Results of Proficiency Test
Metals in dried Paint
April 2017

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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CONTENTS

Appendices:

1 INTRODUCTION

Since the USA Consumer Product Safety Improvement Act (CPSIA) did pass in 2008, iis received a number of requests to start a PT scheme for the determination of lead in paint. Among other things, the CPSIA bans lead and phthalates in toys.
This USA legislation reduces the amount of total lead content in the substrates of children's products to 600 ppm by 10 February 2009, to 300 ppm by 14 August 2009 and to 100 ppm by 14 August 2011 and the total lead content in surface coatings or paint to 90 mg/kg by 14 August 2009.

Since 2008 the Institute for Interlaboratory Studies (iis) organizes every year a proficiency test on total Lead in dried Paint. In the 2015 PT, it was decided to extend the scope with other metals on request of a number of participants.
In this interlaboratory study, 136 laboratories in 32 different countries registered for participation. See appendix 3 for the number of participants per country. In this report, the results of the 2017 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 in Spijkenisse was the organiser of this proficiency test. In this proficiency test, it was decided to use two different dried paint samples (labelled #17550 and #17551). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory. The participants were asked to report the 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/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accreditation 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 organisation 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 March 2017 (iis-protocol, version 3.4). This protocol can be downloaded via the FAQ page of the iis website www.iisnl.com.

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

Two different dried paint samples were used in this proficiency test. Samples #17550 and #17551 were made from water based paint.
A batch of fresh liquid paint was fortified with arsenic and chromium for sample #17550 and another batch with chromium, cobalt, lead and mercury for sample #17551 to create samples that were positive for these metals. After thorough mixing, the paint sample was applied to plastic sheets. After drying, the paint was scraped off the sheets. The dried paint was milled until the particles passed through a 0.5 mm sieve. The dried and sieved paint samples, labelled #17550 and #17551 were both divided over 200 subsamples of 0.5 gram each.

The homogeneity of subsamples #17550 was checked by the determination of total arsenic and total chromium on 8 randomly selected samples each. The analytical testing was performed by an ISO/IEC 17025 accredited laboratory. See the following tables for the homogeneity test results.

	Total Arsenic in mg/kg	Total Chromium in mg/kg
Sample #17550-1	191	178
Sample #17550-2	186	173
Sample #17550-3	194	182
Sample #17550-4	195	176
Sample #17550-5	197	172
Sample #17550-6	191	172
Sample #17550-7	197	175
Sample #17550-8	190	172

table 1: homogeneity test results of subsamples #17550

From the above test, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Total Arsenic in mg/kg	Total Chromium in mg/kg
r (observed)	10.7	10.0
reference	Horwitz	Horwitz
0.3 * R (reference)	11.7	10.8

table 2: evaluation of repeatabilities of subsamples #17550

The homogeneity of subsamples #17551 was checked by the determination of total lead on 8 randomly selected samples each. The analytical testing was performed by a subcontracted laboratory. See the following tables for the homogeneity test results.

	Total lead in mg/kg
Sample #17550-1	82
Sample #17550-2	82
Sample #17550-3	79
Sample #17550-4	83
Sample #17550-5	81
Sample #17550-6	80
Sample #17550-7	81
Sample #17550-8	82

table 3: homogeneity test results of subsamples #17551

From the above test, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Total lead in mg/kg
r (observed)	4
reference	Horwitz
0.3 * R (reference)	6

table 4: evaluation of repeatabilities of subsamples #17551

The calculated repeatabilities are in agreement with 0.3 times the estimated target reproducibilities, calculated using the Horwitz equation. Therefore, homogeneity of the subsamples #17550 and #17551 was assumed.

Approx. 0.5 grams of each of the samples #17550 and #17551 were sent to the participating laboratories on April 5, 2017.

2.5 ANALYSES

The participants were requested to determine on both samples #17550 and #17551 the concentration of total Antimony, Arsenic, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel and Selenium, applying the analysis procedure that is routinely used in the laboratory. Also some method details were requested.

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 results, but report as much significant figures as possible. It was also requested not to report ‘less than’ 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 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 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 in appendix 1 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 re-analyses). Additional or corrected test results are used for data analysis and original test results are placed under 'Remarks' in the result tables in appendix 1. 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 organisation of this proficiency test was the one as described in the report ’iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation’ of March 2017 (iis-protocol, version 3.4).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as ‘<…’ or ‘>…” were in general 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.

According to ISO 5725, the original test results per determination were submitted to Dixon’s and/or Grubbs’ and/or Rosner’s outlier tests. 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 the averages and the 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. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

3.2 GRAPHICS

In order to visualise 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 analysis 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 standard. 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. The Kernel Density Graph 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 was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the individual participating laboratories the z-scores were calculated. In order to be able to have an objective evaluation of the performance of the individual participants, it was decided to evaluate this performance against the literature requirements. Therefore, 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. In some cases, a reproducibility based on former iis tests could be used.

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 results is fit-for-use.

The z-scores were calculated according to:

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

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

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

|z| < 1 good
1 < |z| < 2 satisfactory
2 < |z| < 3 questionable
3 < |z| unsatisfactory

4 EVALUATION

During the execution of this proficiency test no major problems were encountered. Only four participants did not report any test results at all. Finally, the 132 reporting laboratories did report in total 975 numerical test results. Observed were 24 statistically outlying test results, which is 2.5% of the numerical test results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

Not all original 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.

Due to the lack of precision data in the relevant test methods for the determination of metals in paint, the z-scores and the calculated reproducibilities were compared with an estimated reproducibility calculated using the Horwitz equation.

4.1 EVALUATION PER SAMPLE AND PER ELEMENT

In this section, the results are discussed per sample. All statistical test results reported on the paint samples are summarised in appendix 1.

Test results of two laboratories (lab 632 and 3124) showed multiple outliers on both samples. For these laboratories the test results, when not already marked an outlier, were excluded from the statistical evaluation.

Sample #17550

Total Arsenic: The total arsenic determination on this sample, at a concentration level of 176 mg/kg may be problematic. One statistical outlier was observed and one test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated reproducibility calculated using the Horwitz equation.

Total Chromium: The total chromium determination on this sample, at a concentration level of 169 mg/kg, 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 using the Horwitz equation.

Other metals: The majority of participants did not detect antimony, cadmium, cobalt, copper, lead, mercury, nickel or selenium in this sample.

Sample #17551

Total Cadmium: The total cadmium determination on this sample, at a very low concentration level of 8 mg/kg, may be problematic. One statistical outlier was observed and one test result was excluded. Although seventy-five participants reported a test result, the variation was relatively high, probably because the concentration level is below or close to the detection limit. Therefore no z-scores were calculated.

Total Chromium: The total chromium determination on this sample, at a concentration level of 139 mg/kg, may be problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility calculated using the Horwitz equation.

Total Cobalt: The total cobalt determination on this sample, at a concentration level of 512 mg/kg, may be problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility calculated using the Horwitz equation.

Total Lead: The total lead determination on this sample, at a concentration level of 79 mg/kg may not be problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility calculated using the Horwitz equation.

Total Mercury: The total mercury determination on this sample, at a concentration level of 21 mg/kg, may be problematic. Nine statistical outliers were observed and two test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated reproducibility calculated using the Horwitz equation.

Total Nickel: The total nickel determination on this sample, at a concentration level of 48 mg/kg may be problematic. Two statistical outliers were observed and one test result was excluded. The calculated reproducibility after rejection of the

suspect data is in not agreement with the estimated reproducibility calculated using the Horwitz equation.

Other metals: The majority of participants did not detect antimony, arsenic, copper or selenium in this sample.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the target reproducibilities calculated from the Horwitz equation and the reproducibilities as found for the group of participating laboratories. The number of significant results, the average results, the calculated reproducibilities (standard deviation times 2.8) and the target reproducibilities are compared in the next tables.

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (target)*
Total Arsenic	mg/kg	96	175.9	46.7	36.2
Total Chromium	mg/kg	103	168.7	54.6	34.9

table 5: reproducibilities of tests on dried paint sample #17550

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (target)*
Total Cadmium	mg/kg	75	8.0	3.7	(2.6)*
Total Chromium	mg/kg	102	138.5	36.7	29.5
Total Cobalt	mg/kg	91	512.0	118.1	89.7
Total Lead	mg/kg	126	78.7	19.5	18.3
Total Mercury	mg/kg	78	20.8	8.3	5.9
Total Nickel	mg/kg	89	48.5	18.3	12.1

table 6: reproducibilities of tests on dried paint sample #17551

*) results between brackets: concentration level in sample is below or close to detection limit.

From the above table it can be concluded, without statistical calculations, that the participating laboratories have no difficulties with the analysis of total lead in dried paint but that the analysis of total arsenic, cadmium, chromium, cobalt, mercury and nickel is more difficult for the laboratories when compared with the strict target results calculated with the Horwitz equation. See also the discussions in paragraphs 4.1 and 5.

4.3 EVALUATION OF THE PROFICIENCY TEST OF APRIL 2017 WITH PREVIOUS PTS

	April 2017	*April 2016*	*April 2015*	*April 2014*	*April 2013*
Number of reporting labs	132	152	156	132	139
Number of results reported	975	1133	558	264	276
Number of statistical outliers	24	33	16	10	6
Percentage outliers	2.5%	2.9%	2.9%	3.8%	2.2%

table 7: 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 against the calculated requirements of Horwitz. The conclusions are given in the following table by means of the uncertainties found in the PTs.

Parameter	*April 2017*	*April 2016*	*April 2015*	*April 2014*	*April 2013*	*February 2012*	*February 2011*	*Horwitz RSD*
Total Antimony	n.e.	15%	n.e.	n.e.	n.e.	n.e.	n.e.	6-10%
Total Arsenic	9%	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	6-10%
Total Cadmium	n.e.	7-8%	n.e.	n.e.	n.e.	n.e.	n.e.	6-10%
Total Chromium	9-12%	9%	n.e.	n.e.	n.e.	n.e.	n.e.	6-10%
Total Cobalt	8%	30%	7%	n.e.	n.e.	n.e.	n.e.	6-10%
Total Lead	9%	10%	9%	6 - 8%	10%	10%	8-9%	6-10%
Total Mercury	14%	18%	n.e.	n.e.	n.e.	n.e.	n.e.	6-10%
Total Nickel	13%	5%	13%	n.e.	n.e.	n.e.	n.e.	6-10%

table 8: comparison of the uncertainties (in %) in the previous and present PTs

From the table above, it can be concluded that the uncertainty in the test result of Cobalt and Mercury has improved significantly since the last PT.

5 DISCUSSION

A large number of different test methods were used. The American CPSC-CH-E1003-09 method ("For determining Lead (Pb) in Paint and Other Similar Surface Coatings) was used by the majority of laboratories. Sometimes other versions of CPSC were used. About 15-18% of the laboratory used an 'in house' method. Other methods, which were used (depending on the metal to be determined), were EPA 3052, EPA 3051, EN 16711, ASTM F963, IEC62321, ISO17072-2, ISO8124-5, ASTM D3335 and ASTM E1645. Surprisingly not all of these methods are designed to determine metals in dried paint. For example ISO17072-5 is a test method to determine metals in leather; EN16711 is for metals in textile and IEC62321 for metals in electro technical products. Furthermore, a large group of participants reported to have used an 'in house' method (which may also be based on methods that are not applicable to paint), this may be a reason that a large variation is found in the determination of metals in dried paint.

This year many details about the digestion were requested from the laboratories. These are summarized in appendix 3.
Most laboratories used a sample intake between 50 and 200 mg. Some laboratories reported to have used a sample intake of 0.1 mg, but this is probably a unit error and 0.1 g was meant to be reported. No significant differences in test results were found for the laboratories to have reported such a low sample intake, which suggests an error in the reported unit.
Nearly all laboratories used a strong acid like Nitric Acid to digest the paint. Most used a combination of Nitric Acid with Hydrochloric Acid and/or Hydrofluoric Acid and/or Hydrogen Peroxide. No significant differences were found in the test results when using the different strong acids or combinations of the strong acids.
Details about equipment, temperature and time of digestion were also requested. The majority of laboratories used a microwave as digestion equipment. Other equipment used is hot block digester, heating block and electric hot plate. Most laboratories used a high temperature of around 180-200°C for the digestion, the digestion times used differ a lot. This is understandable, because for a microwave the power will determine the time needed to reach and maintain a certain temperature. Details about the power program were not reported in this PT. Looking at the reported time/temperature/different equipment, no significant influence on the test results was found.

Another development in modern paints is a tendency to have more organic material in the formulation for reasons of surface enhancement (matte), easy cleaning/scrubbing, better processing of the paint on the wall, etc. This might also complicate the determination of the metals, for it could be more difficult to digest the organic matrix completely. However, in this PT simple water based paint was used to prepare the samples.

