Results of Proficiency Test
Migration of elements
February 2012

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Author: ing. L.Dijkstra
Correctors: dr. R.G. Visser & ing. N. Boelhouwer
Report: iis12V02

May 2012

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1 INTRODUCTION

Toy safety is the practice of ensuring that toys, especially those made for children, are safe, usually through the application of set safety standards. In many countries, toys must be able to pass safety tests in order to be sold. Many regions model their safety standards on the EU's EN71 standard, either directly, or through adoption of the ISO 8124 standard which in itself is modelled on EN71. In Europe, toys must meet the criteria set by the EC Toy Safety Directive (Council Directive 88/378/EEC). This directive has recently been super-seded by Council Directive 2009/48/EC, which will apply to toy imports into the EU as of 20th July 2011. There is an exception for the chemical requirements under part III of Annex II of this this directive. These chemical requirements will come into force on 20 July 2013.
Part 3 of EN71:1994 describes the determination of migration of elements (metals that are considered hazardous) when a toys gets into contact with an acid solution (0.07 n HCl, simulating gastric acid solution).
In this interlaboratory study on migration of certain elements 117 laboratories in 32 different countries participated. See appendix 3 for the number of participants per country.
In this report the results of this proficiency test are presented and discussed.

2 SET UP

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample preparation and analyses were subcontracted to an ISO17025 accredited laboratory.
It was decided to send two different samples of paint with different concentrations of antimony, chromium, copper, lead, selenium, tin and zinc applied on PVC plates.
This PT contains a combination of elements mentioned in the 'old' Council Directive 88/378/EEC and the 'new' Council Directive 2009/48/EC. The elements antimony, chromium, lead and selenium are mentioned in 'old' Council Directive 88/378/EEC. The elements copper, tin and zinc were added from the 'new' Council Directive 2009/48/EC to the regular elements.
Participants were requested to report both results of migration before (unrounded) and after analytical correction (ac) *cfr* EN71-3:1994. The analytical corrections for copper, tin and zinc are not mentioned in this standard but are assumed to be 30% in this report.

2.1 QUALITY SYSTEM

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system based on ISO/IEC 17043:2010. This ensures 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 January 2010 (iis-protocol, version 3.2).

2.3 CONFIDENTIALITY STATEMENT

All data present 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 batches of plates with different element compositions were prepared by a subcontractor. The batches were prepared by the addition of metal salts to regular paints. Paint 1 (used for sample #12012) was spiked with the elements chromium, copper, lead and tin and paint 2 (used for sample #12013) was spiked with the elements antimony, copper, selenium and zinc. Table 1 gives an overview of the average total element contents of the two paints.

	paint 1	*paint 2*
total antimony mg/kg	--	45
total chromium mg/kg	85	--
total copper mg/kg	650	120
total lead mg/kg	260	--
total selenium mg/kg	--	30
total tin mg/kg	140	--
total zinc mg/kg	--	145

table 1: Average total element contents on the two paints after additions

After thorough mixing, the paint was applied to 130 PVC plates per sample. The two batches of samples were tested for homogeneity (by total element content) on 8 randomly selected samples per batch. The analytical testing was subcontracted to an ISO17025 accredited laboratory. See the following tables for the homogeneity test results.

	Total chromium in mg/kg	*Total copper in mg/kg*	*Total lead in mg/kg*
Sample #12012-1	89.8	677	265
Sample #12012-2	84.1	659	262
Sample #12012-3	85.2	678	269
Sample #12012-4	82.7	656	260
Sample #12012-5	86.6	671	266
Sample #12012-6	78.0	646	250
Sample #12012-7	84.9	625	249
Sample #12012-8	82.9	605	248

table 2: measured totals for chromium, copper and lead for homogeneity test results of subsamples #12012

	Total antimony in mg/kg	*Total copper in mg/kg*
Sample #12013-1	45.4	120
Sample #12013-2	46.2	118
Sample #12013-3	47.8	124
Sample #12013-4	45.1	113
Sample #12013-5	46.0	117
Sample #12013-6	45.9	132
Sample #12013-7	46.5	118
Sample #12013-8	45.9	115

table 3: measured totals for antimony and copper for homogeneity test results of subsamples #12013

From the test results of tables 2 and 3, the relative repeatability standard deviations were calculated per metal and subsequently compared with the relative repeatability standard deviations as determined by the accredited laboratory on 3 CRMs (ERM-EC680K, ERM-EC681K and NIST 2582). Only chromium was determined on 1 CRM, being NIST 2582)

	Total chromium in mg/kg	*Total copper in mg/kg*	*Total lead in mg/kg*
RSDr (observed)	4.0%	3.9%	3.2%
RSDr (laboratory)	4.9%	7.9%	4.8%

table 4: evaluation of the observed repeatabilities of subsamples #12012

	Total antimony in mg/kg	*Total copper in mg/kg*
RSDr (observed)	1.8%	4.9%
RSDr (laboratory)	4.7%	7.9%

table 5: evaluation of the observed repeatabilities of subsamples #12013

Each calculated repeatability standard deviation is less than the corresponding repeatability standard deviation as determined for that metal on the CRMs by the laboratory.
Therefore, homogeneity of the subsamples of #12012 and #12013 was assumed.
Two plastic plates (one of each sample #12012 and #12013) were sent to the participating laboratories on February 15, 2012.

2.5 ANALYSES

The participants were requested to determine the migration of elements applying the analysis procedure that is routinely used in the laboratory.
To get comparable results a detailed report form, was sent together with the set of samples.
Both results of migration before and after analytical correction were requested to report. Also a letter of instructions was sent along.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were gathered. The original data are tabulated in the appendices of this report. The laboratories are presented by their code numbers.
Directly after the deadline, a reminder fax was sent to those laboratories that had not yet reported. Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test, see lit.5) found it to be an outlier. The laboratories that produced these suspect data were asked to check the results. Additional or corrected data are placed under 'Remarks' in the result tables in appendix 1. A list of abbreviations used in the tables can be found in appendix 3.

3.1 STATISTICS

Statistical calculations were performed as described in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2)
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…" were not used in the statistical evaluation.
Before further calculations, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. In the case of an anormal distribution, the statistical evaluation should be used with care.
According to ISO 5725 (1986 and 1994, lit.8 and 9) the original results per determination were submitted subsequently to Dixon's and Grubbs' 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. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' 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

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 under 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. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 3, nr.13-14).

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 require-ments. Therefore, the z-scores were calculated using a target standard deviation. Due to the lack of precision data in test method EN71-3, the target standard deviation was estimated to be 50% of the analytical correction as specified in paragraph 4.2 of EN71-3:94. This is justified by the fact that the analytical corrections are based on the uncertainty of the test method and 95% of all results should be within this uncertainty, see appendix D of EN71-3:1994. It should be noted that the upcoming version of EN71-3 most probably no longer will mention analytical corrections. For the elements not mentioned in EN71-3:1994 the analytical corrections were assumed to be 30%.
The analytical corrections for the elements used in this report are given in % in table 6.

	Ba	Cr	Cu	Pb	Sb	Se	Sn	Zn
Analytical correction *cfr* EN71-3:94	30	30		30	60	60		
Analytical correction assumed			30				30	30

table 6: used analytical corrections per element in %

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 the fit-for-useness of the reported test result.

The $z_{(target)}$-scores were calculated according to:

$z_{(target)}$ = (individual 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, a number of laboratories reported after the deadline of reporting or did not report any results at all. From the 117 participants, 19 participants reported results after the deadline for reporting and 4 participants did not report any results at all. The 113 reporting laboratories submitted 982 numerical results. Observed were 28 outlying results, which is 2.9%. In proficiency studies outlier percentages of 3% - 7.5% are quite normal.

Not for all determinations, a normal distribution was found. A not-normal distribution was found in sample #12012 for: barium and lead and in sample #12013 for: antimony, barium, selenium and zinc. The statistical evaluations for these determinations with anormal distributions should be used with care.

4.1 EVALUATION PER SAMPLE AND PER ELEMENT

In this section, the determination is discussed. All statistical results reported on the samples are summarised in appendix 1. The test results before analytical correction were used for the evaluation as not all laboratories applied the analytical correction in the same way, see the tables in appendix 1 and the discussion in chapter 5.

Antimony: The migration of antimony on sample #12013, at the low migration level of 11 mg/kg before analytical correction, was not problematic.
Four statistical outliers were observed. However, the observed reproducibility, after rejection of the statistical outliers, is almost in agreement with the target reproducibility estimated from the analytical correction of 60%.
All participating laboratories agreed that sample #12012 did not show any migration of antimony.

Barium: Although barium was not added to the paints used, the majority of the laboratories did report to have found migration of barium for both samples.
The reported test results on sample #12012 and #12013 appeared to be bimodally divided. This phenomena may be explained by the fact that barium was not spiked to the paint and therefore the measured barium probably will be from the plastic carrier. Some laboratories may have scraped off more plastic than others. All barium results reported are low in relation to the limits set for this element (both for 88/378/EEC and 2009/48/EC) and therefore this problem will not be significant in practice.

Chromium: The migration of chromium on sample #12012, at a migration level of 37 mg/kg before analytical correction, was problematic. No statistical outliers were observed. However, the observed reproducibility is not in agreement with the target reproducibility estimated from the analytical correction of 30%.
All participating laboratories agreed that sample #12013 did not show any migration of chromium.

Copper: The migration of copper on sample #12012 and #12013, respectively at migration levels of 221 and 79 mg/kg, was not problematic. In total five statistical outliers were observed. However, the observed reproducibility, after rejection of the statistical outliers, is in good agreement for both samples with the target reproducibility estimated from the assumed analytical correction of 30%.

Lead: The migration of lead on sample #12012, at a migration level of 175 mg/kg before analytical correction, was problematic. Only one statistical outlier was observed. However, the observed reproducibility, after rejection of the statistical outlier, is not in agreement with the target reproducibility estimated from the analytical correction of 30%.
All participating laboratories agreed that sample #12013 did not show any migration of antimony.

Selenium: The migration of selenium sample #12013, at a migration level of 18 mg/kg before analytical correction, was not problematic. Two statistical outliers were observed. However, the observed reproducibility, after rejection of the statistical outliers, is in agreement with the target reproducibility estimated from the analytical correction of 60%.
All participating laboratories agreed that sample #12012 did not show any migration of selenium.

Tin: The migration of tin on sample #12012, at a low migration level of 22 mg/kg, was very problematic. Two statistical outliers were observed. However, the observed reproducibility, after rejection of the statistical outliers, is not at all in agreement with the target reproducibility estimated from the assumed analytical correction of 30%.
All participating laboratories agreed that sample #12013 did not show any migration of tin.

Zinc: The migration of zinc on sample #12013, at the low migration level of 132 mg/kg, was not problematic. Two statistical outliers were observed. However, the observed reproducibility, after rejection of the statistical outliers, is in agreement with the target reproducibility estimated from the assumed analytical correction of 30%.
All participating laboratories agreed that sample #12012 did not show any migration of zinc.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the target reproducibilities estimated from the analytical correction and the reproducibilities as found for the group of participating laboratories. The number of significant results, the average results, the calculated reproducibilities (standard deviation*2.8) and the target reproducibilities (50% of the analytical correction*2.8) are compared in the next table.

