Results of Proficiency Test
Metals content in Polymers
September 2017

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis17P06

October 2017

CONTENTS

1 INTRODUCTION 3

2 SET UP 3

2.1 ACCREDITATION 3

2.2 PROTOCOL 3

2.3 CONFIDENTIALITY STATEMENT 4

2.4 SAMPLES 4

2.5 ANALYSES 5

3 RESULTS 6

3.1 STATISTICS 6

3.2 GRAPHICS 7

3.3 Z-SCORES 7

4 EVALUATION 8

4.1 EVALUATION PER SAMPLE AND PER ELEMENT 9

4.2 PERFORMANCE OF THE GROUP OF LABORATORIES 10

4.3 COMPARISON OF THE PT OF SEPTEMBER 2017 WITH PREVIOUS PROFICIENCY TESTS 11

Appendices:

1. Data, statistical results and graphic results 12
2. Reported test results on other metals 22
3. Number of participants per country 27
4. Abbreviations and literature 28

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 0.1%M/M, while the maximum concentration for Cadmium (Cd) may not exceed 0.01%M/M.
The determination of metals in plastics is known to cause problems sometimes regarding the ability to compare laboratory results. However, still only a few plastic reference materials are available. As an alternative, participation in a proficiency test may enable the laboratories to check their performance. Therefore, a proficiency-testing scheme (laboratory-evaluating interlaboratory study) for the determination of metals in plastics is organised by the Institute for Interlaboratory Studies since 1998. Starting with only total Cadmium, over the years the scope was extended with total Antimony, total Chromium, Chromium (VI), total Cobalt, total Copper, total Lead, total Mercury and total Nickel content.
In this interlaboratory study, 171 laboratories in 35 different countries registered for participation. See appendix 3 for the number of participants per country. In this report, the results of the 2017 Metals content 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 organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory. It was decided to send 2 different samples of approximately 6 grams each (3 grams for Hexavalent Chromium testing and 3 grams for the other metals), labelled #17600 and #17601, both positive (artificially fortified) on one or more metals. The participants were requested to report rounded and unrounded test results and some details of the test methods used. 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 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 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 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

Two different samples, both artificially fortified to be positive on one or more metals, were selected. The materials were divided over plastic bags, approx. 6 grams for each sample and labelled respectively #17600 and #17601.

The homogeneity of the subsamples #17600 was checked by determination of Total Lead according to an in-house method on 8 stratified randomly selected subsamples.

	Total Lead in mg/kg
sample #17600-1	93
sample #17600-2	91
sample #17600-3	90
sample #17600-4	94
sample #17600-5	91
sample #17600-6	91
sample #17600-7	86
sample #17600-8	90

Table 1: homogeneity test results of subsamples #17600

From the above test results the repeatability was calculated and compared with 0.3 times the estimated reproducibility using the Horwitz equation in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Total Lead in mg/kg
r (observed)	6.7
reference method	Horwitz
0.3 x R (ref. method)	6.2

Table 2: evaluation of the repeatability of subsamples #17600

The homogeneity of the subsamples #17601 was checked by determination of Total Cadmium, Total Cobalt and Total Antimony according to an in-house method on 7 stratified randomly selected subsamples.

	Total Antimony in mg/kg	Total Cadmium in mg/kg	Total Cobalt in mg/kg
sample #17601-1	259	248	229
sample #17601-2	257	241	223
sample #17601-3	269	243	223
sample #17601-4	259	244	229
sample #17601-5	265	240	228
sample #17601-6	264	240	217
sample #17601-7	266	240	226

Table 3: homogeneity test results of subsamples #17601

From the above test results, the repeatability was calculated and compared with 0.3 times the corresponding reproducibility using either the reference test method for Cadmium or the estimated reproducibility using the Horwitz equation for Antimony and Cobalt, in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Total Antimony in mg/kg	Total Cadmium in mg/kg	Total Cobalt in mg/kg
r (observed)	12.4	8.4	12.2
reference method	Horwitz	EN1122:01	Horwitz
0.3 x R (ref. method)	15.3	18.2	13.4

Table 4: evaluation of the repeatabilities of subsamples #17601

The calculated repeatabilities listed in tables 2 and 4 were 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 set of samples (1 * sample, labelled #17600 and 1 * sample, labelled #17601) was sent on August 9, 2017.

2.5 ANALYSES

The participants were requested to determine on both samples: total Antimony, total Cadmium, total Chromium, Hexavalent Chromium, total Cobalt, total Copper, total Lead, total Mercury and total Nickel. Also, some method details about the determination of Hexavalent Chromium were requested to be reported.

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 calculations.

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 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 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 reanalysis). Additional or corrected test results are used for data analysis and original test results are placed under 'Remarks' in the test 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 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 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 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, 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 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. 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 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. 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 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, 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 are used. In some cases, a reproducibility based on former iis proficiency 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 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.
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

In this interlaboratory study, no problems were encountered with the dispatch of the samples. Four participants reported results after the final reporting date and four participants did not report any results at all due to various reasons. Not all laboratories were able to report all analyses requested.
Finally, the 167 reporting laboratories submitted 960 numerical results. Observed were 24 outlying results, which is 2.5% of all reported numerical test results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

The participants were requested to report whether they are accredited to perform these tests. Of all 167 reporting laboratories, 79% are ISO/IEC 17025 accredited. One laboratory remarked that they are only accredited for Lead.

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,

For the determination of the metal Cadmium in polymers, the method EN1122 is considered the official test method.
For the determination of the metals Hexavalent Chromium, Lead and Mercury (and Cadmium) in polymers and electronics, the method IEC62321:2008 was considered the official test method. However, in 2013, for the latest version of part 5 of this test method, the scope was changed and only Lead and Chromium (and Cadmium) were listed in the scope of the method. In the 2013 version of this test method (part 5, again only for Cadmium, Lead and Chromium), precision data are mentioned. Regretfully it is not clear which precision data can be used as reference values, as there is no significant correlation between the concentration of the metal, the quantification method and type of sample. Therefore, it was decided not to use the precision data mentioned in IEC62321-5:2013, but to estimate the reproducibility from the Horwitz equation, except for Cadmium for which test method EN1122:01 is available.

For the determination of Antimony, Cobalt, Copper and Nickel, no test methods are available. Therefore, it was decided to estimate the reproducibility requirements from the Horwitz equation.

4.1 EVALUATION PER SAMPLE AND PER ELEMENT

In this section, the results are discussed per analyte per sample.

Sample #17600:

Total Lead: This determination may be problematic for a number of laboratories. Nine statistical outliers were observed. However, the calculated reproducibility after rejection of statistical outliers is in agreement with the reproducibility requirement estimated from the Horwitz equation.

Other metals: The majority of participants agreed on a content of <10 mg/kg for Antimony, Cadmium, Chromium, Hexavalent Chromium, Cobalt, Copper, Mercury and Nickel.

Sample #17601:

Total Antimony: This determination may be problematic. Two statistical outliers were observed. Furthermore, the samples were made positive for Antimony by fortification with 260 mg Sb/kg. Therefore, the minimal concentration to be found was known. The laboratories should be able to find at least 210 mg/kg (260 mg/kg – 50 mg/kg, which is $R_{Horwitz}$). Thirty-nine test results lower than 210 mg/kg were excluded from the statistical evaluation.
The calculated reproducibility after rejection of the suspect data is not in agreement with the reproducibility requirement estimated from the Horwitz equation. As this was the first time that Antimony was evaluated in an iis PT, the cause of the problems is unknown.

Total Cadmium: This determination was not problematic. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the reproducibility requirements of EN1122:01.

Total Cobalt: This determination may be problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the reproducibility requirement estimated from the Horwitz equation.

Total Nickel: This determination may be problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the reproducibility requirement estimated from the Horwitz equation.

Other metals: The majority of participants agreed on a content of <10 mg/kg for Chromium, Hexavalent Chromium, Copper, Lead and Mercury.

4.2 PERFORMANCE EVALUATION OF THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of participating laboratories. The average results per sample, the calculated reproducibilities and the reproducibilities derived from EN1122 or from the Horwitz equation are compared in the next tables.

Parameter	unit	n	Average	2.8 * sd	R (target)
Total Lead as Pb	mg/kg	155	91.1	15.9	20.7

Table 5: performance overview for sample #17600

Parameter	unit	n	Average	2.8 * sd	R (target)
Total Antimony as Sb	mg/kg	70	262	75	51
Total Cadmium as Cd	mg/kg	156	241	56	60
Total Cobalt as Co	mg/kg	103	236	55	46
Total Nickel as Ni	mg/kg	104	242	65	47

Table 6: performance overview for sample #17601

Without further statistical calculations, it can be concluded that there is good compliance with the relevant target reproducibility for Lead and for Cadmium.

4.3 COMPARISON OF THE PT OF SEPTEMBER 2017 WITH PREVIOUS PROFICIENCY TESTS

	September 2017	*September 2016*	*September 2015*	*September 2014*	*September 2013*
Number of reporting labs	167	142	161	181	154
Number of results reported	960	1041	1250	1078	1225
Statistical outliers	24	24	38	56	59
Percentage outliers	2.5%	2.3%	3.0%	4.9%	4.6%

Table 7: comparison with previous proficiency tests

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

The evolution of the reproducibilities for Cadmium, Lead, Cobalt, Chromium, Chromium VI, Copper and Mercury content as observed in this proficiency scheme and the comparison with the findings in previous rounds are visualized in table 8.

	50-250 mg Sb/kg	25-300 mg Cd/kg	50-500 mg Pb/kg	25-250 mg Co/kg	25-250 mg Cr/kg	50-250 mg CrVI/kg	25-300 mg Cu/kg	5-250 mg Hg/kg	25-250 mg Ni/kg
2002	--	18%	29%	--	--	--	--	--	--
2003	--	11%	36%	--	--	--	--	--	--
2004	--	12%	--	--	--	--	--	--	--
2005	--	8%	--	--	12%	--	--	--	--
2006	--	7%	9%	--	11%	--	--	--	--
2007	--	8%	8-11%	--	15%	--	--	--	--
2008	--	9%	9%	--	9%	57-76%	--	--	--
2009	--	10%	7-10%	--	10-11%	55-62%	--	37-46%	--
2010	--	8-10%	9%	--	10%	23%	--	32%	--
2011	--	9%	8-11%	--	19-23%	64%	--	20%	--
2012	--	7-8%	6-8%	--	7-16%	48-57%	--	23-43%	--
2013	--	8-9%	7-9%	--	9-22%	39%	--	14-32%	--
2014	--	7%	10%	11%	11%	42%	--	18%	--
2015	--	8-9%	11%	10%	11-24%	66%	7%	13-24%	--
2016	--	9%	10%	8%	10%	52%	8%	8-14%	9%
2017	10%	8%	6%	8%	--	--	--	--	10%
EN1122	--	9%	--	--	--	--	--	--	--
Horwitz	7-9%	----	6-9%	7-10%	7-10%	7-9%	7-10%	7-13%	7-10%

Table 8: comparison of the uncertainties for Sb, Cd, Pb, Co, Cr, CrVI, Cu, Hg and Ni (in %) in the previous PTs and in the present PT

In general, it can be concluded from the uncertainties of all tested metals, that the quality of the analysis of total metal content in polymers is acceptable.