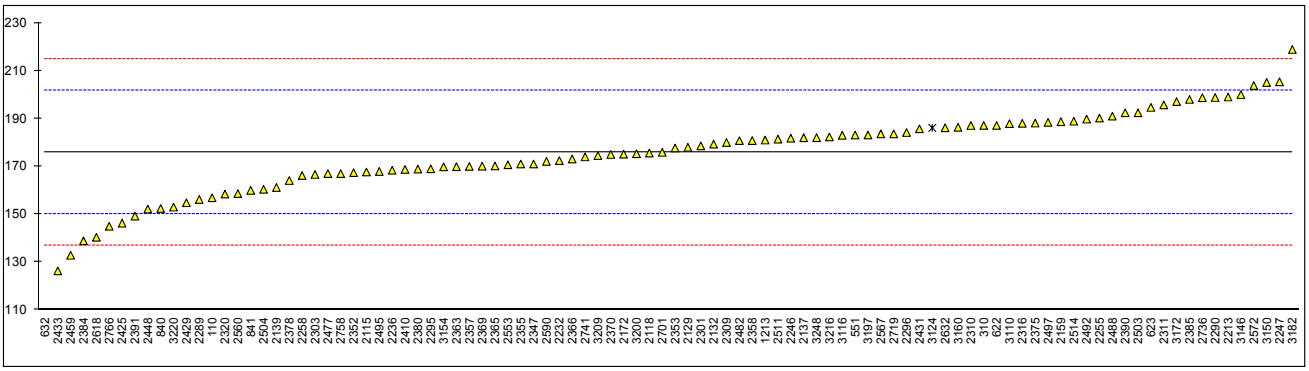
APPENDIX 1

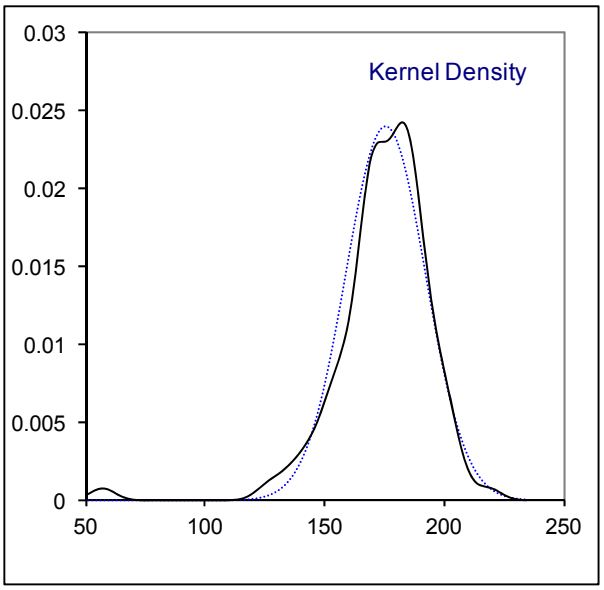
Determination of Total Arsenic as As on sample #17550; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	156.896		-1.47	2390	CPSC-CH-E1003-09	192.40		1.28
310	In house	187.125		0.87	2391	CPSC-CH-E1003-09	149.2		-2.06
330		-----		-----	2410	EPA3052	168.72		-0.55
348		-----		-----	2413		-----		-----
523		-----		-----	2425	EPA3051	146.3		-2.29
551	IEC62321	183.1	C	0.56	2426		-----		-----
622	In house	187.1363		0.87	2429	CPSC-CH-E1003-09	154.82		-1.63
623	In house	194.66		1.45	2431	CPSC-CH-E1003-09	185.7103		0.76
632	EPA3052	57.42	R(0.01)	-9.17	2433	ASTM F963	126.34		-3.83
840	CPSC-CH-E1003-09	152.42		-1.82	2448	IEC62321	152.18		-1.83
841	EPA3052	160.00		-1.23	2453		-----		-----
1051		-----		-----	2459	EPA3052	132.875		-3.33
1213	CPSC-CH-E1003-09	181.02		0.40	2460		-----		-----
2115	EN16711-1	167.65		-0.64	2477	CPSC-CH-E1003-09	166.9908		-0.69
2118	CPSC-CH-E1002-08	175.5815		-0.02	2480		-----		-----
2129	CPSC-CH-E1003-09	178		0.16	2482	CPSC-CH-E1003-09	180.77		0.38
2132	ASTM F963	179.3		0.26	2488	EPA3052	191		1.17
2137	IEC62321	182		0.47	2492	In house	189.77		1.07
2139	ASTM D3335	161.2		-1.14	2495	CPSC-CH-E1003-09	167.90		-0.62
2159	In house	188.690		0.99	2497	CPSC-CH-E1003-09	188.38		0.97
2165		-----		-----	2503		192.4		1.28
2170		-----		-----	2504	CPSC-CH-E1003-09	160.430		-1.20
2172	CPSC-CH-E1003-09	175.12		-0.06	2511	CPSC-CH-E1003-09	181.4		0.43
2182		-----		-----	2514	In house	188.9		1.01
2184		-----		-----	2529		-----		-----
2213	CPSC-CH-E1003-09	199		1.79	2546		-----		-----
2232	ASTM F963	172.4086		-0.27	2553	In house	170.68		-0.40
2236	ASTM F963	168.4		-0.58	2560	EN16711-1	158.6314		-1.33
2246	ASTM F963	181.79		0.46	2561		-----		-----
2247	CPSC-CH-E1003-09	205.34		2.28	2563	IEC62321	-----		-----
2255	In house	190.2		1.11	2564		-----		-----
2256		-----		-----	2567	CPSC-CH-E1003-09	183.6		0.60
2258	CPSD-AN-00164	166.2		-0.75	2572	CPSC-CH-E1003-09	203.8		2.16
2286		-----		-----	2590	ISO17072-2	172.100		-0.29
2287		-----		-----	2618		140.38		-2.75
2289	CPSC-CH-E1003-09	156.2		-1.52	2632	IEC62321	186.15		0.79
2290	CPSC-CH-E1003-09	198.8		1.77	2638		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	169	C	-0.53	2674	IEC62321	NA		-----
2296	In house	184.1626		0.64	2678		-----		-----
2301	ASTM F963	178.6	C	0.21	2701	EPA3052	175.87		0.00
2303	In house	166.64		-0.71	2719	CPSC-CH-E1003-09	183.6		0.60
2309	CPSC-CH-E1003-09	180		0.32	2736	In house	198.71		1.77
2310	CPSC-CH-E1003-09	187.1		0.87	2741	In house	174.0		-0.15
2311	CPSC-CH-E1003-09	195.71		1.53	2758	In house	167		-0.69
2314		-----		-----	2766	EPA3051	145	C	-2.39
2316	ASTM E1645	188		0.94	3110	CPSC-CH-E1003-09	187.88		0.93
2320	EPA3051	158.43		-1.35	3116	ASTM F963	183		0.55
2347	In house	171		-0.38	3118		-----		-----
2352	IEC62321	167.4		-0.66	3124	EPA3052	186.1	ex	0.79
2353	IEC62321	177.7		0.14	3146	CPSC-CH-E1003-09	200		1.87
2355	EPA3052	171.0		-0.38	3150	CPSC-CH-E1003-09	205.07		2.26
2357	ISO8124-5	170.0		-0.45	3154	CPSC-CH-E1003-09	169.83		-0.47
2358	CPSC-CH-E1003-09	180.8		0.38	3160	CPSC-CH-E1003-09	186.35		0.81
2363	In house	169.9		-0.46	3172	CPSC-CH-E1003-09	197.1		1.64
2365	EPA3052	170.2		-0.44	3176		-----		-----
2366	CPSC-CH-E1003-09	173.1		-0.22	3182	CPSC-CH-E1003-09	218.858		3.33
2367		-----		-----	3197	EPA3052	183.1		0.56
2369	EPA3052	170.1		-0.45	3200	ASTM F963	175.31		-0.04
2370	CPSC-CH-E1003-09	175		-0.07	3209	EPA3052	174.5		-0.11
2375	In house	188.1		0.95	3210		-----		-----
2378	EPA3052	164.1		-0.91	3216	In house	182.3063		0.50
2379		-----		-----	3220	EN16711-1	153.0		-1.77
2380	CPSC-CH-E1002-08	168.8927		-0.54	3228	IEC62321	Not appl.		-----
2384	CPSC-CH-E1003-09	138.90		-2.86	3237		-----		-----
2385	EPA3051	198		1.71	3248	CPSC-CH-E1002-08	182		0.47
2389		-----		-----	8005		-----		-----

normality	OK	
n	96	
outliers	1 (+1ex)	
mean (n)	175.879	
st.dev. (n)	16.6730	RSD = 9.5%
R(calc.)	46.684	
R(Horwitz)	36.187	

Lab 551 first reported: 227.54
Lab 2295 first reported: 158.2
Lab 2301 first reported: 0
Lab 2766 first reported: 115
Test result of lab 3124 was excluded as other results showed two or more outliers (see §4)



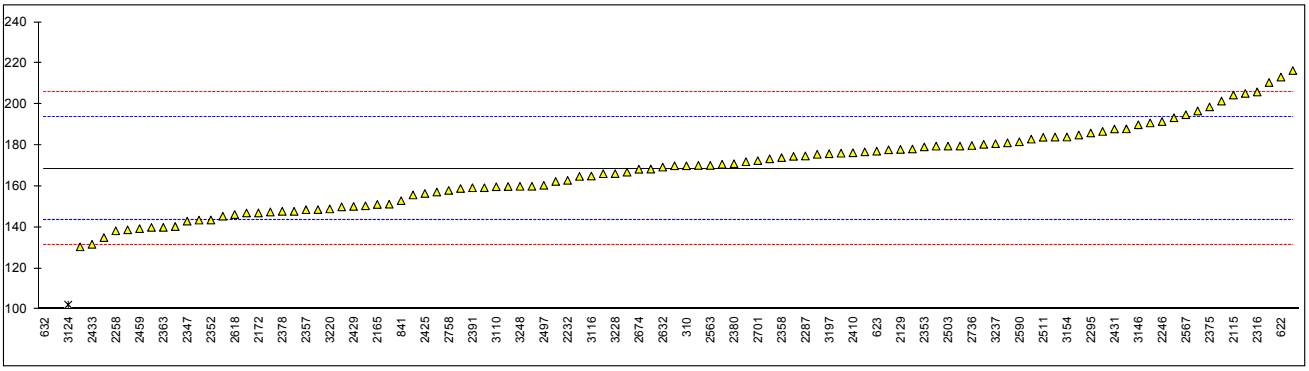


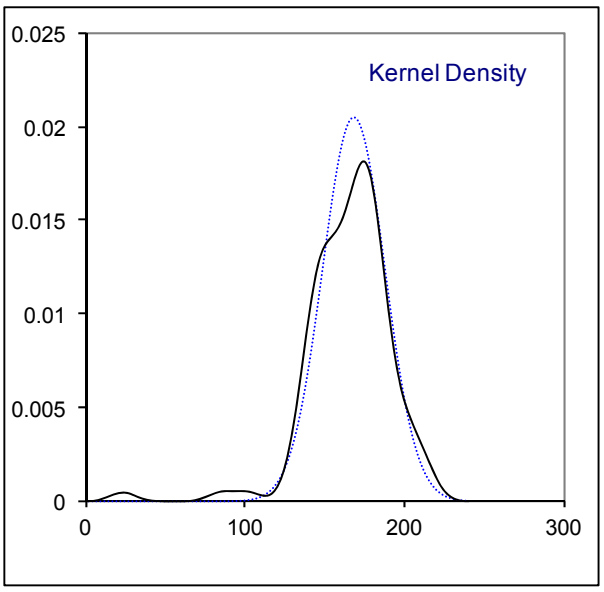
Determination of Total Chromium as Cr on sample #17550; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	166.897		-0.14	2390	CPSC-CH-E1003-09	159.32		-0.75
310	In house	170		0.11	2391	CPSC-CH-E1003-09	159.3		-0.75
330		-----		-----	2410	EPA3052	176.35		0.62
348	CPSC-CH-E1003-09	196.72		2.25	2413		-----		-----
523		-----		-----	2425	EPA3051	156.5		-0.97
551	IEC62321	85.5	C,R(0.05)	-6.67	2426	CPSC-CH-E1003-09	155.789		-1.03
622	In house	213.2460		3.58	2429	CPSC-CH-E1003-09	150.21		-1.48
623	In house	177.14		0.68	2431	CPSC-CH-E1003-09	187.9615		1.55
632	EPA3052	24	R(0.01)	-11.60	2433	ASTM F963	131.73		-2.96
840	CPSC-CH-E1003-09	130.50		-3.06	2448	IEC62321	147.81		-1.67
841	EPA3052	153.00		-1.25	2453		-----		-----
1051		-----		-----	2459	EPA3052	139.373		-2.35
1213		-----		-----	2460		-----		-----
2115	EN16711-1	204.49		2.87	2477	CPSC-CH-E1003-09	148.6388		-1.60
2118	CPSC-CH-E1002-08	201.5643		2.64	2480	In house	193.43		1.99
2129	CPSC-CH-E1003-09	178		0.75	2482	CPSC-CH-E1003-09	170.73		0.17
2132	ASTM F963	186.75		1.45	2488		-----		-----
2137	IEC62321	188		1.55	2492	In house	143.53		-2.01
2139	ASTM D3335	140.4		-2.27	2495	CPSC-CH-E1003-09	179.58		0.88
2159	In house	164.830		-0.31	2497	CPSC-CH-E1003-09	160.49		-0.65
2165	IEC62321	151.15		-1.40	2503		179.6		0.88
2170		-----		-----	2504	CPSC-CH-E1003-09	157.198		-0.92
2172	CPSC-CH-E1003-09	147.03		-1.73	2511	CPSC-CH-E1003-09	183.9		1.22
2182		-----		-----	2514	In house	176.8		0.65
2184	CPSC-CH-E1003-09	168.4		-0.02	2529	CPSC-CH-E1003-09	180.45		0.95
2213	CPSC-CH-E1003-09	170		0.11	2546		-----		-----
2232	ASTM F963	162.8952		-0.46	2553	In house	166.16		-0.20
2236	ASTM F963	159.9		-0.70	2560	EN16711-1	139.9689		-2.30
2246	ASTM F963	191.58		1.84	2561		-----		-----
2247	CPSC-CH-E1003-09	210.60		3.36	2563	IEC62321	170.2		0.12
2255	In house	173.4		0.38	2564		-----		-----
2256		-----		-----	2567	CPSC-CH-E1003-09	194.9		2.10
2258	CPSD-AN-00164	138.3		-2.43	2572	CPSC-CH-E1003-09	181.2		1.01
2286		-----		-----	2590	ISO17072-2	181.712		1.05
2287	EPA3052	174.8		0.49	2618		146.24		-1.80
2289	CPSC-CH-E1003-09	147.5		-1.70	2632	IEC62321	169.36		0.06
2290	CPSC-CH-E1003-09	174.6		0.48	2638		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	186	C	1.39	2674	IEC62321	168.332		-0.03
2296	In house	185.0100		1.31	2678		-----		-----
2301	ASTM F963	177.8000		0.73	2701	EPA3052	172.50		0.31
2303	In house	190.89		1.78	2719	CPSC-CH-E1003-09	179.6		0.88
2309	CPSC-CH-E1003-09	162.38		-0.50	2736	In house	179.88		0.90
2310	CPSC-CH-E1003-09	170.2		0.12	2741	In house	184.0		1.23
2311	CPSC-CH-E1003-09	178.18		0.76	2758	In house	158		-0.85
2314		-----		-----	2766	EPA3051	135	C	-2.70
2316	ASTM E1645	206		2.99	3110	CPSC-CH-E1003-09	159.77		-0.71
2320	EPA3051	160.01		-0.69	3116	ASTM F963	165		-0.29
2347	In house	143		-2.06	3118		-----		-----
2352	IEC62321	143.6		-2.01	3124	EPA3052	102.3	R(0.05)	-5.32
2353	IEC62321	179.2		0.85	3146	CPSC-CH-E1003-09	190		1.71
2355		-----		-----	3150	CPSC-CH-E1003-09	216.42		3.83
2357	ISO8124-5	148.6		-1.61	3154	CPSC-CH-E1003-09	184.03		1.23
2358	CPSC-CH-E1003-09	174.0		0.43	3160	CPSC-CH-E1003-09	176.15		0.60
2363	In house	140.0		-2.30	3172	CPSC-CH-E1003-09	175.6		0.56
2365	EPA3052	151.3		-1.39	3176		-----		-----
2366	CPSC-CH-E1003-09	150.5		-1.46	3182	CPSC-CH-E1003-09	205.266		2.94
2367		-----		-----	3197	EPA3052	175.9		0.58
2369	EPA3052	147.0		-1.74	3200	ASTM F963	145.42		-1.86
2370	CPSC-CH-E1003-09	172		0.27	3209	EPA3052	150.0		-1.50
2375	In house	198.7		2.41	3210		-----		-----
2378	EPA3052	147.8		-1.67	3216	In house	158.933	C	-0.78
2379		-----		-----	3220	EN16711-1	149.0		-1.58
2380	CPSC-CH-E1002-08	171.0291		0.19	3228	IEC62321	166.2		-0.20
2384	CPSC-CH-E1003-09	138.81		-2.39	3237	In house	180.77		0.97
2385	EPA3051	183		1.15	3248	CPSC-CH-E1002-08	160		-0.69
2389		-----		-----	8005		-----		-----

normality	OK	
n	103	
outliers	3	
mean (n)	168.650	
st.dev. (n)	19.5035	RSD = 11.6%
R(calc.)	54.610	
R(Horwitz)	34.920	