Element	*unit*	*n*	*average*	*2.8 * sd*	*R (target)*
barium #12012	mg/kg	99	58.0	78.0	(24.3)
chromium #12012	mg/kg	109	36.8	23.3	15.5
copper #12012	mg/kg	61	221.5	69.1	93.0*
lead #12012	mg/kg	110	175.4	109.8	73.7
tin #12012	mg/kg	47	22.5	19.9	9.5*
zinc #12012	mg/kg	43	7.5	8.2	(3.2)*
antimony #12013	mg/kg	103	10.9	10.2	9.1
barium #12013	mg/kg	107	61.5	98.2	(25.8)
copper #12013	mg/kg	60	78.7	26.5	33.0
selenium #12013	mg/kg	100	18.2	13.2	15.3
tin #12013	mg/kg	49	11.4	13.5	(4.8)*
zinc #12013	mg/kg	54	131.6	40.6	55.3*

table 7: reproducibilities of test results before analytical correction in samples #12012 and #12013
* = The analytical corrections for copper, tin and zinc were assumed to be 30%
( ) = These elements were not spiked to the sample

From the above table it can be concluded that, without statistical calculations, the group of participating laboratories has difficulties with the determination of several of the migration elements in accordance with EN71-3:1994 when compared with the target reproducibilities estimated from the analytical correction. See also the discussions in paragraphs 4.1.

5 DISCUSSION

When the results of this interlaboratory study are compared to the requirements for toys according to EN71-3:1994 which supports essential requirements of EU Directive 88/378/EEC (table 6), it is noticed that a number of participants would make different decisions then the majority of the group about the acceptability of the paint for the determined parameters. Sample #12012 would be rejected for lead by 96 laboratories (> 129 mg/kg Pb before analytical correction, or > 90 mg/kg after analytical correction) while 15 laboratories would except this sample. The maximum migration limits for toys according to EN71-3:1994 are given in table 8. Limits for copper, tin and zinc are not mentioned in EN71-31:1994.

When the results of this interlaboratory study are compared to the requirements for toys according to prEN71-3:2012 (category III), which supports essential requirements of EU Directive 2009/48/EC (no longer mentioning analytical corrections to be applied before reporting), then sample #12012 would be rejected for lead by 81 laboratories

(> 160 mg/kg Pb), while 30 laboratories would except this sample. The maximum migration limits for scraped off materials according to prEN71-3:2012 are given in table 9.
The differences between the migration limits mentioned in EN71-3:1994 and prEN71-3:2012 are very large. The new standard will have a major impact on the acceptance of a material.

	Ba	Cr	Cu	Pb	Sb	Se	Sn	Zn
Migration limits from toy materials after analytical correction	1000	60	---	90	60	500	---	---
Migration limits from toy materials before analytical correction	1430	86	---	129	150	1250	---	---

table 8: maximum migration requirements for toys in EU according to EN71-3:1994 and 88/378/EEC

	Ba	Cr*	Cu	Pb	Sb	Se	Sn	Zn
Migration limits for scraped off materials	56000	460	7700	160	500	460	180000	46000

table 9: maximum migration requirements for scraped off material in EU according prEN71-3:2012 and 2009/48/EN

* = chromium (III)

General

Each laboratory has to evaluate its performance in this study and make decisions about necessary corrective actions. Therefore, participation on a regular basis in this scheme could be helpful to improve the performance and thus raise of the quality of the analytical results.

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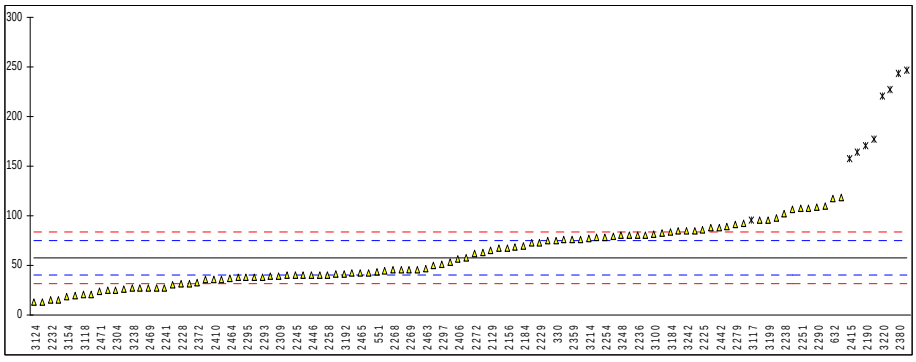
APPENDIX 1

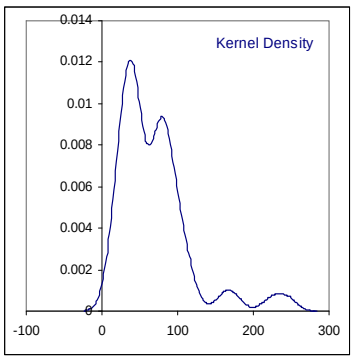
Determination of migration of barium on sample #12012; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	98.00		-----	
330	EN71-3	75		-----	
357	EN71-3	30.49		-----	
551	EN71-3	44.00		-----	
622	EN71-3	50.4		-----	
632	INH-103	117.00		-----	
2102	EN71-3	26.557		-----	
2115	EN71-3	40.35		-----	
2127	EN71-3	27.42		-----	
2129	EN71-3	65.5		-----	
2131	EN71-3	227.26	G(0.01)	-----	false positive?
2132	EN71-3	92.00		-----	
2156	EN71-3	67.90		-----	
2165	EN71-3	80.3		-----	
2172	EN71-3	78.21		-----	
2182	EN71-3	39.79		-----	
2184	EN71-3	69.65		-----	
2190	EN71-3	170.67	DG(0.01)	-----	false positive?
2196	EN71-3	39.86		-----	
2201	EN71-3	80.88		-----	
2214	EN71-3	82.91		-----	
2217	EN71-3	44.25		-----	
2225	EN71-3	85.46		-----	
2226	EN71-3	42.60		-----	
2228	EN71-3	31.37		-----	
2229	EN71-3	72.77		-----	
2232	EN71-3	14.83		-----	
2234	EN71-3	89.21		-----	
2236	EN71-3	80.5		-----	
2238	EN71-3	102		-----	
2240	EN71-3	42.93		-----	
2241	EN71-3	27.54		-----	
2245	EN71-3	39.84		-----	
2246	EN71-3	106.20		-----	
2247	EN71-3	119		-----	
2251	EN71-3	107.653		-----	
2252	EN71-3	76.30		-----	
2253	EN71-3	74.78		-----	
2254	EN71-3	78.30		-----	
2255	EN71-3	110	C	-----	first reported: 185.8
2256	EN71-3	107.90		-----	
2258	EN71-3	40.40		-----	
2266	EN71-3	87.93		-----	
2268	EN71-3	45.3		-----	
2269	EN71-3	45.40		-----	
2271		-----		-----	
2272	EN71-3	61.45		-----	
2277	EN71-3	38.84		-----	
2279	EN71-3	91.58		-----	
2282	EN71-3	35.8		-----	
2284	EN71-3	75.81		-----	
2289	EN71-3	38		-----	
2290	EN71-3	108.27		-----	
2293	EN71-3	38.58	C	-----	first reported: 99.93
2294	EN71-3	36.3		-----	
2295	EN71-3	38		-----	
2297	EN71-3	51.2		-----	
2303	EN71-3	67.18		-----	
2304	EN71-3	25.50		-----	
2309	EN71-3	39.14		-----	
2312		-----		-----	
2320	EN71-3	n.d.		-----	
2359	INH-6675	76.06		-----	
2372	EN71-3	32.13		-----	
2380	EN71-3	243.81	G(0.01)	-----	false positive?
2406	EN71-3	56.39		-----	
2410	EN71-3	35.88		-----	
2412	EN71-3	41.26		-----	
2413	EN71-3	n.d.		-----	
2415	EN71-3	157.20	DG(0.01)	-----	false positive?
2424	EN71-3	31.7		-----	
2425	EN71-3	164.57	DG(0.01)	-----	false positive?
2431	EN71-3	58.00		-----	
2432	in house	246.2	G(0.05)	-----	
2433	EN71-3	21		-----	

2442	EN71-3	88.37		-----	
2446	EN71-3	40.22		-----	
2463	EN71-3	47.240		-----	
2464	EN71-3	37.11		-----	
2465	EN71-3	42.69		-----	
2466		-----		-----	
2468	EN71-3	37.69		-----	
2469	EN71-3	26.95		-----	
2470	EN71-3	26.86		-----	
2471	EN71-3	24.3270		-----	
2478	EN71-3	15.25		-----	
3100	EN71-3	82.0		-----	
3107	EN71-3	45.32		-----	
3110	EN71-3	62.60		-----	
3116	EN71-3	95.57		-----	
3117	EN71-3	95.50	ex	-----	result excluded; same results for before and after analytical correction
3118	EN71-3	20.70		-----	
3122	EN71-3	<100		-----	
3124	EN71-3	13.1		-----	
3146		-----		-----	
3151	EN71-3	13.44		-----	
3153	EN71-3	85.26		-----	
3154	EN71-3	18.9		-----	
3167		-----		-----	
3172	EN71-3	53.6		-----	
3176		-----		-----	
3182	EN71-3	25.15	C	-----	first reported: <5.00
3185	EN71-3	83.5		-----	
3190	EN71-3	68		-----	
3192	EN71-3	41.6		-----	
3199	EN71-3	95.91		-----	
3210	EN71-3	177	DG(0.01)	-----	
3214	EN71-3	77.35		-----	
3218	EN71-3	72.4		-----	
3220	EN71-3	221.0	G(0.01)	-----	
3228	EN71-3	79.76		-----	
3233	EN71-3	45.9		-----	
3237	EN71-3	84.60		-----	
3238	EN71-3	26.85		-----	
3242	EN71-3	85.13	C	-----	first reported: 170.25
3243	EN71-3	19.3		-----	
3248	EN71-3	80		-----	

normality	not OK
n	99
outliers	8
mean (n)	57.974
st.dev. (n)	27.8633
R(calc.)	78.017
R(target)	(24.349)



