-1	65.14		-2.65	2390	CPSC-CH-E1002-08	93.24		1.45
2121	CPSC-CH-E1002-08.3	84.774		0.22	2392	IEC62321-5	75.93		-1.07
2129	EN16711-1	85.88		0.38	2406	CPSC-CH-E1002-08.3	80.52		-0.40
2132	CPSC-CH-E1002-08.3	81.00		-0.33	2426	EN16711-1	78.38		-0.72
2137	IEC62321	92.7		1.37	2431	In house	90.46		1.05
2156	IEC62321-5	85.66		0.35	2444	IEC62321-5	86.44		0.46
2165	IEC62321-5	85.23		0.28	2453		-----		-----
2169	IEC62321-5	82.281		-0.15	2460	CPSC-CH-E1002-08	88.984		0.83
2175	EPA3052	0.89	R(0.01)	-12.03	2464	CPSC-CH-E1002-08	79.632		-0.53
2176	IEC62321-5	82.6		-0.10	2475	In house	89.2		0.86
2182	CPSC-CH-E1002-08.3	80.15		-0.46	2476		-----		-----
2184	CPSC-CH-E1002-08.3	86.6		0.48	2488	IEC62321-5	85.2		0.28
2197	In house	75.9		-1.08	2489	CPSC-CH-E1002-08	91.5		1.20
2199	IEC62321-5	79.067		-0.62	2495	EN16711-1	84.427		0.17
2201	IEC62321-5	82.75		-0.08	2500	CPSC-CH-E1002-08.3	80.2	C	-0.45
2202	IEC62321-5	80.4		-0.42	2503	CPSC-CH-E1002-08	76.05		-1.06
2213	ISO8124-5	84.26		0.14	2509	CPSC-CH-E1002-08	98.0390		2.15
2216	IEC62321-5	86		0.40	2511	CPSC-CH-E1002-08.3	85.2		0.28
2218	CPSC-CH-E1002-08.1	78.5		-0.70	2522	CPSC-CH-E1002-08	88.42		0.75
2230	EPA3051	84.9		0.24	2529	CPSC-CH-E1002-08.3	83.01		-0.04
2247	CPSC-CH-E1002-08.3	89.35		0.89	2532	EN16711-1	91.9		1.26
2256	IEC62321-5	86.94		0.53	2560	EN16711-1	85		0.25
2258	CPSC-CH-E1002-08.1	94.773		1.68	2561		-----		-----
2264		-----		-----	2564	CPSC-CH-E1002-08	82.019		-0.18
2265	EN16711-1	78.27		-0.73	2568	IEC62321-5	76.662		-0.97
2284	IEC62321-5	80.23		-0.45	2572	IEC62321-5	88.8		0.81
2287	EN16711-1	88.68		0.79	2573	CPSC-CH-E1002-08.3	80.44		-0.42
2289	IEC62321-5	83.1		-0.03	2582		-----		-----
2290		-----		-----	2590	CPSC-CH-E1002-08.1	76.77		-0.95
2293	CPSC-CH-E1002-08.3	74.7		-1.25	2591	EN16711-1	85.474		0.32
2294	CPSC-CH-E1002-08.3	82.82		-0.07	2620		-----		-----
2295	EN16711-1	83		-0.04	2624	In house	6.75	R(0.01)	-11.17
2297	EN16711-1	77.03		-0.91	2629	IEC62321-5	78.5		-0.70
2310	EN16711-1	78.5		-0.70	2643	CPSC-CH-E1002-08.3	95.31		1.76
2311	EN16711-1	80.50		-0.41	2644	EN16711-1	106.54	R(0.01)	3.40
2313		-----		-----	2665	In house	81.49		-0.26
2314	CPSC-CH-E1002-08.2	81.32		-0.29	2674	IEC62321-5	85.0932		0.26
2316	IEC62321-5	73.0		-1.50	2678		-----		-----
2320		-----		-----	2719		89		0.83
2330	CPSC-CH-E1002-08.3	80.99		-0.33	2734	CPSC-CH-E1002-08	82.74		-0.08
2339	In house	78		-0.77	2736	In house	84.320		0.15
2347	IEC62321-5	85		0.25	2741	In house	81		-0.33
2350	IEC62321-5	85.54		0.33	2773	CPSC-CH-E1002-08.3	79.47		-0.56
2352	IEC62321-5	82.7		-0.09	2794	IEC62321-3-1	92.9		1.40
2353	IEC62321-5	81.4		-0.27	2826	CPSC-CH-E1002-08.3	81.2		-0.30
2355	IEC62321-5	85		0.25	2829	CPSC-CH-E1002-08.3	82.75		-0.08
2357	CPSC-CH-E1002-08	84.47		0.17	2833	IEC62321-3-1	81.99		-0.19
2358	EPA3051	80.4		-0.42	2835	IEC62321-5	82.35		-0.14
2361	CPSC-CH-E1002-08.3	79.7		-0.52	2853	CPSC-CH-E1002-08.3	78.80		-0.65
2363	EPA3052	80.0		-0.48	2864	IEC62321-5	83.50		0.03
2365	EPA3052	82.44		-0.12	2885	IEC62321-5	92.91		1.41
2366	CPSC-CH-E1002-08.3	82.0		-0.19	2910	IEC62321-5	85.06		0.26
2369	EPA3052	88.300		0.73	2916	IEC62321-5	94.5		1.64

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
2977	ISO17072-2	78.21	C	-0.74	3200	CPSC-CH-E1002-08.3	84.8484		0.23
3100	CPSC-CH-E1002-08.3	83.819		0.08	3209	CPSC-CH-E1002-08.3	84.25		0.14
3110		-----		-----	3210	In house	82.1		-0.17
3116	CPSC-CH-E1002-08.3	78.491		-0.70	3214	EPA3052	85.2		0.28
3122		<5	f-?	<-11.43	3216	In house	88.964		0.83
3146	In house	82.37		-0.13	3218	CPSC-CH-E1002-08.3	80.6		-0.39
3153	IEC62321-5	82.7		-0.09	3225	CPSC-CH-E1002-08.3	82.95		-0.05
3160	CPSC-CH-E1002-08.3	83.78		0.07	3228	IEC62321-5	86.3		0.44
3163	IEC62321-3-1	44	C,R(0.01)	-5.74	3230		-----		-----
3166		-----		-----	3237	EN16711-1	79.3		-0.58
3172	EN16711-1	85.621		0.34	3248	CPSC-CH-E1002-08	80		-0.48
3176	IEC62321-5	78.21		-0.74	6379	In house	85.181		0.28
3182	IEC62321-5	83.470		0.03	8005	ASTM F963	76.735		-0.96
3185	CPSC-CH-E1002-08.3	84.59		0.19	8008		82.96		-0.05
3190	IEC62321-5	84		0.10					

normality	suspect	
n	138	
outliers	4	
mean (n)	83.2832	
st.dev. (n)	5.19905	RSD=6%
R(calc.)	14.5573	
st.dev.(Horwitz)	6.84865	
R(Horwitz)	19.1762	

Lab 2500 first reported as #21700
Lab 2977 first reported 107.81
Lab 3122 possibly a false negative test result?
Lab 3163 first reported not detected





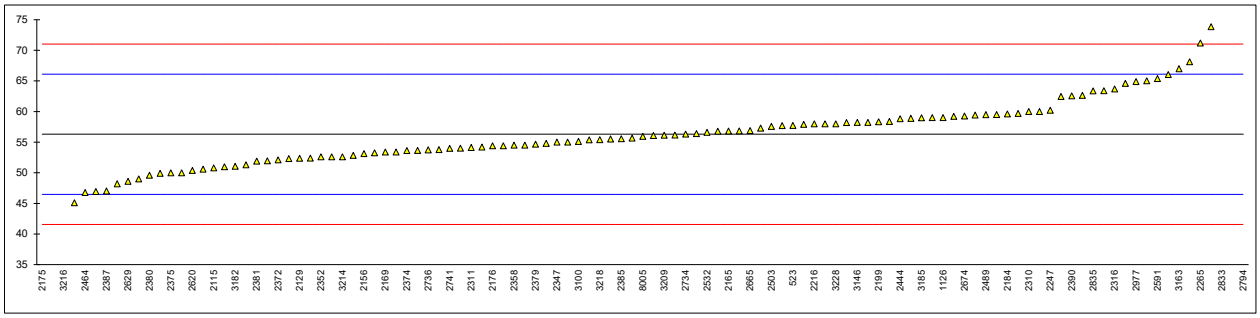
Determination of Total Mercury as Hg on sample #21701; results in mg/kg