APPENDIX 1

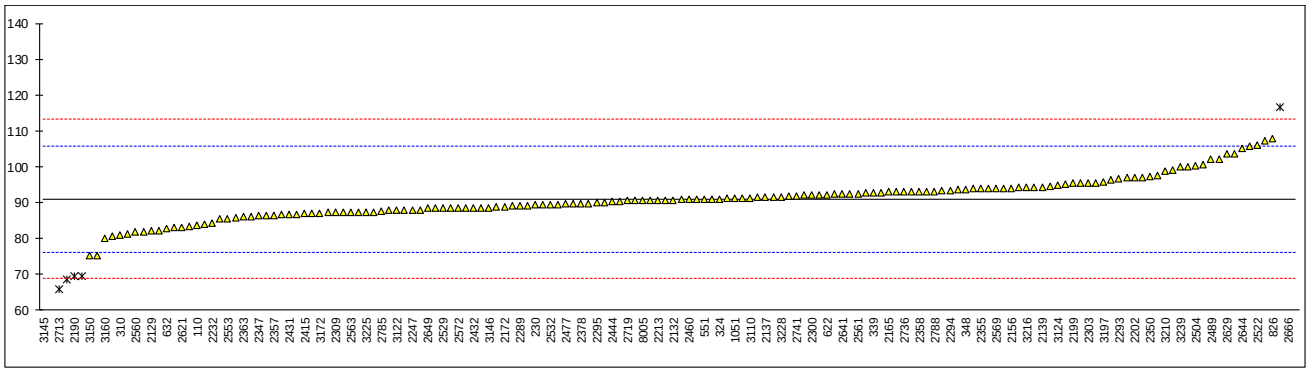
Determination of total Lead as Pb on sample #17600; results in mg/kg

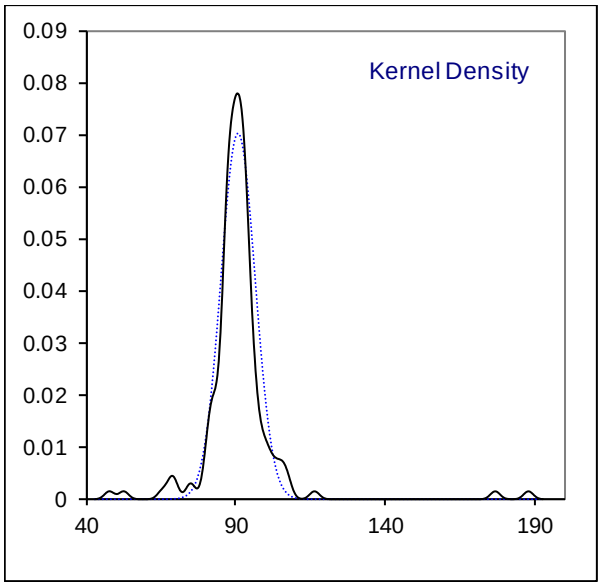
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	IEC62321-5	83.834	C	-0.98	2375	In house	91.5		0.06
230		89.3		-0.24	2378	In house	89.77		-0.17
310	In house	81.117		-1.35	2379	IEC62321-5	69.60	R(5)	-2.90
324	IEC62321-3-1	91.018		-0.01	2380	In house	93.84		0.38
339	In house	92.80		0.24	2381	In house	93.247		0.30
348	CPSC-CH-E1002-08.2	93.587		0.34	2384	IEC62321-5	87.00		-0.55
523	CPSC-CH-E1002-08.3	102.18		1.50	2385	IEC62321-5	95.5		0.60
551	IEC62321-5	91		-0.01	2387	IEC62321-5	86.64		-0.60
622	In house	92.264		0.16	2389	In house	91.33		0.04
623	In house	91.40		0.05	2390	In house	88.0		-0.41
632	In house	82.83		-1.11	2415	IEC62321-5	86.95		-0.56
826	IEC62321-5	107.9		2.28	2431	CPSC-CH-E1002-08.3	86.7727		-0.58
840	IEC62321-5	80.68		-1.41	2432	In house	88.56		-0.34
841		83.0		-1.09	2433		-----		-----
1051	CPSC-CH-E1002-08.3	91.28		0.03	2444	IEC62321-5	90.3		-0.10
1126	In house	97		0.80	2445	In house	85.9		-0.70
1195	In house	52.906	C,R(1)	-5.16	2453		-----		-----
1527	In house	188	C,R(1)	13.12	2459		-----		-----
1911		-----		-----	2460	CPSC-CH-E1002-08.3	90.965		-0.01
2115	EN16711-1	93.52		0.33	2477	IEC62321-5	89.647		-0.19
2118	In house	94.35341		0.45	2489	In house	102		1.48
2129	IEC62321-5	82.1		-1.21	2492	In house	90.6		-0.06
2132	CPSC-CH-E1002-08	90.7		-0.05	2495	CPSC-CH-E1002-08	96.4153		0.72
2137	CPSC-CH-E1002-08	91.43		0.05	2500	IEC62321-5	92.223		0.16
2139	IEC62321-5	94.37		0.45	2503	In house	89.58		-0.20
2146	IEC62321-5	100.6		1.29	2504	IEC62321-5	100.44		1.27
2156	IEC62321-5	94.1		0.41	2509	CPSC-CH-E1002-08	75.36		-2.13
2159	EN16711-1	94.130		0.42	2511	CPSC-CH-E1002-08.3	85.51		-0.75
2165	IEC62321-5	93.0		0.26	2515	EPA3051A-Mod.	87.420		-0.49
2172	IEC62321-5	88.87		-0.30	2522	CPSC-CH-E1002-08	106.0		2.02
2176	IEC62321-5	92.7		0.22	2529	CPSC-CH-E1002-08.3	88.492		-0.35
2182	In house	87.2		-0.52	2532	EPA3050/In house	89.56		-0.20
2184	IEC62321-5	90.6		-0.06	2553	In house	85.63		-0.74
2190		69.5	R(5)	-2.92	2560	EN16711-1	81.88		-1.24
2197	In house	88		-0.41	2561	CPSC-CH-E1002-08.3	92.6		0.21
2199	IEC62321-5	95.4		0.59	2563	IEC62321-5	87.3		-0.51
2202	IEC62321-5	97		0.80	2564	CPSC-CH-E1002-08	86.1		-0.67
2212	CPSC-CH-E1002-08	92.9		0.25	2569	In house	94		0.40
2213	In house	90.6		-0.06	2571	IEC62321-3-1	88.73		-0.32
2218	CPSC-CH-E1002-08.1	91.12		0.01	2572	In house	88.5		-0.35
2228	In house	68.51	R(5)	-3.05	2590	CPSC-CH-E1002-08	94.712		0.49
2232	IEC62321-5	84.24		-0.92	2591	CPSC-CH-E1002-08	103.56		1.69
2236	CPSC-CH-E1002	86.78		-0.58	2614		-----		-----
2241	IEC62321-5	97.51		0.87	2621	IEC62321-5	83.025		-1.09
2247	In house	88.00		-0.41	2624	In house	95.6		0.61
2256	IEC62321-5	95.25		0.57	2629	IEC62321-5	103.55		1.69
2258	In house	99.094		1.09	2632	IEC62321-5	87.82		-0.44
2289	IEC62321-5	89.17		-0.26	2637	In house	94		0.40
2290	In house	89.2		-0.25	2641	CPSC-CH-E1002-08.3	92.5		0.19
2293	CPSC-CH-E1002-08.3	96.615		0.75	2642	CPSC-CH-E1002-08.3	89.45		-0.22
2294	CPSC-CH-E1002-08.3	93.276		0.30	2644	EN16711-1	105.06		1.89
2295	CPSC 1002	90		-0.14	2649	In house	88.41		-0.36
2296	In house	92.0594	C	0.14	2666	In house	176.8991	R(1)	11.62
2298	CPSC-CH-E1002-08.3	97.00		0.80	2674	IEC62321-5	91.77		0.10
2300	In house	92.14		0.15	2678	CPSC-CH-E1002-08.1	88.47		-0.35
2301	In house	82.3		-1.19	2713	In house	65.747	R(5)	-3.43
2303	In house	95.53		0.60	2719		90.5		-0.08
2309	IEC62321-5	87.2		-0.52	2736	In house	93.00		0.26
2310	IEC62321-3-1	92.5		0.19	2741	In house	91.99		0.13
2311	EPA3052	91.0		-0.01	2780		-----		-----
2314	In house	92.60		0.21	2785	In house	87.55		-0.48
2316	IEC62321-5	94		0.40	2788	IEC62321-5	93.16		0.28
2347	IEC62321-5	86.3		-0.64	2794	IEC62321-3-1	107.29		2.20
2350	IEC62321-5	97.41		0.86	2796	IEC62321-5	90.9		-0.02
2352	IEC62321-5	88.6		-0.33	3100	IEC62321-5	83.9627		-0.96
2353	IEC62321-5	93.0		0.26	3110	CPSC-CH-E1002-08.3	91.36		0.04
2355	IEC62321-5	93.9		0.38	3116		93.07		0.27
2357	ISO8124-5	86.5		-0.62	3118	CPSC-CH-E1002-08.3	90.37		-0.09
2358	EPA3051	93.03		0.27	3122	In house	87.85		-0.43
2363	In house	86		-0.69	3124	EPA3052	94.79		0.50
2365	IEC62321-5	87.4		-0.50	3145	In house	48.1	C,R(1)	-5.81
2366	IEC62321-5	87.2		-0.52	3146	In house	88.6		-0.33
2369	IEC62321-5	88.5		-0.35	3150	EN16711-1	75.1		-2.16
2370	IEC62321-5	83.3		-1.05	3153	IEC62321-5	89.8		-0.17