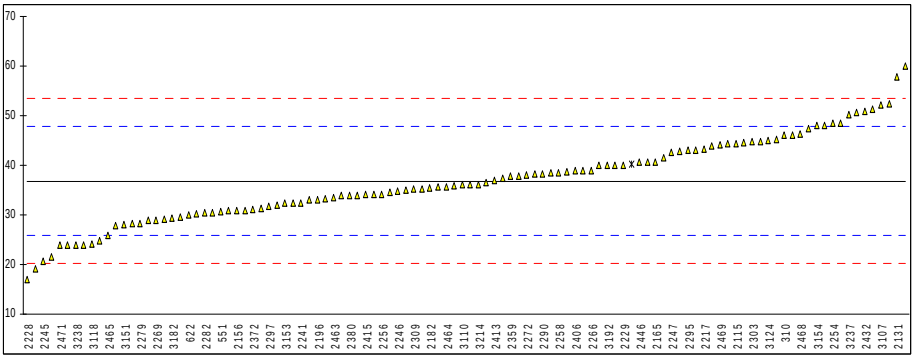


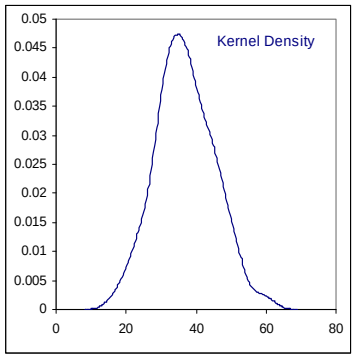
Determination of migration of chromium on sample #12012; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	46.00		1.66	
330	EN71-3	29		-1.42	
357	EN71-3	36.55		-0.05	
551	EN71-3	30.66		-1.12	
622	EN71-3	29.9		-1.26	
632	INH-103	39.00		0.39	
2102	EN71-3	35.693		-0.21	
2115	EN71-3	44.30		1.35	
2127	EN71-3	35.81		-0.19	
2129	EN71-3	44.89		1.46	
2131	EN71-3	57.90		3.81	
2132	EN71-3	30.89		-1.08	
2156	EN71-3	30.83		-1.09	
2165	EN71-3	40.6		0.68	
2172	EN71-3	36.11		-0.13	
2182	EN71-3	35.52		-0.24	
2184	EN71-3	33.18		-0.66	
2190	EN71-3	47.47		1.92	
2196	EN71-3	33.14		-0.67	
2201	EN71-3	34.50		-0.42	
2214	EN71-3	42.79		1.08	
2217	EN71-3	43.26		1.16	
2225	EN71-3	30.53		-1.14	
2226	EN71-3	35.00		-0.33	
2228	EN71-3	16.89		-3.61	
2229	EN71-3	40.01		0.57	
2232	EN71-3	19.13		-3.21	
2234	EN71-3	29.17		-1.39	
2236	EN71-3	52.4		2.81	
2238	EN71-3	46		1.66	
2240	EN71-3	24.89		-2.16	
2241	EN71-3	32.50		-0.79	
2245	EN71-3	20.76		-2.91	
2246	EN71-3	34.80		-0.37	
2247	EN71-3	42.6		1.04	
2251	EN71-3	21.570		-2.76	
2252	EN71-3	31.40		-0.99	
2253	EN71-3	37.86		0.18	
2254	EN71-3	48.44		2.10	
2255	EN71-3	50.71		2.51	
2256	EN71-3	34.23		-0.47	
2258	EN71-3	38.44		0.29	
2266	EN71-3	39.01		0.39	
2268	EN71-3	30.8		-1.09	
2269	EN71-3	29.02		-1.42	
2271		-----		-----	
2272	EN71-3	38.0		0.21	
2277	EN71-3	48.52		2.11	
2279	EN71-3	28.31		-1.54	
2282	EN71-3	30.5		-1.15	
2284	EN71-3	38.72		0.34	
2289	EN71-3	43		1.11	
2290	EN71-3	38.25		0.25	
2293	EN71-3	29.62	C	-1.31	first reported: 78.99
2294	EN71-3	60.0		4.19	
2295	EN71-3	43		1.11	
2297	EN71-3	31.8		-0.91	
2303	EN71-3	44.88		1.45	
2304	EN71-3	28.25		-1.56	
2309	EN71-3	35.23		-0.29	
2312		-----		-----	
2320	EN71-3	27.9		-1.62	
2359	INH-6675	37.83		0.18	
2372	EN71-3	31.17		-1.03	
2380	EN71-3	34.00		-0.51	
2406	EN71-3	38.95		0.38	
2410	EN71-3	38.23		0.25	
2412	EN71-3	44.25		1.34	
2413	EN71-3	36.87		0.00	
2415	EN71-3	34.13		-0.49	
2424	EN71-3	32.5		-0.79	
2425	EN71-3	51.28		2.61	
2431	EN71-3	30.32		-1.18	
2432	in house	50.9		2.54	
2433	EN71-3	24		-2.32	

2442	EN71-3	44.67		1.42	
2446	EN71-3	40.59		0.68	
2463	EN71-3	33.470		-0.61	
2464	EN71-3	35.75		-0.20	
2465	EN71-3	25.93		-1.97	
2466		-----		-----	
2468	EN71-3	46.25		1.70	
2469	EN71-3	44.05		1.30	
2470	EN71-3	32.94		-0.71	
2471	EN71-3	23.8426		-2.35	
2478	EN71-3	23.89		-2.34	
3100	EN71-3	34.2		-0.48	
3107	EN71-3	52.23		2.78	
3110	EN71-3	36.02		-0.15	
3116	EN71-3	33.96		-0.52	
3117	EN71-3	40.15	ex	0.60	result excluded; same results for before and after analytical correction
3118	EN71-3	24.20		-2.29	
3122	EN71-3	40.0		0.57	
3124	EN71-3	45.0		1.48	
3146		-----		-----	
3151	EN71-3	28.12		-1.58	
3153	EN71-3	32.30		-0.82	
3154	EN71-3	48.1		2.04	
3167	EN71-3	n.d.		-----	
3172	EN71-3	39.9		0.55	
3176		-----		-----	
3182	EN71-3	29.43		-1.34	
3185	EN71-3	35.3		-0.28	
3190	EN71-3	44		1.29	
3192	EN71-3	40		0.57	
3199	EN71-3	48.14		2.04	
3210		-----		-----	
3214	EN71-3	36.13		-0.13	
3218	EN71-3	38.4		0.28	
3220	EN71-3	37.3		0.08	
3228	EN71-3	40.59		0.68	
3233	EN71-3	41.5		0.84	
3237	EN71-3	50.19		2.41	
3238	EN71-3	23.90		-2.34	
3242	EN71-3	45.19		1.51	
3243	EN71-3	34.0		-0.51	
3248	EN71-3	32		-0.88	

normality	OK
n	109
outliers	0
mean (n)	36.844
st.dev. (n)	8.3251
R(calc.)	23.310
R(target)	15.475



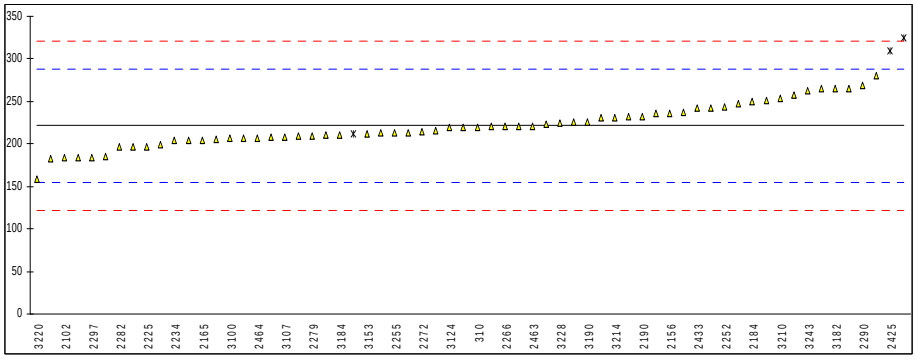


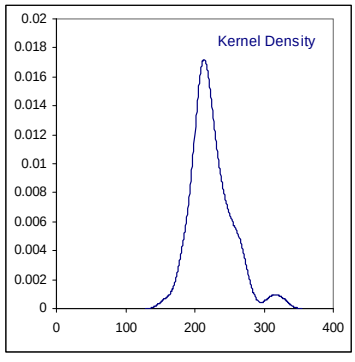
Determination of migration of copper on sample #12012; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	220.00		-0.05	
330		-----		-----	
357	EN71-3	197.1		-0.74	
551	EN71-3	210.00		-0.35	
622		-----		-----	
632		-----		-----	
2102	EN71-3	183.392		-1.15	
2115		-----		-----	
2127	EN71-3	230.25		0.26	
2129		-----		-----	
2131	EN71-3	257.00		1.07	
2132	EN71-3	242.50		0.63	
2156	EN71-3	235.8		0.43	
2165	EN71-3	204.3		-0.52	
2172	EN71-3	185.3		-1.09	
2182	EN71-3	213.15		-0.25	
2184	EN71-3	249.62		0.85	
2190	EN71-3	232.2		0.32	
2196	EN71-3	208.94		-0.38	
2201	EN71-3	235.8		0.43	
2214		-----		-----	
2217		-----		-----	
2225	EN71-3	197.16		-0.73	
2226		-----	W	-----	result withdrawn, first reported: 0
2228		-----		-----	
2229		-----		-----	
2232		-----		-----	
2234	EN71-3	203.54		-0.54	
2236		-----		-----	
2238	EN71-3	221		-0.02	
2240		-----		-----	
2241	EN71-3	265.40		1.32	
2245		-----		-----	
2246		-----		-----	
2247	EN71-3	237.6		0.48	
2251		-----		-----	
2252	EN71-3	243.00		0.65	
2253		-----		-----	
2254	EN71-3	212.72		-0.27	
2255	EN71-3	213.1		-0.25	
2256	EN71-3	182.28		-1.18	
2258		-----		-----	
2266	EN71-3	220.39		-0.03	
2268	EN71-3	204.1		-0.52	
2269		-----		-----	
2271		-----		-----	
2272	EN71-3	214.6		-0.21	
2277		-----		-----	
2279	EN71-3	208.97		-0.38	
2282	EN71-3	197		-0.74	
2284	EN71-3	207.23		-0.43	
2289		-----		-----	
2290	EN71-3	269.17		1.44	
2293		-----		-----	
2294		-----		-----	
2295	EN71-3	184		-1.13	
2297	EN71-3	184.2		-1.12	
2303		-----		-----	
2304		-----		-----	
2309	EN71-3	208.49		-0.39	
2312		-----		-----	
2320		-----		-----	
2359		-----		-----	
2372	EN71-3	199.33		-0.67	
2380		-----		-----	
2406		-----		-----	
2410		-----		-----	
2412	EN71-3	264.6		1.30	
2413		-----		-----	
2415	EN71-3	250.70		0.88	
2424		-----		-----	
2425	EN71-3	309.85	G(0.05)	2.66	
2431		-----		-----	
2432		-----		-----	
2433	EN71-3	242		0.62	

2442		-----		-----	
2446	EN71-3	231.67		0.31	
2463	EN71-3	221.100		-0.01	
2464	EN71-3	207.33		-0.43	
2465		-----		-----	
2466		-----		-----	
2468		-----		-----	
2469		-----		-----	
2470		-----		-----	
2471		-----		-----	
2478		-----		-----	
3100	EN71-3	207.1		-0.43	
3107	EN71-3	208.50		-0.39	
3110	EN71-3	223.27		0.05	
3116	EN71-3	215.57		-0.18	
3117	EN71-3	211.17	ex	-0.31	result excluded; same results for before and after analytical correction
3118		-----		-----	
3122		-----		-----	
3124	EN71-3	219		-0.08	
3146		-----		-----	
3151	EN71-3	225.6		0.12	
3153	EN71-3	211.73		-0.29	
3154	EN71-3	247		0.77	
3167		-----		-----	
3172		-----		-----	
3176		-----		-----	
3182	EN71-3	265.2		1.32	
3185	EN71-3	211		-0.32	
3190	EN71-3	226		0.13	
3192		-----		-----	
3199	EN71-3	324.75	C,G(0.05)	3.11	first reported: 309.41
3210	EN71-3	254		0.98	
3214	EN71-3	231.04		0.29	
3218	EN71-3	205		-0.50	
3220	EN71-3	159.0		-1.88	
3228	EN71-3	224.76		0.10	
3233	EN71-3	220.2		-0.04	
3237		-----		-----	
3238		-----		-----	
3242	EN71-3	279.78		1.75	
3243	EN71-3	263		1.25	
3248	EN71-3	220		-0.05	

normality	OK
n	61
outliers	2
mean (n)	221.521
st.dev. (n)	24.6706
R(calc.)	69.078
R(target)	92.969