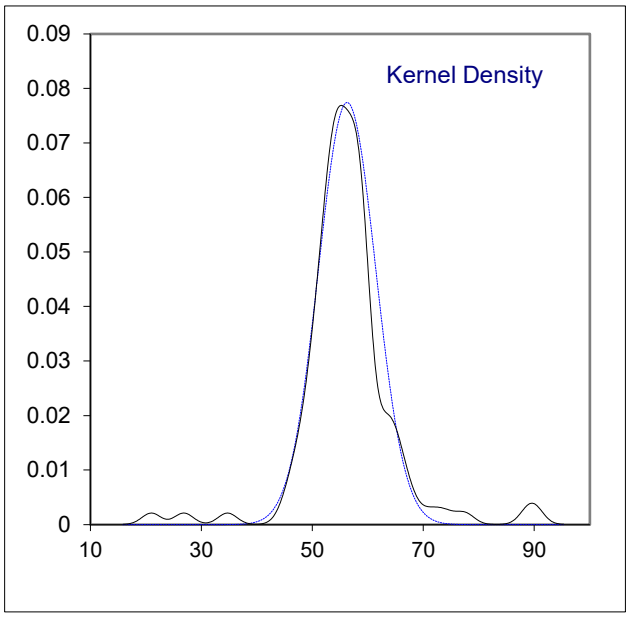
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1002-08.3	56.84		0.11	2370	IEC62321-4	52.6		-0.75
210		-----		-----	2372	IEC62321-4	52.1		-0.86
339		inférieur à 10	f-?	<-9.34	2374	EN16711-1	53.63		-0.54
523	IEC62321-4	57.73		0.29	2375	EN16711-1	50		-1.28
551		68.12		2.41	2378	EN16711-1	51.3		-1.02
623	In house	54.42		-0.38	2379	IEC62321-4	54.66		-0.33
826	IEC62321-4	58.38		0.42	2380	EN16711-1	49.612		-1.36
840		-----		-----	2381	EN16711-1	51.90		-0.90
841		-----		-----	2382	IEC62321-4	53.4		-0.59
1051		-----		-----	2384	IEC62321-4	51.93		-0.89
1126		59		0.55	2385	IEC62321-4	55.56		-0.15
1527	In house	53.64		-0.54	2387	IEC62321-4	47.022		-1.89
2115	EN16711-1	50.8	C	-1.12	2390	CPSC-CH-E1002-08	62.56		1.27
2121		-----		-----	2392	IEC62321-4	46.93		-1.91
2129	EN16711-1	52.38		-0.80	2406	CPSC-CH-E1002-08	57.93		0.33
2132	In house	55.38		-0.19	2426	EN16711-1	Not Analyzed	C	-----
2137		-----		-----	2431	In house	60.00		0.75
2156	IEC62321-4	53.11		-0.65	2444	IEC62321-4	58.82		0.51
2165	IEC62321-4	56.81		0.10	2453		-----		-----
2169	IEC62321-4	53.395		-0.59	2460		-----		-----
2175	In house	21.02	R(0.01)	-7.18	2464	CPSC-CH-E1002-08	46.762		-1.94
2176	IEC62321-4	54.4		-0.39	2475		-----		-----
2182		-----		-----	2476		-----		-----
2184	CPSC-CH-E1002-08	59.6		0.67	2488	IEC62321-4	45.1		-2.28
2197		-----		-----	2489	CPSC-CH-E1002-08	59.5		0.65
2199	IEC62321-4	58.329		0.41	2495	EN16711-1	88.967	R(0.01)	6.65
2201	IEC62321-4	52.85		-0.70	2500		-----		-----
2202	IEC62321-4	59.0		0.55	2503	CPSC-CH-E1002-08	57.58		0.26
2213	CPSC-CH-E1002-08	62.46		1.25	2509	CPSC-CH-E1002-08	66.0574		1.99
2216	IEC62321-4	58		0.35	2511	CPSC-CH-E1002-08	54.8		-0.31
2218		-----		-----	2522		-----		-----
2230	EN16711-1	58.9		0.53	2529		-----		-----
2247	IEC62321-4	60.21		0.80	2532	EN16711-1	56.6		0.06
2256	IEC62321-4	59.22		0.59	2560	EN16711-1	51		-1.08
2258	CPSC-CH-E1002-08	26.88	C,R(0.01)	-5.99	2561		-----		-----
2264		-----		-----	2564		-----		-----
2265	EN16711-1	71.20		3.03	2568		-----		-----
2284	IEC62321-4	53.79		-0.51	2572	IEC62321-4	64.6		1.69
2287	EN16711-1	54.02		-0.46	2573		-----		-----
2289	IEC62321-4	56.4		0.02	2582		-----		-----
2290		-----		-----	2590	EN16711-1	58.19		0.38
2293	EN16711-1	59.7		0.69	2591	EN16711-1	65.368		1.85
2294		-----		-----	2620		50.4		-1.20
2295	EN16711-1	49		-1.49	2624		-----		-----
2297	EN16711-1	50.59		-1.16	2629	IEC62321-5	48.6		-1.57
2310	EN16711-1	60		0.75	2643		-----		-----
2311	EN16711-1	54.13		-0.44	2644	EN16711-1	73.86		3.58
2313		-----		-----	2665	In house	56.89		0.12
2314		-----		-----	2674	IEC62321-4	59.2485		0.60
2316	IEC62321-4	63.7		1.51	2678		-----		-----
2320		-----		-----	2719		50		-1.28
2330		not applicable		-----	2734	CPSC-CH-E1002-08	56.30		0.00
2339	In house	65		1.77	2736	In house	53.748		-0.52
2347	IEC62321-4	55		-0.26	2741	In house	54		-0.47
2350	IEC62321-4	55.66		-0.13	2773	In house	52.3		-0.81
2352	IEC62321-4	52.6		-0.75	2794	IEC62321-3-1	90.2	R(0.01)	6.90
2353	IEC62321-4	54.5		-0.37	2826		-----		-----
2355	IEC62321-4	58		0.35	2829		-----		-----
2357	IEC62321-4	58.23		0.39	2833	IEC62321-3-1	77.46	C,R(0.01)	4.31
2358	In house	54.5		-0.37	2835	IEC62321-4	63.38		1.44
2361		-----		-----	2853		-----		-----
2363	EPA3052	49.9		-1.30	2864	IEC62321-4	53.26		-0.62
2365	In house	56.08		-0.04	2885	IEC62321-4	48.20		-1.65
2366	CPSC-CH-E1002-08	57.3		0.20	2910	IEC62321-4	59.51		0.65
2369	EPA3052	59.413		0.63	2916	IEC62321-4	56.8		0.10

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
2977	ISO17072-2	64.89		1.75	3200	CPSC-CH-E1002-08	54.1979		-0.43
3100	CPSC-CH-E1002-08	55.135		-0.24	3209	CPSC-CH-E1002-08	56.14		-0.03
3110		-----		-----	3210	In house	63.4		1.45
3116		-----		-----	3214	EN16711-1	52.6		-0.75
3122		<5	f-?	<-10.45	3216	In house	34.754	R(0.01)	-4.39
3146	In house	58.22		0.39	3218	EN16711-1	55.4		-0.18
3153	IEC62321-4	57.7		0.29	3225		-----		-----
3160		-----		-----	3228	IEC62321-4	58.0		0.35
3163	IEC62321-3-1	67	C	2.18	3230		-----		-----
3166		-----		-----	3237	EN16711-1	52.4		-0.79
3172	EN16711-1	62.63		1.29	3248		-----		-----
3176	IEC62321-4	55.51		-0.16	6379		-----		-----
3182	IEC62321-4	51.070		-1.06	8005	ASTM F963	55.963		-0.07
3185	In house	58.98		0.55	8008		56.16		-0.03
3190	IEC62321-4	55		-0.26					

normality	OK	
n	107	
outliers	6	
mean (n)	56.2999	
st.dev. (n)	5.15414	RSD=9%
R(calc.)	14.4316	
st.dev.(Horwitz)	4.91078	
R(Horwitz)	13.7502	

Lab 339 possibly a false negative test result?
Lab 2115 first reported 30.17
Lab 2258 first reported 12.325
Lab 2426 first reported not detected
Lab 2833 first reported 85.61
Lab 3122 possibly a false negative test result?
Lab 3163 first reported not detected