Lab 551 first reported: 61.71
Lab 2295 first reported: 152.8
Lab 2766 first reported: 103
Lab 3216 first reported: 231.7920





Determination of Antimony, Cadmium, Cobalt, Copper on sample #17550; results in mg/kg

lab	method	Sb	Cd	Co	Cu
110		-----	-----	-----	-----
310	In house	0.006	0.104	0.086	0.71
330		-----	< 10	-----	-----
348	CPSC-CH-E1003-09	-----	n.d.	-----	-----
523		-----	-----	-----	-----
551	IEC62321	ND	ND	ND	ND
622	In house	2.3520	0.8670	0.5610	22.0117
623	In house	n.d.	n.d.	n.d.	n.d.
632	EPA3052	-----	0	7.948	9.240
840	CPSC-CH-E1003-09	<2	<2	<2	<2
841	EPA3052	n.d	n.d	n.d	4.00
1051		-----	-----	-----	-----
1213	CPSC-CH-E1003-09	<15.0	<15.0	<15.0	<15.0
2115	EN16711-1	-----	0.1	-----	1.80
2118	CPSC-CH-E1002-08	0	0.210547	0.359565	51.1682
2129	CPSC-CH-E1003-09	<5	<5	<5	<25
2132	ASTM F963	<10	<10	-----	-----
2137		-----	-----	-----	-----
2139	ASTM D3335	< 10	< 10	< 10	< 10
2159	In house	<10	<10	<10	<10
2165	IEC62321	-----	ND	-----	-----
2170		-----	-----	-----	-----
2172	CPSC-CH-E1003-09	<10	<10	<10	<10
2182		-----	-----	-----	-----
2184	CPSC-CH-E1003-09	-----	< 10	-----	-----
2213	CPSC-CH-E1003-09	<10	<10	<10	<10
2232	ASTM F963	< 10	< 5	< 10	< 10
2236	ASTM F963	<10.0	<10.0	-----	-----
2246	ASTM F963	<10	<10	-----	-----
2247	CPSC-CH-E1003-09	nd	nd	nd	nd
2255	In house	nd	nd	nd	nd
2256		-----	-----	-----	-----
2258	CPSD-AN-00164	< 60	< 5	-----	-----
2286		-----	-----	-----	-----
2287	EPA3052	<5	<5	<5	<5
2289		-----	-----	-----	-----
2290	CPSC-CH-E1003-09	<20	<20	<20	<20
2293		-----	-----	-----	-----
2294		-----	-----	-----	-----
2295	CPSC-CH-E1003-09	-----	-----	-----	73.6
2296	In house	21.0296	0.1225	6.0750	4.7038
2301	ASTM F963	0 C	0	0	0
2303	In house	<10	<10	<10	-----
2309	CPSC-CH-E1003-09	ND[DL-10ppm]	ND[DL-10ppm]	ND[DL-10ppm]	ND[DL-10ppm]
2310	CPSC-CH-E1003-09	Not Detected	Not Detected	Not Detected	Not Detected
2311	CPSC-CH-E1003-09	Not Detected	Not Detected	Not Detected	Not Detected
2314	CPSC-CH-E1003-09	-----	NOT DETECTED	-----	-----
2316	ASTM E1645	ND	ND	ND	ND
2320		-----	-----	-----	-----
2347	In house	<10	<2	<5	<5
2352	IEC62321	ND	ND	ND	ND
2353	IEC62321	<20	<20	<20	<20
2355	EPA3052	<10	<2	<5	<5
2357	ISO8124-5	<5	<5	<5	<5
2358	CPSC-CH-E1003-09	<20	<20	<20	<20
2363	In house	ND	ND	ND	ND
2365	EPA3052	<10	<5	<10	<10
2366	CPSC-CH-E1003-09	<10	<5	<10	<10
2367	CPSC-CH-E1003-09	-----	ND	-----	-----
2369	EPA3052	<10	<2	<5	<5
2370	CPSC-CH-E1003-09	<2	<2	<2	<2
2375		-----	-----	-----	-----
2378	EPA3052	ND	ND	ND	ND
2379		-----	-----	-----	-----
2380		-----	-----	-----	-----
2384	CPSC-CH-E1003-09	< 5	< 5	< 10	< 50
2385	EPA3051	<5	<0,5	<5	<5
2389		-----	-----	-----	-----
2390	CPSC-CH-E1003-09	ND	ND	ND	ND
2391	CPSC-CH-E1003-09	1.98	<0.5	<0.5	9.53
2410		-----	-----	-----	-----
2413		-----	-----	-----	-----
2425	EPA3051	Not Detected	Not Detected	Not Detected	Not Detected
2426	CPSC-CH-E1003-09	-----	ND	ND	-----
2429	CPSC-CH-E1003-09	<10	<10	<10	<10
2431		-----	-----	-----	-----

2433		-----	-----	-----	-----
2448	IEC62321	<50.00	<25.00	<25.00	<25.00
2453		-----	-----	-----	-----
2459	EPA3052	<1.0	<2.0	<5.0	14.07
2460		-----	-----	-----	-----
2477		-----	-----	-----	-----
2480		-----	-----	-----	-----
2482	CPSC-CH-E1003-09	59.07	-----	-----	-----
2488	EPA3052	-----	nd	-----	-----
2492		-----	-----	-----	-----
2495	CPSC-CH-E1003-09	-----	<5	<5	<5
2497	CPSC-CH-E1003-09	0.0001	0.161	0.291	17.42
2503		1.968	4.248	0.151	9.185
2504	CPSC-CH-E1003-09	<5	<2	<5	<5
2511		-----	-----	-----	-----
2514		-----	-----	-----	-----
2529		-----	-----	-----	-----
2546		-----	-----	-----	-----
2553	In house	6.91	ND	ND	ND
2560	EN16711-1	ND	ND	ND	ND
2561	In house	-----	0	-----	-----
2563	IEC62321	not analysed	n.detected	n.detected	n.detected
2564	CPSC-CH-E1003-09	-----	ND [<20]	ND [<20]	-----
2567	CPSC-CH-E1003-09	<20	<20	<20	<20
2572	CPSC-CH-E1003-09	<20	<20	<20	<20
2590	ISO17072-2	<L.O.Q.	<L.O.Q.	<L.O.Q.	0.611
2618		-----	-----	-----	-----
2632	IEC62321	3.62	N.D.[<1.5]	N.D.[<2.0]	1.59
2638		-----	-----	-----	-----
2642	ASTM F963	-----	<10	-----	-----
2645		-----	-----	-----	-----
2674	IEC62321	NA	ND	NA	NA
2678	CPSC-CH-E1003-09	-----	nd	-----	-----
2701		-----	-----	-----	-----
2719		-----	-----	-----	-----
2736	In house	<2.5	<2.5	<2.5	<2.5
2741	In house	<10	<10	<10	<15
2758	In house	0	0	0	0
2766		-----	-----	-----	-----
3110	CPSC-CH-E1003-09	<15	<15	-----	-----
3116		-----	-----	-----	-----
3118		-----	-----	-----	-----
3124	EPA3052	0.08672	0.06122	0.0585	0.7389
3146	CPSC-CH-E1003-09	n.d.	n.d.	n.d.	n.d.
3150	CPSC-CH-E1003-09	<1	<0,5	<0,5	9.18
3154		-----	-----	-----	-----
3160	CPSC-CH-E1003-09	n.d.	n.d.	n.d.	n.d.
3172	CPSC-CH-E1003-09	< 10	< 10	< 10	--
3176		-----	-----	-----	-----
3182	CPSC-CH-E1003-09	ND	ND	<13	ND
3197	EPA3052	ND	ND	ND	ND
3200	ASTM F963	<10.0	<10.0	<10.0	<10.0
3209	EPA3052	<10.0	<10.0	<10.0	<10.0
3210		-----	-----	-----	-----
3216	In house	0.0205	0.0692	0.2140	0.9979
3220	EN16711-1	ND	ND	ND	ND
3228	IEC62321	Not applicable	<10	Not applicable	Not applicable
3237		-----	-----	-----	-----
3248	CPSC-CH-E1002-08	<10	<10	<10	<10
8005		-----	-----	-----	-----

Lab 2301 first reported for Sb: 178.6

Determination of Lead, Mercury, Nickel and Selenium on sample #17550; results in mg/kg

lab	method	Pb		Hg		Ni		Se	
110		-----		-----		-----		-----	
310	In house	0.948		0.017		0.555		0.075	
330		< 10		-----		-----		-----	
348	CPSC-CH-E1003-09	n.d.		-----		-----		-----	
523		-----		-----		-----		-----	
551	IEC62321	4.93		ND		ND		ND	
622	In house	2.3112		6.6049		21.4881	C	0.0000	
623	In house	n.d.		n.d.		n.d.		n.d.	
632	EPA3052	0		0.714		1.157		-----	
840	CPSC-CH-E1003-09	<2		<2		<2		<2	
841	EPA3052	n.d		n.d		n.d		-----	
1051	CPSC-CH-E1003-09	<10		-----		-----		-----	
1213	CPSC-CH-E1003-09	<15.0		<15.0		<15.0		<15.0	
2115	EN16711-1	1.22		-----		1.03		0.16	
2118	CPSC-CH-E1002-08	6.221491		0		14.03704		0	
2129	CPSC-CH-E1003-09	<5		<5		<5		<5	
2132	ASTM F963	<10		<10		-----		<10	
2137		-----		-----		-----		-----	
2139	ASTM D3335	< 10		< 10		< 10		< 10	
2159	In house	<10		<10		<10		<10	
2165	IEC62321	ND		ND		-----		-----	
2170	CPSC-CH-E1003-09	<10		-----		-----		-----	
2172	CPSC-CH-E1003-09	<10		<10		<10		<10	
2182	In house	Not detected		Not detected		-----		-----	
2184	CPSC-CH-E1003-09	< 10		< 10		-----		-----	
2213	CPSC-CH-E1003-09	<10		<10		<10		<10	
2232	ASTM F963	< 10		< 10		< 10		< 10	
2236	ASTM F963	<10.0		<10.0		-----		<10.0	
2246	ASTM F963	<10		<10		-----		<10	
2247	CPSC-CH-E1003-09	nd		ns		nd		nd	
2255	In house	nd		nd		nd		nd	
2256	CPSC-CH-E1003-09	ND		-----		-----		-----	
2258	CPSD-AN-00164	< 2		< 20		-----		< 100	
2286	CPSC-CH-E1003-09	under10		-----		-----		-----	
2287	EPA3052	<5		<5		<5		<5	
2289		-----		-----		-----		-----	
2290	CPSC-CH-E1003-09	<20		<20		<20		<20	
2293		0		-----		-----		-----	
2294	CPSC-CH-E1003-09	12.568		-----		-----		-----	
2295		-----		-----		-----		-----	
2296	In house	3.1992		0.6622		0.6998		1.5015	
2301	ASTM F963	0		0		0		0	
2303	In house	<10		<10		<10		-----	
2309	CPSC-CH-E1003-09	ND[DL-10ppm]		ND[DL-10ppm]		ND[DL-10ppm]		ND[DL-10ppm]	
2310	CPSC-CH-E1003-09	Not Detected		Not Detected		Not Detected		Not Detected	
2311	CPSC-CH-E1003-09	Not Detected		Not Detected		Not Detected		Not Detected	
2314	CPSC-CH-E1003-09	NOT DET.		-----		-----		-----	
2316	ASTM E1645	ND		ND		ND		ND	
2320		-----		-----		-----		-----	
2347	In house	<2		<2		<5		<10	
2352	IEC62321	ND		ND		ND		ND	
2353	IEC62321	<20		<20		<20		<20	
2355	EPA3052	<2		<2		<5		<10	
2357	ISO8124-5	<5		<2		<5		<10	
2358	CPSC-CH-E1003-09	<20		<20		<20		<20	
2363	In house	ND		ND		ND		ND	
2365	EPA3052	<20		<5		<10		<10	
2366	CPSC-CH-E1003-09	<10		<5		<10		<10	
2367	CPSC-CH-E1003-09	ND		-----		-----		-----	
2369	EPA3052	<2		<2		<5		<10	
2370	CPSC-CH-E1003-09	<2		<2		<2		<2	
2375		-----		-----		-----		-----	
2378	EPA3052	ND		ND		ND		ND	
2379	CPSC-CH-E1003-09	208.79	f+?	-----		-----		-----	
2380		-----		-----		-----		-----	
2384	CPSC-CH-E1003-09	< 10		< 5		< 10		< 10	
2385	EPA3051	<5		<0,5		<5		<5	
2389	CPSC-CH-E1003-09	N.D.	C	-----		-----		-----	
2390	CPSC-CH-E1003-09	ND		ND		ND		ND	
2391	CPSC-CH-E1003-09	<0.5		<0.5		<0.5		<0.5	C
2410		-----		-----		-----		-----	
2413		-----		-----		-----		-----	
2425	EPA3051	Not Detected		Not Detected		Not Detected		Not Detected	
2426	CPSC-CH-E1003-09	ND		-----		-----		-----	
2429	CPSC-CH-E1003-09	<10		<10		<10		<10	
2431		-----		-----		-----		-----	