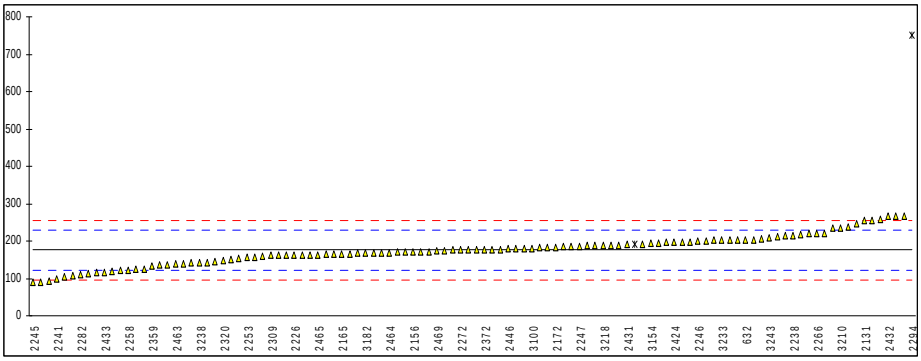


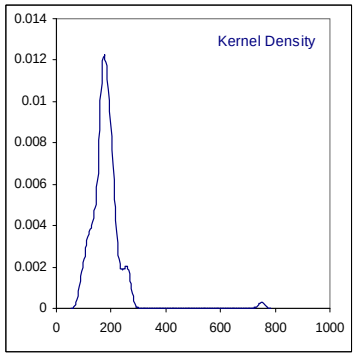
Determination of migration of lead on sample #12012; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	220.00		1.69	
330	EN71-3	150		-0.97	
357	EN71-3	113.7		-2.35	
551	EN71-3	137.50		-1.44	
622	EN71-3	143.1		-1.23	
632	INH-103	204.00		1.08	
2102	EN71-3	118.811		-2.15	
2115	EN71-3	188.50		0.50	
2127	EN71-3	181.45		0.23	
2129	EN71-3	265.77		3.43	
2131	EN71-3	254.00		2.98	
2132	EN71-3	188.00		0.48	
2156	EN71-3	170.8		-0.18	
2165	EN71-3	166.3		-0.35	
2172	EN71-3	183.2		0.29	
2182	EN71-3	165.27		-0.39	
2184	EN71-3	216.84		1.57	
2190	EN71-3	219.20		1.66	
2196	EN71-3	124.56		-1.93	
2201	EN71-3	204.1		1.09	
2214	EN71-3	192.25		0.64	
2217	EN71-3	171.94		-0.13	
2225	EN71-3	168.06		-0.28	
2226	EN71-3	163.10		-0.47	
2228	EN71-3	107.48		-2.58	
2229	EN71-3	194.72		0.73	
2232	EN71-3	141.03		-1.31	
2234	EN71-3	161.61		-0.53	
2236	EN71-3	238		2.38	
2238	EN71-3	215		1.50	
2240	EN71-3	163.40		-0.46	
2241	EN71-3	97.65		-2.96	
2245	EN71-3	88.50		-3.30	
2246	EN71-3	198.90		0.89	
2247	EN71-3	186.0		0.40	
2251	EN71-3	90.824		-3.22	
2252	EN71-3	201.00		0.97	
2253	EN71-3	155.33		-0.76	
2254	EN71-3	187.49		0.46	
2255	EN71-3	189.2		0.52	
2256	EN71-3	178.11		0.10	
2258	EN71-3	122.30		-2.02	
2266	EN71-3	219.34		1.67	
2268	EN71-3	179.1		0.14	
2269	EN71-3	167.77		-0.29	
2271		-----		-----	
2272	EN71-3	176.5		0.04	
2277	EN71-3	152.60		-0.87	
2279	EN71-3	166.74		-0.33	
2282	EN71-3	110		-2.49	
2284	EN71-3	161.87		-0.52	
2289	EN71-3	235		2.26	
2290	EN71-3	202.90		1.04	
2293	EN71-3	125.00	C	-1.92	first reported: 314.80
2294	EN71-3	750.5	G(0.01)	21.85	
2295	EN71-3	121		-2.07	
2297	EN71-3	172.7		-0.10	
2303	EN71-3	202.90		1.04	
2304	EN71-3	181.70		0.24	
2309	EN71-3	161.58		-0.53	
2312		-----		-----	
2320	EN71-3	147		-1.08	
2359	INH-6675	133.85		-1.58	
2372	EN71-3	177.05		0.06	
2380	EN71-3	166.49		-0.34	
2406	EN71-3	93.12		-3.13	
2410	EN71-3	103.60		-2.73	
2412	EN71-3	177.6		0.08	
2413	EN71-3	143.74		-1.20	
2415	EN71-3	255.20		3.03	
2424	EN71-3	197.2		0.83	
2425	EN71-3	267.40		3.49	
2431	EN71-3	190.18		0.56	
2432	in house	265.7		3.43	
2433	EN71-3	117		-2.22	
2442	EN71-3	214.78		1.49	

2446	EN71-3	178.55		0.12	
2463	EN71-3	137.900		-1.43	
2464	EN71-3	168.26		-0.27	
2465	EN71-3	163.50		-0.45	
2466	EN71-3	211.57		1.37	
2468	EN71-3	176.90		0.06	
2469	EN71-3	172.68		-0.11	
2470	EN71-3	140.47		-1.33	
2471	EN71-3	116.4936		-2.24	
2478	EN71-3	159.39		-0.61	
3100	EN71-3	180		0.17	
3107	EN71-3	164.60		-0.41	
3110	EN71-3	184.88		0.36	
3116	EN71-3	163.22		-0.46	
3117	EN71-3	192.20	ex	0.64	result excluded; same results for before and after analytical correction
3118	EN71-3	175.8		0.01	
3122	EN71-3	157.67		-0.68	
3124	EN71-3	198		0.86	
3146		-----		-----	
3151	EN71-3	197.6		0.84	
3153	EN71-3	179.36		0.15	
3154	EN71-3	194		0.70	
3167		-----		-----	
3172	EN71-3	177		0.06	
3176		-----		-----	
3182	EN71-3	167.00		-0.32	
3185	EN71-3	185		0.36	
3190	EN71-3	206		1.16	
3192	EN71-3	136.8		-1.47	
3199	EN71-3	196.88		0.81	
3210	EN71-3	235		2.26	
3214	EN71-3	201.60		0.99	
3218	EN71-3	188		0.48	
3220	EN71-3	170.6		-0.18	
3228	EN71-3	171.18		-0.16	
3233	EN71-3	202		1.01	
3237	EN71-3	247.54		2.74	
3238	EN71-3	142.00		-1.27	
3242	EN71-3	258.21		3.14	
3243	EN71-3	210		1.31	
3248	EN71-3	170		-0.21	

normality	not OK
n	110
outliers	1
mean (n)	175.448
st.dev. (n)	39.2207
R(calc.)	109.818
R(target)	73.688



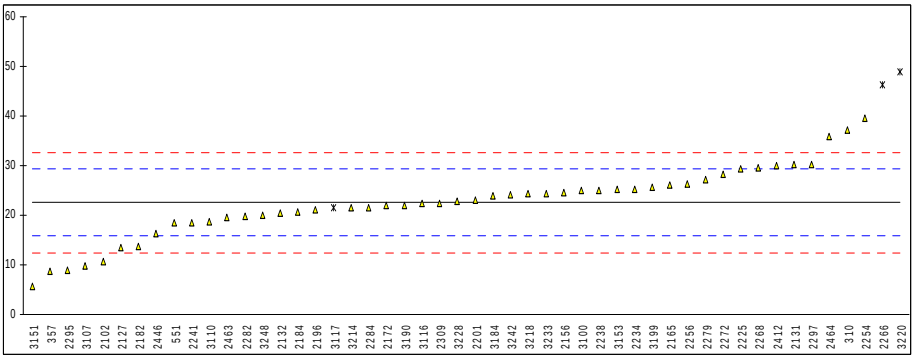


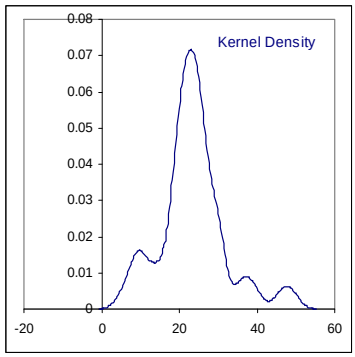
Determination of migration of tin on sample #12012; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	37.10		4.31	
330		-----		-----	
357	EN71-3	8.69		-4.10	
551	EN71-3	18.40		-1.22	
622		-----		-----	
632		-----		-----	
2102	EN71-3	10.587		-3.53	
2115		-----		-----	
2127	EN71-3	13.52		-2.67	
2129		-----		-----	
2131	EN71-3	30.18		2.26	
2132	EN71-3	20.40		-0.63	
2156	EN71-3	24.66		0.63	
2165	EN71-3	26.0		1.03	
2172	EN71-3	21.98		-0.16	
2182	EN71-3	13.78		-2.59	
2184	EN71-3	20.61		-0.57	
2190	EN71-3	<5.33		<-4.98	false negative?
2196	EN71-3	21.08		-0.43	
2201	EN71-3	23.00		0.14	
2214		-----		-----	
2217		-----		-----	
2225	EN71-3	29.42		2.04	
2226		-----		-----	
2228		-----		-----	
2229		-----		-----	
2232		-----		-----	
2234	EN71-3	25.28		0.81	
2236		-----		-----	
2238	EN71-3	25		0.73	
2240		-----		-----	
2241	EN71-3	18.40		-1.22	
2245		-----		-----	
2246		-----		-----	
2247		-----		-----	
2251		-----		-----	
2252		-----		-----	
2253		-----		-----	
2254	EN71-3	39.59		5.05	
2255		-----		-----	
2256	EN71-3	26.22		1.09	
2258		-----		-----	
2266	EN71-3	46.27	DG(0.05)	7.02	
2268	EN71-3	29.6		2.09	
2269		-----		-----	
2271		-----		-----	
2272	EN71-3	28.35		1.72	
2277		-----		-----	
2279	EN71-3	27.11		1.35	
2282	EN71-3	19.8		-0.81	
2284	EN71-3	21.56		-0.29	
2289		-----		-----	
2290		-----		-----	
2293		-----		-----	
2294		-----		-----	
2295	EN71-3	9		-4.00	
2297	EN71-3	30.2		2.27	
2303		-----		-----	
2304		-----		-----	
2309	EN71-3	22.44		-0.03	
2312		-----		-----	
2320		-----		-----	
2359		-----		-----	
2372	EN71-3	n.d.		-----	false negative?
2380		-----		-----	
2406		-----		-----	
2410		-----		-----	
2412	EN71-3	30.1		2.24	
2413		-----		-----	
2415		-----		-----	
2424		-----		-----	
2425		-----		-----	
2431		-----		-----	
2432		-----		-----	
2433	EN71-3	n.d.		-----	false negative?
2442		-----		-----	