3154	IEC62321-3-1	116.6	R(5)	3.46
3160		80.1		-1.48
3163	IEC62321-5	100		1.21
3166	In house	93.0		0.26
3172	In house	87.1		-0.54
3176	In house	81.42		-1.30
3179	In house	88.51		-0.35
3182	IEC62321-5	81.96		-1.23
3191	IEC62321-5	105.8		1.99
3197	IEC62321-5	95.7		0.63
3199	In house	90.99		-0.01
3200	IEC62321-5	89.73		-0.18
3209	IEC62321-5	90.52		-0.07
3210	In house	98.7		1.03
3213		-----		-----
3214	EPA3052	89.0		-0.28
3216	In house	94.1868		0.42
3225	CPSC-CH-E1002-08.3	87.4		-0.50
3228	IEC62321-5	91.6		0.07
3237	PDCR13695-1/IEC62321	86.45		-0.62
3239	IEC62321-5	99.8857		1.19
3248	CPSC-CH-E1002-08.3	90		-0.14
8005		90.55		-0.07

normality	suspect
n	155
outliers	9
mean (n)	91.0617
st.dev. (n)	5.68606
R(calc.)	15.9210
R(Horwitz)	20.6873

Lab 110 first reported: 29.34485
Lab 1195 first reported: 120.46667
Lab 1527 first reported: 123.3
Lab 2296 first reported result as #17601
Lab 3145 first reporter: 30.20





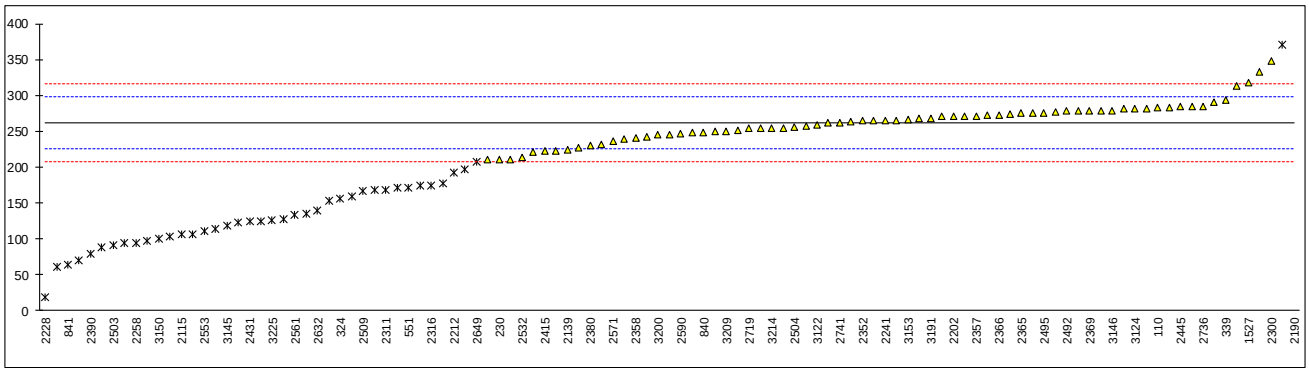
Determination of total Antimony as Sb on sample #17601; results in mg/kg

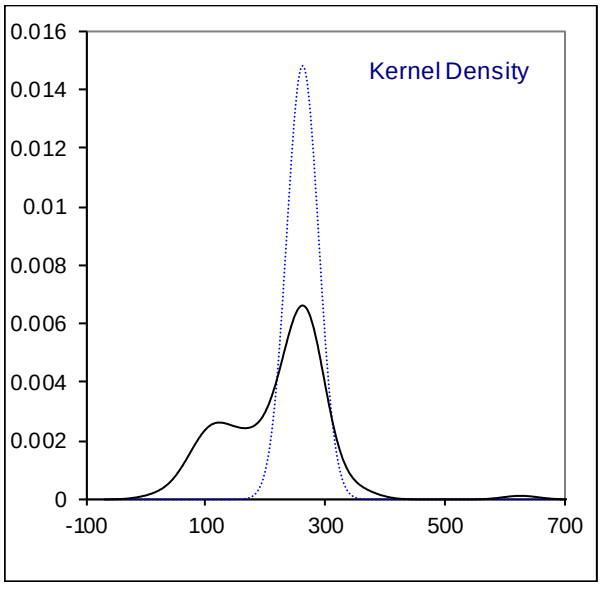
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	IEC62321-5	282.2976		1.10	2375	In house	221.1		-2.27
230		210.5		-2.86	2378	In house	265.21		0.16
310	In house	69.8535	ex	-10.61	2379		-----		-----
324	In house	156.79	ex	-5.82	2380	In house	230.0		-1.78
339	In house	293		1.69	2381		-----		-----
348		-----		-----	2384		-----		-----
523		-----		-----	2385	IEC62321-5	246		-0.90
551	IEC62321-3-1	171	ex	-5.03	2387		-----		-----
622	In house	103.884	ex	-8.73	2389		-----		-----
623	In house	60.37	ex	-11.13	2390	In house	78.9	ex	-10.11
632	In house	170.80	ex	-5.04	2415	IEC62321-5	222.45		-2.20
826	EPA3052	264.0		0.09	2431	CPSC-CH-E1002-08.3	124.0674	ex	-7.62
840	IEC62321-5	248.93		-0.74	2432		-----		-----
841		64	ex	-10.93	2433		-----		-----
1051		-----		-----	2444		-----		-----
1126		-----		-----	2445	In house	284.0		1.19
1195		-----		-----	2453		-----		-----
1527	In house	317.3		3.03	2459		-----		-----
1911		-----		-----	2460		-----		-----
2115	EN16711-1	105.80	ex	-8.63	2477		-----		-----
2118	In house	158.7057	ex	-5.71	2489	In house	242.1		-1.12
2129	IEC62321-5	222.9		-2.17	2492	In house	278.0		0.86
2132	CPSC-CH-E1002-08	239.2		-1.28	2495	CPSC-CH-E1002-08	275.9258		0.75
2137	EPA3052	254		-0.46	2500		-----		-----
2139	IEC62321-5	224.76		-2.07	2503	In house	91.57	ex	-9.41
2146		-----		-----	2504	IEC62321-5	256.222		-0.34
2156	EPA3052/6010C	124.65	ex	-7.59	2509	CPSC-CH-E1002-08	166.64	ex,C	-5.27
2159	EN16711-1	276.760		0.79	2511		-----		-----
2165		-----		-----	2515	EPA3051A-Mod.	94.138	ex	-9.27
2172		-----		-----	2522	CPSC-CH-E1002-08	NA		-----
2176		-----		-----	2529		-----		-----
2182		-----		-----	2532	EPA3050/In house	214		-2.66
2184		-----		-----	2553	In house	110.417	ex	-8.37
2190		628.12	R(1)	20.15	2560	EN16711-1	123.7	ex	-7.64
2197		-----		-----	2561	In house	134	ex	-7.07
2199		-----		-----	2563		-----		-----
2202	IEC62321-5	271		0.48	2564		-----		-----
2212	In house	192.9	ex	-3.83	2569	In house	210		-2.89
2213	In house	284.4		1.21	2571	IEC62321-3-1	236.80		-1.41
2218		-----		-----	2572	In house	251.4		-0.60
2228	In house	18.25	ex	-13.45	2590	CPSC-CH-E1002-08	247.279		-0.83
2232		-----		-----	2591		-----		-----
2236		-----		-----	2614		-----		-----
2241	IEC62321-5	264.9		0.14	2621	In house	256.83		-0.31
2247	In house	197.61	ex	-3.57	2624		-----		-----
2256		-----		-----	2629	IEC62321-5	231.0		-1.73
2258	In house	95.052	ex	-9.22	2632	IEC62321-5	139.78	ex	-6.75
2289	IEC62321-5	274.6		0.67	2637	In house	255		-0.41
2290	In house	247.7		-0.81	2641		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2644		106.30	ex	-8.60
2295	CPSC 1002	283		1.14	2649	In house	207.96	ex	-3.00
2296	In house	271.3467	C	0.49	2666	In house	370.0	R(5)	5.93
2298		-----		-----	2674	In house	NA		-----
2300	In house	348		4.72	2678		-----		-----
2301	In house	127	ex,C	-7.46	2713		-----		-----
2303	In house	87.71	ex	-9.62	2719		253.6		-0.48
2309	IEC62321-5	178.0	ex	-4.65	2736	In house	284.54		1.22
2310	IEC62321-3-1	174	ex	-4.87	2741	In house	262.23		-0.01
2311	EPA3052	168.6	ex	-5.17	2780		-----		-----
2314		-----		-----	2785	In house	270.968		0.47
2316	In house	175	ex	-4.81	2788	IEC62321-5	211.02		-2.83
2347	In house	271.8		0.52	2794	IEC62321-3-1	168.52	ex	-5.17
2350	EPA3052	249.1		-0.73	2796		-----		-----
2352	IEC62321-5	264.6		0.12	3100	IEC62321-5	264.606		0.12
2353		-----		-----	3110		-----		-----
2355	IEC62321-5	275.8		0.74	3116		-----		-----
2357	ISO8124-5	271.7		0.51	3118	CPSC-CH-E1002-08.3	278.20		0.87
2358	EPA3051	241.0		-1.18	3122	In house	258.21		-0.23
2363	In house	268		0.31	3124	EPA3052	282		1.08
2365	In house	275.2		0.71	3145	In house	119.22	ex	-7.89
2366	In house	273.1		0.59	3146	In house	279		0.92
2369	EPA3052	278.4		0.88	3150	CPSC-CH-E1002-08	100.3	ex	-8.93
2370	IEC62321-5	290		1.52	3153	IEC62321-5	265.7		0.18

3154	IEC62321-3-1	152.5	ex	-6.05	3209	IEC62321-5	249.25		-0.72
3160		-----		-----	3210	In house	281.5		1.05
3163	IEC62321-5	135	ex,C	-7.02	3213		-----		-----
3166	In house	262		-0.02	3214	EPA3052	254.7		-0.42
3172	In house	278.9		0.91	3216	In house	97.2898	ex	-9.09
3176	In house	313.0		2.79	3225	In house	125.95	ex	-7.52
3179	In house	282.11		1.09	3228		-----		-----
3182	IEC62321-5	113.5	ex	-8.20	3237		-----		-----
3191	ISO8124-5	268.6		0.34	3239		-----		-----
3197	IEC62321-5	227.0		-1.95	3248		-----		-----
3199		-----		-----	8005		333		3.89
3200	IEC62321-5	245.47		-0.93					

normality	suspect
n	70
outliers	2 (+39ex)
mean (n)	262.3745
st.dev. (n)	26.87581
R(calc.)	75.2523
R(Horwitz)	50.8295

ex = test result excluded in the statistical evaluation, see §4
Lab 2296 first reported result as #17600
Lab 2301 first reported: 72.8
Lab 2509 first reported: 43.33
Lab 3163 first reported: 625