APPENDIX 2
Other reported Metals in sample #21700; results in mg/kg

lab	Sb	Cr	Cr6+	Co	Cu	Pb
110	<10	<10	<10	<10	Not Applicable	<10
210	-----	-----	-----	-----	-----	-----
339	inférieur à 12,5	inférieur à 3	non analysé	inférieur à 1,5	4.6	inférieur à 3
523	not detected	not detected	not detected	not detected	not detected	not detected
551	0.196	1.615	-----	0.037	10.131	0.685
623	not detected	not detected	not detected	not detected	not detected	not detected
826	N.D.	N.D.	not detected	N.D.	N.D.	N.D.
840	-----	-----	-----	-----	-----	-----
841	-----	-----	-----	-----	-----	-----
1051	-----	-----	-----	-----	-----	<10
1126	-----	2.72	-----	-----	-----	-----
1527	0.1831	0.4716	-----	0.0251	1.859	0.6309
2115	-----	-----	-----	-----	-----	-----
2121	-----	-----	-----	-----	-----	0.588
2129	not detectable	not detectable	not analyzed	not detectable	not detectable	not detectable
2132	<10	<10	-----	<10	-----	<10
2137	-----	-----	-----	-----	-----	-----
2156	<10	<5	<20	<5	<5	<10
2165	not applicable	<10	not applicable	not applicable	not applicable	<10
2169	-----	not detected	not detected	-----	-----	not detected
2175	1.31	2.40	1.799	0.12	1.69	Not detected
2176	Not analyzed	Not detected	Not detected	Not detected	Not detected	Not detected
2182	-----	-----	-----	-----	-----	not detected
2184	-----	<10	<10	-----	-----	<10
2197	-----	2.26	-----	-----	0	5.10
2199	not analyzed	<2	<8	not analyzed	not analyzed	<2
2201	<10	<10	<10	<10	<10	<10
2202	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2213	<10	<10	<10	<10	<10	<10
2216	-----	None Detected	None Detected	-----	-----	None Detected
2218	-----	-----	-----	-----	-----	-----
2230	<10	<10	NA	<10	<10	<10
2247	<10	<10	<5	<10	<10	<10
2256	-----	not determined	-----	-----	-----	not determined
2258	“not detected”	“not detected”	-----	-----	-----	“not detected”
2264	-----	-----	-----	-----	-----	-----
2265	not analized	not detected	not analized	not analized	not analized	not detected
2284	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2287	-----	＜0.5	-----	-----	-----	＜0.5
2289	<10	<10	<10	<10	<10	<10
2290	-----	-----	-----	-----	-----	-----
2293	-----	-----	-----	-----	-----	-----
2294	-----	-----	-----	-----	-----	No detected
2295	-----	-----	-----	-----	-----	-----
2297	Nd	nd	nd	nd	nd	nd
2310	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED
2311	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2313	-----	-----	-----	-----	-----	-----
2314	-----	-----	-----	-----	-----	Not detected
2316	-----	Not Detected C	Not Detected	-----	18.7	Not Detected
2320	-----	-----	-----	-----	-----	-----
2330	not applicable	not applicable	not applicable	not applicable	not applicable	not detected
2339	-----	<5	-----	<5	<5	<5
2347	<10	<2	<8	<5	<5	<2
2350	<10	<5	<8	<5	<5	<5
2352	-----	-----	-----	-----	-----	-----
2353	NA	NA	ND	NA	NA	ND
2355	<10	<2	<8	<5	<5	<2
2357	-----	-----	-----	-----	-----	-----
2358	n.d.	n.d.	N/A	n.d.	N/A	n.d.
2361	-----	-----	-----	-----	-----	<10
2363	＜10	＜2	＜8	＜5	＜5	＜2
2365	<10	<10	<8	<10	<10	<10
2366	<10	<10	<8	<10	<10	<10
2369	＜10	＜2	＜8	＜5	＜5	＜2
2370	<2	<2	<8	<2	<2	<2
2372	< 2	< 2	< 8	< 2	< 2	< 2
2374	not detected	not detected	not applicable	not detected	not detected	not detected
2375	<10	<10	<8	<10	<10	<10
2378	<10	<10	out of capability	<10	<10	<10
2379	Not detected	Not detected	Not detected	-----	-----	Not detected
2380	-----	-----	-----	-----	-----	-----
2381	not detected	not detected	Out Cap	not detected	not detected	not detected
2382	not analyzed	not analyzed	＜8.0	not analyzed	not analyzed	not analyzed

lab	Sb	Cr	Cr6+	Co	Cu	Pb
2384	not detected	not detected	not detected	not determined	not determined	not detected
2385	<10	<5	<1	<0.5	<5	<1
2387	-----	Not Detected [<2]	Not Detected [<8]	-----	-----	Not Detected [<2]
2390	ND	1.81	ND	ND	ND	ND
2392	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected
2406	Not detected	Not detected	-----	-----	-----	Not detected
2426	Not Detected	Not Detected	Not Analyzed C	Not Detected	Not Detected	Not Detected
2431	-----	-----	-----	-----	-----	-----
2444	-----	-----	0.0	-----	-----	0.0
2453	-----	-----	-----	-----	-----	-----
2460	-----	-----	-----	-----	-----	0.00
2464	-----	-----	-----	-----	-----	-----
2475	-----	-----	-----	-----	-----	<25
2476	-----	-----	-----	-----	-----	-----
2488	-----	< 10	-----	-----	-----	<10
2489	ND	ND	ND	ND	ND	ND
2495	not detected	not detected	not detected	not detected	not detected	<5
2500	-----	-----	-----	-----	-----	<10 C
2503	1.323	-----	-----	-----	-----	-----
2509	-----	-----	-----	-----	-----	-----
2511	-----	-----	-----	-----	-----	-----
2522	-----	-----	-----	-----	-----	<10
2529	-----	-----	-----	-----	-----	-----
2532	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2560	<10	<10	Not Analysed	<10	<10	<10
2561	-----	-----	-----	-----	-----	-----
2564	-----	-----	-----	-----	-----	not detected
2568	-----	-----	-----	-----	-----	＜5
2572	<20 C	<20	-----	<20	<20	<20
2573	-----	-----	-----	-----	-----	-----
2582	-----	-----	-----	-----	-----	-----
2590	<LOQ	<LOQ	-----	<LOQ	<LOQ	<LOQ
2591	not detected	not detected	-----	not detected	not detected	not detected
2620	-----	-----	-----	-----	-----	-----
2624	-----	-----	-----	-----	-----	-----
2629	<5	<5	<5	<5	<5	<5
2643	-----	-----	-----	-----	-----	-----
2644	-----	-----	-----	-----	-----	-----
2665	0.167	0.168	not analyzed	not detected	0.299	0.467
2674	-----	< RL	< RL	-----	-----	< RL
2678	-----	-----	-----	-----	-----	-----
2719	not detected	not detected	-----	-----	-----	not detected
2734	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2736	<4.570	<4.570	-----	<4.570	<4.570	<4.570
2741	<10	<10	-----	<10	<25	<10
2773	<10 mg/kg	<10 mg/kg	<10 mg/kg	<10 mg/kg	<10 mg/kg	<10 mg/kg
2794	not detected	not detected	not analyzed	not detected	not detected	not detected
2826	-----	-----	-----	-----	-----	<20
2829	-----	-----	-----	-----	-----	-----
2833	not analysed	not detected	not applicable	not analyzed	not analyzed	not detected
2835	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2853	-----	-----	-----	-----	-----	Not detected
2864	not determined	not determined	not determined	not determined	not determined	not determined
2885	-----	-----	-----	-----	-----	Not detected
2910	not applicable	not detected	not detected	not applicable	not applicable	not detected
2916	not detected	not detected	-----	not detected	not detected	5.3
2977	nd	nd	-----	nd	nd	nd
3100	＜10	＜10	＜10	＜10	＜10	＜10
3110	-----	-----	-----	-----	-----	-----
3116	-----	-----	-----	-----	-----	-----
3122	40	87	<0.4	<5	<5	79
3146	not detected	not detected	-----	not detected	not detected	not detected
3153	ND	ND	ND	ND	ND	ND
3160	-----	not detected	-----	-----	-----	not detected
3163	6	not detected	not analysed	13	not analysed	not detected
3166	-----	-----	-----	-----	-----	-----
3172	< 10	< 10	-----	< 10	-----	< 10
3176	-----	-----	-----	-----	-----	-----
3182	not analyzed	not analyzed	<10	not analyzed	not analyzed	<13
3185	<10	<10	<10	<10	<10	<10
3190	<10	<10	<10	<10	<10	<10
3200	<10	<10	-----	<10	<10	<10
3209	<10.0	<10.0	-----	<10.0	<10.0	<10.0
3210	<25	<10	-----	<10	<10	<25
3214	<10	<10	<8	<10	<10	<10
3216	0.088	0.425	not analyzed	not detected	0.443	0.345
3218	<10	<10	<8	<10	<10	<10

lab	Sb	Cr	Cr6+	Co	Cu	Pb
3225	-----	-----	-----	-----	-----	<15mg/kg [Not det]
3228	-----	<10	<10	-----	-----	<10
3230	-----	-----	-----	-----	-----	-----
3237	-----	-----	-----	-----	-----	-----
3248	-----	-----	-----	-----	-----	<10
6379	-----	0.383	-----	0.105	0.635	0.507
8005	-----	-----	-----	-----	-----	-----
8008	-----	-----	-----	-----	-----	-----

Lab 2316 first reported 38.3
Lab 2426 first reported not detected
Lab 2500 first reported 80.214
Lab 2572 first reported 75