2446	EN71-3	16.28		-1.85	
2463	EN71-3	19.550		-0.88	
2464	EN71-3	35.77		3.92	
2465		-----		-----	
2466		-----		-----	
2468		-----		-----	
2469		-----		-----	
2470		-----		-----	
2471		-----		-----	
2478		-----		-----	
3100	EN71-3	25.0		0.73	
3107	EN71-3	9.72		-3.79	
3110	EN71-3	18.74		-1.12	
3116	EN71-3	22.30		-0.07	
3117	EN71-3	21.42	ex	-0.33	result excluded; same results for before and after analytical correction
3118		-----		-----	
3122		-----		-----	
3124		-----	W	-----	result withdrawn, first reported: 6.26
3146		-----		-----	
3151	EN71-3	5.56	C	-5.02	first reported: 6.56
3153	EN71-3	25.12		0.77	
3154		-----		-----	
3167		-----		-----	
3172		-----		-----	
3176		-----		-----	
3182	EN71-3	<5.00		<-5.08	false negative?
3185	EN71-3	24.0		0.43	
3190	EN71-3	22		-0.16	
3192		-----		-----	
3199	EN71-3	25.67		0.93	
3210		-----		-----	
3214	EN71-3	21.51		-0.30	
3218	EN71-3	24.3		0.52	
3220	EN71-3	49	DG(0.05)	7.83	
3228	EN71-3	22.91		0.11	
3233	EN71-3	24.4		0.55	
3237		-----		-----	
3238		-----		-----	
3242	EN71-3	24.11		0.47	
3243	EN71-3	<10		<-3.53	false negative?
3248	EN71-3	20		-0.75	

normality	OK
n	47
outliers	2
mean (n)	22.532
st.dev. (n)	7.1232
R(calc.)	19.945
R(target)	9.454



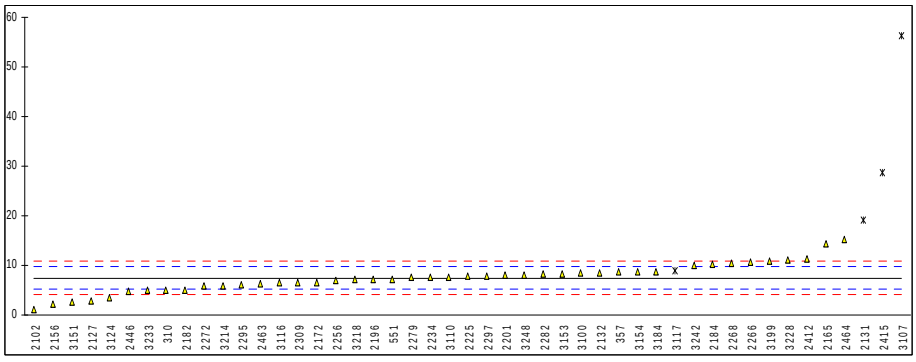


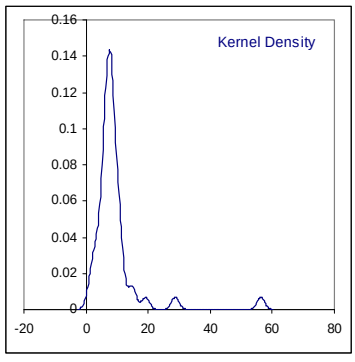
Determination of migration of zinc on sample #12012; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	5.01		-----	
330		-----		-----	
357	EN71-3	8.59		-----	
551	EN71-3	7.27		-----	
622		-----		-----	
632		-----		-----	
2102	EN71-3	1.083		-----	
2115		-----		-----	
2127	EN71-3	2.87		-----	
2129		-----		-----	
2131	EN71-3	19.20	G(0.05)	-----	false positive?
2132	EN71-3	8.50		-----	
2156	EN71-3	2.08		-----	
2165	EN71-3	14.4		-----	
2172	EN71-3	6.620		-----	
2182	EN71-3	5.10		-----	
2184	EN71-3	10.16		-----	
2190	EN71-3	<10.67		-----	
2196	EN71-3	7.12		-----	
2201	EN71-3	8.00		-----	
2214		-----		-----	
2217		-----		-----	
2225	EN71-3	7.76		-----	
2226		-----		-----	
2228		-----		-----	
2229		-----		-----	
2232		-----		-----	
2234	EN71-3	7.64		-----	
2236		-----		-----	
2238	EN71-3	<5		-----	
2240		-----		-----	
2241		-----		-----	
2245		-----		-----	
2246		-----		-----	
2247		-----		-----	
2251		-----		-----	
2252		-----		-----	
2253		-----		-----	
2254	EN71-3	n.d.		-----	
2255		-----		-----	
2256	EN71-3	7.03		-----	
2258		-----		-----	
2266	EN71-3	10.68		-----	
2268	EN71-3	10.4		-----	
2269		-----		-----	
2271		-----		-----	
2272	EN71-3	5.8		-----	
2277		-----		-----	
2279	EN71-3	7.62		-----	
2282	EN71-3	8.23		-----	
2284	EN71-3	<5		-----	
2289		-----		-----	
2290		-----		-----	
2293		-----		-----	
2294		-----		-----	
2295	EN71-3	6		-----	
2297	EN71-3	7.8		-----	
2303		-----		-----	
2304		-----		-----	
2309	EN71-3	6.5		-----	
2312		-----		-----	
2320		-----		-----	
2359		-----		-----	
2372	EN71-3	n.d.		-----	
2380		-----		-----	
2406		-----		-----	
2410		-----		-----	
2412	EN71-3	11.3		-----	
2413		-----		-----	
2415	EN71-3	28.69	G(0.01)	-----	false positive?
2424		-----		-----	
2425		-----		-----	
2431		-----		-----	
2432		-----		-----	
2433	EN71-3	n.d.		-----	

2442		-----		-----	
2446	EN71-3	4.71		-----	
2463	EN71-3	6.327		-----	
2464	EN71-3	15.21		-----	
2465		-----		-----	
2466		-----		-----	
2468		-----		-----	
2469		-----		-----	
2470		-----		-----	
2471		-----		-----	
2478		-----		-----	
3100	EN71-3	8.40		-----	
3107	EN71-3	56.28	G(0.01)	-----	false positive?
3110	EN71-3	7.64		-----	
3116	EN71-3	6.45		-----	
3117	EN71-3	8.88	ex	-----	result excluded; same results for before and after analytical correction
3118		-----		-----	
3122		-----		-----	
3124	EN71-3	3.50		-----	
3146		-----		-----	
3151	EN71-3	2.7		-----	
3153	EN71-3	8.24		-----	
3154	EN71-3	8.79		-----	
3167		-----		-----	
3172		-----		-----	
3176		-----		-----	
3182		-----		-----	
3185	EN71-3	8.80		-----	
3190	EN71-3	<5		-----	
3192		-----		-----	
3199	EN71-3	10.92		-----	
3210		-----		-----	
3214	EN71-3	5.89		-----	
3218	EN71-3	7.1		-----	
3220	EN71-3	n.d.		-----	
3228	EN71-3	11.18		-----	
3233	EN71-3	5.0		-----	
3237		-----		-----	
3238		-----		-----	
3242	EN71-3	10.06		-----	
3243	EN71-3	<2		-----	
3248	EN71-3	8		-----	

normality	OK
n	43
outliers	3
mean (n)	7.500
st.dev. (n)	2.9139
R(calc.)	8.159
R(target)	(3.150)



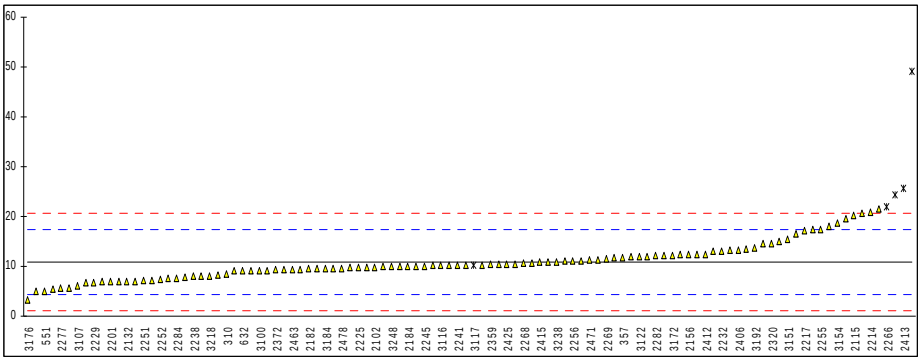


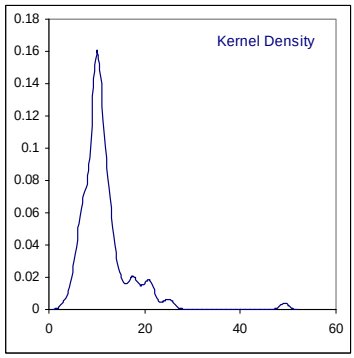
Determination of migration of antimony on sample #12013; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	8.50		-0.72	
330	EN71-3	<25		-----	
357	EN71-3	11.81		0.29	
551	EN71-3	5.04		-1.79	
622	EN71-3	10.5		-0.11	
632	INH-103	9.08		-0.54	
2102	EN71-3	9.867		-0.30	
2115	EN71-3	20.20		2.87	
2127	EN71-3	13.58		0.84	
2129	EN71-3	5.73		-1.57	
2131	EN71-3	12.30		0.45	
2132	EN71-3	7.00		-1.18	
2156	EN71-3	12.45		0.49	
2165	EN71-3	9.9		-0.29	
2172	EN71-3	8.260		-0.80	
2182	EN71-3	9.49		-0.42	
2184	EN71-3	10.00		-0.26	
2190	EN71-3	<10.67		-----	
2196	EN71-3	9.49		-0.42	
2201	EN71-3	7.000		-1.18	
2214	EN71-3	20.87		3.08	
2217	EN71-3	17.19		1.95	
2225	EN71-3	9.80		-0.32	
2226	EN71-3	10.16		-0.21	
2228	EN71-3	5.40		-1.67	
2229	EN71-3	6.72		-1.27	
2232	EN71-3	13.12		0.70	
2234	EN71-3	9.78		-0.33	
2236	EN71-3	10.7		-0.05	
2238	EN71-3	8		-0.88	
2240	EN71-3	9.41		-0.44	
2241	EN71-3	10.18		-0.21	
2245	EN71-3	10.06		-0.24	
2246	EN71-3	11.10		0.08	
2247	EN71-3	18.11		2.23	
2251	EN71-3	7.135		-1.14	
2252	EN71-3	7.36		-1.07	
2253	EN71-3	10.11		-0.23	
2254	EN71-3	4.99		-1.80	
2255	EN71-3	17.5	C	2.04	first reported: 25.8
2256	EN71-3	11.03		0.06	
2258	EN71-3	6.94		-1.20	
2266	EN71-3	21.87	DG(0.05)	3.39	
2268	EN71-3	10.6		-0.08	
2269	EN71-3	11.42		0.17	
2271		-----		-----	
2272	EN71-3	7.6		-1.00	
2277	EN71-3	5.55		-1.63	
2279	EN71-3	11.39		0.17	
2282	EN71-3	12.1		0.38	
2284	EN71-3	7.62		-0.99	
2289	EN71-3	10		-0.26	
2290	EN71-3	12.11		0.39	
2293	EN71-3	14.49	C	1.12	first reported: 37.65
2294	EN71-3	21.6		3.30	
2295		-----		-----	
2297	EN71-3	9.6		-0.38	
2303	EN71-3	12.98		0.65	
2304	EN71-3	9.07		-0.55	
2309	EN71-3	11.02		0.05	
2312		-----		-----	
2320	EN71-3	14.6		1.15	
2359	INH-6675	10.39		-0.14	
2372	EN71-3	9.38		-0.45	
2380	EN71-3	7.24		-1.11	
2406	EN71-3	13.26		0.74	
2410	EN71-3	11.73		0.27	
2412	EN71-3	12.5		0.51	
2413	EN71-3	25.65	G(0.05)	4.55	
2415	EN71-3	10.78		-0.02	
2424	EN71-3	16.5		1.74	
2425	EN71-3	10.42		-0.13	
2431	EN71-3	17.46		2.03	
2432	in house	13.2		0.72	
2433	EN71-3	n.d.		-----	
2442	EN71-3	12.475		0.50	