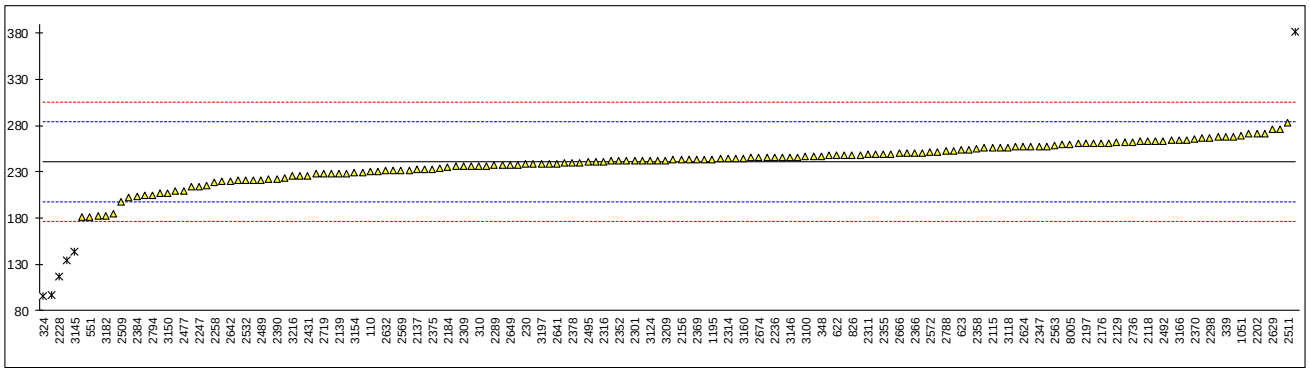
Determination of total Cadmium as Cd on sample #17601; results in mg/kg

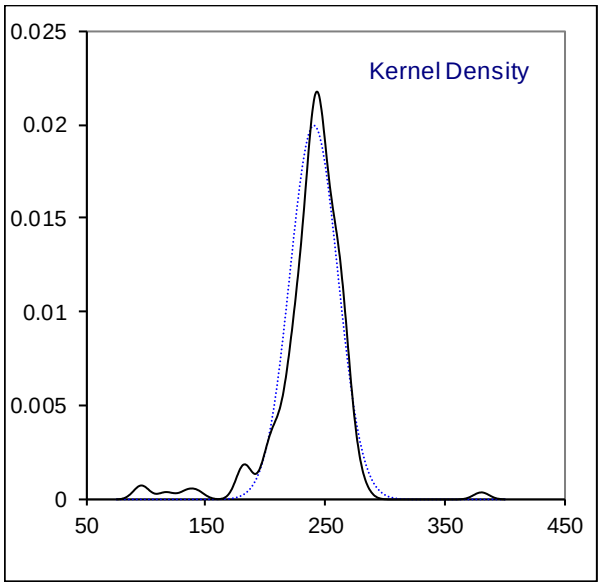
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	IEC62321-5	229.93205		-0.51	2375	In house	233.1		-0.36
230	EN1122	238.2		-0.13	2378	In house	239.98		-0.04
310	In house	236.58		-0.20	2379	EN1122	182.80		-2.70
324	IEC62321-3-1	95.83	R(1)	-6.75	2380	CPSC-CH-E1002-08	253.18		0.57
339	In house	268		1.26	2381	CPSC-CH-E1002-08	242.308		0.06
348	In house	246.909		0.28	2384	IEC62321-5	203.17		-1.76
523		-----		-----	2385	IEC62321-5	276		1.63
551	EN1122	181.66		-2.76	2387	IEC62321-5	204.05		-1.71
622	In house	247.864		0.32	2389	EN1122	237.82		-0.14
623	In house	253.14		0.57	2390	CPSC-CH-E1002-08	222.5		-0.86
632	In house	134.25	R(1)	-4.96	2415	EN1122	231.60		-0.43
826	IEC62321-5	248.2		0.34	2431	CPSC-CH-E1002-08	225.9866		-0.69
840	IEC62321-5	206.96		-1.58	2432	EN1122	240.01		-0.04
841	EPA3052	214		-1.25	2433		-----		-----
1051	EN1122	269.1		1.31	2444	IEC62321-5	221.8		-0.89
1126	In house	180.9		-2.79	2445	In house	250.7		0.45
1195	In house	243.50		0.12	2453	EN1122	259.3		0.85
1527	In house	381	C,R(1)	6.51	2459		-----		-----
1911	In house	208.75		-1.50	2460	EN1122	227.675		-0.62
2115	EN16711-1	255.80		0.69	2477	IEC62321-5	209.366		-1.47
2118	EN1122	263.1365		1.03	2489	In house	221.5		-0.90
2129	IEC62321-5	261.4		0.95	2492	In house	263.6		1.05
2132	EN1122	263.3		1.04	2495	EN1122	240.4756		-0.02
2137	EPA3052	233		-0.37	2500	EN1122	228.369		-0.58
2139	IEC62321-5	228.22		-0.59	2503	In house	220.8		-0.94
2146	EN1122	239.7		-0.06	2504	EN1122	243.056		0.10
2156	IEC62321-5	243.05		0.10	2509	CPSC-CH-E1002-08	197.35		-2.03
2159	EN16711-1	241.730		0.04	2511	EN1122	282.69		1.94
2165	IEC62321-5	251.8		0.51	2515	EPA3051A-Mod.	261.23		0.94
2172	IEC62321-5	241.7		0.04	2522	CPSC-CH-E1002-08	202.5	C	-1.79
2176	IEC62321-5	261.1		0.94	2529	CPSC-CH-E1002-08	257.67		0.78
2182	EN1122	233.1		-0.36	2532	EN1122	221		-0.93
2184	EN1122	234.7		-0.29	2553	EN1122	256.646		0.73
2190	EN1122	97.5	R(1)	-6.67	2560	EN16711-1	228.11		-0.60
2197	In house	260.3		0.90	2561	CPSC-CH-E1002-08	243		0.10
2199	IEC62321-5	266.5		1.19	2563	IEC62321-5	258.3		0.81
2202	IEC62321-5	271		1.40	2564	CPSC-CH-E1002-08	261.7		0.97
2212	In house	260.9		0.93	2569	EN1122	232		-0.42
2213	EN1122	238.3		-0.12	2571	IEC62321-3-1	220.00		-0.97
2218		-----		-----	2572	In house	251.0		0.47
2228	In house	117.19	R(1)	-5.75	2590	EN1122	223.048		-0.83
2232	IEC62321-5	257.02		0.75	2591	CPSC-CH-E1002-08	268.34		1.27
2236	CPSC-CH-E1002-08	245.8		0.23	2614		-----		-----
2241	IEC62321-5	256.0		0.70	2621	IEC62321-5	245.47		0.21
2247	In house	214.38		-1.23	2624	EN1122	257.0		0.75
2256	IEC62321-5	245.3		0.20	2629	IEC62321-5	275.95		1.63
2258	In house	218.070		-1.06	2632	IEC62321-5	231.19		-0.45
2289	IEC62321-5	237.1		-0.18	2637	In house	236		-0.23
2290	In house	246.5		0.26	2641	CPSC-CH-E1002-08	238.91		-0.09
2293	EN1122	250.165		0.43	2642	In house	220.15		-0.97
2294		-----		-----	2644		238.90		-0.09
2295	CPSC 1002	268		1.26	2649	EN1122	237.74		-0.15
2296	In house	262.8643	C	1.02	2666	EN1122	250.0		0.42
2298	CPSC-CH-E1002-08.3	266.65		1.20	2674	IEC62321-5	245.33		0.20
2300	In house	270.72		1.38	2678	EN1122	214.9		-1.21
2301	EN1122	241.7		0.04	2713	In house	248.044		0.33
2303	In house	264.81		1.11	2719		228.1		-0.60
2309	IEC62321-5	236.0		-0.23	2736	In house	262.25		0.99
2310	IEC62321-3-1	249		0.37	2741	In house	263.88		1.07
2311	EPA3052	248.6		0.36	2780		-----		-----
2314	EN1122	244.33		0.16	2785	In house	247.317		0.30
2316	EN1122	241		0.00	2788	IEC62321-5	252.52		0.54
2347	EN1122	257.4		0.77	2794	IEC62321-3-1	204.66		-1.69
2350	IEC62321-5	225.8		-0.70	2796	IEC62321-5	221.0		-0.93
2352	EN1122	241.5		0.03	3100	IEC62321-5	246.143		0.24
2353	IEC62321-5	252.8		0.55	3110	EN1122	236.66		-0.20
2355	IEC62321-5	249.0		0.37	3116	EN1122	240.79		-0.01
2357	ISO8124-5	244		0.14	3118	CPSC-CH-E1002-08.3	256.47		0.72
2358	EPA3051	255.2		0.66	3122	CPSC-CH-E1002-08	228.61		-0.57
2363	EN1122	246		0.24	3124	EPA3052	242		0.05
2365	IEC62321-5	244.8		0.18	3145	In house	143.5	C,R(1)	-4.53
2366	In house	250.3		0.44	3146	In house	246		0.24
2369	IEC62321-5	243.3		0.11	3150	CPSC-CH-E1002-08	207.3		-1.56
2370	IEC62321-5	266		1.17	3153	EN1122	246.1		0.24

3154	IEC62321-3-1	228.6		-0.57
3160	CPSC-CH-E1002-08	244.9		0.18
3163	IEC62321-5	230	C	-0.51
3166	In house	264		1.07
3172	CPSC-CH-E1002-08	248.2		0.34
3176	In house	271.69		1.43
3179	In house	260.17		0.89
3182	EN1122	182.9		-2.70
3191	EN1122	255.5		0.68
3197	IEC62321-5	238.4		-0.12
3199		-----		-----
3200	EN1122	241.49		0.03
3209	EN1122	242.35		0.07
3210	EN1122	185		-2.60
3213		-----		-----
3214	EPA3052	243.3		0.11
3216	In house	225.7115		-0.71
3225	EN1122	237.16		-0.18
3228	IEC62321-5	248.6		0.36
3237	PDCR13695-1/IEC62321	232.02		-0.41
3239	IEC62321-5	235.952		-0.23
3248	EN1122	234		-0.32
8005		260		0.89

normality	OK
n	156
outliers	6
mean (n)	240.9334
st.dev. (n)	19.98882
R(calc.)	55.9687
R(EN1122:01)	60.2333