Other reported Metals in sample #21700; results in mg/kg - continued -

lab	Mn	Hg	Ni	Sn	Zn
110	Not Applicable	<10	<10	<10	not applicable
210	-----	-----	-----	-----	-----
339	inférieur à 1,5	inférieur à 10	inférieur à 3	inférieur à 12,5	7.5
523	not detected	not detected	not detected	not detected	not detected
551	0.534	0.21	1.933	0.195	5.657
623	not detected	not detected	not detected	not detected	not detected
826	N.D.	N.D.	N.D.	-----	N.D.
840	-----	-----	-----	-----	-----
841	-----	-----	-----	-----	-----
1051	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----
1527	-----	0.0545	0.3464	-----	-----
2115	-----	-----	-----	-----	-----
2121	-----	-----	-----	-----	-----
2129	not detectable	not detectable	not detectable	not detectable	not detectable
2132	-----	<10	<10	<10	-----
2137	-----	-----	-----	-----	-----
2156	<5	<5	<5	<5	<5
2165	not applicable	<10	not applicable	not applicable	not applicable
2169	-----	not detected	-----	-----	-----
2175	0.29	Not detected	1.30	0.25	6.19
2176	Not detected	Not detected	Not detected	Not detected	Not detected
2182	-----	-----	-----	-----	-----
2184	-----	<10	-----	-----	-----
2197	-----	-----	-----	0	-----
2199	not analyzed	<1	not analyzed	not analyzed	not analyzed
2201	<10	<10	<10	<10	<10
2202	N.D.	N.D.	N.D.	N.D.	N.D.
2213	<10	<10	<10	<10	<10
2216	-----	None Detected	-----	-----	-----
2218	-----	-----	-----	-----	-----
2230	<10	<10	<10	<10	<10
2247	<10	<10	<10	<10	<10
2256	-----	not determined	-----	-----	-----
2258	-----	“not detected”	-----	-----	-----
2264	-----	-----	-----	-----	-----
2265	not analized	not detected	not analized	not analized	not analized
2284	<10.0	<10.0	<10.0	<10.0	<10.0
2287	-----	＜0.5	-----	-----	-----
2289	<10	<10	<10	<10	<10
2290	-----	-----	-----	-----	-----
2293	-----	-----	-----	-----	-----
2294	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	-----
2297	Nd	nd	nd	nd	nd
2310	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED
2311	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2313	-----	-----	-----	-----	-----
2314	-----	-----	-----	-----	-----
2316	13.6	Not Detected	23.7	-----	-----
2320	-----	-----	-----	-----	-----
2330	not applicable	not applicable	not applicable	not applicable	not applicable
2339	<5	<5	<5	<5	<5
2347	<5	<5	<5	<5	<5
2350	<5	<2	<5	<10	<5
2352	-----	-----	-----	-----	-----
2353	NA	ND	NA	NA	NA

lab	Mn	Hg	Ni	Sn	Zn
2355	<5	<2	<5	<10	<5
2357	-----	-----	-----	-----	-----
2358	N/A	n.d.	n.d.	n.d.	N/A
2361	-----	-----	-----	-----	-----
2363	＜5	＜2	＜5	＜5	-----
2365	<10	<10	<10	<10	<10
2366	<10	<10	<10	<10	<10
2369	＜5	＜2	＜5	＜5	＜5
2370	<2	<2	<2	<2	<2
2372	< 2	< 2	< 2	< 2	< 2
2374	not applicable	not detected	not detected	not applicable	not applicable
2375	<10	<10	<10	<10	<10
2378	out of capability	<10	<10	out of capability	out of capability
2379	-----	Not detected	-----	-----	-----
2380	-----	-----	-----	-----	-----
2381	not detected	not detected	not detected	not detected	not detected
2382	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
2384	not determined	not detected	not determined	not determined	not determined
2385	<1	<0.1	<5	<1	<5
2387	-----	Not Detected [<2]	-----	-----	-----
2390	ND	ND	ND	ND	ND
2392	Not detected	Not detected	Not detected	Not detected	-----
2406	-----	Not detected	-----	-----	-----
2426	Not Detected	Not Analyzed C	Not Detected	Not Detected	Not Detected C
2431	-----	-----	-----	-----	-----
2444	-----	0.0	-----	-----	-----
2453	-----	-----	-----	-----	-----
2460	-----	-----	-----	-----	-----
2464	-----	-----	-----	-----	-----
2475	-----	-----	-----	-----	-----
2476	-----	-----	-----	-----	-----
2488	-----	<10	-----	-----	-----
2489	ND	ND	ND	ND	ND
2495	not detected	not detected	not detected	not detected	not detected
2500	-----	-----	-----	-----	-----
2503	-----	-----	1.949	-----	14.7
2509	-----	-----	-----	-----	-----
2511	-----	-----	-----	-----	-----
2522	-----	-----	-----	-----	-----
2529	-----	-----	-----	-----	-----
2532	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2560	<10	<10	<10	<10	<10
2561	-----	-----	-----	-----	-----
2564	-----	-----	-----	-----	-----
2568	-----	-----	-----	-----	-----
2572	-----	<20	<20	<20	-----
2573	-----	-----	-----	-----	-----
2582	-----	-----	-----	-----	-----
2590	<LOQ	<LOQ	<LOQ	<LOQ	3.62
2591	-----	not detected	not detected	not detected	not detected
2520	-----	-----	-----	-----	-----
2624	-----	-----	-----	-----	-----
2629	<5	<5	<5	<5	<5
2643	-----	-----	-----	-----	-----
2644	-----	-----	-----	-----	-----
2665	0.177	not detected	not determined	not determined	0.666
2674	-----	< RL	-----	-----	-----
2678	-----	-----	-----	-----	-----
2719	-----	not detected	-----	-----	-----
2734	n.d.	n.d.	n.d.	n.d.	n.d.
2736	<4.570	<4.570	<4.570	<4.570	<45.704
2741	<25	<10	<10	<10	<100
2773	<10 mg/kg	<10 mg/kg	<10 mg/kg	<10 mg/kg	<10 mg/kg
2794	not detected	not detected	not detected	not detected	not detected
2826	-----	-----	-----	-----	-----
2829	-----	-----	-----	-----	-----
2833	not analyzed	not detected	not analyzed	not analyzed	not analyzed
2835	Not Detected	Not Detected	Not Detected	13.22 C	23.52
2853	-----	-----	-----	-----	-----
2864	not determined	not determined	not determined	not determined	not determined
2885	-----	Not detected	-----	-----	-----
2910	not applicable	not detected	not applicable	not applicable	not applicable
2916	not detected	not detected	not detected	not detected	not detected
2977	nd	nd	nd	nd	nd
3100	＜10	＜10	＜10	＜10	＜10
3110	-----	-----	-----	-----	-----
3116	-----	-----	-----	-----	-----

lab	Mn	Hg	Ni	Sn	Zn
3122	<5	53	<5	<5	<5
3146	not detected	not detected	not detected	not detected	not detected
3153	ND	ND	ND	ND	ND
3160	-----	-----	-----	-----	-----
3163	14	18	17	not detected	not detected
3166	-----	-----	-----	-----	-----
3172	-----	< 10	< 10	< 10	-----
3176	-----	-----	-----	-----	-----
3182	not analyzed	<13	not analyzed	not analyzed	not analyzed
3185	<10	<10	<10	<10	<10
3190	<10	<10	<10	<10	<10
3200	<10	<10	<10	<10	<10
3209	<10.0	<10.0	<10.0	<10.0	<10.0
3210	<10	<0.02	<10	<10	<10
3214	<10	<10	<10	<10	<10
3216	0.139	not detected	0.687	not detected	0.495
3218	<10	<10	<10	<10	<10
3225	-----	-----	-----	-----	-----
3228	-----	<10	-----	-----	-----
3230	-----	-----	-----	-----	-----
3237	-----	-----	-----	-----	-----
3248	-----	-----	-----	-----	-----
6379	0.0375	-----	0.278	0.0495	0.672
8005	-----	-----	-----	-----	-----
8008	-----	-----	-----	-----	-----

Lab 2426 first reported for Hg: not detected and for Zn: 78.32
Lab 2835 first reported 34.35