2446	EN71-3	9.44		-0.43	
2463	EN71-3	9.415		-0.44	
2464	EN71-3	14.98		1.27	
2465	EN71-3	12.01		0.36	
2466		-----		-----	
2468	EN71-3	7.02		-1.18	
2469	EN71-3	9.18		-0.51	
2470	EN71-3	6.67		-1.28	
2471	EN71-3	11.2183		0.11	
2478	EN71-3	9.64		-0.37	
3100	EN71-3	9.22		-0.50	
3107	EN71-3	6.10		-1.46	
3110	EN71-3	10.41		-0.14	
3116	ASTM F963	10.16		-0.21	
3117	EN71-3	10.30	ex	-0.17	result excluded; same results for before and after analytical correction
3118	EN71-3	24.25	DG(0.05)	4.12	
3122	EN71-3	12.0		0.35	
3124	EN71-3	10.3		-0.17	
3146		-----		-----	
3151	EN71-3	15.54		1.44	
3153	EN71-3	10.21		-0.20	
3154	EN71-3	18.6	C	2.38	first reported: 21.0
3167		-----		-----	
3172	EN71-3	12.2		0.41	
3176	EN71-3	3.36		-2.30	
3182	EN71-3	19.53		2.67	
3185	EN71-3	9.57		-0.39	
3190	EN71-3	7		-1.18	
3192	EN71-3	13.6		0.84	
3199	EN71-3	7.73		-0.96	
3210	EN71-3	49.2	G(0.01)	11.78	
3214	EN71-3	10.01		-0.26	
3218	EN71-3	8.1		-0.85	
3220	EN71-3	20.7		3.03	
3228	EN71-3	9.23		-0.50	
3233	EN71-3	10.8		-0.02	
3237	EN71-3	8.04		-0.86	
3238	EN71-3	10.90		0.02	
3242	EN71-3	11.95		0.34	
3243	EN71-3	9.86		-0.30	
3248	EN71-3	10		-0.26	

normality	not OK
n	103
outliers	4
mean (n)	10.851
st.dev. (n)	3.6525
R(calc.)	10.227
R(target)	9.115



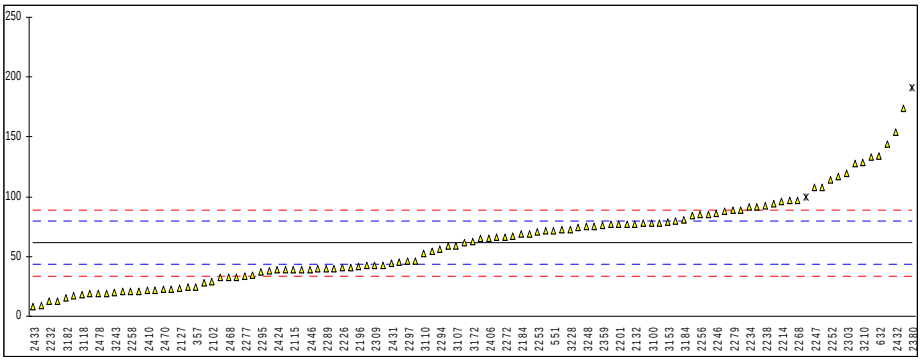


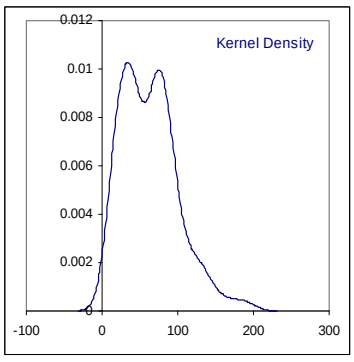
Determination of migration of barium on sample #12013; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	85.30		-----	
330	EN71-3	62		-----	
357	EN71-3	24.76		-----	
551	EN71-3	72.00		-----	
622	EN71-3	107.9		-----	
632	INH-103	133.64		-----	
2102	EN71-3	28.762		-----	
2115	EN71-3	38.95		-----	
2127	EN71-3	23.29		-----	
2129	EN71-3	53.9		-----	
2131	EN71-3	143.68		-----	
2132	EN71-3	77.00		-----	
2156	EN71-3	46.4		-----	
2165	EN71-3	79.7		-----	
2172	EN71-3	76.91		-----	
2182	EN71-3	32.47		-----	
2184	EN71-3	68.70		-----	
2190	EN71-3	133.33		-----	
2196	EN71-3	41.78		-----	
2201	EN71-3	76.76		-----	
2214	EN71-3	96.18		-----	
2217	EN71-3	38.88		-----	
2225	EN71-3	84.02		-----	
2226	EN71-3	40.75		-----	
2228	EN71-3	28.45		-----	
2229	EN71-3	58.88		-----	
2232	EN71-3	13.09		-----	
2234	EN71-3	91.10		-----	
2236	EN71-3	78.3		-----	
2238	EN71-3	92		-----	
2240	EN71-3	39.21		-----	
2241	EN71-3	24.28		-----	
2245	EN71-3	19.47		-----	
2246	EN71-3	85.90		-----	
2247	EN71-3	107.5		-----	
2251	EN71-3	77.522		-----	
2252	EN71-3	114	C	-----	first reported: 160.00
2253	EN71-3	70.68		-----	
2254	EN71-3	69.21		-----	
2255	EN71-3	127.4		-----	
2256	EN71-3	85.15		-----	
2258	EN71-3	20.54		-----	
2266	EN71-3	71.46		-----	
2268	EN71-3	96.9		-----	
2269	EN71-3	40.97		-----	
2271		-----		-----	
2272	EN71-3	66.4		-----	
2277	EN71-3	33.65		-----	
2279	EN71-3	88.64		-----	
2282	EN71-3	42.7		-----	
2284	EN71-3	65.44		-----	
2289	EN71-3	40		-----	
2290	EN71-3	66.00		-----	
2293	EN71-3	32.56	C	-----	first reported: 80.39
2294	EN71-3	56.0		-----	
2295	EN71-3	37		-----	
2297	EN71-3	46.3		-----	
2303	EN71-3	119.70		-----	
2304	EN71-3	23.05		-----	
2309	EN71-3	42.63		-----	
2312		-----		-----	
2320	EN71-3	n.d.		-----	
2359	INH-6675	76.49		-----	
2372	EN71-3	21.97		-----	
2380	EN71-3	191.50	G(0.05)	-----	false positive?
2406	EN71-3	65.50		-----	
2410	EN71-3	21.83		-----	
2412	EN71-3	96.8		-----	
2413	EN71-3	n.d.		-----	
2415	EN71-3	116.80		-----	
2424	EN71-3	38.8		-----	
2425	EN71-3	76.67		-----	
2431	EN71-3	44.68		-----	
2432	in house	154.1		-----	
2433	EN71-3	8		-----	

2442	EN71-3	89.057		-----	
2446	EN71-3	39.36		-----	
2463	EN71-3	40.060		-----	
2464	EN71-3	37.86		-----	
2465	EN71-3	44.95		-----	
2466		-----		-----	
2468	EN71-3	32.53		-----	
2469	EN71-3	20.55		-----	
2470	EN71-3	22.88		-----	
2471	EN71-3	13.1181		-----	
2478	EN71-3	18.84		-----	
3100	EN71-3	78.0		-----	
3107	EN71-3	59.22		-----	
3110	EN71-3	52.96		-----	
3116	ASTM F963	75.20		-----	
3117	EN71-3	99.77	ex	-----	result excluded; same results for before and after analytical correction
3118	EN71-3	17.71		-----	
3122	EN71-3	<100		-----	
3124	EN71-3	9.07		-----	
3146		-----		-----	
3151	EN71-3	93.92		-----	
3153	EN71-3	79.25		-----	
3154	EN71-3	18.6		-----	
3167		-----		-----	
3172	EN71-3	62.1		-----	
3176	EN71-3	16.95		-----	
3182	EN71-3	15.21	C	-----	first reported: <5.00
3185	EN71-3	80.8		-----	
3190	EN71-3	67		-----	
3192	EN71-3	20.4		-----	
3199	EN71-3	91.27		-----	
3210	EN71-3	129		-----	
3214	EN71-3	72.43		-----	
3218	EN71-3	74.3		-----	
3220	EN71-3	173.5		-----	
3228	EN71-3	72.69		-----	
3233	EN71-3	42.4		-----	
3237	EN71-3	39.85		-----	
3238	EN71-3	34.65		-----	
3242	EN71-3	88.15		-----	
3243	EN71-3	20.3		-----	
3248	EN71-3	75		-----	

normality	not OK
n	107
outliers	1
mean (n)	61.495
st.dev. (n)	35.0657
R(calc.)	98.184
R(target)	(25.828)



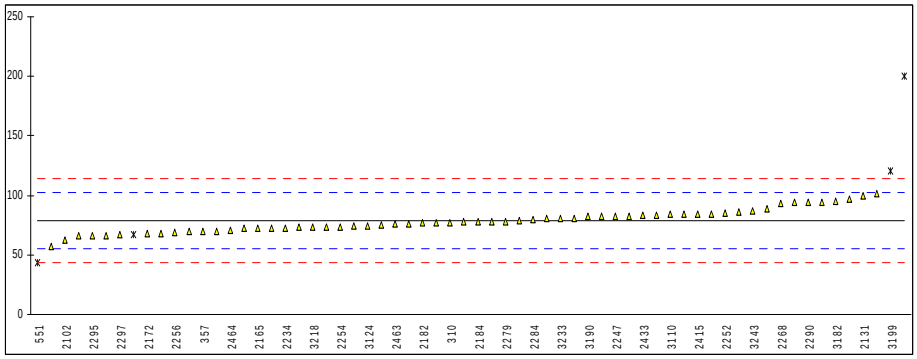


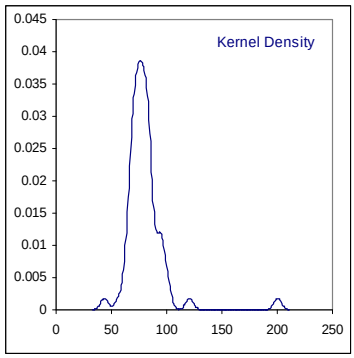
Determination of migration of copper on sample #12013; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	77.00		-0.14	
330		-----		-----	
357	EN71-3	69.86		-0.75	
551	EN71-3	43.62	G(0.05)	-2.97	
622		-----		-----	
632		-----		-----	
2102	EN71-3	62.806		-1.34	
2115		-----		-----	
2127	EN71-3	80.41		0.15	
2129		-----		-----	
2131	EN71-3	100.00		1.81	
2132	EN71-3	57.00		-1.84	
2156	EN71-3	82.71		0.34	
2165	EN71-3	72.4		-0.53	
2172	EN71-3	68.20		-0.89	
2182	EN71-3	76.67		-0.17	
2184	EN71-3	78.07		-0.05	
2190	EN71-3	75.41		-0.28	
2196	EN71-3	69.70		-0.76	
2201	EN71-3	83.20		0.38	
2214		-----		-----	
2217		-----		-----	
2225	EN71-3	68.31		-0.88	
2226		-----		-----	
2228		-----		-----	
2229		-----		-----	
2232		-----		-----	
2234	EN71-3	72.76		-0.50	
2236		-----		-----	
2238	EN71-3	78		-0.06	
2240		-----		-----	
2241	EN71-3	94.14		1.31	
2245		-----		-----	
2246		-----		-----	
2247	EN71-3	82.3		0.31	
2251		-----		-----	
2252	EN71-3	85.40		0.57	
2253		-----		-----	
2254	EN71-3	73.65		-0.43	
2255	EN71-3	85.9		0.61	
2256	EN71-3	68.55		-0.86	
2258		-----		-----	
2266	EN71-3	200.43	G(0.01)	10.32	
2268	EN71-3	93.2		1.23	
2269		-----		-----	
2271		-----		-----	
2272	EN71-3	76.0		-0.23	
2277		-----		-----	
2279	EN71-3	78.28		-0.03	
2282	EN71-3	70		-0.73	
2284	EN71-3	80.12		0.12	
2289		-----		-----	
2290	EN71-3	94.04		1.30	
2293		-----		-----	
2294		-----		-----	
2295	EN71-3	66		-1.07	
2297	EN71-3	66.7		-1.01	
2303		-----		-----	
2304		-----		-----	
2309	EN71-3	65.95		-1.08	
2312		-----		-----	
2320		-----		-----	
2359		-----		-----	
2372	EN71-3	66.06		-1.07	
2380		-----		-----	
2406		-----		-----	
2410		-----		-----	
2412	EN71-3	93.85		1.29	
2413		-----		-----	
2415	EN71-3	84.38		0.48	
2424		-----		-----	
2425	EN71-3	97.13		1.56	
2431		-----		-----	
2432		-----		-----	
2433	EN71-3	83		0.37	
2442		-----		-----	