2433		-----	-----	-----	-----
2448	IEC62321	<25.00	0.089	<25.00	<50.00
2453	CPSC-CH-E1003-09	< LQ [16 mg/kg]	-----	-----	-----
2459	EPA3052	<1.0	<1.0	15.012	<1.0
2460	CPSC-CH-E1003-09	0.00	-----	-----	-----
2477	CPSC-CH-E1003-09	2.21	-----	-----	-----
2480	In house	<31.33	-----	-----	-----
2482		-----	-----	-----	-----
2488	EPA3052	nd	nd	-----	-----
2492	In house	-----	-----	51.25	-----
2495	CPSC-CH-E1003-09	<10	<5	<5	<5
2497	CPSC-CH-E1003-09	2.08	0.01	15.61	0.638
2503		0.464	1.182	1.253	4.621
2504	CPSC-CH-E1003-09	<2	<2	<5	<5
2511		-----	-----	-----	-----
2514		-----	-----	-----	-----
2529		-----	-----	-----	-----
2546		-----	-----	-----	-----
2553	In house	ND	ND	ND	ND
2560	EN16711-1	ND	ND	ND	ND
2561	In house	0.19	-----	-----	-----
2563	IEC62321	n.detected	not analysed	n.detected	not analysed
2564	CPSC-CH-E1003-09	ND [<20]	-----	-----	-----
2567	CPSC-CH-E1003-09	<20	<20	<20	<20
2572	CPSC-CH-E1003-09	<20	<20	<20	<20
2590	ISO17072-2	1.021	<L.O.Q.	<L.O.Q.	<L.O.Q.
2618		-----	-----	-----	-----
2632	IEC62321	1.91	N.D.[<1.0]	6.94	N.D.[<2.0]
2638		-----	-----	-----	-----
2642	ASTM F963	<25	-----	-----	-----
2645	CPSC-CH-E1003-09	ND	-----	-----	-----
2674	IEC62321	ND	ND	NA	NA
2678	CPSC-CH-E1003-09	nd	-----	-----	-----
2701		-----	-----	-----	-----
2719		-----	-----	-----	-----
2736	In house	<2.5	-----	<2.5	<2.5
2741	In house	<10	<10	<10	<10
2758	In house	0	0	0	0
2766	EPA3051	-----	-----	-----	-----
3110	CPSC-CH-E1003-09	<15	<15	-----	<15
3116		-----	-----	-----	-----
3118		-----	-----	-----	-----
3124	EPA3052	1.073	0.00631	0.6552	0.1091
3146	CPSC-CH-E1003-09	n.d.	n.d.	n.d.	n.d.
3150	CPSC-CH-E1003-09	2.27	0.31	3.01	<1
3154	CPSC-CH-E1003-09	-----	-----	2.38	-----
3160	CPSC-CH-E1003-09	9.30	n.d.	n.d.	n.d.
3172	CPSC-CH-E1003-09	< 10	< 10	< 10	--
3176	CPSC-CH-E1003-09	nd	-----	-----	-----
3182	CPSC-CH-E1003-09	<13	ND	<13	ND
3197	EPA3052	ND	ND	ND	ND
3200	ASTM F963	<10.0	<10.0	<10.0	<10.0
3209	EPA3052	<10.0	<10.0	<10.0	<10.0
3210	CPSC-CH-E1003-09	<40.0	-----	-----	-----
3216	In house	0.9053	nd	1.9421	nd
3220	EN16711-1	ND	ND	ND	ND
3228	IEC62321	<10	<10	Not applicable	Not applicable
3237		-----	-----	-----	-----
3248	CPSC-CH-E1002-08	<10	<10	<10	<10
8005		-----	-----	-----	-----

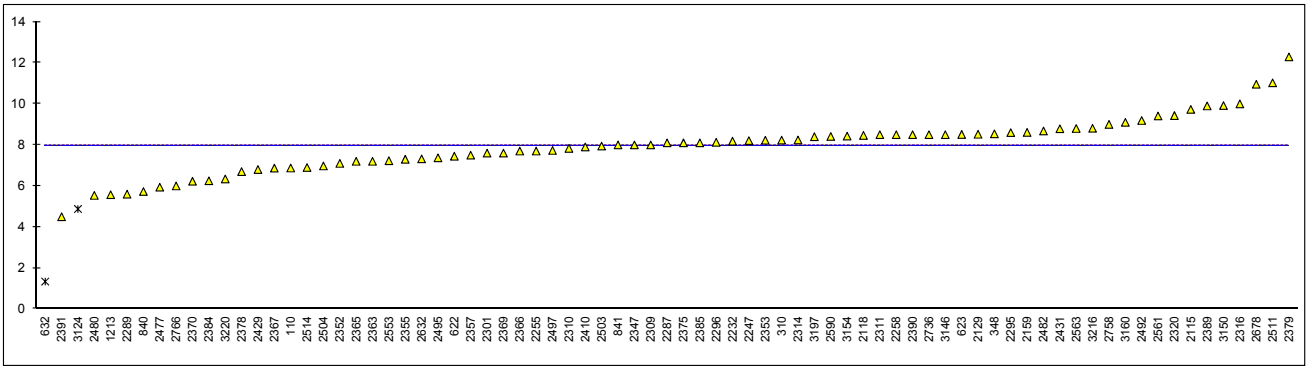
Lab 622 first reported for Ni: 24.4881
Lab 2365 performed F963 for Pb and EPA3052 for other metals
Lab 2389 first reported for Pb: 48.2
Lab 2391 first reported for Se: 18.9
Lab 2590 performed CPSC-CH-E1003-09 for Pb and ISO17072-2 for other metals

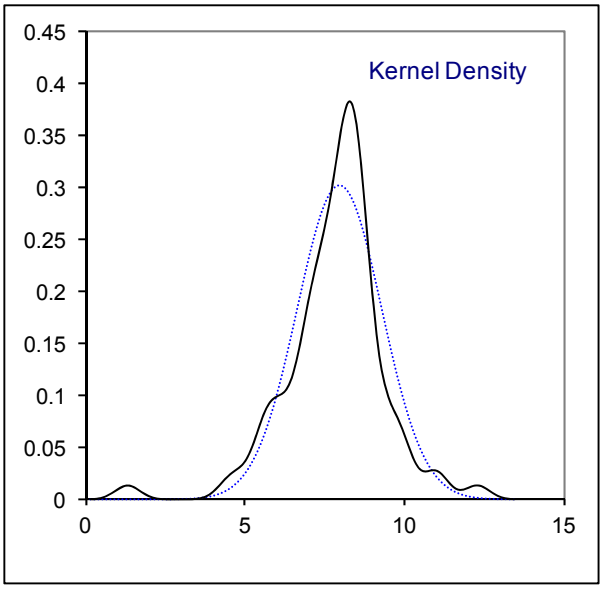
Determination of Total Cadmium as Cd on sample #17551; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	6.874		-----	2390	CPSC-CH-E1003-09	8.50		-----
310	In house	8.235		-----	2391	CPSC-CH-E1003-09	4.50		-----
330		< 10		-----	2410	EPA3052	7.90		-----
348	CPSC-CH-E1003-09	8.54		-----	2413		-----		-----
523		-----		-----	2425	EPA3051	Not Det.		-----
551	IEC62321	ND		-----	2426	CPSC-CH-E1003-09	ND		-----
622	In house	7.4494		-----	2429	CPSC-CH-E1003-09	6.80		-----
623	In house	8.51		-----	2431	CPSC-CH-E1003-09	8.7868		-----
632	EPA3052	1.339	R(0.01)	-----	2433		-----		-----
840	CPSC-CH-E1003-09	5.73		-----	2448	IEC62321	<25.00		-----
841	EPA3052	8.00		-----	2453		-----		-----
1051		-----		-----	2459	EPA3052	<2.0		-----
1213	CPSC-CH-E1003-09	5.572		-----	2460		-----		-----
2115	EN16711-1	9.73		-----	2477	CPSC-CH-E1003-09	5.9381	C	-----
2118	CPSC-CH-E1002-08	8.463221		-----	2480	In house	5.54		-----
2129		8.52		-----	2482	CPSC-CH-E1003-09	8.68		-----
2132	ASTM F963	<10		-----	2488		-----		-----
2137		-----		-----	2492	In house	9.19		-----
2139	ASTM D3335	< 10		-----	2495	CPSC-CH-E1003-09	7.37		-----
2159	In house	8.610		-----	2497	CPSC-CH-E1003-09	7.731		-----
2165	IEC62321	ND		-----	2503		7.943		-----
2170		-----		-----	2504	CPSC-CH-E1003-09	6.9749		-----
2172	CPSC-CH-E1003-09	<10		-----	2511	CPSC-CH-E1003-09	11.025		-----
2182		-----		-----	2514	In house	6.9		-----
2184	CPSC-CH-E1003-09	< 10		-----	2529		-----		-----
2213	CPSC-CH-E1003-09	<10		-----	2546		-----		-----
2232	ASTM F963	8.1818		-----	2553	In house	7.23		-----
2236	ASTM F963	<10.0		-----	2560	EN16711-1	ND		-----
2246	ASTM F963	<10		-----	2561	In house	9.41		-----
2247	CPSC-CH-E1003-09	8.21		-----	2563	IEC62321	8.8		-----
2255	In house	7.7		-----	2564	CPSC-CH-E1003-09	ND [<20]		-----
2256		-----		-----	2567	CPSC-CH-E1003-09	<20		-----
2258	CPSD-AN-00164	8.5		-----	2572	CPSC-CH-E1003-09	<20		-----
2286		-----		-----	2590	ISO17072-2	8.411		-----
2287	EPA3052	8.1		-----	2618		-----		-----
2289	CPSC-CH-E1003-09	5.6		-----	2632	IEC62321	7.32		-----
2290	CPSC-CH-E1003-09	<20		-----	2638		-----		-----
2293		-----		-----	2642		<10		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	8.6		-----	2674	IEC62321	ND		-----
2296	In house	8.1271		-----	2678		10.956		-----
2301	ASTM F963	7.6000		-----	2701		-----		-----
2303	In house	<10		-----	2719		-----		-----
2309	CPSC-CH-E1003-09	8.0		-----	2736		8.50		-----
2310	CPSC-CH-E1003-09	7.83		-----	2741	In house	<10		-----
2311	CPSC-CH-E1003-09	8.50		-----	2758	In house	9	C	-----
2314	CPSC-CH-E1003-09	8.24		-----	2766	EPA3051	6.0		-----
2316	ASTM E1645	10		-----	3110	CPSC-CH-E1003-09	<15		-----
2320	EPA3051	9.43		-----	3116		-----		-----
2347	In house	8		-----	3118		-----		-----
2352	IEC62321	7.1		-----	3124	EPA3052	4.876	ex	-----
2353	IEC62321	8.228		-----	3146	CPSC-CH-E1003-09	8.50		-----
2355	EPA3052	7.3		-----	3150	CPSC-CH-E1003-09	9.92		-----
2357	ISO8124-5	7.5		-----	3154	CPSC-CH-E1003-09	8.43		-----
2358	CPSC-CH-E1003-09	<20		-----	3160	CPSC-CH-E1003-09	9.10		-----
2363	In house	7.2		-----	3172	CPSC-CH-E1003-09	< 10		-----
2365	EPA3052	7.2		-----	3176		-----		-----
2366	CPSC-CH-E1003-09	7.7		-----	3182	CPSC-CH-E1003-09	<13		-----
2367	CPSC-CH-E1003-09	6.87		-----	3197	EPA3052	8.4		-----
2369	EPA3052	7.6		-----	3200	ASTM F963	<10.0		-----
2370	CPSC-CH-E1003-09	6.23		-----	3209	EPA3052	<10.0		-----
2375	In house	8.1		-----	3210		-----		-----
2378	EPA3052	6.7		-----	3216	In house	8.8116		-----
2379	EPA3052	12.29		-----	3220	EN16711	6.34		-----
2380		-----		-----	3228	IEC62321	<10		-----
2384	CPSC-CH-E1003-09	6.25		-----	3237		-----		-----
2385	EPA3051	8.1		-----	3248	CPSC-CH-E1002-08	<10		-----
2389	CPSC-CH-E1003-09	9.9		-----	8005		-----		-----

normality	suspect	
n	75	
outliers	1 (+1ex)	
mean (n)	7.974	
st.dev. (n)	1.3246	RSD = 16.6%
R(calc.)	3.709	
R(Horwitz)	(2.614)	

Lab 2477 first reported: 145.7086
Lab 2748 first reported: 0
Test result of lab 3124 was excluded as other results showed two or more outliers (see §4)