Other reported Metals in sample #21701; results in mg/kg

lab	Co	Cu	Mn	Ni	Sn	Zn
110	<10	Not Applicable	Not Applicable	<10	<10	Not Applicable
210	-----	-----	-----	-----	-----	-----
339	inférieur à 1,5	inférieur à 3	inférieur à 1,5	inférieur à 3	inférieur à 12,5	inférieur à 3
523	not detected	not detected	not detected	not detected	not detected	not detected
551	0.052	24.115	-----	0.988	1.007	2.767
623	not detected	not detected	not detected	not detected	not detected	not detected
826	N.D.	N.D.	N.D.	N.D.	-----	N.D.
840	-----	-----	-----	-----	-----	-----
841	-----	-----	-----	-----	-----	-----
1051	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	-----
1527	0.06375	1.934	-----	0.5572	-----	-----
2115	-----	-----	-----	-----	-----	-----
2121	-----	-----	-----	-----	-----	-----
2129	not detectable	not detectable	not detectable	not detectable	not detectable	not detectable
2132	<10	-----	-----	<10	<10	-----
2137	-----	-----	-----	-----	-----	-----
2156	<5	<5	<5	<5	<5	<5
2165	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
2169	-----	-----	-----	-----	-----	-----
2175	Not detected	3.64	0.46	0.30	3.09	9.88
2176	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected
2182	-----	-----	-----	-----	-----	-----
2184	-----	-----	-----	-----	-----	-----
2197	-----	0	-----	-----	0	-----
2199	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
2201	<10	<10	<10	<10	<10	<10
2202	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2213	<10	<10	<10	<10	<10	<10
2216	-----	-----	-----	-----	-----	-----
2218	-----	-----	-----	-----	-----	-----
2230	<10	<10	<10	<10	<10	<10
2247	<10	<10	<10	<10	<10	<10
2256	-----	-----	-----	-----	-----	-----
2258	-----	-----	-----	-----	-----	-----
2264	-----	-----	-----	-----	-----	-----
2265	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
2284	<10	<10	<10	<10	<10	<10
2287	-----	-----	-----	-----	-----	-----
2289	<10	<10	<10	<10	<10	<10
2290	-----	-----	-----	-----	-----	-----
2293	-----	-----	-----	-----	-----	-----
2294	-----	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	-----	-----
2297	nd	nd	nd	nd	nd	nd
2310	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED	NOT DETECTED
2311	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2313	-----	-----	-----	-----	-----	-----
2314	-----	-----	-----	-----	-----	-----
2316	-----	15.6	15.3	15.0	-----	-----
2320	-----	-----	-----	-----	-----	-----
2330	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
2339	<5	<5	<5	<5	<5	<5
2347	<5	<5	<5	<5	<5	<5
2350	<5	<5	<5	<5	<10	<5
2352	-----	-----	-----	-----	-----	-----
2353	NA	NA	NA	NA	NA	NA
2355	<5	<5	<5	<5	<10	<5
2357	-----	-----	-----	-----	-----	-----
2358	n.d.	N/A	N/A	n.d.	n.d.	N/A
2361	-----	-----	-----	-----	-----	-----
2363	＜5	＜5	＜5	＜5	＜5	-----
2365	<10	<10	<10	<10	<10	<10
2366	<10	<10	<10	<10	<10	<10
2369	＜5	＜5	＜5	＜5	＜5	＜5
2370	<2	<2	<2	<2	<2	<2
2372	< 2	< 2	< 2	< 2	< 2	< 2
2374	not detected	not detected	not applicable	not detected	not applicable	not applicable
2375	<10	<10	<10	<10	<10	<10
2378	<10	<10	out of capability	<10	out of capability	out of capability
2379	-----	-----	-----	-----	-----	-----
2380	-----	-----	-----	-----	-----	-----
2381	not detected	not detected	not detected	not detected	not detected	not detected
2382	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
2384	not determined	not determined	not determined	not determined	not determined	not determined

lab	Co	Cu	Mn	Ni	Sn	Zn
2385	<0.5	<1	<1	<1	<1	<5
2387	-----	-----	-----	-----	-----	-----
2390	ND	ND	ND	ND	ND	ND
2392	Not detected	Not detected	Not detected	Not detected	Not detected	-----
2406	-----	-----	-----	-----	-----	-----
2426	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	50.61
2431	-----	-----	-----	-----	-----	-----
2444	-----	-----	-----	-----	-----	-----
2453	-----	-----	-----	-----	-----	-----
2460	-----	-----	-----	-----	-----	-----
2464	-----	-----	-----	-----	-----	-----
2475	-----	-----	-----	-----	-----	-----
2476	-----	-----	-----	-----	-----	-----
2488	-----	-----	-----	-----	-----	-----
2489	ND	ND	ND	ND	ND	ND
2495	not detected	not detected	not detected	not detected	not detected	not detected
2500	-----	-----	-----	-----	-----	-----
2503	-----	-----	-----	2.173	-----	28.98
2509	-----	-----	-----	-----	-----	-----
2511	-----	-----	-----	-----	-----	-----
2522	-----	-----	-----	-----	-----	-----
2529	-----	-----	-----	-----	-----	-----
2532	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2560	<10	<10	<10	<10	<10	<10
2561	-----	-----	-----	-----	-----	-----
2564	-----	-----	-----	-----	-----	-----
2568	-----	-----	-----	-----	-----	-----
2572	<20	<20	-----	<20	<20	-----
2573	-----	-----	-----	-----	-----	-----
2582	-----	-----	-----	-----	-----	-----
2590	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
2591	not detected	not detected	-----	not detected	not detected	not detected
2620	-----	-----	-----	-----	-----	-----
2624	-----	-----	-----	-----	-----	-----
2629	<5	<5	<5	<5	<5	<5
2643	-----	-----	-----	-----	-----	-----
2644	-----	-----	-----	-----	-----	-----
2665	not detected	0.099	not detected	not detected	not detected	0.206
2674	-----	-----	-----	-----	-----	-----
2678	-----	-----	-----	-----	-----	-----
2719	-----	-----	-----	-----	-----	-----
2734	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2736	<4.931	<4.931	<4.931	<4.931	<4.931	<49.310
2741	<10	<25	<25	<10	<10	<100
2773	<10.0 mg/kg	<10.0 mg/kg	<10.0 mg/kg	<10.0 mg/kg	<10.0 mg/kg	<10.0 mg/kg
2794	not detected	not detected	not detected	not detected	not detected	not detected
2826	-----	-----	-----	-----	-----	-----
2829	-----	-----	-----	-----	-----	-----
2833	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
2835	Not Detected	Not Detected	Not Detected	Not Detected	7.86 C	Not Detected
2853	-----	-----	-----	-----	-----	-----
2864	not determined	not determined	not determined	not determined	not determined	not determined
2885	-----	-----	-----	-----	-----	-----
2910	not applicable	not applicable	not applicable	not applicable	not applicable	not applicable
2916	not detected	not detected	not detected	not detected	not detected	not detected
2977	nd	nd	nd	nd	nd	nd
3100	＜10	＜10	＜10	＜10	＜10	＜10
3110	-----	-----	-----	-----	-----	-----
3116	-----	-----	-----	-----	-----	-----
3122	<5	<5	<5	<5	<5	<5
3146	not detected	not detected	not detected	not detected	not detected	not detected
3153	ND	ND	ND	ND	ND	ND
3160	-----	-----	-----	-----	-----	-----
3163	12 C	not analyzed	39 C	64 C	5 C	5 C
3166	-----	-----	-----	-----	-----	-----
3172	< 10	-----	-----	< 10	< 10	-----
3176	-----	-----	-----	-----	-----	-----
3182	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed	not analyzed
3185	<10	<10	<10	<10	<10	<10
3190	<10	<10	<10	<10	<10	<10
3200	<10	<10	<10	<10	<10	<10
3209	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
3210	<10	<10	<10	<10	<10	<10
3214	<10	<10	<10	<10	<10	<10
3216	not detected	not detected	not detected	not detected	not detected	0.197
3218	<10	<10	<10	<10	<10	<10
3225	-----	-----	-----	-----	-----	-----

lab	Co	Cu	Mn	Ni	Sn	Zn
3228	-----	-----	-----	-----	-----	-----
3230	-----	-----	-----	-----	-----	-----
3237	-----	-----	-----	-----	-----	-----
3248	-----	-----	-----	-----	-----	-----
6379	0.0005	0.0685	0	0.0345	0.0055	0.156
8005	-----	-----	-----	-----	-----	-----
8008	-----	-----	-----	-----	-----	-----

Lab 2835 first reported 82.02
Lab 3163 first reported for Co: not detected, for Mn: not detected, for Ni: 17, for Sn: not detected and for Zn: 926