2446	EN71-3	82.00		0.28	
2463	EN71-3	75.980		-0.23	
2464	EN71-3	70.45		-0.70	
2465		-----		-----	
2466		-----		-----	
2468		-----		-----	
2469		-----		-----	
2470		-----		-----	
2471		-----		-----	
2478		-----		-----	
3100	EN71-3	72.2		-0.55	
3107	EN71-3	78.68		0.00	
3110	EN71-3	83.93		0.45	
3116	ASTM F963	73.06		-0.48	
3117	EN71-3	67.38	ex	-0.96	result excluded; same results for before and after analytical correction
3118		-----		-----	
3122		-----		-----	
3124	EN71-3	74.5		-0.35	
3146		-----		-----	
3151	EN71-3	84.01		0.45	
3153	EN71-3	72.71		-0.50	
3154	EN71-3	84.6		0.50	
3167		-----		-----	
3172		-----		-----	
3176		-----		-----	
3182	EN71-3	94.81		1.37	
3185	EN71-3	73.3		-0.45	
3190	EN71-3	82		0.28	
3192		-----		-----	
3199	EN71-3	120.73	CG(0.01)	3.56	first reported: 115.78
3210	EN71-3	89.1		0.88	
3214	EN71-3	80.17		0.13	
3218	EN71-3	73.1		-0.47	
3220	EN71-3	77		-0.14	
3228	EN71-3	78.23		-0.04	
3233	EN71-3	80.4		0.15	
3237		-----		-----	
3238		-----		-----	
3242	EN71-3	101.11		1.90	
3243	EN71-3	87.4		0.74	
3248	EN71-3	74		-0.40	

normality	OK
n	60
outliers	3
mean (n)	78.665
st.dev. (n)	9.4724
R(calc.)	26.523
R(target)	33.039



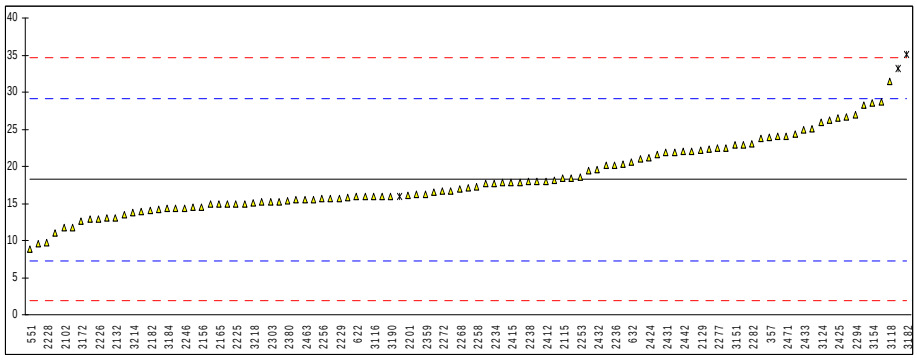


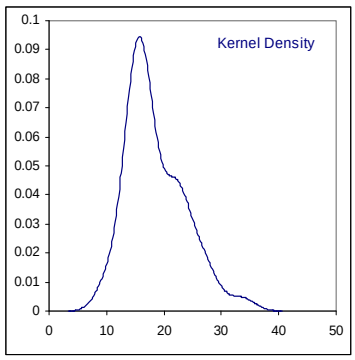
Determination of migration of selenium on sample #12013; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	24.00		1.05	
330	EN71-3	<25		-----	
357	EN71-3	23.90		1.04	
551	EN71-3	8.86		-1.71	
622	EN71-3	15.9		-0.43	
632	INH-103	20.55		0.42	
2102	EN71-3	11.686		-1.20	
2115	EN71-3	18.40		0.03	
2127	EN71-3	21.04		0.51	
2129	EN71-3	22.2		0.72	
2131	EN71-3	28.20		1.82	
2132	EN71-3	13.00		-0.96	
2156	EN71-3	14.53		-0.68	
2165	EN71-3	14.9		-0.61	
2172	EN71-3	14.89		-0.61	
2182	EN71-3	14.07		-0.76	
2184	EN71-3	15.17		-0.56	
2190	EN71-3	16.00		-0.41	
2196	EN71-3	21.90		0.67	
2201	EN71-3	16.13		-0.38	
2214	EN71-3	28.63		1.90	
2217	EN71-3	14.26		-0.73	
2225	EN71-3	14.96		-0.60	
2226	EN71-3	12.93		-0.97	
2228	EN71-3	9.69		-1.56	
2229	EN71-3	15.60		-0.48	
2232	EN71-3	26.27		1.47	
2234	EN71-3	17.71		-0.10	
2236	EN71-3	20.2		0.36	
2238	EN71-3	18		-0.04	
2240	EN71-3	17.08		-0.21	
2241	EN71-3	22.46		0.77	
2245	EN71-3	24.35		1.12	
2246	EN71-3	14.40		-0.70	
2247	EN71-3	<5		<-2.37	false negative?
2251	EN71-3	n.d.		-----	false negative?
2252		-----		-----	
2253	EN71-3	18.54		0.06	
2254	EN71-3	14.44		-0.69	
2255		-----		-----	
2256	EN71-3	15.60		-0.48	
2258	EN71-3	17.29		-0.17	
2266	EN71-3	25.07		1.25	
2268	EN71-3	16.9		-0.24	
2269	EN71-3	13.41		-0.88	
2271		-----		-----	
2272	EN71-3	16.6		-0.30	
2277	EN71-3	22.42		0.77	
2279	EN71-3	17.71		-0.10	
2282	EN71-3	23		0.87	
2284	EN71-3	18.41		0.03	
2289	EN71-3	22		0.69	
2290	EN71-3	n.d.		-----	false negative?
2293	EN71-3	26.67	C	1.54	first reported: 65.09
2294	EN71-3	27.0		1.60	
2295	EN71-3	11		-1.32	
2297	EN71-3	33.2	DG(0.05)	2.74	
2303	EN71-3	15.20		-0.55	
2304	EN71-3	18.00		-0.04	
2309	EN71-3	15.6		-0.48	
2312		-----		-----	
2320	EN71-3	22.9		0.85	
2359	INH-6675	16.23		-0.37	
2372	EN71-3	19.48		0.23	
2380	EN71-3	15.41		-0.52	
2406	EN71-3	9.58		-1.58	
2410	EN71-3	18.05		-0.03	
2412	EN71-3	18.01		-0.04	
2413	EN71-3	20.11		0.34	
2415	EN71-3	17.86		-0.07	
2424	EN71-3	21.2		0.54	
2425	EN71-3	26.49		1.51	
2431	EN71-3	21.82	C	0.66	first reported: 30.76
2432	in house	19.5		0.23	
2433	EN71-3	25		1.24	
2442	EN71-3	22		0.69	

2446	EN71-3	16.19		-0.37	
2463	EN71-3	15.540		-0.49	
2464	EN71-3	20.29		0.38	
2465	EN71-3	17.88		-0.06	
2466		-----		-----	
2468	EN71-3	23.80		1.02	
2469	EN71-3	16.60		-0.30	
2470	EN71-3	15.90		-0.43	
2471	EN71-3	24.0182		1.06	
2478	EN71-3	15.21		-0.55	
3100	EN71-3	13.9		-0.79	
3107	EN71-3	15.56		-0.49	
3110	EN71-3	14.95		-0.60	
3116	ASTM F963	15.98		-0.41	
3117	EN71-3	16.01	ex	-0.41	result excluded; same results for before and after analytical correction
3118	EN71-3	31.43		2.41	
3122	EN71-3	<5		<-2.37	false negative?
3124	EN71-3	26.0		1.42	
3146		-----		-----	
3151	EN71-3	22.85		0.84	
3153	EN71-3	15.50		-0.50	
3154	EN71-3	28.5	C	1.88	first reported: 30.9
3167		-----		-----	
3172	EN71-3	12.6		-1.03	
3176	EN71-3	12.98		-0.96	
3182	EN71-3	35.01	DG(0.05)	3.07	
3185	EN71-3	14.4		-0.70	
3190	EN71-3	16		-0.41	
3192	EN71-3	14.4		-0.70	
3199	EN71-3	16.59		-0.30	
3210		-----		-----	
3214	EN71-3	13.84		-0.80	
3218	EN71-3	15.1		-0.57	
3220	EN71-3	11.7		-1.19	
3228	EN71-3	15.80		-0.44	
3233	EN71-3	n.d.		-----	false negative?
3237	EN71-3	12.83		-0.99	
3238	EN71-3	21.55		0.61	
3242	EN71-3	17.86	C	-0.07	first reported: 30.31
3243	EN71-3	22.3		0.74	
3248	EN71-3	15		-0.59	

normality	not OK
n	100
outliers	2
mean (n)	18.234
st.dev. (n)	4.7230
R(calc.)	13.224
R(target)	15.317