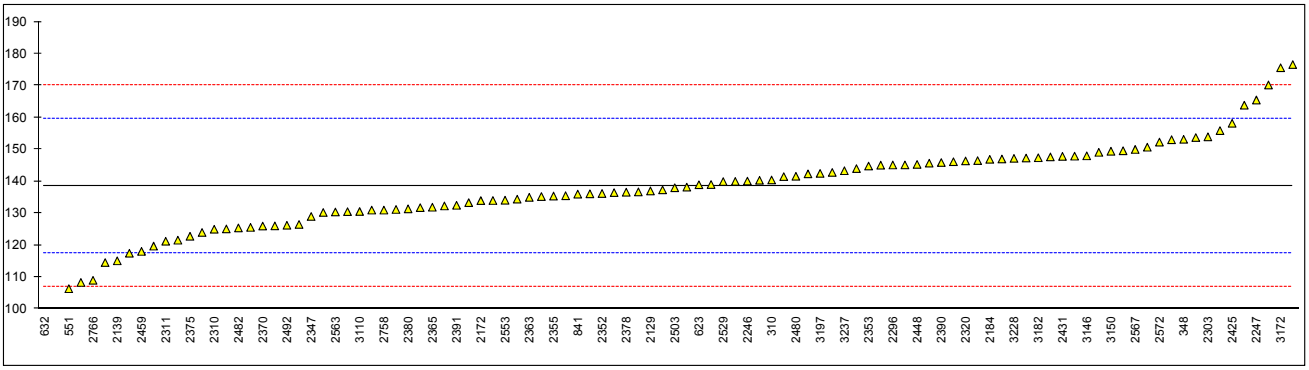


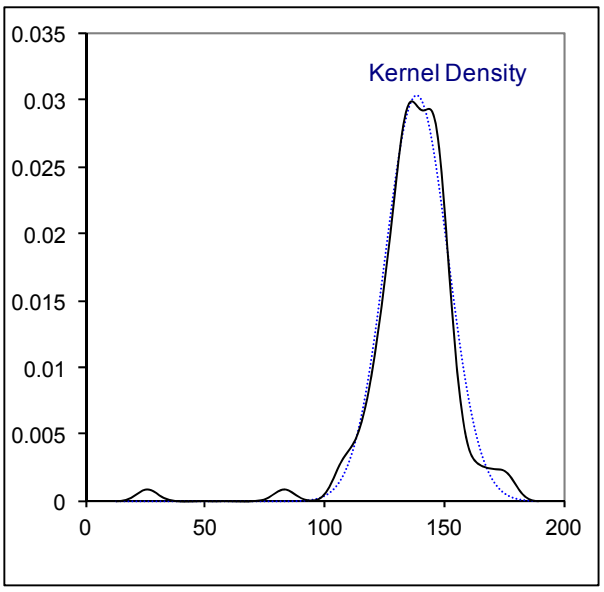
Determination of Total Chromium as Cr on sample #17551; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	126.053		-1.18	2390	CPSC-CH-E1003-09	145.9	C	0.70
310	In house	140.43		0.18	2391	CPSC-CH-E1003-09	132.5		-0.57
330		-----		-----	2410	EPA3052	142.35		0.36
348	CPSC-CH-E1003-09	153.19		1.39	2413		-----		-----
523		-----		-----	2425	EPA3051	158.2		1.87
551	IEC62321	106.37		-3.05	2426	CPSC-CH-E1003-09	145.076		0.62
622	In house	176.6060		3.61	2429	CPSC-CH-E1003-09	137.33		-0.11
623	In house	138.93		0.04	2431	CPSC-CH-E1003-09	147.8331		0.88
632	EPA3052	25.66	R(0.01)	-10.70	2433		-----		-----
840	CPSC-CH-E1003-09	121.57		-1.61	2448	IEC62321	145.31		0.64
841	EPA3052	136.00		-0.24	2453		-----		-----
1051		-----		-----	2459	EPA3052	118.056		-1.94
1213		-----		-----	2460		-----		-----
2115	EN16711-1	125.1	C	-1.27	2477	CPSC-CH-E1003-09	145.7086	C	0.68
2118	CPSC-CH-E1002-08	163.8722		2.40	2480	In house	141.60		0.29
2129		137		-0.14	2482	CPSC-CH-E1003-09	125.41		-1.24
2132	ASTM F963	136.7		-0.17	2488		-----		-----
2137	IEC62321	147.67		0.87	2492	In house	126.25		-1.16
2139	ASTM D3335	115.1		-2.22	2495	CPSC-CH-E1003-09	147.30		0.83
2159	In house	136.480		-0.19	2497	CPSC-CH-E1003-09	117.48		-1.99
2165	IEC62321	145.15		0.63	2503		138.0		-0.05
2170		-----		-----	2504	CPSC-CH-E1003-09	131.774		-0.64
2172	CPSC-CH-E1003-09	133.981		-0.43	2511	CPSC-CH-E1003-09	146.148		0.72
2182		-----		-----	2514	In house	144.0		0.52
2184	CPSC-CH-E1003-09	146.9		0.79	2529	CPSC-CH-E1003-09	139.95		0.14
2213	CPSC-CH-E1003-09	170.2		3.00	2546		-----		-----
2232	ASTM F963	133.3311		-0.49	2553	In house	134.09		-0.42
2236	ASTM F963	132.3		-0.59	2560	EN16711-1	125.5743		-1.23
2246	ASTM F963	140.08		0.15	2561		-----		-----
2247	CPSC-CH-E1003-09	165.49		2.56	2563	IEC62321	130.4		-0.77
2255	In house	149.1		1.00	2564		-----		-----
2256		-----		-----	2567	CPSC-CH-E1003-09	150		1.09
2258	CPSD-AN-00164	136.1		-0.23	2572	CPSC-CH-E1003-09	152.3		1.31
2286		-----		-----	2590	ISO17072-2	119.710		-1.78
2287	EPA3052	142.8		0.41	2618		141.49		0.28
2289	CPSC-CH-E1003-09	131.2		-0.69	2632	IEC62321	153.74		1.44
2290	CPSC-CH-E1003-09	146.5		0.76	2638		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	147	C	0.80	2674	IEC62321	149.591		1.05
2296	In house	145.1338		0.63	2678		-----		-----
2301	ASTM F963	140.3500		0.17	2701	EPA3052	134.42		-0.39
2303	In house	153.95		1.46	2719	CPSC-CH-E1003-09	150.7		1.15
2309	CPSC-CH-E1003-09	131		-0.71	2736		130.25		-0.78
2310	CPSC-CH-E1003-09	125		-1.28	2741	In house	139.0		0.05
2311	CPSC-CH-E1003-09	121.24		-1.64	2758	In house	131		-0.71
2314		-----		-----	2766	EPA3051	109.0		-2.80
2316	ASTM E1645	124		-1.38	3110	CPSC-CH-E1003-09	130.56		-0.75
2320	EPA3051	146.4		0.75	3116		-----		-----
2347	In house	129		-0.90	3118		-----		-----
2352	IEC62321	136.2		-0.22	3124	EPA3052	83.05	R(0.01)	-5.26
2353	IEC62321	144.8		0.60	3146	CPSC-CH-E1003-09	148		0.90
2355	EPA3052	135.4		-0.30	3150	CPSC-CH-E1003-09	149.44		1.04
2357		-----		-----	3154	CPSC-CH-E1003-09	155.90		1.65
2358	CPSC-CH-E1003-09	147.9		0.89	3160	CPSC-CH-E1003-09	153.05		1.38
2363	In house	135.0		-0.33	3172	CPSC-CH-E1003-09	175.6		3.51
2365	EPA3052	131.9		-0.63	3176		-----		-----
2366	CPSC-CH-E1003-09	138.2		-0.03	3182	CPSC-CH-E1003-09	147.395		0.84
2367		-----		-----	3197	EPA3052	142.5		0.38
2369	EPA3052	135.5		-0.29	3200	ASTM F963	135.24		-0.31
2370	CPSC-CH-E1003-09	126		-1.19	3209	EPA3052	130.5		-0.76
2375	In house	122.8		-1.49	3210		-----		-----
2378	EPA3052	136.6		-0.18	3216	In house	114.553	C	-2.27
2379		-----		-----	3220	EN16711	126.5		-1.14
2380	CPSC-CH-E1002-08	131.3848		-0.68	3228	IEC62321	147.2		0.82
2384	CPSC-CH-E1003-09	108.33		-2.86	3237	In house	143.33		0.46
2385	EPA3051	134		-0.43	3248	CPSC-CH-E1002-08	140		0.14
2389		-----		-----	8005		-----		-----

normality	OK	
n	102	
outliers	2	
mean (n)	138.515	
st.dev. (n)	13.1226	RSD = 9.5%
R(calc.)	36.743	
R(Horwitz)	29.542	

Lab 2115 first reported: 500.5
Lab 2295 first reported: 113.9
Lab 2390 first reported: 38.20
Lab 2477 first reported: 541.1677
Lab 3216 first reported: 188.6685



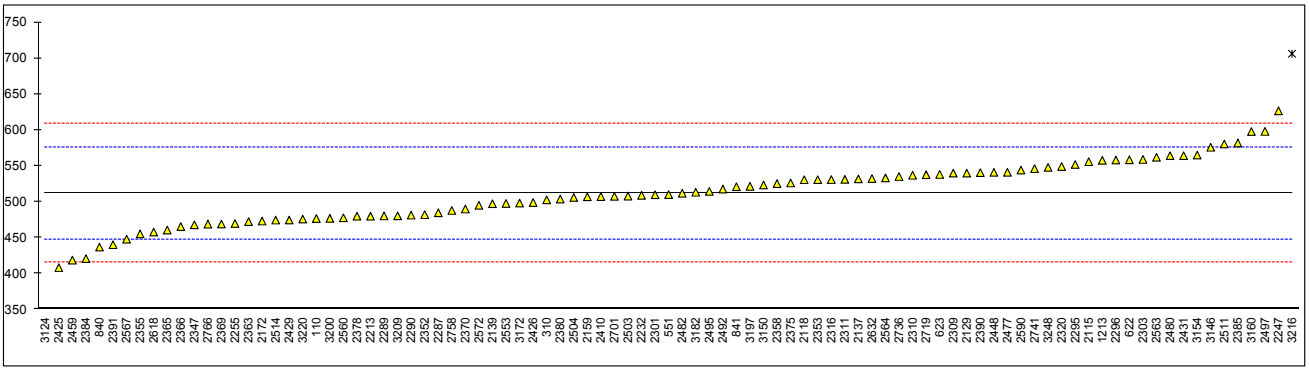


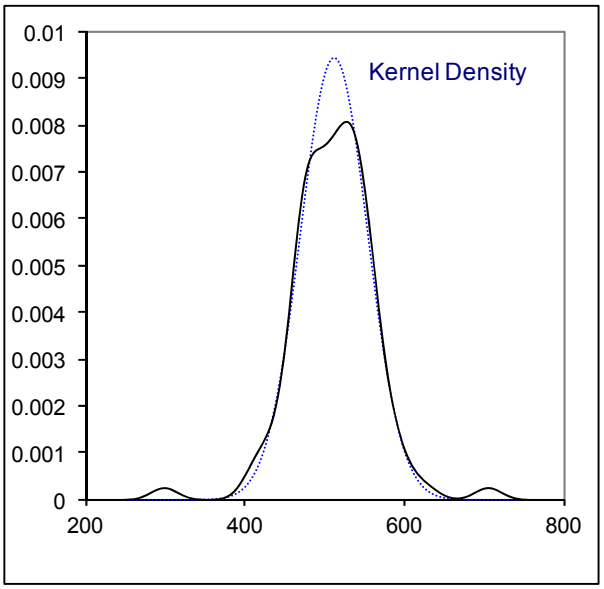
Determination of Total Cobalt as Co on sample #17551; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	476.74		-1.10	2390	CPSC-CH-E1003-09	540.70		0.90
310	In house	502.76		-0.29	2391	CPSC-CH-E1003-09	440.3		-2.24
330		-----		-----	2410	EPA3052	507.30		-0.15
348		-----		-----	2413		-----		-----
523		-----		-----	2425	EPA3051	408.4		-3.23
551	IEC62321	510.1	C	-0.06	2426	CPSC-CH-E1003-09	499.043		-0.41
622	In house	558.6009		1.45	2429	CPSC-CH-E1003-09	474.67		-1.17
623	In house	538.14		0.82	2431	CPSC-CH-E1003-09	564.333		1.63
632		-----		-----	2433		-----		-----
840	CPSC-CH-E1003-09	437.05		-2.34	2448	IEC62321	541.12		0.91
841	EPA3052	521.00		0.28	2453		-----		-----
1051		-----		-----	2459	EPA3052	418.827		-2.91
1213	CPSC-CH-E1003-09	557.80		1.43	2460		-----		-----
2115	EN16711-1	555.98		1.37	2477	CPSC-CH-E1003-09	541.1677		0.91
2118	CPSC-CH-E1002-08	530.7837		0.59	2480	In house	564.28		1.63
2129		540		0.87	2482	CPSC-CH-E1003-09	512.02		0.00
2132		-----		-----	2488		-----		-----
2137	IEC62321	532		0.62	2492	In house	517.81		0.18
2139	ASTM D3335	497.4		-0.46	2495	CPSC-CH-E1003-09	514.57		0.08
2159	In house	507.000		-0.16	2497	CPSC-CH-E1003-09	598.09		2.69
2165		-----		-----	2503		508.0		-0.13
2170		-----		-----	2504	CPSC-CH-E1003-09	506.136		-0.18
2172	CPSC-CH-E1003-09	473.25		-1.21	2511	CPSC-CH-E1003-09	580.54		2.14
2182		-----		-----	2514	In house	474.6		-1.17
2184		-----		-----	2529		-----		-----
2213	CPSC-CH-E1003-09	480		-1.00	2546		-----		-----
2232	ASTM F963	509.1133		-0.09	2553	In house	497.71		-0.45
2236		-----		-----	2560	EN16711-1	477.7948		-1.07
2246		-----		-----	2561		-----		-----
2247	CPSC-CH-E1003-09	626.81		3.58	2563	IEC62321	562.1		1.56
2255	In house	469.8		-1.32	2564	CPSC-CH-E1003-09	533.3		0.66
2256		-----		-----	2567	CPSC-CH-E1003-09	448		-2.00
2258		-----		-----	2572	CPSC-CH-E1003-09	495.2		-0.53
2286		-----		-----	2590	ISO17072-2	544.210		1.00
2287	EPA3052	484.8		-0.85	2618		457.92		-1.69
2289	CPSC-CH-E1003-09	480.4		-0.99	2632	IEC62321	532.40		0.64
2290	CPSC-CH-E1003-09	481.5		-0.95	2638		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	552	C	1.25	2674	IEC62321	NA		-----
2296	In house	558.2512		1.44	2678		-----		-----
2301	ASTM F963	509.9000		-0.07	2701	EPA3052	507.66		-0.14
2303	In house	559.08		1.47	2719	CPSC-CH-E1003-09	537.8		0.80
2309	CPSC-CH-E1003-09	540		0.87	2736		535.25		0.73
2310	CPSC-CH-E1003-09	537		0.78	2741	In house	546.3		1.07
2311	CPSC-CH-E1003-09	531.25		0.60	2758	In house	488		-0.75
2314		-----		-----	2766	EPA3051	469.0		-1.34
2316	ASTM E1645	531		0.59	3110		-----		-----
2320	EPA3051	549.2		1.16	3116		-----		-----
2347	In house	468		-1.37	3118		-----		-----
2352	IEC62321	482.2		-0.93	3124	EPA3052	298.5	R(0.01)	-6.67
2353	IEC62321	530.9		0.59	3146	CPSC-CH-E1003-09	576		2.00
2355	EPA3052	455.4		-1.77	3150	CPSC-CH-E1003-09	523.47		0.36
2357		-----		-----	3154	CPSC-CH-E1003-09	565.15		1.66
2358	CPSC-CH-E1003-09	525.4		0.42	3160	CPSC-CH-E1003-09	597.94		2.68
2363	In house	472.5		-1.23	3172	CPSC-CH-E1003-09	498.3		-0.43
2365	EPA3052	460.7		-1.60	3176		-----		-----
2366	CPSC-CH-E1003-09	465.6		-1.45	3182	CPSC-CH-E1003-09	513.4		0.04
2367		-----		-----	3197	EPA3052	521.6		0.30
2369	EPA3052	469.1		-1.34	3200	ASTM F963	477.03		-1.09
2370	CPSC-CH-E1003-09	490		-0.69	3209	EPA3052	480.5		-0.98
2375	In house	526.3		0.45	3210		-----		-----
2378	EPA3052	480.0		-1.00	3216	In house	706.2591	R(0.01)	6.06
2379		-----		-----	3220	EN16711	476.03		-1.12
2380	CPSC-CH-E1002-08	503.975		-0.25	3228	IEC62321	Not applic.		-----
2384	CPSC-CH-E1003-09	420.94		-2.84	3237		-----		-----
2385	EPA3051	582		2.18	3248	CPSC-CH-E1002-08	548		1.12
2389		-----		-----	8005		-----		-----

normality	OK	
n	91	
outliers	2	
mean (n)	512.019	
st.dev. (n)	42.1950	RSD = 8.2%
R(calc.)	118.146	
R(Horwitz)	89.697	