Lab 1527 first reported: 315.3
Lab 2296 first reported result as #17600
Lab 2522 first reported: 100.0
Lab 3145 first reported: 83.87
Lab 3163 first reported: 385





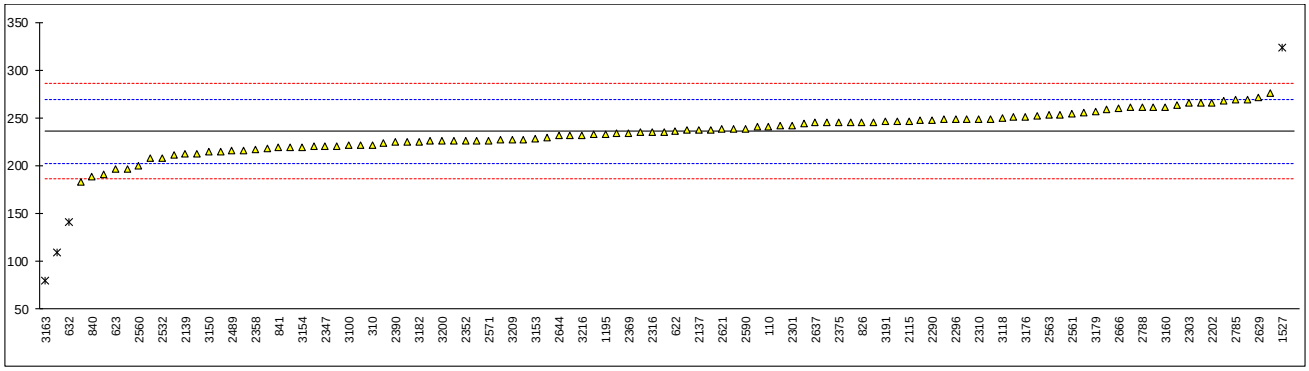
Determination of total Cobalt as Co on sample #17601; results in mg/kg

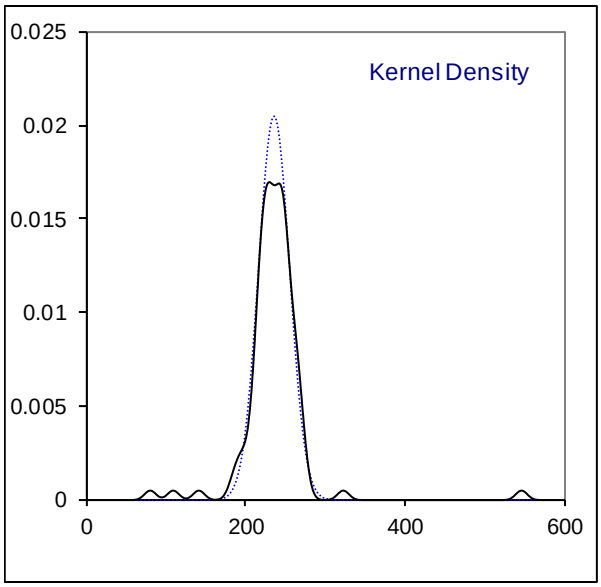
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	IEC62321-5	240.804		0.30	2375	In house	245.1		0.56
230		261.2		1.53	2378	In house	227.68		-0.49
310	In house	221.529		-0.86	2379		-----		-----
324	In house	108.95	R(1)	-7.65	2380	In house	235.24		-0.04
339	In house	269		2.00	2381		-----		-----
348		-----		-----	2384		-----		-----
523		-----		-----	2385	IEC62321-5	263		1.64
551	IEC62321-3-1	183.33		-3.17	2387		-----		-----
622	In house	235.880		0.00	2389		-----		-----
623	In house	196.63		-2.36	2390	In house	224.7		-0.67
632	In house	141.15	R(1)	-5.71	2415	IEC62321-5	233.82		-0.12
826	EPA3052	245.6		0.59	2431	CPSC-CH-E1002-08.3	225.5011		-0.62
840	IEC62321-5	188.13		-2.88	2432		-----		-----
841		219		-1.01	2433		-----		-----
1051		-----		-----	2444		-----		-----
1126		-----		-----	2445	In house	240.3		0.27
1195	In house	233.37		-0.15	2453		-----		-----
1527	In house	323	C,R(1)	5.26	2459		-----		-----
1911		-----		-----	2460		-----		-----
2115	EN16711-1	246.60		0.65	2477		-----		-----
2118	In house	267.6127		1.92	2489	In house	215.6		-1.22
2129	IEC62321-5	246.5		0.64	2492	In house	197.1		-2.34
2132		-----		-----	2495	CPSC-CH-E1002-08	244.6680		0.53
2137	EPA3052	237		0.07	2500		-----		-----
2139	IEC62321-5	212.18		-1.43	2503		-----		-----
2146	IEC62321-5	250.4		0.88	2504	IEC62321-5	221.267		-0.88
2156	EPA3052/6010C	212.3		-1.42	2509		-----		-----
2159	EN16711-1	276.000		2.42	2511		-----		-----
2165		-----		-----	2515	EPA3051A-Mod.	220.443		-0.93
2172	IEC62321-5	220.2		-0.94	2522	CPSC-CH-E1002-08	NA		-----
2176		-----		-----	2529		-----		-----
2182		-----		-----	2532	EPA3050/In house	208		-1.68
2184		-----		-----	2553	In house	227.224		-0.52
2190		547.35	R(1)	18.79	2560	EN16711-1	200.186		-2.15
2197		-----		-----	2561	In house	254		1.10
2199		-----		-----	2563	IEC62321-5	252.9		1.03
2202	IEC62321-5	266		1.82	2564		-----		-----
2212		-----		-----	2569	In house	238		0.13
2213	In house	260.8		1.51	2571	IEC62321-3-1	226.60		-0.56
2218		-----		-----	2572	In house	245.1		0.56
2228		N/A		-----	2590	CPSC-CH-E1002-08	238.642		0.17
2232		-----		-----	2591		-----		-----
2236		-----		-----	2614		-----		-----
2241	IEC62321-5	247.0		0.67	2621	In house	237.97		0.13
2247	In house	207.78		-1.69	2624		-----		-----
2256		-----		-----	2629	IEC62321-5	271.05		2.12
2258		-----		-----	2632	IEC62321-5	218.02		-1.07
2289	IEC62321-5	226.03		-0.59	2637	In house	245		0.55
2290	In house	247.8		0.72	2641		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2644		231.49		-0.26
2295	CPSC 1002	230		-0.35	2649	In house	234.69		-0.07
2296	In house	248.4042	C	0.76	2666	In house	260.0		1.46
2298		-----		-----	2674	In house	NA		-----
2300	In house	265.95		1.82	2678		-----		-----
2301	In house	242.3		0.39	2713		-----		-----
2303	In house	265.75		1.80	2719		241.8		0.36
2309	IEC62321-5	232.3		-0.21	2736	In house	248.66		0.77
2310	IEC62321-3-1	249		0.79	2741	In house	253.14		1.04
2311	EPA3052	245.8		0.60	2780		-----		-----
2314		-----		-----	2785	In house	268.859		1.99
2316	In house	235		-0.05	2788	IEC62321-5	260.99		1.52
2347	In house	220.4		-0.93	2794		-----		-----
2350	EPA3052	214.8		-1.27	2796		-----		-----
2352	IEC62321-5	226.1		-0.59	3100	IEC62321-5	221.258		-0.88
2353		-----		-----	3110		-----		-----
2355	IEC62321-5	231.8		-0.24	3116		-----		-----
2357	ISO8124-5	225		-0.65	3118	CPSC-CH-E1002-08.3	250.23		0.87
2358	EPA3051	216.7		-1.15	3122	In house	224.18		-0.70
2363	In house	216		-1.20	3124	EPA3052	256		1.22
2365	In house	219.1		-1.01	3145	In house	191.3	C	-2.69
2366	In house	226.3		-0.57	3146	In house	245		0.55
2369	EPA3052	234.3		-0.09	3150	CPSC-CH-E1002-08	214.5		-1.29
2370	IEC62321-5	237		0.07	3153	IEC62321-5	228.3		-0.45

3154	IEC62321-3-1	219.1		-1.01	3209	IEC62321-5	227.52	-0.50
3160		261.7		1.56	3210	In house	259.0	1.40
3163	IEC62321-5	80	C,R(1)	-9.40	3213		-----	-----
3166	In house	249		0.79	3214	EPA3052	248.3	0.75
3172	In house	252.3		0.99	3216	In house	231.9005	-0.24
3176	In house	250.70		0.90	3225	In house	210.84	-1.51
3179	In house	256.97		1.28	3228		-----	-----
3182	IEC62321-5	225.2		-0.64	3237		-----	-----
3191	ISO8124-5	246.4		0.64	3239		-----	-----
3197	IEC62321-5	237.2		0.08	3248		-----	-----
3199		-----		-----	8005		-----	-----
3200	IEC62321-5	225.66		-0.61				

normality	OK
n	103
outliers	5
mean (n)	235.8251
st.dev. (n)	19.48214
R(calc.)	54.5500
R(Horwitz)	46.4256

Lab 1527 first reported: 297.1
Lab 2296 first reported result as #17600
Lab 3145 first reported: 118.00
Lab 3163 first reported: 130