APPENDIX 3 Analytical details

lab	ISO17025 accreded	sample intake (g)	sample preparation	release method	temperature program	acid mixture	analyze technique
110	Yes	0.5	Further cut	Microwave	Room temperature to 140'C in 10 minute, 140'C to 240'C in 20 minute, 20 minutes hold at 240'C	HNO3 and HCl	ICP-MS
210	---		---	---			---
339	---		---	---			---
523	Yes	0.2 g	Further cut	Acid Digestion	130°C during 20 minutes 160°C during 20 minutes 180°C during 20 minutes	Nitric Acid/ Hydrochloric Acid	ICP-MS
551	Yes	0.1G	Further cut	Microwave		HNO3/H202	ICP-MS
623	Yes	0.5 gram	Further cut	Acid Digestion	Time 40 minutes Temperature 140C and Max 210 C	HNO3 conc 65% H2O2 30%	ICP-MS
826	---		---	---			ICP-OES
840	---		---	---			---
841	---		---	---			---
1051	Yes		Further cut	---			ICP-OES
1126	No	0,1 gram	Further cut	Microwave	in 5 minuten naar 220°C en daar dan 12 minuten blijven op maximaal 300 Watt. Uitgevoerd op CEM Discover. Single vessel destruction.	10 ml HNO3	ICP-OES
1527	Yes	2 g	Further cut	Microwave			ICP-MS
2115	Yes	0.15 g	Further cut	Acid Digestion		HNO3	ICP-MS
2121	Yes	0.15 g	Further cut	Acid Digestion	Increase at 200°C in 20min stabilization at 200°C during 10min	Acid digestion by micro-waves : HNO3	ICP-MS
2129	Yes	aprox. 0,1 g	Further cut	Microwave			ICP-MS
2132	Yes	Cd: 0.5g Pb and other elements: 0.15g	Further cut		Temperature: 210 °C Time: 30 min	Cd: H_2SO_4 + H_2O_2 Pb and other elements: HNO_3 + H_2O_2	ICP-OES
2137	Yes	0.1	Further cut	Microwave		HNO3	ICP-OES
2156	Yes	100mg; Top up volume 25ml	Further cut	Microwave	210°C, 20 min		ICP-OES
2165	Yes	0.1000g	Further cut	Microwave	230 degrees centigrade for microwave digestion ,300 degrees centigrade for EN 1122:2001	HNO3 & HCl for microwave digestion ,H2SO4 for EN 1122:2001	ICP-OES
2169	Yes	IEC62321-4 and 5 used 0.2g IEC62321-7-2 used 0.15g	Further grinded	Microwave			ICP-MS
2175	Yes	0.5g	Further cut	Acid Digestion			ICP-OES
2176	Yes	0.1 g/data	Further cut	Microwave	200°C	H2O2/HNO3	ICP-OES
2182	---		---	---			---
2184	Yes	Cd 0.5g others 0.15g		Microwave	Stage Power (W) Temperature (°C) Time (hh:mm:ss) 1 900 200 00:20:00 2 900 200 00:10:00	nitric acid	AAS
2197	Yes	0,2g	Further cut	Microwave	Time Watt Temp.[°C] 1. 00:04:00 1000 110 2. 00:12:00 1200 215 3. 00:18:00 1400 215	10ml Nitric Acid, 65% plus 1ml Hydrogen Peroxide, 30%	ICP-OES
2199	Yes	0.25g	Further grinded	Microwave	210DegC, Holding time: 10mins	Nitric acid	ICP-OES
2201	Yes	0.2g	Further cut	Microwave	6mlHNO3+2mlHCl	room temperature to 205°C,25 min(800W),Cool down 30min.	ICP-OES
2202	Yes	0.3 g	Used as received	Microwave	Nitric acid + Hydrogen peroxide + Tetrafluoroboric acid	Microwave program / 1.5 hours / 240°C	ICP-OES
2213	Yes	0.15	Further cut	Microwave		Nitric+ Hydrogen peroxide	ICP-MS
2216	Yes	5.4967	Further cut	Microwave	Stage 1: Ramp to 100C over 3 minutes Stage 2: Ramp to 140C over 3 minutes, then hold for 30 seconds Stage 3: Ramp to 175C over 5 minutes Stage 4: Ramp to 195C over 7 minutes, then hold for 30 seconds Stage 5: Ramp to	5 mL concentrated HNO3	ICP-MS

lab	ISO17025 accreded	sample intake (g)	sample preparation	release method	temperature program	acid mixture	analyze technique
					200C over 1 minute, then hold for 10 minutes		
2218	Yes	0.15g	Used as received	Microwave	200°C 10min	HNO3	ICP-OES
2230	Yes	0.2g	Further cut	Microwave	210°C	nitric acid	ICP-OES
2247	Yes	approx 0.5gm	Further cut	Microwave	Initial to 80°c ramp 12min hold 10min, 80-140°c ramp 12min, hold 10min 140-180°c ramp 12min hold 10min 180-220°c ramp 15min hold 10min	Nitric acid	ICP-OES
2256	Yes	#21700:0.2150g #21701:0.2156g	Further cut	Microwave	60 min, 210℃	10mlHNO3+1ml H2O2	ICP-AES
2258	Yes	21700: 0.2026 21701: 0.2034	Further cut		Stage Power (W)* Ramp Time (min) Pressure (bar)# Temperature (°C) Hold Time (min) 1 1600/800 10 NA 150 0 2 1600/800 5 NA 190 0 3 1600/800 5 NA 210		ICP-OES
2264	---		---	---			---
2265	Yes	0,1	Further cut	Microwave	160-200°C 1400 W 25 minutes	HNO^3	ICP-OES
2284	Yes	0.2g	Further cut	Microwave	200°C 30Min,1300W	5ml HNO3;1ml HF	ICP-OES
2287	Yes	0.1g	Further cut	Microwave	room temperature - 20min - 210℃ (10 min Hold) 2 Cycles	HNO3+HCl	ICP-MS
2289	Yes	0.1g	Further cut	Microwave	It took 25 minutes to go from room temperature to 200 degree, and it holded for 30 minutes.		ICP-OES
2290	---		---	---			---
2293	Yes	0.2g	Used as received	Microwave	Heating to 200°C in 20 min Keep 200° for 10 min Cooldown for 13 min	Nitric Acid 70%	ICP-MS
2294	Yes	#21700 = 0.1061 #21701 = 0.1039	Further cut	Microwave	200°C for both	HNO3 for both	ICP-OES
2295	Yes	0.15 grams	Further cut	Microwave	20-190 C	Nitric acid	ICP-MS
2297	Yes	0.2g	Used as received	Microwave			ICP-OES
2310	Yes	0.25	Used as received	Microwave	180	10ML HNO3	ICP-MS
2311	Yes	0.1	Further cut	Microwave	10min-100C-2min hold 10min 210C-30min hold	Nitric acid	ICP-MS
2313	---		---	---			---
2314	Yes	0.2 gms	Further cut	Microwave	180	HNO3	AAS
2316	Yes	0.15 gram	Further cut	Microwave	200°C for 40 minutes @ energy 1000W then cooling it for 10 minutes.	Microwave digestion with acid combination of HNO3 and HF.	ICP-OES
2320	---		---	---			---
2330	Yes	0.25 grams	Further cut		Ramp. 20 mins Temperature 200 °C Hold 25 mins Temperature 200 °C	Nitric acid for lead determination Sulfuric acid for cadmium determination	ICP-OES
2339	No	0.2 g	Further cut	Microwave		10 mH HNO3+0.5 mL HF	ICP-MS
2347	Yes	0.2g	Further cut	Microwave			ICP-OES
2350	Yes	Cr6+: #21700, #21701 - 0.15 g Pb,Cd,Hg, Sb, Cr, Co, Cu, Ni, Mn, Sn,Zn : #21700, #21701 - 0.2 g	Further grinded	Microwave	Cr6+ : #21700, #21701 (Ambient --> 155°C:10min, 155°C holding : 1.5 Hr, cooling time : 20 min) Pb,Cd,Hg, Sb, Cr, Co, Cu, Ni, Mn, Sn,Zn : #21700, #21701(Ambient --> 80°C:5min, 80°C --> 40°C: 5min, 40°C --> 210°C:15min, 21°C holding:15min, cooling time: 20	Pb,Cd,Hg, Sb, Cr, Co, Cu, Ni, Mn, Sn,Zn : #21700, #21701 - HNO3 + HF	ICP-OES
2352	Yes	0.25g	Further cut	Microwave	the Temperature was raised to 110℃ for 5 min, 110℃ raised to 180℃ for 10 min, 180℃ raised to 210℃ for 5 min and keep for 15min, then 210℃ to 40℃	HNO3:HCL:HF= 3:1:1	ICP-OES
2353	Yes	0.25	Used as received	Microwave	210C, 1.5hrs	HNO3	ICP-OES
2355	Yes	0.25g	Further cut	Acid Digestion	0℃~130℃（7min） constant temperature 3min; 130℃~180℃（5min） constant temperature 3min; 180℃~200℃（5min） constant temperature 15min.	7mLHNO3+1mL HCl+2mLHF	ICP-OES
2357	---		---	---			---