Lab 551 first reported: 325.73
Lab 2295 first reported: 460



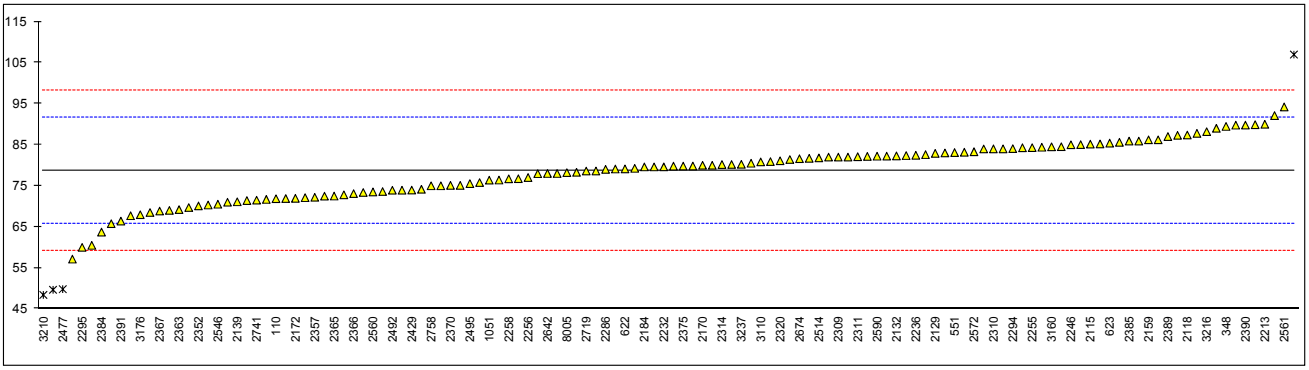


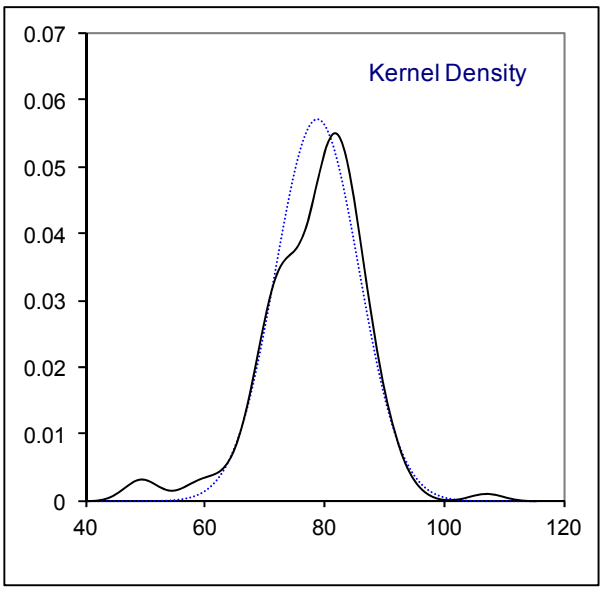
Determination of Total Lead as Pb on sample #17551; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	71.853		-1.04	2390	CPSC-CH-E1003-09	89.8	C	1.71
310	In house	78.28		-0.06	2391	CPSC-CH-E1003-09	66.4		-1.88
330		75.1		-0.55	2410	EPA3052	79.09		0.06
348	CPSC-CH-E1003-09	89.47		1.66	2413		-----		-----
523		-----		-----	2425	EPA3051	86.2		1.15
551	IEC62321	83.1	C	0.68	2426	CPSC-CH-E1003-09	73.613		-0.77
622	In house	79.1193		0.07	2429	CPSC-CH-E1003-09	73.96		-0.72
623	In house	85.4		1.03	2431	CPSC-CH-E1003-09	77.9575		-0.11
632		-----		-----	2433		-----		-----
840	CPSC-CH-E1003-09	70.32		-1.28	2448	IEC62321	72.11		-1.01
841	EPA3052	82.00		0.51	2453	CPSC-CH-E1003-09	81.7		0.46
1051	CPSC-CH-E1003-09	76.3704		-0.35	2459	EPA3052	60.488		-2.79
1213	CPSC-CH-E1003-09	82.234		0.55	2460	CPSC-CH-E1003-09	89.01		1.58
2115	EN16711-1	85.16		0.99	2477	CPSC-CH-E1003-09	49.8035	R(0.01)	-4.42
2118	CPSC-CH-E1002-08	87.36823		1.33	2480	In house	87.30		1.32
2129		82.9		0.65	2482	CPSC-CH-E1003-09	82.16		0.54
2132	ASTM F963	82.28		0.55	2488	CPSC-CH-E1003-09	68.491		-1.56
2137	IEC62321	82.37		0.57	2492	In house	73.92		-0.73
2139	ASTM D3335	71.1		-1.16	2495	CPSC-CH-E1003-09	75.53		-0.48
2159	In house	86.200		1.15	2497	CPSC-CH-E1003-09	78.61		-0.01
2165	IEC62321	84.52		0.90	2503		79.79		0.17
2170	CPSC-CH-E1003-09	80.0		0.20	2504	CPSC-CH-E1003-09	76.7342		-0.30
2172	CPSC-CH-E1003-09	71.944		-1.03	2511	CPSC-CH-E1003-09	89.889		1.72
2182	In house	76.4		-0.35	2514	In house	81.8		0.48
2184	CPSC-CH-E1003-09	79.6		0.14	2529	CPSC-CH-E1003-09	83.18		0.69
2213	CPSC-CH-E1003-09	90		1.74	2546	CPSC-CH-E1003-09	70.5118		-1.25
2232	ASTM F963	79.6102		0.14	2553	In house	72.48		-0.95
2236	ASTM F963	82.44		0.58	2560	EN16711-1	73.5069		-0.79
2246	ASTM F963	85.00		0.97	2561	In house	94.22		2.38
2247	CPSC-CH-E1003-09	71.68		-1.07	2563	IEC62321	85.9		1.11
2255	In house	84.3		0.86	2564	CPSC-CH-E1003-09	85.6		1.06
2256	CPSC-CH-E1003-09	77.02		-0.25	2567	CPSC-CH-E1003-09	80		0.20
2258	CPSD-AN-00164	76.7		-0.30	2572	CPSC-CH-E1003-09	83.3		0.71
2286	CPSC-CH-E1003-09	79.0		0.05	2590	CPSC-CH-E1003-09	82.211		0.54
2287	EPA3052	82.0		0.51	2618		75.79		-0.44
2289	CPSC-CH-E1003-09	72.8		-0.90	2632	IEC62321	83.98		0.81
2290	CPSC-CH-E1003-09	80.9		0.34	2638		-----		-----
2293		92.110		2.06	2642		78		-0.10
2294	CPSC-CH-E1003-09	84.053		0.83	2645	CPSC-CH-E1003-09	84.27		0.86
2295	CPSC-CH-E1003-09	60	C	-2.86	2674	IEC62321	81.607		0.45
2296	In house	57.1301		-3.30	2678		89.783		1.70
2301	ASTM F963	71.9000		-1.04	2701	EPA3052	73.93		-0.73
2303	In house	87.78		1.40	2719	CPSC-CH-E1003-09	78.6		-0.01
2309	CPSC-CH-E1003-09	82		0.51	2736		80.50		0.28
2310	CPSC-CH-E1003-09	84		0.82	2741	In house	71.5		-1.10
2311	CPSC-CH-E1003-09	82.09		0.52	2758	In house	75		-0.56
2314	CPSC-CH-E1003-09	80.18		0.23	2766	EPA3051	69.0		-1.48
2316	ASTM E1645	83		0.66	3110	CPSC-CH-E1003-09	80.83		0.33
2320	EPA3051	81.1		0.37	3116	CPSC-CH-E1002-08	82.6		0.60
2347	In house	71		-1.18	3118		-----		-----
2352	IEC62321	70.1		-1.31	3124	EPA3052	49.65	R(0.01)	-4.45
2353	IEC62321	80.2		0.23	3146	CPSC-CH-E1003-09	84.0		0.82
2355	EPA3052	71.4		-1.11	3150	CPSC-CH-E1003-09	79.25		0.09
2357	ISO8124-5	72.2		-0.99	3154	CPSC-CH-E1003-09	85.20		1.00
2358	CPSC-CH-E1003-09	79.82		0.18	3160	CPSC-CH-E1003-09	84.50		0.89
2363	In house	69.2		-1.45	3172	CPSC-CH-E1003-09	84.4		0.88
2365	ASTM F963	72.5		-0.95	3176		67.953		-1.64
2366	CPSC-CH-E1003-09	73.1		-0.85	3182	CPSC-CH-E1003-09	74.15		-0.69
2367	CPSC-CH-E1003-09	68.85	C	-1.50	3197	EPA3052	79.6		0.14
2369	EPA3052	69.7		-1.37	3200	ASTM F963	73.38		-0.81
2370	CPSC-CH-E1003-09	75.1		-0.55	3209	EPA3052	75.0		-0.56
2375	In house	79.8		0.17	3210	CPSC-CH-E1003-09	48.4	R(0.01)	-4.64
2378	EPA3052	67.7		-1.68	3216	In house	88.1931		1.46
2379	CPSC-CH-E1003-09	106.98	R(0.01)	4.34	3220	EN16711	65.77		-1.98
2380	CPSC-CH-E1002-08	85.0387		0.98	3228	IEC62321	81.4		0.42
2384	CPSC-CH-E1003-09	63.72		-2.29	3237	In house	80.23		0.24
2385	EPA3051	85.9		1.11	3248	CPSC-CH-E1002-08	78		-0.10
2389	CPSC-CH-E1003-09	87	C	1.28	8005	INH-CM	78.2		-0.07

normality	OK	
n	126	
outliers	4	
mean (n)	78.669	
st.dev. (n)	6.9805	RSD = 8.9%
R(calc.)	19.545	
R(Horwitz)	18.270	

Lab 551 first reported: 39.85
Lab 2295 first reported: 75
Lab 2367 first reported: 8.85
Lab 2389 first reported: 54.6
Lab 2390 first reported: 27.80



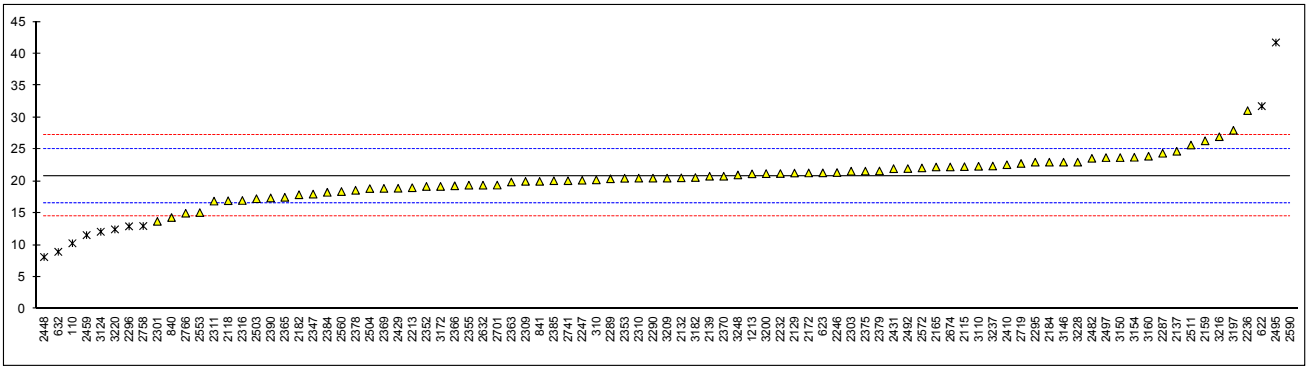


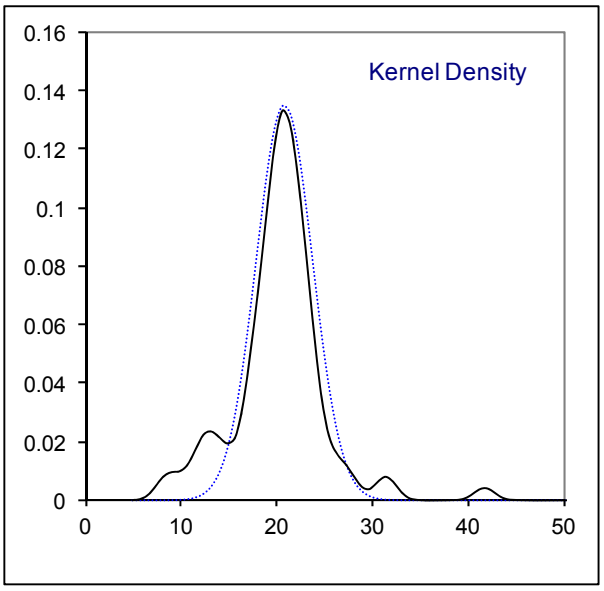
Determination of Total Mercury as Hg on sample #17551; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	10.296	R(0.05)	-4.99	2390	CPSC-CH-E1003-09	17.4	C	-1.63
310	In house	20.228		-0.29	2391	CPSC-CH-E1003-09	<0.5		<-9.63
330		-----		-----	2410	EPA3052	22.60		0.83
348		-----		-----	2413		-----		-----
523		-----		-----	2425	EPA3051	Not Det.		-----
551	IEC62321	ND		-----	2426		-----		-----
622	In house	31.7830	R(0.05)	5.18	2429	CPSC-CH-E1003-09	18.92		-0.91
623	In house	21.33		0.23	2431	CPSC-CH-E1003-09	21.9847		0.54
632	EPA3052	8.954	ex	-5.63	2433		-----		-----
840	CPSC-CH-E1003-09	14.33		-3.08	2448	IEC62321	8.14	R(0.05)	-6.02
841	EPA3052	20.00		-0.40	2453		-----		-----
1051		-----		-----	2459	EPA3052	11.576	R(0.05)	-4.39
1213	CPSC-CH-E1003-09	21.178		0.16	2460		-----		-----
2115	EN16711-1	22.3		0.69	2477		-----		-----
2118	CPSC-CH-E1002-08	16.96592		-1.83	2480		-----		-----
2129		21.3		0.22	2482	CPSC-CH-E1003-09	23.61		1.31
2132	ASTM F963	20.55		-0.14	2488		-----		-----
2137	IEC62321	24.71		1.83	2492	In house	22.00		0.55
2139	ASTM D3335	20.8		-0.02	2495	CPSC-CH-E1003-09	41.75	R(0.01)	9.91
2159	In house	26.350		2.61	2497	CPSC-CH-E1003-09	23.72		1.37
2165	IEC62321	22.25		0.67	2503		17.28		-1.69
2170		-----		-----	2504	CPSC-CH-E1003-09	18.8630		-0.94
2172	CPSC-CH-E1003-09	21.314		0.23	2511	CPSC-CH-E1003-09	25.69		2.30
2182	In house	17.9		-1.39	2514		-----		-----
2184	CPSC-CH-E1003-09	23.0		1.02	2529		-----		-----
2213	CPSC-CH-E1003-09	19		-0.87	2546		-----		-----
2232	ASTM F963	21.2210		0.18	2553	In house	15.1	C	-2.72
2236	ASTM F963	31.08		4.85	2560	EN16711-1	18.4	C	-1.16
2246	ASTM F963	21.38		0.26	2561		-----		-----
2247	CPSC-CH-E1003-09	20.17		-0.32	2563	IEC62321	not anal.		-----
2255	In house	nd		-----	2564		-----		-----
2256		-----		-----	2567	CPSC-CH-E1003-09	<20		-----
2258	CPSD-AN-00164	< 20		-----	2572	CPSC-CH-E1003-09	22.1		0.60
2286		-----		-----	2590	ISO17072-2	212.3	C,R(0.01)	90.70
2287	EPA3052	24.4		1.69	2618		-----		-----
2289	CPSC-CH-E1003-09	20.4		-0.21	2632	IEC62321	19.40		-0.68
2290	CPSC-CH-E1003-09	20.5		-0.16	2638		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	23	C	1.02	2674	IEC62321	22.255		0.67
2296	In house	12.9455	R(0.05)	-3.74	2678		-----		-----
2301	ASTM F963	13.7300		-3.37	2701	EPA3052	19.41		-0.68
2303	In house	21.59		0.36	2719	CPSC-CH-E1003-09	22.8		0.93
2309	CPSC-CH-E1003-09	20		-0.40	2736		-----		-----
2310	CPSC-CH-E1003-09	20.5		-0.16	2741	In house	20.1		-0.35
2311	CPSC-CH-E1003-09	16.90		-1.87	2758	In house	13	R(0.05)	-3.71
2314		-----		-----	2766	EPA3051	15	C	-2.77
2316	ASTM E1645	17		-1.82	3110	CPSC-CH-E1003-09	22.36		0.72
2320		-----		-----	3116		-----		-----
2347	In house	18		-1.34	3118		-----		-----
2352	IEC62321	19.2		-0.78	3124	EPA3052	12.1	ex	-4.14
2353	IEC62321	20.48		-0.17	3146	CPSC-CH-E1003-09	23.0		1.02
2355	EPA3052	19.4		-0.68	3150	CPSC-CH-E1003-09	23.72		1.37
2357		-----		-----	3154	CPSC-CH-E1003-09	23.77		1.39
2358	CPSC-CH-E1003-09	<20		-----	3160	CPSC-CH-E1003-09	23.94		1.47
2363	In house	19.9		-0.44	3172	CPSC-CH-E1003-09	19.2		-0.78
2365	EPA3052	17.5		-1.58	3176		-----		-----
2366	CPSC-CH-E1003-09	19.3		-0.73	3182	CPSC-CH-E1003-09	20.60		-0.11
2367		-----		-----	3197	EPA3052	28.0		3.39
2369	EPA3052	18.9		-0.92	3200	ASTM F963	21.21		0.18
2370	CPSC-CH-E1003-09	20.8		-0.02	3209	EPA3052	20.5		-0.16
2375	In house	21.6		0.36	3210		-----		-----
2378	EPA3052	18.6		-1.06	3216	In house	26.9908		2.91
2379	EPA3052	21.63		0.38	3220	EN16711	12.47	R(0.05)	-3.96
2380		-----		-----	3228	IEC62321	23.0		1.02
2384	CPSC-CH-E1003-09	18.28		-1.21	3237	In house	22.40		0.74
2385	EPA3051	20.1		-0.35	3248	CPSC-CH-E1002-08	21		0.08
2389		-----		-----	8005		-----		-----

normality	suspect	
n	78	
outliers	9 (+2ex)	
mean (n)	20.838	
st.dev. (n)	2.9513	RSD = 14.2%
R(calc.)	8.264	
R(Horwitz)	5.911	