Determination of total Nickel as Ni on sample #17601; results in mg/kg

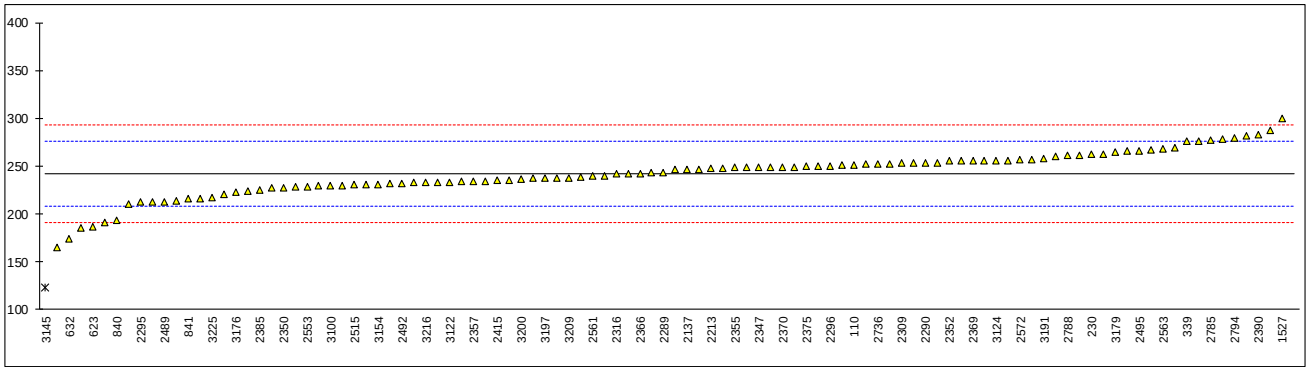
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
110	IEC62321-5	251.2304		0.54	2375	In house	249.5		0.44
230		262.3		1.19	2378	In house	252.13		0.59
310	In house	247.07		0.29	2379		-----		-----
324	In house	164.99		-4.55	2380	In house	230.76		-0.67
339	In house	276		2.00	2381		-----		-----
348		-----		-----	2384		-----		-----
523		-----		-----	2385	IEC62321-5	225		-1.01
551	IEC62321-3-1	190.66		-3.03	2387		-----		-----
622	In house	247.477		0.32	2389		-----		-----
623	In house	186.31		-3.29	2390	IEC62321-5	282.9		2.41
632	In house	174.35		-4.00	2415	IEC62321-5	234.78		-0.43
826	EPA3052	249.2		0.42	2431	CPSC-CH-E1002-08.3	233.5847		-0.50
840	IEC62321-5	193.52		-2.86	2432		-----		-----
841		216		-1.54	2433		-----		-----
1051		-----		-----	2444		-----		-----
1126		-----		-----	2445	In house	256.0		0.82
1195	In house	281.27		2.31	2453		-----		-----
1527	In house	299.8		3.40	2459		-----		-----
1911		-----		-----	2460		-----		-----
2115	EN16711-1	255.60		0.80	2477		-----		-----
2118	In house	277.9386		2.11	2489	In house	213.17		-1.71
2129	IEC62321-5	265.5		1.38	2492	In house	231.9		-0.60
2132		-----		-----	2495	CPSC-CH-E1002-08	266.2754		1.43
2137	EPA3052	247		0.29	2500		-----		-----
2139	IEC62321-5	216.06		-1.53	2503		-----		-----
2146		-----		-----	2504	IEC62321-5	232.710		-0.55
2156	EPA3052/6010C	223.95		-1.07	2509		-----		-----
2159	EN16711-1	276.000		2.00	2511		-----		-----
2165		-----		-----	2515	EPA3051A-Mod.	230.551		-0.68
2172	IEC62321-5	229.6		-0.74	2522	CPSC-CH-E1002-08	NA		-----
2176		-----		-----	2529		-----		-----
2182		-----		-----	2532	EPA3050/In house	213		-1.72
2184		-----		-----	2553	In house	228.743		-0.79
2190		566.405	R(1)	19.13	2560	EN16711-1	246.741		0.27
2197		-----		-----	2561	In house	240		-0.12
2199		-----		-----	2563		267.7		1.51
2202	IEC62321-5	N.D.		-----	2564		-----		-----
2212		-----		-----	2569	In house	240		-0.12
2213	In house	247.3		0.31	2571	IEC62321-3-1	228.70		-0.79
2218		-----		-----	2572	In house	256.4		0.84
2228		N/A		-----	2590	CPSC-CH-E1002-08	237.020		-0.30
2232		-----		-----	2591		-----		-----
2236		-----		-----	2614		-----		-----
2241	IEC62321-5	248.3		0.37	2621	In house	248.42		0.37
2247	In house	213.74		-1.67	2624		-----		-----
2256		-----		-----	2629	IEC62321-5	266.43		1.44
2258		-----		-----	2632	IEC62321-5	233.19		-0.52
2289	IEC62321-5	243.6		0.09	2637	In house	260		1.06
2290	In house	253.1		0.65	2641		-----		-----
2293		-----		-----	2642		-----		-----
2294		-----		-----	2644		234.02		-0.48
2295	CPSC 1002	213		-1.72	2649	In house	242		0.00
2296	In house	250.5364	C	0.50	2666	In house	220.0		-1.30
2298		-----		-----	2674	In house	NA		-----
2300	In house	287.08		2.65	2678		-----		-----
2301	In house	238.5		-0.21	2713		-----		-----
2303	In house	269.14		1.60	2719		237.0		-0.30
2309	IEC62321-5	253.0		0.64	2736	In house	252.01		0.59
2310	IEC62321-3-1	251		0.53	2741	In house	262.60		1.21
2311	EPA3052	250.1		0.47	2780		-----		-----
2314		-----		-----	2785	In house	276.821		2.05
2316	In house	242		0.00	2788	IEC62321-5	261.28		1.13
2347	In house	248.4		0.37	2794	IEC62321-3-1	279.27		2.19
2350	EPA3052	227.8		-0.84	2796		-----		-----
2352	IEC62321-5	255.3		0.78	3100	IEC62321-5	229.774		-0.73
2353		-----		-----	3110		-----		-----
2355	IEC62321-5	248.3		0.37	3116		-----		-----
2357	ISO8124-5	234		-0.48	3118	CPSC-CH-E1002-08.3	253.54		0.68
2358		-----		-----	3122	In house	233.23		-0.52
2363	In house	230		-0.71	3124	EPA3052	256		0.82
2365	In house	231.9		-0.60	3145	In house	123.21	R(1)	-7.01
2366	In house	242.2		0.01	3146	In house	253		0.64
2369	EPA3052	255.7		0.80	3150	CPSC-CH-E1002-08	186		-3.31
2370	IEC62321-5	249		0.41	3153	IEC62321-5	235.3		-0.40

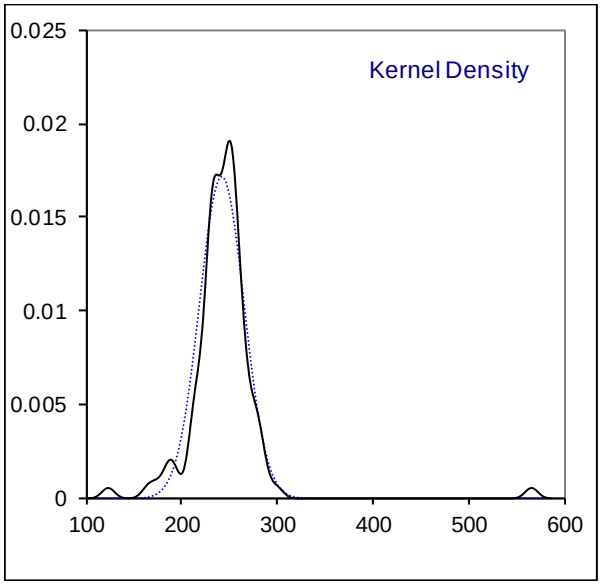
3154	IEC62321-3-1	230.8	-0.67
3160		243.1	0.06
3163	IEC62321-5	210	-1.89
3166	In house	257	0.88
3172	In house	261.4	1.14
3176	In house	222.60	-1.15
3179	In house	265.03	1.35
3182	IEC62321-5	227.35	-0.87
3191	ISO8124-5	258.3	0.96
3197	IEC62321-5	237.0	-0.30
3199		-----	-----
3200	IEC62321-5	236.24	-0.34

3209	IEC62321-5	237.53	-0.27
3210	In house	256.0	0.82
3213		-----	-----
3214	EPA3052	252.0	0.58
3216	In house	233.0669	-0.53
3225	In house	217.03	-1.48
3228		-----	-----
3237		-----	-----
3239		-----	-----
3248		-----	-----
8005		-----	-----

normality	suspect
n	104
outliers	2
mean (n)	242.0838
st.dev. (n)	23.28448
R(calc.)	65.1965
R(Horwitz)	47.4702

Lab 2296 first reported result as #17600





APPENDIX 2: Reported test results on other metals

All reported test results of Antimony, Cadmium, Chromium, Hexavalent Chromium, Cobalt, Copper, Mercury and Nickel on sample #17600; results in mg/kg