lab	ISO17025 accreded	sample intake (g)	sample preparation	release method	temperature program	acid mixture	analyze technique
2358	Yes	0.25 g	Used as received	Microwave	210 degree C, 15 mins	HNO3	ICP-OES
2361	---		---	---			---
2363	Yes	Cr6+ : 0.15g others : 0.25g	Further grinded	Acid Digestion	/	HNO3+HCl+HF	ICP-OES
2365	Yes	0.2g	Further cut	Microwave	165℃, 4min;205℃,30min	nitric acid,hydrofluoric acid	ICP-OES
2366	Yes	0.2g	Further cut	Microwave	Microwave	8ml HNO3 +2ml HCl	ICP-OES
2369	Yes		Further cut	Microwave			ICP-OES
2370	Yes	USEPA3052&CPSC(Non-Metel):0.2g IEC62321:0.1g、IEC 62321-7-2:0.15g	Further cut	Microwave	Step 1: 175°C (10min); Step 2: 190°C (25min)	USEPA3052&CPSC(Non-Metel):15mL HNO3 IEC62321:10mL HNO3 + 4mL HF	ICP-OES
2372	No	Heavy meteal test use 0.2 grams; Cr6+ test test use 0.15 grams	Further cut	Microwave		HNO3、HCl、HF	ICP-OES
2374	Yes	0.5g	Further cut	Acid Digestion		H2SO4 HNO3 H2O2	ICP-OES
2375	Yes		---	---			---
2378	Yes	0.2g	Used as received	Microwave	5min ramp to 150°C and hold for 2min; 7min ramp to 210°C and hold for 20min		ICP-OES
2379	Yes	0.25 g for Sb, Cd, Cr, Pb and Hg 0.15 g for Cr6+	Further grinded	Microwave	205 degree Celsius for Sb, Cd, Cr, Pb and Hg 155 degree Celsius, 2 hr. for Cr6+	Used HNO3 for Sb, Cd, Cr, Pb and Hg For Cr6+ used Digestion Solution (NaOH+Na2CO3)	ICP-OES
2380	Yes	0.25 g	Further cut	Microwave	Step-1 time-25min Tem-210deg Power-1800W Step-2 time-20min Tem-210deg Power-1800W	HNO3-10ml, H2O2-2ml	ICP-OES
2381	Yes	0.25 gm	Further cut	Microwave	Step 1: Time - 3 min & Temperature 140°C Step 2: Time - 2 min & Temperature 140°C Step 3: Time - 5 min & Temperature 190°C Step 4: Time - 5 min & Temperature 190°C Step 5: Time - 5 min & Temperature 210°C Step 6: Time - 20 min & Temperature 210°C	Nitric acid & Hydrogen peroxide	ICP-OES
2382	Yes	#21700:Cr6+:0.1508g Cd:0.5g #21701:Cr6+:0.1503g Cd、Pb、Cr、Hg:0.5g	Further cut		1、IEC62321-7-2 (Cr6+):Heat the samples to (155±5)℃ for 90 minutes 2th micowave digestion system. Cool the sample to room temperature 2、EN1122(Cd): sulphuric acid for 15min,hydrogen peroxide solution for 10min 3、IEC6231-4,IEC6231-5:150 ℃ for 3 min; 180 ℃ f	1、IEC62321-7-2 (Cr6+):0.5 mol/L NaOH-0.28 mol/L Na2CO3,toluene,MgCl2,0.5 mol/L phosphate buffer 2、EN1122(Cd):96 %~98 % (m/m) Sulphuric acid、30% Hydrogen peroxide 3、IEC6231-4,IEC6231-5:36.0 %~38.0 % hydrochloric acid、Hydrochloric acid solution 、Nitric ac	
2384	Yes	.25	Further cut	Microwave		HNO3	ICP-OES
2385	Yes	~0.1 g	Further grinded	Microwave	12 min, 260 °C	nitric acid (67 - 69%) and hydrogen peroxide (30%)	ICP-OES

lab	ISO17025 accredited	sample intake (g)	sample preparation	release method	temperature program	acid mixture	analyze technique
2387	Yes	0.2	Further cut	Acid Digestion		HNO3	ICP-OES
2390	Yes	#21700 (0.2gm) #21701 (0.2gm)	Further cut	Microwave	210 OC Temperature used Step 1: 5mint ramp, 5mint Hold, 140°C temp Step 2: 5mint ramp, 5mint Hold, 190°C temp Step 3: 15mint ramp, 10mint Hold, 210°C temp	10ml of 65% Nitric Acid	ICP-OES
2392	Yes	1.0 g	Further grinded	Microwave	Temperature at 180+- 5 degree Celsius, Pressure 400 PSI, Ramping 20 min, Holding 20 min	HNO3: H2O2 10 ml: 1 ml	ICP-OES
2406	Yes	0.1 gram	Further cut	Microwave	Temperature is increased to 200oC within 20 minutes, then hold for 30 minutes, and cool down for 60 minutes at last.		ICP-OES
2426	Yes	0.1005	Further cut	Microwave	Ambient to 200C in 30 min & hold for 10min at 200C	Nitric Acid	ICP-MS
2431	Yes	0.1	Further cut	Microwave	increasing temperature to 200°C in approximately 20 minutes, and holding for 10 minutes	HNO3, HCl	ICP-MS
2444	Yes	Follow IEC62321-4(Hg) and 5(Pb,Cd): 0.2 g. and IEC62321-7-2 (Cr(VI)): 0.1 g.	Further cut	Acid Digestion	1st step heat up: temp. 0 to 220 °C; 60 min, 2nd holding:220 °C; 60 min,3rd cool down 220 to 40 °C;15 min.	HNO3: H2O2	ICP-OES
2453	No	±0.1	Further grinded	Microwave			ICP-OES
2460	Yes	0.2 g	Further grinded	Microwave	200°C	Nitirc Acid	AAS
2464	Yes	0.1	Further cut	Microwave		5ml	ICP-OES
2475	Yes	0.12	Used as received	Microwave			ICP-OES
2476	---		---	---			---
2488	Yes		---	---			---
2489	Yes	0.039g/0.039g	Further cut	Microwave	200	5 ml HNO3	ICP-MS
2495	Yes	Aprox. 0.06g	Further cut	Microwave	0min -> 25min RT->210°C 25min -> 45min hold 210°C 45min -> 55min cooldown	7,5ml HNO3+ 2,5ml HCl+ 1ml H202	ICP-MS
2500	Yes	0.2002g	Further cut	Microwave	STEP 1 150 oC, 10 min STEP 2 190 oC, 5 min STEP 3 210 oC, 5 min	HNO3	ICP-AES
2503	---		---	---			---
2509	Yes	0.1250 gram	Further cut	Microwave	Stage 1: 0~180 (Celsious degree), within 15 minute Stage 2: 180 (Celsious degree), stay 15 minute	Nitric Acid 65%	ICP-OES
2511	Yes		Further cut	Microwave			ICP-MS
2522	No	0.1 g	Further cut	Microwave	210 degree, 30min		ICP-OES
2529	No	0.1000 g per trial	Further cut	Microwave	12 minutes to 240 C, hold at 240 C for 18 minutes	5mL conc. nitric acid	ICP-OES
2532	Yes	0.1 gram	Further cut	Microwave	Ramp (Mint) Temp Hold 15 80 10 15 140 10 15 180 20	10ml Nitric Acid + 2ml Hydrogen Peroxide	ICP-MS
2560	Yes	0.1 grams	Further cut	Microwave	Temperature, ºC Ramp time, min Hold time, min Fan 140 3.00 2.00 1 190 5.00 5.00 1 210 5.00 20.00 1 0 -		ICP-MS
2561	---		---	---			---
2564	Yes		Further cut	Acid Digestion			AAS
2568	Yes	0.1g	Further grinded	Microwave	20℃～150℃（13℃/miin）→120℃（-10℃/min）→240℃（10℃/min）（15min）	NO3	ICP-MS
2572	Yes		---	---			---
2573	Yes	0.2g	Further cut	Acid Digestion	holding at 200°C for 15minutes	9ml nitric acid£¬1ml Hydrogen Peroxide	ICP-OES
2582	---		---	---			---
2590	Yes	0.2		Microwave	Step1: 11 minutes to reach 120°C Step2: 2 minutes stable at 120°C Step3: 9 minutes to reach to 220°C Step4: 10 minutes stable at 220°C		ICP-MS
2591	Yes	0.15 grams	Further cut	Microwave		Nitric Acid + H2O2	ICP-MS
2620	Yes	0.2g	Further cut	Microwave	max. 1000Watt 03min30s to 110°C 11min30s to 215°C hold 20min	5ml HNO3 (65%), 1ml H2O2 (30%)	ICP-OES