Lab 2295 first reported: 17.3
Lab 2390 first reported: ND
Lab 2553 first reported: 7.53
Lab 2560 first reported: ND
Lab 2590 first reported: 3.203
Lab 2766 first reported: 10.2
Test result of lab 632 and 3124 were excluded as other results showed two or more outliers (see §4)



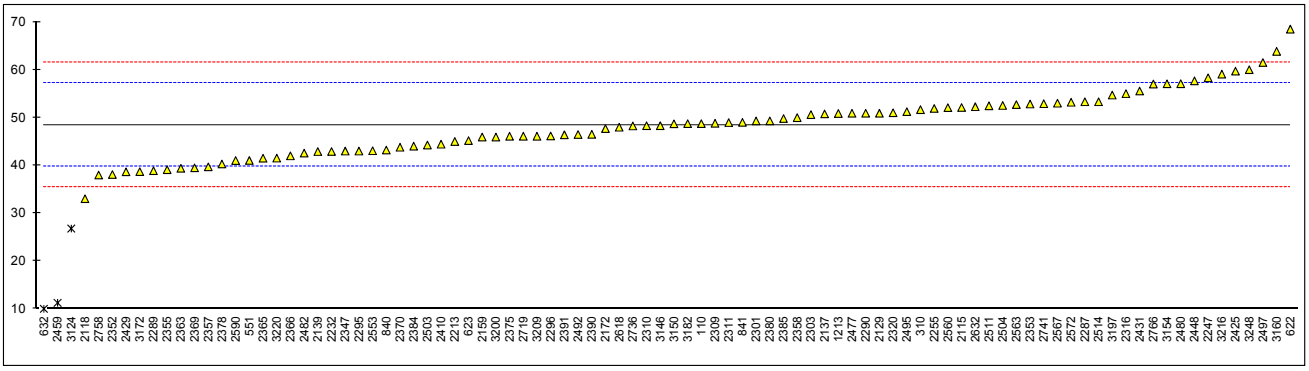


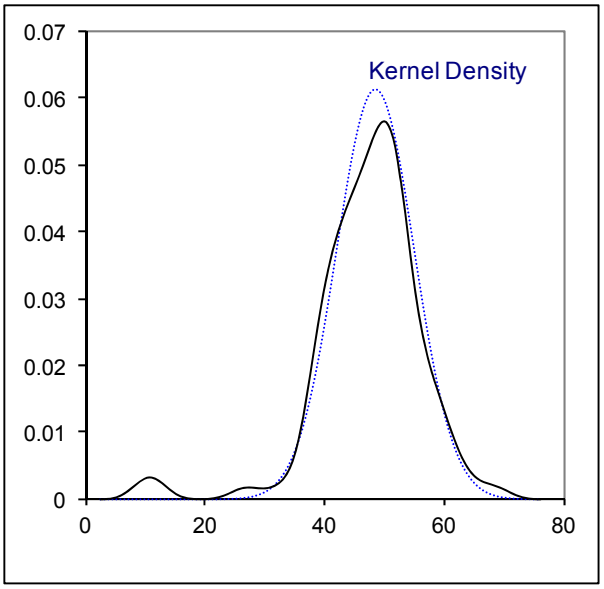
Determination of Total Nickel as Ni on sample #17551; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	CPSC-CH-E1003-09	48.734		0.06	2390	CPSC-CH-E1003-09	46.50		-0.46
310	In house	51.65		0.74	2391	CPSC-CH-E1003-09	46.4		-0.48
330		-----		-----	2410	EPA3052	44.44		-0.93
348		-----		-----	2413		-----		-----
523		-----		-----	2425	EPA3051	59.7		2.60
551	IEC62321	41.04		-1.72	2426		-----		-----
622	In house	68.4696		4.63	2429	CPSC-CH-E1003-09	38.67		-2.27
623	In house	45.19		-0.76	2431	CPSC-CH-E1003-09	55.5435		1.64
632	EPA3052	10.04	R(0.01)	-8.89	2433		-----		-----
840	CPSC-CH-E1003-09	43.22		-1.21	2448	IEC62321	57.67		2.13
841	EPA3052	49.00		0.12	2453		-----		-----
1051		-----		-----	2459	EPA3052	11.295	R(0.01)	-8.60
1213	CPSC-CH-E1003-09	50.845		0.55	2460		-----		-----
2115	EN16711-1	52.1		0.84	2477	CPSC-CH-E1003-09	50.8982		0.56
2118	CPSC-CH-E1002-08	33.04357		-3.57	2480	In house	57.07		1.99
2129		50.9		0.56	2482	CPSC-CH-E1003-09	42.57		-1.36
2132		-----		-----	2488		-----		-----
2137	IEC62321	50.77		0.53	2492	In house	46.45		-0.47
2139	ASTM D3335	42.9		-1.29	2495	CPSC-CH-E1003-09	51.23		0.64
2159	In house	45.930		-0.59	2497	CPSC-CH-E1003-09	61.5	C	3.01
2165		-----		-----	2503		44.26		-0.97
2170		-----		-----	2504	CPSC-CH-E1003-09	52.5323		0.94
2172	CPSC-CH-E1003-09	47.691		-0.18	2511	CPSC-CH-E1003-09	52.454		0.92
2182		-----		-----	2514	In house	53.3		1.12
2184		-----		-----	2529		-----		-----
2213	CPSC-CH-E1003-09	45		-0.80	2546		-----		-----
2232	ASTM F963	42.9111		-1.29	2553	In house	43.07		-1.25
2236		-----		-----	2560	EN16711-1	52.0674		0.83
2246		-----		-----	2561		-----		-----
2247	CPSC-CH-E1003-09	58.3		2.27	2563	IEC62321	52.7		0.98
2255	In house	51.9		0.79	2564		-----		-----
2256		-----		-----	2567	CPSC-CH-E1003-09	53		1.05
2258		-----		-----	2572	CPSC-CH-E1003-09	53.2		1.09
2286		-----		-----	2590	ISO17072-2	41.023		-1.72
2287	EPA3052	53.3		1.12	2618		47.98		-0.11
2289	CPSC-CH-E1003-09	38.9		-2.21	2632	IEC62321	52.26		0.88
2290	CPSC-CH-E1003-09	50.9		0.56	2638		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2645		-----		-----
2295	CPSC-CH-E1003-09	43	C	-1.26	2674	IEC62321	NA		-----
2296	In house	46.1567		-0.53	2678		-----		-----
2301	ASTM F963	49.3000		0.19	2701		-----		-----
2303	In house	50.61		0.50	2719	CPSC-CH-E1003-09	46.1		-0.55
2309	CPSC-CH-E1003-09	48.81		0.08	2736		48.25		-0.05
2310	CPSC-CH-E1003-09	48.3		-0.04	2741	In house	52.9		1.03
2311	CPSC-CH-E1003-09	48.95		0.11	2758	In house	38		-2.42
2314		-----		-----	2766	EPA3051	57.0		1.97
2316	ASTM E1645	55		1.51	3110		-----		-----
2320	EPA3051	51		0.59	3116		-----		-----
2347	In house	43		-1.26	3118		-----		-----
2352	IEC62321	38.1		-2.40	3124	EPA3052	26.81	ex	-5.01
2353	IEC62321	52.83		1.01	3146	CPSC-CH-E1003-09	48.3		-0.04
2355	EPA3052	39.1		-2.17	3150	CPSC-CH-E1003-09	48.69		0.05
2357	ISO8124-5	39.7		-2.03	3154	CPSC-CH-E1003-09	57.06		1.99
2358	CPSC-CH-E1003-09	49.98		0.35	3160	CPSC-CH-E1003-09	63.82		3.55
2363	In house	39.4		-2.10	3172	CPSC-CH-E1003-09	38.7		-2.26
2365	EPA3052	41.5		-1.61	3176		-----		-----
2366	CPSC-CH-E1003-09	42.0		-1.50	3182	CPSC-CH-E1003-09	48.73		0.06
2367		-----		-----	3197	EPA3052	54.7		1.44
2369	EPA3052	39.5		-2.07	3200	ASTM F963	45.93		-0.59
2370	CPSC-CH-E1003-09	43.8		-1.08	3209	EPA3052	46.1		-0.55
2375	In house	46.1		-0.55	3210		-----		-----
2378	EPA3052	40.3		-1.89	3216	In house	59.0740		2.45
2379		-----		-----	3220	EN16711	41.53		-1.60
2380	CPSC-CH-E1002-08	49.3014		0.19	3228	IEC62321	Not applic.		-----
2384	CPSC-CH-E1003-09	44.03		-1.03	3237		-----		-----
2385	EPA3051	49.8		0.31	3248	CPSC-CH-E1002-08	60		2.67
2389		-----		-----	8005		-----		-----

normality	OK	
n	89	
outliers	2 (+1ex)	
mean (n)	48.468	
st.dev. (n)	6.5244	RSD = 13.5%
R(calc.)	18.268	
R(Horwitz)	12.107	

Lab 2295 first reported: 31.3
Lab 2794 first reported: 95.49
Test result of lab 3124 was excluded as other results showed two or more outliers (see §4)





Determination of Antimony, Arsenic, Copper, and Selenium on sample #17551; results in mg/kg

lab	method	Sb	As	Cu	Se
110	CPSC-CH-E1003-09	-----	-----	-----	-----
310	In house	0.008	0.088	5.025	0.6505
330		-----	-----	-----	-----
348		-----	-----	-----	-----
523		-----	-----	-----	-----
551	IEC62321	ND	ND	80.9	ND
622	In house	0.0711	0.1572	70.1176 C	0.5182
623	In house	n.d.	n.d.	n.d. C	n.d.
632	EPA3052	43.34	-----	-----	9.429
840	CPSC-CH-E1003-09	<2	<2	<2	<2
841	EPA3052	n.d	n.d	7.00	-----
1051		-----	-----	-----	-----
1213	CPSC-CH-E1003-09	<15.0	<15.0	<15.0	<15.0
2115	EN16711-1	-----	0.27	5.65	1.52
2118	CPSC-CH-E1002-08	0	0.101639	56.09411	0
2129		<5	<5	<25	<5
2132	ASTM F963	<10	<10	-----	<10
2137		-----	-----	-----	-----
2139	ASTM D3335	< 10	< 10	< 10	< 10
2159	In house	<10	<10	<10	<10
2165		-----	-----	-----	-----
2170		-----	-----	-----	-----
2172	CPSC-CH-E1003-09	<10	<10	<10	<10
2182		-----	-----	-----	-----
2184		-----	-----	-----	-----
2213	CPSC-CH-E1003-09	<10	<10	13	<10
2232	ASTM F963	< 10	< 10	< 10	< 10
2236	ASTM F963	<10.0	<10.0	-----	<10.0
2246	ASTM F963	<10	<10	-----	<10
2247	CPSC-CH-E1003-09	nd	nd	6.79	nd
2255	In house	nd	nd	nd	nd
2256		-----	-----	-----	-----
2258	CPSD-AN-00164	< 60	<40 C	-----	< 100
2286	CPSC-CH-E1003-09	-----	-----	-----	-----
2287	EPA3052	<5	-----	<5	<5
2289		-----	-----	-----	-----
2290	CPSC-CH-E1003-09	<20	<20	<20	<20
2293		-----	-----	-----	-----
2294		-----	-----	-----	-----
2295	CPSC-CH-E1003-09	-----	-----	58.9	5.2
2296	In house	0.0000	7.8869	4.8840	3.8009
2301	ASTM F963	0	0	0	0
2303	In house	<10	<10	-----	-----
2309	CPSC-CH-E1003-09	ND[DL-10ppm]	ND[DL-10ppm]	ND[DL-10ppm]	ND[DL-10ppm]
2310	CPSC-CH-E1003-09	Not Detected	Not Detected	Not Detected	Not Detected
2311	CPSC-CH-E1003-09	Not Detected	Not Detected	Not Detected	Not Detected
2314		-----	-----	-----	-----
2316	ASTM E1645	ND	ND	ND	ND
2320		-----	-----	-----	-----
2347	In house	<10	<10	<5	<10
2352	IEC62321	ND	ND	ND	ND
2353	IEC62321	<20	<20	<20	<20
2355	EPA3052	<10	<10	<5	<10
2357	ISO8124-5	<5	<2	<5	<10
2358	CPSC-CH-E1003-09	<20	<20	<20	<20
2363	In house	ND	ND	ND	ND
2365	EPA3052	<10	<10	<10	<10
2366	CPSC-CH-E1003-09	<10	<10	<10	<10
2367		-----	-----	-----	-----
2369	EPA3052	<10	<10	<5	<10
2370	CPSC-CH-E1003-09	<2	<2	-----	<2
2375		-----	-----	-----	-----
2378	EPA3052	ND	ND	ND	ND
2379		-----	-----	-----	-----
2380		-----	-----	-----	-----
2384	CPSC-CH-E1003-09	< 5	< 5	< 50	< 5
2385	EPA3051	<5	<5	5.2	<5
2389		-----	-----	-----	-----
2390	CPSC-CH-E1003-09	ND	ND	ND	ND
2391	CPSC-CH-E1003-09	3.70	<0.5	<0.5	<0.5
2410		-----	-----	-----	-----
2413		-----	-----	-----	-----
2425	EPA3051	Not Detected	Not Detected	Not Detected	Not Detected
2426		-----	-----	-----	-----
2429	CPSC-CH-E1003-09	<10	<10	<10	<10
2431		-----	-----	-----	-----