Lab	Sb	Cd	Cr	Cr VI	Co	Cu	Hg	Ni
110	-----	-----	-----	-----	-----	-----	-----	-----
230	-----	-----	-----	-----	-----	-----	-----	-----
310	0.8915	0.7585	0.626	-----	0.013	0.907	0.005	0.694
324	< 5	< 2	< 2	-----	< 1	< 1	< 0.1	< 1
339	<12.5	<1.5	<3	<3	<1.5	<1.5	<3	<1.5
348	-----	n.d.	n.d.	-----	-----	-----	-----	-----
523	-----	-----	-----	-----	-----	-----	-----	-----
551	ND	ND	ND	ND	ND	ND	ND	ND
622	0.1740	0.7793	1.340	1	0.0624	2.233	0.0607	6.921
623	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
632	0.389	0.029	2.437	-----	1.745	3.33	-----	1.9435
826	n.d.	1.088	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
840	<10	<2	<2	<2	<2	<5	<2	<5
841	n.d	n.d	n.d	n.d	n.d	8.0	n.d	n.d
1051	-----	<5	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	-----	-----	-----
1195	-----	-----	-----	-----	-----	-----	-----	-----
1527	1.262	1.067	1.11	-----	0.0303	0.7876	0.004947	0.3986
1911	-----	-----	-----	-----	-----	-----	-----	-----
2115	0.94	0.88	1.38	-----	-----	-----	-----	-----
2118	0.053139	0.836421	0.736228	-----	0.065936	16.34813	0.392323	1.87732
2129	<5	<5	<5	-----	<5	<25	<5	<5
2132	<10	<10	<10	-----	-----	-----	<10	-----
2137	-----	-----	-----	-----	-----	-----	-----	-----
2139	-----	-----	-----	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----	-----	-----	-----
2156	10	0.85	0.88	1	5	5	2	5
2159	<10	<10	<10	-----	<10	<10	<10	<10
2165	-----	n.d.	n.d.	n.d.	-----	-----	n.d.	-----
2172	<10	<10	<10	<2	<10	<10	<10	<10
2176	-----	ND	ND	ND	-----	-----	ND	-----
2182	-----	-----	-----	-----	-----	-----	-----	-----
2184	-----	< 10	< 10	-----	-----	-----	< 10	-----
2190	34.57	<10	<10	<10	<10	13.75	38.33	<10
2197	-----	2.2	2.2	-----	-----	0	-----	-----
2199	-----	<2	-----	<5	-----	-----	<2	-----
2202	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2212	<30	<5	<10	<2	-----	-----	<1	-----
2213	<10	<10	<10	<10	<10	<10	<10	<10
2218	-----	-----	-----	-----	-----	-----	-----	-----
2228	0.18	1.54	3.40	N/A	N/A	N/A	3.69	N/A
2232	-----	< 10	< 10	< 10	-----	-----	< 10	-----
2236	-----	<20.0	-----	-----	-----	-----	-----	-----
2241	< 5	< 5	< 10	< 20	< 5	< 5	< 5	< 5
2247	nd	Nd	Nd	Nd	Nd	Nd	nd	nd
2256	-----	-----	-----	-----	-----	-----	-----	-----
2258	<10	<10	<10	-----	-----	-----	<10	-----
2289	ND	ND	ND	ND	ND	ND	ND	ND
2290	<20	<20	<20	<1	<20	<20	<20	<20
2293	-----	1.779	-----	-----	-----	-----	-----	-----
2294	-----	-----	-----	-----	-----	-----	-----	-----
2295	-----	-----	-----	-----	-----	-----	-----	-----
2296	1.9446	0.7005	1.0718	-----	0.0605	1.5919	0.3330	0.2522
2298	-----	<10	<10	-----	-----	-----	<5	-----
2300	not detected	1.03	1.89	not analysed	Nd	Nd	nd	nd
2301	0	0	0	0	0	0	0	0
2303	<10	<10	<10	-----	<10	-----	<10	15.19
2309	ND [<10]	ND [<10]	ND [<10]	ND [<8]	ND [<10]	ND [<10]	ND [<10]	ND [<10]
2310	NOT DET.	NOT DET.	NOT DET.	NOT DET.	NOT DET.	NOT DET.	NOT DET.	NOT DET.
2311	Not Detected	Not Detected	Not Detected	-----	Not Detected	Not Detected	Not Detected	Not Detected
2314	-----	NOT DET.	-----	-----	-----	-----	-----	-----
2316	ND	ND	ND	ND	ND	ND	ND	ND
2347	<10	<5	<2	<8	<5	<5	<2	<5
2350	<10	1.067	<5	<8	<5	<5	<2	<5
2352	ND	ND	ND	ND	ND	ND	ND	ND
2353	-----	<5	<5	<8	-----	-----	-----	-----
2355	<10	<2	<2	<8	<5	<5	<2	<5
2357	-----	-----	-----	-----	-----	-----	-----	-----
2358	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	-----
2363	ND	ND	ND	ND	ND	ND	ND	ND
2365	<10	<2	<8	<8	<5	<10	<2	<5

Lab	Sb	Cd	Cr	Cr VI	Co	Cu	Hg	Ni
2366	<10	<5	<5	<8	<10	<50	<5	<10
2369	<10	<2	<2	<8	<5	<5	<2	<5
2370	N.D.[<2]	N.D.[<2]	N.D.[<2]	N.D.[<8]	N.D.[<2]	N.D.[<2]	N.D.[<2]	N.D.[<2]
2375	-----	-----	-----	-----	-----	-----	-----	-----
2378	ND	ND	ND	-----	ND	ND	ND	ND
2379	-----	Not detected	Not detected	Not detected	-----	-----	Not detected	-----
2380	-----	-----	-----	-----	-----	-----	-----	-----
2381	-----	ND	-----	-----	-----	-----	-----	-----
2384	-----	Not Det. [<2]	Not Det. [<2]	Not Det. [<8]	-----	-----	Not Det. [<2]	-----
2385	1.4	0.85	1.0	<1	<1	<1	<0,5	<1
2387	-----	<2	<2	<2	-----	-----	<2	-----
2389	-----	n.d	-----	-----	-----	-----	-----	-----
2390	ND	ND	ND	-----	ND	ND	ND	ND
2415	< 10	< 10	< 10	-----	< 10	< 10	< 10	< 10
2431	-----	-----	-----	-----	-----	-----	-----	-----
2432	-----	-----	-----	-----	-----	-----	-----	-----
2433	-----	-----	-----	-----	-----	-----	-----	-----
2444	-----	0.63	-----	ND	-----	-----	ND	-----
2445	1.01	0.808	0.625	<0.3	0.012	<0.5	<0.05	0.197
2453	-----	< LQ	-----	-----	-----	-----	-----	-----
2459	-----	-----	-----	-----	-----	-----	-----	-----
2460	-----	< 6	-----	-----	-----	-----	-----	-----
2477	-----	-----	-----	-----	-----	-----	-----	-----
2489	ND	ND	ND	ND	ND	ND	ND	ND
2492	-----	-----	-----	-----	-----	-----	-----	-----
2495	< 2,5	< 2,5	< 2,5	-----	< 2,5	< 2,5	< 2,5	< 2,5
2500	-----	-----	-----	-----	-----	-----	-----	-----
2503	1.408	1.453	1.102	-----	-----	-----	0.293	-----
2504	<10	<5	<5	<5	<5	<10	<5	<5
2509	-----	-----	-----	-----	-----	-----	-----	-----
2511	-----	-----	-----	-----	-----	-----	-----	-----
2515	<10	<10	<10	<2	<10	<10	<10	<10
2522	NA	<10	NA	NA	NA	NA	NA	NA
2529	-----	-----	-----	-----	-----	-----	-----	-----
2532	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2553	<5	<5	<5	<5	<5	<5	<5	<5
2560	<10	<10	<10	-----	<10	<10	<10	10
2561	<1	<2	<1	-----	<1	<1	<1	<1
2563	-----	< 5	< 5	-----	n. d.	n. d.	-----	n. d.
2564	-----	ND[<20]	-----	-----	-----	-----	-----	-----
2569	ND	ND	ND	-----	ND	ND	ND	ND
2571	N.D.	N.D.	1.65	0.14	N.D.	N.D.	N.D.	N.D.
2572	<20	<20	<20	<1	<20	<20	<20	<20
2590	< L.O.Q.	0.836	-----	-----	< L.O.Q.	0.782	< L.O.Q.	< L.O.Q.
2591	-----	<50.0	-----	-----	-----	-----	-----	-----
2614	-----	-----	-----	-----	-----	-----	-----	-----
2621	<2	<2	<2	<2	<2	5.8488	<2	<2
2624	-----	not detectable	-----	-----	-----	-----	-----	-----
2629	ND	ND	ND	ND	ND	ND	ND	ND
2632	N.D.[<2.0]	N.D.[<1.5]	N.D.[<2.0]	N.D.[<1.0]	N.D.[<2.0]	N.D.[<2.0]	N.D.[<1.0]	N.D.[<2.0]
2637	1.4	1.05	1.3	<0.1	0.2	0.8	<0.01	0.9
2641	-----	1.27	-----	-----	-----	-----	-----	-----
2642	-----	<10	-----	-----	-----	-----	-----	-----
2644	9.855	-----	-----	-----	-----	-----	-----	-----
2649	-----	-----	-----	-----	-----	-----	-----	-----
2666	1.5609	0.9365	1.2487	-----	<2.00	0.5203	<0.50	0.8325
2674	NA	ND	ND	NA	NA	NA	ND	NA
2678	-----	Nd	-----	-----	-----	-----	-----	-----
2713	-----	<10	-----	-----	-----	-----	-----	-----
2719	-----	-----	-----	-----	-----	-----	-----	-----
2736	<2.37	<2.37	<2.37	-----	<2.37	<2.37	-----	<2.37
2741	<10	<10	<10	<3	<10	<25	<10	<10
2780	-----	-----	-----	-----	-----	-----	-----	-----
2785	1.190	0.827	2.737	<0.7	0.34	0.957	<0.05	1.532
2788	0.73	0.94	1.90	-----	0.00	0.50	0.00	0.71
2794	<LOD	<LOD	<LOD	-----	-----	<LOD	<LOD	<LOD
2796	-----	0.50	-----	ND	-----	-----	ND	-----
3100	<10	<2	<10	<10	<10	<10	<2	<10
3110	-----	<15	<15	-----	-----	-----	<15	-----
3116	-----	-----	-----	-----	-----	-----	-----	-----
3118	<10	<10	-----	-----	<10	-----	<10	<10
3122	1.08	0.86	2.00	< 0.2	0.04	1.28	-----	0.56
3124	1.033	0.773	0.888	-----	0.018	0.902	0	1.077
3145	-----	0.45	-----	-----	-----	0.31	-----	0.23
3146	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
3150	<5	0.77	1.12	-----	<0,2	5.46	0.053	<0,5
3153	ND	ND	ND	ND	ND	ND	ND	ND
3154	-----	-----	2.13	-----	-----	1.503	-----	1.056

Lab	Sb	Cd	Cr	Cr VI	Co	Cu	Hg	Ni
3160	-----	<7	<7	-----	<7	<7	-----	<7
3163	30	0	0	-----	0	-----	0	0
3166	1.10	0.886	0.886	<0.04	0.034	0.704	<0.04	0.379
3172	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
3176	-----	-----	-----	-----	-----	-----	-----	-----
3179	1.01	0.82	3.88	<5	<1	1.61	<1	2.76
3182	< 13	ND	<5	ND	<5	<5	ND	<5
3191	<5	<5	<5	0.9907	<5	<5	<5	<5
3197	ND	ND	ND	ND	ND	ND	ND	ND
3199	-----	-----	-----	-----	-----	-----	-----	-----
3200	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
3209	<10.0	<5.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
3210	<10	<40	<10	-----	<10	<10	-----	<10
3213	-----	-----	-----	-----	-----	-----	-----	-----
3214	< 10	< 10	< 10	< 8	< 10	< 10	< 10	< 10
3216	0.9656	0.8473	0.9254	-----	nd	0.6788	Nd	1.2639
3225	<10	<10	<10	<25	<10	<10	<10	<10
3228	-----	<10	<10	<10	-----	-----	<10	-----
3237	-----	-----	-----	-----	-----	-----	-----	-----
3239	-----	Not Detected	Not Detected	Not Detected	-----	-----	Not Detected	-----
3248	-----	ND	-----	-----	-----	-----	-----	-----
8005	-----	-----	-----	-----	-----	-----	-----	-----