lab	ISO17025 accreded	sample intake (g)	sample preparation	release method	temperature program	acid mixture	analyze technique
2624	No	1.00	Further grinded	Microwave		5 ml H2O, 2 ml HNO3, 6 ml HCl, 2 ml H2O2	AAS
2629	Yes	0.3g	Further cut	Microwave		HNO3 + H2O2	ICP-OES
2643	Yes	0.2 g	Further cut	Microwave			ICP-OES
2644	Yes	0.2 g	Further cut	Microwave	140°C in 2 minutes, hold for 5 min 200°C in 5 min, hold 20 min	8 HNO3 + 2 HCl	ICP-OES
2665	Yes	0.2 g			4 min until 110°C 12 min from 110°C until 200°C 18 min at 200 °C	nitric acid (5 mL+ hydrofluoric acid (50 µL)	ICP-MS
2674	Yes	0.1~0.2g	Further cut	Microwave	Step1: heat to 120C in 3mins Step2: heat to 210C in 15mins Step3: keep 210C for 15mins	HNO3	ICP-OES
2678	---		---	---			---
2719	---		---	---			---
2734	Yes	3	Further cut	Microwave			ICP-OES
2736	Yes	#21700 was further cut with 0.1094g used, while #21701 was used as received with 0.1014g used.		Microwave	Ramp up to 250C for 20 minutes, then hold at 250C for 15 minutes.		ICP-OES
2741	Yes	0.15g	Further cut	Acid Digestion, Microwave	15minutes:120oC; 12minutes:165oC; 10minutes:210oC; 10minutes:210oC	HNO3 + H2O2	ICP-MS
2773	Yes	0.5g	Further cut	Acid Digestion	50minutes @180°C.	Sulphuric Acid & Hydrogen peroxide	ICP-MS
2794	Yes		Used as received	---			XRF
2826	Yes	EN1122: 0.5g CPSC method: 0.15g	Used as received	Acid Digestion	Temperature increase to 200oC within 20 min, and then hold for 10min, 60 min cool down.	Sulphric acid	ICP-OES
2829	Yes	approximately 0.3 for EN1122, 0.150 for CPSC-CH-E1002.08.3	Further cut	Acid Digestion	The microwave method should involve increasing temperature of each sample to at least 200°C in approximately 20 minutes and holding for 10 minutes.	acid digestion with sulfuric acid and hydrogen peroxide for EN1122, microwave digestion for CPSC-CH-E1002.08.3 with nitric acid	ICP-OES
2833	No		Used as received	---			XRF
2835	Yes	0.2g	Further cut	Microwave	Step 1- 145 Ramp 7 min hold 3 min Step 2- 210 Ramp 10 min hold 5 min Step 3- 50 hold 10 min	HNO3 and H2O2	ICP-OES
2853	Yes	0.1	Further cut	Microwave	raise temperature to 180°C in 5.5 minutes, and holding at 180°C for 9.5 minutes	HNO3 + HCl	ICP-MS
2864	---	0.2	Further cut	Microwave	195°C 45min	5mL HNO3+1.5mL HF+1mL HCl+1mL H2O	ICP-OES
2885	No	0.25g	Further cut	Microwave			ICP-OES
2910	Yes	0.1g~0.15g	Used as received	Microwave	Steps time(hh:mm:ss) Initial(Ž) Final(Ž) 1 00:08:00 25 165 2 00:08:00 165 210 3 00:25:00 210 210 4 00:30:00 210 80		ICP-OES
2916	No	0,25	Further cut	Microwave			ICP-OES
2977	No	about 2 grams	Used as received	Microwave	in 28 min at 270 °C, isotherm 270°C for 20 min.	Nitric Acid, Sulfuric Acid, Chloridric Acid	ICP-OES
3100	Yes	EN 1122:0.5g IEC 62321-5:0.1g CPSC-CH-E1002-08:0.1g IEC 62321-7-2:0.15g	Further grinded	Microwave	the temperature of each sample to 205°C in 20min£¬and holding at 205°C for 12min.	H©üSO4,H2O2	ICP-OES
3110	Yes	around 0.25g	Further cut	Acid Digestion		H2SO4	AAS
3116	Yes		Used as received	Acid Digestion			
3122	Yes	0.2	Futher cut	Microwave	210°C for 20 min	HNO3	ICP-OES

lab	ISO17025 accredited	sample intake (g)	sample preparation	release method	temperature program	acid mixture	analyze technique
3146	Yes	0.25 g	Used as received	Microwave	Step 1: 02:30 min -> 70 °C Step 2: 12:00 min -> 200 °C Step 3: 18:00 min -> 250 °C	4.5 ml nitric acid (65 %) + 1.5 ml hydrochloric acid (25 %)	ICP-MS
3153	Yes	100mg	Further grinded	Microwave	Stage 1: Ramp the temperature from room temperature to 140°C and hold for 5 mins. Stage 2: Ramp the temperature from 140°C to 200°C in 5 mins, hold for 20 mins.	HNO3:HCl = 3:1	ICP-OES
3160	Yes	0,15 gr	Further cut	Microwave	Step 1: 210ºC in 20 minutes Step 2: Hold at 210 ºC for 15 minutes	HNO3, HCl and H2O2	ICP-MS
3163	No	1	Used as received	---			XRF
3166	---		---	---			---
3172	---		---	---			---
3176	No		Used as received	Microwave		nitric acid	ICP-MS
3182	Yes	0.2 gram	Further grinded	Microwave	Step 1 Room temp to 200 C use time 15 min and hold time 10 min Step 2 200 C to 180 C use time 10 min	HNO3 10 ml + H2O2 1 ml	ICP-OES
3185	Yes	0.1g	Further cut	Microwave	Increase the temperature to 210℃ in 20 minutes and hold at 210℃ for 10 minutes.	--	ICP-OES
3190	Yes	0.1000	Further cut	Microwave	1.10mins to 150℃ 2.hold 5mins 3.10mins to 190℃ 4.hold 35mins	HNO3:HCL 3:1	ICP-OES
3200	Yes	0.1g	Further cut	Microwave	each sample to 200°C in 20 minutes, and holding for 20 minutes	HNO3	ICP-OES
3209	---		---	---			---
3210	Yes	0.1	Further cut	Microwave	240°C 20min	5ml HNO3 + 1ml HCl	ICP-AES
3214	Yes	0.2grams	Further grinded	Microwave	210°C for 1hr	HNO3+HCl+HF	ICP-OES
3216	No	0,2 g	Used as received	Microwave	30 min to reach 250ºC and maintain this temperature during 10 min.	6ml HNO3 70%	ICP-MS
3218	Yes	0.2g	Further grinded	Microwave	Total metal elements:200℃/30min hexavalent chromium:150℃/90min	Total metal elements:Nitric acid(8ml) and hydrogen peroxide(2ml) hexavalent chromium:alkaline digestion solution(10ml) and toluene(5ml)	
3225	Yes	0.5	Further cut	Microwave	120oC, 160oC hold for 3min, 190oC hold for 30min.	sulphuric acid for EN1122 nitric acid for CPSC	ICP-OES
3228	Yes	0.1-0.2g	Further cut	Microwave	Power Time (mins) Temp (oC) Step 1 1000W 3:30 120 Step 2 1000W 15:00 180 Step 3 1000W 15:00 200 Cr iVI j F Power Time (mins) Temp (oC) Step 1 1500W 7:00 120 Step 2 1500W 3:00 120 Step 3 1500W 6:00 160 Step 4 1500W 90 F0 160		ICP-OES
3230	---		---	---			---
3237	Yes	0,2	Further cut	Microwave	160 C 10 min (5 Min hold time) 220 C 5 min (7,5 Min hold time)	9 mL HNO3+3 ml HCl	ICP-MS
3248	Yes	0.1500 g	Further cut		Stage 1: Ramp time 10 min; 150°C; Hold time 3 min Stage 2: Ramp time 5 min; 185°C; Hold time 3 min Stage 3: Ramp time 5 min; 200°C; Hold time 25 min	Sulfuric acid, nitric acid and hydrogen peroxide	AAS
6379	No	About 0,4g (two replicates was made and average reported)	Further cut	Microwave	Stargin pressure 40bar in reaction chamber. (Max pressure is 200bar). 1) Ramp 10min to 50C. Stay 10min. 2) Ramp 10min to 100C. Stay 10min. 3) Ramp 5min to 150C. Stay 5min. 4) Ramp 5min to 240C. Stay 15min. Cool down.	In microwave oven (Milestone UltraWave) HNO3 + H2O was used.	ICP-MS
8005	Yes	0.1g	Used as received	Microwave			ICP-OES
8008	---		---	---			---

APPENDIX 4

Number of participants per country

3 labs in	BANGLADESH
1 lab in	BRAZIL
1 lab in	CAMBODIA
2 labs in	CANADA
1 lab in	EGYPT
1 lab in	FINLAND
6 labs in	FRANCE
8 labs in	GERMANY
2 labs in	GUATEMALA
20 labs in	HONG KONG
10 labs in	INDIA
1 lab in	INDONESIA
9 labs in	ITALY
3 labs in	JAPAN
3 labs in	MALAYSIA
1 lab in	MAURITIUS
3 labs in	MEXICO
1 lab in	MOROCCO
29 labs in	P.R. of CHINA
2 labs in	PAKISTAN
1 lab in	PERU
1 lab in	PORTUGAL
1 lab in	ROMANIA
3 labs in	SINGAPORE
6 labs in	SOUTH KOREA
4 labs in	SPAIN
2 labs in	SRI LANKA
6 labs in	TAIWAN
5 labs in	THAILAND
2 labs in	THE NETHERLANDS
2 labs in	TUNISIA
5 labs in	TURKEY
6 labs in	U.S.A.
1 lab in	UNITED KINGDOM
7 labs in	VIETNAM

APPENDIX 5

Abbreviations

C	= final test result after checking of first reported suspect test result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
R(0.01)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
E	= calculation difference between reported test result and result calculated by iis
W	= test result withdrawn on request of participant
ex	= test result excluded from statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
f+?	= possibly a false positive test result?
f-?	= possibly a false negative test result?

Literature

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, June 2018
2 ISO5725:86
3 ISO5725 parts 1-6:94
4 ISO13528:05
5 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
6 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
7 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
8 J.N. Miller, Analyst, 118, 455, (1993)
9 Analytical Methods Committee, Technical Brief, No 4, January 2001
10 P.J. Lowthian and M. Thompson, The Royal Society of Chemistry, Analyst, 127, 1359-1364, (2002)
11 W. Horwitz and R. Albert, J. AOAC Int, 79.3, 589-621, (1996)
12 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)