2433		-----	-----	-----	-----
2448	IEC62321	<50.00	<50.00	<25.00	<50.00
2453		-----	-----	-----	-----
2459	EPA3052	<1.0	<1.0	90.270	<1.0
2460		-----	-----	-----	-----
2477	CPSC-CH-E1003-09	-----	-----	-----	21.6567
2480		-----	-----	-----	-----
2482	CPSC-CH-E1003-09	39.55	-----	-----	-----
2488		-----	-----	-----	-----
2492		-----	-----	-----	-----
2495	CPSC-CH-E1003-09	-----	<5	<5	<5
2497	CPSC-CH-E1003-09	0.01	0.208	22.79	3.58
2503		0.837	0	158.9	6.525
2504	CPSC-CH-E1003-09	<5	<5	<5	<5
2511		-----	-----	-----	-----
2514		-----	-----	-----	-----
2529		-----	-----	-----	-----
2546		-----	-----	-----	-----
2553	In house	ND	ND	ND	ND
2560	EN16711-1	ND	ND	21.4395	ND
2561		-----	-----	-----	-----
2563	IEC62321	not analysed	not analysed	<5	not analysed
2564		-----	-----	-----	-----
2567	CPSC-CH-E1003-09	<20	<20	<20	<20
2572	CPSC-CH-E1003-09	<20	<20	<20	<20
2590	ISO17072-2	<L.O.Q.	<L.O.Q.	4.402	1.021
2618		-----	-----	-----	-----
2632	IEC62321	3.21	N.D.[<2.0]	5.18	N.D.[<2.0]
2638		-----	-----	-----	-----
2642		-----	-----	-----	-----
2645	CPSC-CH-E1003-09	-----	-----	-----	-----
2674	IEC62321	NA	NA	NA	NA
2678		-----	-----	-----	-----
2701		-----	-----	-----	-----
2719		-----	-----	-----	-----
2736		<2.5	<2.5	3.25	<2.5
2741	In house	<10	<10	<15	<10
2758	In house	0	0	0	0
2766	EPA3051	-----	-----	6.0	-----
3110	CPSC-CH-E1003-09	<15	<15	-----	<15
3116		-----	-----	-----	-----
3118		-----	-----	-----	-----
3124	EPA3052	0.0268	0.5054	3.017	1.901
3146	CPSC-CH-E1003-09	n.d.	n.d.	n.d.	n.d.
3150	CPSC-CH-E1003-09	<1	<0,5	12.94	<1
3154	CPSC-CH-E1003-09	-----	-----	4.54	-----
3160	CPSC-CH-E1003-09	n.d.	n.d.	6.60	5.94
3172	CPSC-CH-E1003-09	< 10	< 10	--	--
3176		-----	-----	-----	-----
3182	CPSC-CH-E1003-09	ND	<13	ND	ND
3197	EPA3052	ND	ND	ND	ND
3200	ASTM F963	<10.0	<10.0	<10.0	<10.0
3209	EPA3052	<10.0	<10.0	<10.0	<10.0
3210		-----	-----	-----	-----
3216	In house	nd	7.6069	9.6752	1.6349
3220	EN16711	ND	ND	9.3	ND
3228	IEC62321	Not applicable	Not applicable	Not applicable	Not applicable
3237		-----	-----	-----	-----
3248	CPSC-CH-E1002-08	<10	<10	<10	<10
8005		-----	-----	-----	-----

Lab 622 first reported: 46.42
Lab 623 first reported: 71.1176
Lab 2258 first reported: 48.1

APPENDIX 2

Details of the test methods used by the participants

labnrs	ISO17025 accredited?	Sample intake (in mg)?	Digestion chemicals	Digestion temp.?	Digestion time?	Equipment
110	Yes	30	Nitric Acid	Boiling	45	Electric hot plate
310	No	90	HNO3	92	max 230	Microwave
330	No	100	HNO3 acid	220	40	Microwave
348	Yes	100	HNO3+H2O2+HCl	210	25	Microwave
523	---					---
551	Yes	100	HNO3 + HF	230	45	Microwave
622	Yes	200	chemical mixture	80	120	Heating bath
623	No	250	HNO3			Microwave
632	No	0.2	HNO3	200	40	Microwave
840	Yes	100	HNO3	180	30	Microwave
841	---					---
1051	Yes	100	Nitric Acid	180	at least 30	Microwave
1213	Yes	100	HNO3, H2O2	180	45	Microwave
2115	Yes	0.1	HNO3	Microwave	50	Microwave
2118	Yes	50	8 ml HNO3+2 ml H2O2	210	80	Microwave
2129	Yes	200	HNO3	230	42	Microwave
2132	Yes	50	HNO3 + H2O2	210	25	Microwave
2137	Yes	200	HNO3	180	60	Microwave
2139	Yes	0.07	Nitric acid	240	60	Microwave
2159	Yes	50	65% HNO3, 30% H2O2	200	60	Microwave
2165	Yes	50 / 100	9ml HNO3 + 1ml HF	195	120	Microwave
2170	Yes	100	Nitric Acid	185	51	Microwave
2172	Yes	0.1	HNO3 HF	190	60	Microwave
2182	No	100				Microwave
2184	Yes	100	HNO3	180	15	Microwave
2213	Yes	100				Microwave
2232	Yes	74.4	HNO3	180	30	Microwave
2236	Yes	100	4.5 mL Nitric Acid plus 1.5 mL Hydrochloric Acid	210	40	Microwave
2246	Yes	50	HNO3 + H2O2	210	25	Microwave
2247	Yes	80	Nitric+ H2O2 +HF	210	120	Microwave
2255	Yes	50.5 / 61.6	Nitric acid and Hydrogen peroxide	140	45	Electric hot plate
2256	Yes	40.9	Nitric Acid	180	30	Electric hot plate
2258	Yes	4.02	Nitric Acid 65%	100	30	Heating block
2286	---					---
2287	No	100	HNO3			Microwave
2289	Yes	101.0 / 109.8	HNO3	200	35	Microwave
2290	---					---
2293	Yes	130	Nitric acid	180	45	Microwave
2294	Yes	25.62 / 26.65	Nitric Acid	180	15	Microwave
2295	Yes	100	4,5 ml HNO3 + 1,5 ml HCl + 2 ml H202	Pogram power	70	Microwave
2296	Yes	100	10ml of 50% HNO3 followed by 5 ml of conc HCl	210	45+45	Microwave
2301	Yes	10	HNO3 (Nitric Acid)	150	15	Electric hot plate
2303	Yes	20	Nitric Acid	200	15	Microwave
2309	Yes	0.1	Nitric Acid	210	50	Microwave
2310	Yes	100	Nitric acid and Hydrofluoric acid	180	45	Microwave
2311	Yes	100	Nitric Acid and Hydrofluoric Acid	210	20	Microwave
2314	Yes	100	Nitric acid	200	45	Microwave
2316	Yes	100	Nitric Acid (9 mL) as well as H2O2 (1 mL)	max 250	90	Microwave
2320	Yes	200	Nitric acid	180	40	Microwave

labnrs	ISO17025 accredited?	Sample intake (in mg)?	Digestion chemicals	Digestion temp.?	Digestion time?	Equipment
2347	Yes	200	HNO3 H2O2 HF	210	42	Microwave
2352	Yes	100	HNO3,HCl,HF	190	40	Microwave
2353	Yes	100	Nitric Acid	180	15	Microwave
2355	Yes	500	HNO3,HF,HCl	200	40	Microwave
2357	Yes	200	HNO3,HF			Microwave
2358	Yes	100	Nitric Acid	180	15	Microwave
2363	Yes	100	HCl,HNO3,HF	200	15	Microwave
2365	Yes	100	HNO3,HCl,HF	205	51	Microwave
2366	Yes	100	#17550:8ml HNO3+2ml H2O2 #17551:8ml HNO3+2ml HF	205	30	Microwave
2367	Yes	HNO3	H2O2	150	60	Heating block
2369	Yes	100	7ml HNO3+1ml HF	200	45	Microwave
2370	Yes	100	#17550:aqua regia, #17551:HNO3 + HF	190	50	Microwave
2375	Yes	0.102	HF+ HNO3+HCLO4+H2O2	210	40	Microwave
2378	Yes	100	Nitric acid and Hydrogen Peroxide	150+210	2+22	Microwave
2379	Yes	250	HNO3, HCl, H2O2	180		Microwave
2380	Yes	50	Concentrated HNO3 & H2O2	190	120	Microwave
2384	Yes	100	Nitric Acid	max 240	45	Microwave
2385	Yes	100 - 150	HNO3 / H2O2	200	60	Microwave
2389	Yes	66	Nitric Acid	130	45	Heating block
2390	Yes	50	Nitric Acid	210	40	Microwave
2391	Yes	100	10 ml Nitric Acid	175	60	Microwave
2410	Yes	100	Nitric acid / Hydrogen peroxide / Hydrofluoric Acid	200	50	Microwave
2413	---					---
2425	Yes	50	Conc. Nitric Acid+Hydrogen Peroxide	100-180	90	Microwave
2426	Yes	100	Nitric Acid	180	10	Hot block digester
2429	Yes	100	8mLHNO3+1mLHCl	195	120	Microwave
2431	Yes	0.1	HNO3	180	25	Microwave
2433	Yes	100	Nitric Acid	140	15	Hot block digester
2448	No	50	Nitric acid/Peroxide	max 200	60-120	Microwave
2453	Yes	150	HNO3/H2O2			Hot block digester
2459	Yes	150	HNO2/H2O2	180	15	Microwave
2460	Yes	200	Nitric acid 66%	185	25	Microwave
2477	Yes	0.05	HNO3	180	15	Microwave
2480	Yes	150	Aqua regia	200	20	Microwave
2482	Yes	100	8 ml HNO3; 2 ml H2O2	up to 250	90	Microwave
2488	Yes	20.8	HNO3 / H2O2 / HF			Microwave
2492	Yes	50	nitric acid	210	40	Microwave
2495	Yes	100	HNO3:H2O2 9:1	180	40	Microwave
2497	Yes	200	nitric acid - hydrogen peroxide	120	45	Microwave
2503	Yes	130	5% nitric acid	200	40	Microwave
2504	Yes	100	Nitric acid	180	25	Microwave
2511	Yes	50	nitric acid	until 220	70	Microwave
2514	Yes	50.2	Nitric acid and hydrogen peroxide	140	45	Electric hot plate
2529	No	40	4 ml nitric acid	102	240	Hot block digester
2546	Yes	100	HNO3	220	13	Microwave
2553	Yes	200	Nitric acid + hydrogen peroxide	200	60	Electric hot plate
2560	Yes	65.3	HCl+HNO3	200	80	Microwave
2561	No	50	Nitric and hydrochloric acids	210	38	Microwave
2563	Yes	150	HNO3	255	60	Microwave
2564	Yes	125	Nitric Acid	200	30	Microwave
2567	Yes	100	HNO3	180	40	Microwave

labnrs	ISO17025 accredited?	Sample intake (in mg)?	Digestion chemicals	Digestion temp.?	Digestion time?	Equipment
2572	Yes				45	---
2590	Yes	100	Nitric Acid	max 220	max 230	Microwave
2618	Yes		HNO3/H2O2	210	40	Microwave
2632	Yes	100	HNO3	200	25	Microwave
2638	---					---
2642	Yes				45	Microwave
2645	Yes	100	HNO3 concentrated	140	120	Hot block digester
2674	Yes	100	Nitric Acid	200		Microwave
2678	Yes	40.1	HNO3, H2O2	90-200	40	Microwave
2701	Yes	0.05	HNO3, H2O2	200	30	Microwave
2719	Yes	50	HNO3	200		Microwave
2736	Yes	200	nitric acid, hydrochloric acid	250	at least 30	Microwave
2741	Yes	121.1 / 157.8	HNO3	210	45	Microwave
2758	No	250	Mixture of nitric acid and hydrogen peroxide	210	50	Microwave
2766	Yes	400	Nitric acid & H2O2	170	80	Microwave
3110	Yes				42	---
3116	Yes	100	Nitric Acid	180	25	Microwave
3118	---				60	---
3124	Yes	250	HNO3/HF/HCl (8:1:2)	320	60	Microwave
3146	Yes	150	HNO3/H2O2	210	60	Microwave
3150	No	30 - 50	conc. HNO3	200	120	Microwave
3154	Yes	100	HNO3	200	51	Microwave
3160	Yes	100	4.5 ml HNO3(c)+1 ml H2O2(30%)+0.5 ml HCl (32%)	210	60	Microwave
3172	Yes	100	HNO3	220		Microwave
3176	Yes	100	HNO3, H2O2,HF	200	15	Microwave
3182	Yes	200	Nitric acid	200		Microwave
3197	Yes	100	Conc. HNO3 (Nitric acid)	180	30	Microwave
3200	Yes	200	HNO3+HCl	200	40	Microwave
3209	Yes	200.5	nitric acid	210	25	Microwave
3210	Yes	102	Nitric Acid	175	120	Microwave
3216	No	150	10 ml of nitric acid 70 % for ultratrace analysis	190	45	Microwave
3220	Yes	100	HNO3 9ml / 1ml H2O2	RT to 175	30	Microwave
3228	Yes	100	8ml HNO3 and 2ml HCl	200	30	Microwave
3237	Yes	100	HNO3+HCL	-		Microwave
3248	Yes	150	nitric acid	200		Microwave
8005	---	0.1	Nitric acid	180	35	Microwave

APPENDIX 3

Number of participants per country

6 labs in BANGLADESH
1 lab in BELGIUM
1 lab in BRAZIL
1 lab in CAMBODIA, Kingdom of
1 lab in DENMARK
3 labs in FRANCE
7 labs in GERMANY
2 labs in GUATEMALA
15 labs in HONG KONG
9 labs in INDIA
5 labs in INDONESIA
6 labs in ITALY
2 labs in JAPAN
4 labs in KOREA
2 labs in MALAYSIA
4 labs in MEXICO
19 labs in P.R. of CHINA
5 labs in PAKISTAN
2 labs in PHILIPPINES
1 lab in PORTUGAL
2 labs in SINGAPORE
3 labs in SPAIN
2 labs in SRI LANKA
1 lab in SWITZERLAND
2 labs in TAIWAN R.O.C.
4 labs in THAILAND
1 lab in THE NETHERLANDS
2 labs in TUNISIA
7 labs in TURKEY
6 labs in U.S.A.
3 labs in UNITED KINGDOM
7 labs in VIETNAM

APPENDIX 4

Abbreviations:

C = final 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' outlier test
R(0.05) = straggler in Rosner' outlier test
W = test result withdrawn on request of participant
ex = test result excluded from statistical evaluation
f+? = possible false positive test result
n.a. = not applicable
n.d. = not detected
n.r. = not reported

Literature:

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