All reported test results of total Chromium, Hexavalent Chromium, Copper, Lead and Mercury on sample #17601; results in mg/kg

Lab	Cr	Cr VI	Cu	Pb	Hg
110	4.8275	ND	7.5086	ND	ND
230	-----	-----	-----	-----	-----
310	2.8385	-----	5.9295	0.708	0.318
324	1.257	-----	3.449	< 2	0.34
339	4.25	<3	9	<3	<3
348	n.d.	-----	-----	n.d.	-----
523	-----	-----	-----	0.962	-----
551	ND	ND	ND	ND	ND
622	2.991	1	6.996	2.919	1.7458
623	n.d.	n.d.	n.d.	n.d.	n.d.
632	2.37	-----	8.01	9.49	-----
826	3.372	n.d.	6.096	n.d.	n.d.
840	<2	<2	<5	<2	<2
841	3	n.d	9	n.d	n.d
1051	-----	-----	-----	<20	-----
1126	-----	-----	-----	-----	-----
1195	-----	-----	6.162	-----	-----
1527	3.039	-----	7.031	1.419	0.3331
1911	-----	-----	-----	-----	-----
2115	2.56	-----	6.20	1.62	0.34
2118	2.723532	-----	21.14625	2.963211	0
2129	<5	-----	<25	<5	<5
2132	<10	-----	-----	<10	<10
2137	-----	-----	-----	-----	-----
2139	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----
2156	2.625	1	5	5	2
2159	<10	-----	<10	<10	<10
2165	n.d.	n.d.	-----	n.d.	n.d.
2172	<10	<2	<10	<10	<10
2176	ND	ND	-----	ND	ND
2182	-----	-----	-----	-----	Not detected
2184	< 10	-----	-----	< 10	< 10
2190	18.905	<10	178.61	<10	37.485
2197	3.6	-----	0	6.6	-----
2199	-----	<5	-----	<2	<2
2202	N.D.	N.D.	N.D.	N.D.	N.D.
2212	<10	<2	-----	<10	<1
2213	<10	<10	<10	<10	<10
2218	-----	-----	-----	-----	-----
2228	4.36	N/A	N/A	3.35	4.06
2232	< 10	< 10	-----	< 10	< 10
2236	-----	-----	-----	<20.0	-----
2241	< 10	< 20	6.24	< 5	< 5
2247	nd	nd	nd	nd	nd
2256	-----	-----	-----	-----	-----
2258	<10	-----	-----	<10	<10
2289	ND	ND	ND	ND	ND

Lab	Cr	Cr VI	Cu	Pb	Hg
2290	<20	<1	<20	<20	<20
2293	-----	-----	-----	2.042	-----
2294	-----	-----	-----	< 8	-----
2295	-----	-----	-----	-----	-----
2296	2.9644	-----	7.2110	0.8593	1.3176
2298	<10	-----	-----	<10	<5
2300	4.04	Not Analysed	7.94	nd	nd
2301	0	0	NA	0	0
2303	<10	-----	-----	<10	<10
2309	ND[DL-10 mg/kg]	ND[DL-8 mg/kg]	ND[DL-10 mg/kg]	ND[DL-10 mg/kg]	ND[DL-10 mg/kg]
2310	<10	NOT DETECTED	<10	NOT DETECTED	NOT DETECTED
2311	<10	-----	<10	Not Detected	Not Detected
2314	-----	-----	-----	NOT DETECTED	-----
2316	ND	ND	ND	ND	ND
2347	<2	<8	<5	<2	<2
2350	<5	<8	6.011	<5	<2
2352	ND	ND	ND	ND	ND
2353	<5	<8	-----	<5	-----
2355	<2	<8	<5	<2	<2
2357	-----	-----	-----	-----	-----
2358	n.d.	n.d.	n.d.	n.d.	n.d.
2363	ND	ND	ND	ND	ND
2365	<8	<8	<10	<2	<2
2366	<5	<8	<50	<10	<5
2369	<2	<8	<5	<2	<2
2370	N.D.[<2]	N.D.[<8]	N.D.[<2]	N.D.[<2]	N.D.[<2]
2375	-----	-----	-----	-----	-----
2378	ND	-----	ND	ND	ND
2379	Not detected	Not detected	-----	Not detected	Not detected
2380	-----	-----	-----	-----	-----
2381	-----	-----	-----	ND	-----
2384	Not Detected [<2]	Not Detected [<8]	-----	Not Detected [<2]	Not Detected [<2]
2385	2.7	<1	5.5	<1	<0,5
2387	<2	<2	-----	<2	<2
2389	-----	-----	-----	ND	-----
2390	ND	-----	ND	ND	ND
2415	<10	-----	<10	<10	<10
2431	-----	-----	-----	-----	-----
2432	-----	-----	-----	-----	-----
2433	-----	-----	-----	-----	-----
2444	-----	ND	-----	4.0	ND
2445	2.84	<0.3	6.28	1.003	0.345
2453	-----	-----	-----	-----	-----
2459	-----	-----	-----	-----	-----
2460	-----	-----	-----	< 25	-----
2477	-----	-----	-----	-----	-----
2489	ND	ND	ND	ND	ND
2492	-----	-----	<5	-----	-----
2495	< 2,5	-----	6.4979	< 10	-----
2500	-----	-----	-----	-----	-----
2503	2.660	-----	-----	2.396	0.248
2504	<5	<5	<10	<5	<5
2509	-----	-----	-----	-----	-----
2511	-----	-----	-----	-----	-----
2515	<10	<2	<10	<10	<10
2522	NA	NA	NA	<10	NA
2529	-----	-----	-----	-----	-----
2532	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2553	<5	<5	<10	<5	<5
2560	<10	-----	10.475	<10	<10
2561	<1	-----	<1	<1	<1
2563	< 5	-----	< 10	< 5	-----
2564	-----	-----	-----	ND[<20]	-----
2569	ND	-----	ND	ND	ND
2571	16.21	6.01	6.09	N.D.	N.D.
2572	<20	<1	<20	<20	<20
2590	3.261	-----	5.721	1.431	< L.O.Q.
2591	-----	-----	-----	<50.0	-----
2614	-----	-----	-----	-----	-----
2621	3.7560	<2	7.7924	<2	<2
2624	-----	-----	-----	not detectable	-----
2629	1.72 [ND]	ND	ND	ND	ND
2632	5.41	N.D.[<1.0]	6.99	N.D.[<2.0]	N.D.[<1.0]
2637	4	<0.1	6.5	0.9	0.37
2641	-----	-----	-----	<6	-----
2642	-----	-----	-----	<25	-----
2644	-----	-----	10.08	-----	-----
2649	-----	-----	-----	-----	-----

Lab	Cr	Cr VI	Cu	Pb	Hg
2666	3.0	-----	7.9	1.9	<0.50
2674	ND	NA	NA	ND	ND
2678	-----	-----	-----	nd	-----
2713	-----	-----	-----	<10	-----
2719	-----	-----	-----	-----	-----
2736	3.34	-----	6.91	<2.23	-----
2741	<10	<3	<25	<10	<10
2780	-----	-----	-----	-----	-----
2785	4.305	<0.7	8.141	1.289	-----
2788	2.97	-----	6.78	1.02	0.32
2794	<LOD	-----	<LOD	<LOD	<LOD
2796	-----	ND	-----	4.1	ND
3100	<10	<10	<10	<2	<2
3110	<15	-----	-----	<15	<15
3116	-----	-----	-----	-----	-----
3118	-----	-----	-----	<10	<10
3122	5.00	< 0.2	6.73	0.77	-----
3124	2.10	-----	6.68	1.04	0.37
3145	0.57	not tested	3.28	-----	-----
3146	n.d.	n.d.	7.52	n.d.	n.d.
3150	5.1	-----	8.85	2.33	0.35
3153	ND	ND	ND	ND	ND
3154	3.02	-----	7.60	-----	0.564
3160	<7	-----	<7	<13.3	-----
3163	35	-----	-----	ND	0
3166	1.83	<0.04	6.07	0.764	0.349
3172	n.d.	n.d.	n.d.	n.d.	n.d.
3176	-----	-----	-----	-----	-----
3179	5.7	<5	7.26	1.4	0.29
3182	<5	ND	10.33	ND	ND
3191	<5	2.1618	<5	<5	<5
3197	ND	ND	6.1	ND	ND
3199	-----	-----	-----	Less than 1.0	-----
3200	<10.0	<10.0	<10.0	<10.0	<10.0
3209	<10.0	<10.0	<10.0	<10.0	<10.0
3210	<10	-----	<10	<10	-----
3213	-----	5.2727	-----	-----	-----
3214	< 10	< 8	< 10	< 10	< 10
3216	2.8387	-----	5.8777	0.7521	0.3387
3225	<10	<25	<10	<15	<10
3228	<10	<10	-----	<10	<10
3237	-----	-----	-----	-----	-----
3239	Not Detected	Not Detected	-----	Not Detected	Not Detected
3248	-----	-----	-----	ND	-----
8005	-----	-----	-----	-----	-----

APPENDIX 3:

Number of participating laboratories per country

5 labs in BANGLADESH
2 labs in BELGIUM
2 labs in BRAZIL
1 lab in CANADA
1 lab in DENMARK
1 lab in FINLAND
3 labs in FRANCE
10 labs in GERMANY
2 labs in GUATEMALA
18 labs in HONG KONG
12 labs in INDIA
4 labs in INDONESIA
7 labs in ITALY
6 labs in KOREA
3 labs in MALAYSIA
1 lab in MAURITIUS
5 labs in MEXICO
24 labs in P.R. of CHINA
3 labs in PAKISTAN
3 labs in PHILIPPINES
1 lab in POLAND
1 lab in PORTUGAL
1 lab in ROMANIA
3 labs in SINGAPORE
5 labs in SPAIN
1 lab in SRI LANKA
1 lab in SWEDEN
6 labs in TAIWAN R.O.C.
6 labs in THAILAND
3 labs in THE NETHERLANDS
2 labs in TUNISIA
7 labs in TURKEY
9 labs in U.S.A.
3 labs in UNITED KINGDOM
9 labs in VIETNAM

APPENDIX 4:

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) = R(1)	= outlier in Rosner' outlier test
R(0.05) = R(5)	= straggler in Rosner' outlier test
W	= test result withdrawn on request of participant
ex	= test result excluded from calculations
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported

Literature:

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