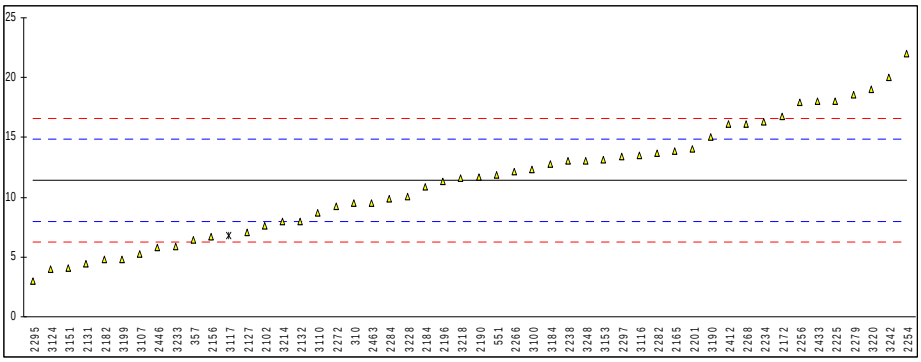


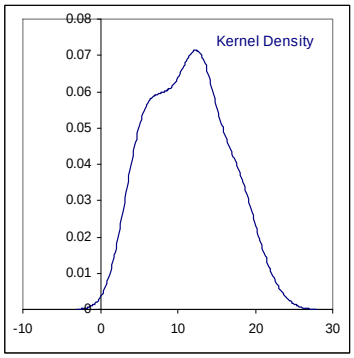
Determination of migration of tin on sample #12013; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	9.50		-----	
330		-----		-----	
357	EN71-3	6.45		-----	
551	EN71-3	11.83		-----	
622		-----		-----	
632		-----		-----	
2102	EN71-3	7.622		-----	
2115		-----		-----	
2127	EN71-3	7.04		-----	
2129		-----		-----	
2131	EN71-3	4.47		-----	
2132	EN71-3	8.00		-----	
2156	EN71-3	6.67		-----	
2165	EN71-3	13.9		-----	
2172	EN71-3	16.72		-----	
2182	EN71-3	4.79		-----	
2184	EN71-3	10.88		-----	
2190	EN71-3	11.73		-----	
2196	EN71-3	11.34		-----	
2201	EN71-3	14.00		-----	
2214		-----		-----	
2217		-----		-----	
2225	EN71-3	18.04		-----	
2226		-----		-----	
2228		-----		-----	
2229		-----		-----	
2232		-----		-----	
2234	EN71-3	16.30		-----	
2236		-----		-----	
2238	EN71-3	13		-----	
2240		-----		-----	
2241	EN71-3	n.d.		-----	
2245		-----		-----	
2246		-----		-----	
2247		-----		-----	
2251		-----		-----	
2252		-----		-----	
2253		-----		-----	
2254	EN71-3	21.99		-----	
2255		-----		-----	
2256	EN71-3	17.95		-----	
2258		-----		-----	
2266	EN71-3	12.13		-----	
2268	EN71-3	16.1		-----	
2269		-----		-----	
2271		-----		-----	
2272	EN71-3	9.2		-----	
2277		-----		-----	
2279	EN71-3	18.54		-----	
2282	EN71-3	13.7		-----	
2284	EN71-3	9.90		-----	
2289		-----		-----	
2290		-----		-----	
2293		-----		-----	
2294		-----		-----	
2295	EN71-3	3		-----	
2297	EN71-3	13.4		-----	
2303		-----		-----	
2304		-----		-----	
2309	EN71-3	n.d.		-----	
2312		-----		-----	
2320		-----		-----	
2359		-----		-----	
2372		-----		-----	
2380		-----		-----	
2406		-----		-----	
2410		-----		-----	
2412	EN71-3	16.1		-----	
2413		-----		-----	
2415		-----		-----	
2424		-----		-----	
2425		-----		-----	
2431		-----		-----	
2432		-----		-----	
2433	EN71-3	18		-----	
2442		-----		-----	

2446	EN71-3	5.76		-----	
2463	EN71-3	9.548		-----	
2464		-----	W	-----	result withdrawn; first reported: 30.89
2465		-----		-----	
2466		-----		-----	
2468		-----		-----	
2469		-----		-----	
2470		-----		-----	
2471		-----		-----	
2478		-----		-----	
3100	EN71-3	12.3		-----	
3107	EN71-3	5.23		-----	
3110	EN71-3	8.69		-----	
3116	ASTM F963	13.47		-----	
3117	EN71-3	6.75	ex	-----	result excluded; same results for before and after analytical correction
3118		-----		-----	
3122		-----		-----	
3124	EN71-3	3.95		-----	
3146		-----		-----	
3151	EN71-3	4.06		-----	
3153	EN71-3	13.17		-----	
3154		-----		-----	
3167		-----		-----	
3172		-----		-----	
3176		-----		-----	
3182	EN71-3	<5.00		-----	
3185	EN71-3	12.8		-----	
3190	EN71-3	15		-----	
3192		-----		-----	
3199	EN71-3	4.84		-----	
3210		-----		-----	
3214	EN71-3	7.99		-----	
3218	EN71-3	11.6		-----	
3220	EN71-3	19.0		-----	
3228	EN71-3	10.02		-----	
3233	EN71-3	5.93		-----	
3237		-----		-----	
3238		-----		-----	
3242	EN71-3	20.04		-----	
3243	EN71-3	<10		-----	
3248	EN71-3	13		-----	

normality	OK
n	49
outliers	0
mean (n)	11.402
st.dev. (n)	4.8208
R(calc.)	13.498
R(target)	(4.789)



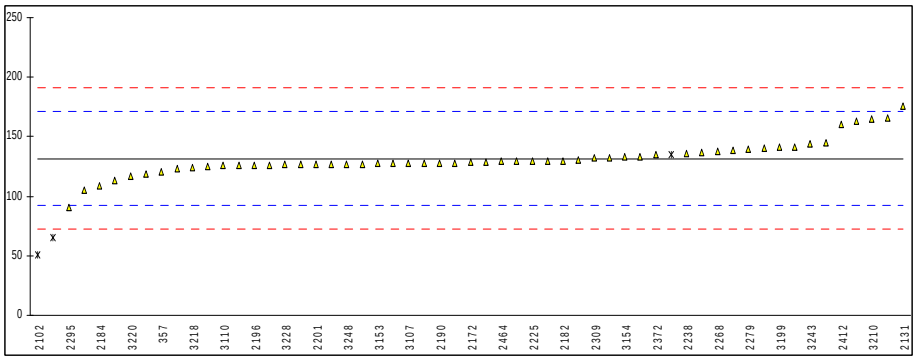


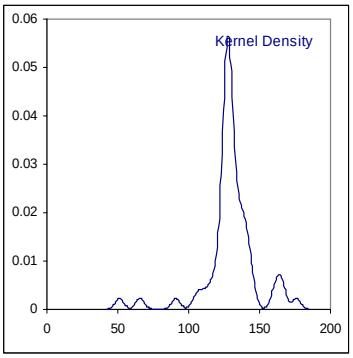
Determination of migration of zinc on sample #12013; results in mg/kg

lab	method	value	mark	z(targ)	remarks
310	EN71-3	166.00		1.74	
330		-----		-----	
357	EN71-3	120.9		-0.54	
551	EN71-3	65.53	G(0.01)	-3.35	
622		-----		-----	
632		-----		-----	
2102	EN71-3	51.117	G(0.01)	-4.08	
2115		-----		-----	
2127	EN71-3	129.62		-0.10	
2129		-----		-----	
2131	EN71-3	176.00		2.25	
2132	EN71-3	124.60	C	-0.36	first reported: 102.50
2156	EN71-3	126.3		-0.27	
2165	EN71-3	128.3		-0.17	
2172	EN71-3	128.2		-0.17	
2182	EN71-3	129.67		-0.10	
2184	EN71-3	109.14		-1.14	
2190	EN71-3	128.00		-0.18	
2196	EN71-3	126.27		-0.27	
2201	EN71-3	126.5		-0.26	
2214		-----		-----	
2217		-----		-----	
2225	EN71-3	129.21		-0.12	
2226		-----		-----	
2228		-----		-----	
2229		-----		-----	
2232		-----		-----	
2234	EN71-3	127.32		-0.22	
2236		-----		-----	
2238	EN71-3	136		0.22	
2240		-----		-----	
2241		-----	W	-----	result withdrawn, first reported: 167.80
2245		-----		-----	
2246		-----		-----	
2247		-----		-----	
2251		-----		-----	
2252		-----		-----	
2253		-----		-----	
2254	EN71-3	113.35		-0.93	
2255		-----		-----	
2256	EN71-3	132.08		0.02	
2258		-----		-----	
2266	EN71-3	122.90		-0.44	
2268	EN71-3	138.1		0.33	
2269		-----		-----	
2271		-----		-----	
2272	EN71-3	163		1.59	
2277		-----		-----	
2279	EN71-3	139.31		0.39	
2282	EN71-3	127		-0.23	
2284	EN71-3	130.73		-0.04	
2289		-----		-----	
2290		-----		-----	
2293		-----		-----	
2294		-----		-----	
2295	EN71-3	91		-2.06	
2297	EN71-3	140.5		0.45	
2303		-----		-----	
2304		-----		-----	
2309	EN71-3	131.8		0.01	
2312		-----		-----	
2320		-----		-----	
2359		-----		-----	
2372	EN71-3	134.93		0.17	
2380		-----		-----	
2406		-----		-----	
2410		-----		-----	
2412	EN71-3	160.2		1.45	
2413		-----		-----	
2415	EN71-3	145.2		0.69	
2424		-----		-----	
2425		-----		-----	
2431		-----		-----	
2432		-----		-----	
2433	EN71-3	105	C	-1.35	first reported: 288
2442		-----		-----	

2446	EN71-3	138.44		0.35	
2463	EN71-3	126.600		-0.25	
2464	EN71-3	129.14		-0.13	
2465		-----		-----	
2466		-----		-----	
2468		-----		-----	
2469		-----		-----	
2470		-----		-----	
2471		-----		-----	
2478		-----		-----	
3100	EN71-3	126		-0.28	
3107	EN71-3	127.60		-0.20	
3110	EN71-3	125.82		-0.29	
3116	ASTM F963	126.41		-0.26	
3117	EN71-3	135.41	ex	0.19	result excluded; same results for before and after analytical correction
3118		-----		-----	
3122		-----		-----	
3124	EN71-3	119		-0.64	
3146		-----		-----	
3151	EN71-3	141.36		0.49	
3153	EN71-3	127.29		-0.22	
3154	EN71-3	133		0.07	
3167		-----		-----	
3172		-----		-----	
3176		-----		-----	
3182		-----		-----	
3185	EN71-3	128		-0.18	
3190	EN71-3	133		0.07	
3192		-----		-----	
3199	EN71-3	141.34		0.49	
3210	EN71-3	165		1.69	
3214	EN71-3	127.62		-0.20	
3218	EN71-3	124		-0.39	
3220	EN71-3	117.0		-0.74	
3228	EN71-3	126.36		-0.27	
3233	EN71-3	136.9		0.27	
3237		-----		-----	
3238		-----		-----	
3242	EN71-3	129.20	C	-0.12	first reported; 165.11
3243	EN71-3	144		0.63	
3248	EN71-3	127		-0.23	

normality	not OK
n	54
outliers	2
mean (n)	131.615
st.dev. (n)	14.5159
R(calc.)	40.645
R(target)	55.278





APPENDIX 2

Number of participants per country

4 labs in BANGLADESH
2 labs in BRAZIL
1 lab in CANADA
1 lab in DENMARK
1 lab in FINLAND
6 labs in FRANCE
8 labs in GERMANY
2 labs in GUATEMALA
11 labs in HONG KONG
1 lab in HUNGARY
5 labs in INDIA
3 labs in INDONESIA
1 lab in ISRAEL
3 labs in ITALY
1 lab in JAPAN
1 lab in KOREA
2 labs in MALAYSIA
4 labs in MEXICO
32 labs in P.R. of CHINA
1 lab in PERU
2 labs in PHILIPPINES
1 lab in SINGAPORE
2 labs in SPAIN
1 lab in SRI LANKA
1 lab in SWITZERLAND
2 labs in TAIWAN R.O.C.
2 labs in THAILAND
2 labs in THE NETHERLANDS
3 labs in TURKEY
6 labs in U.S.A.
3 labs in UNITED KINGDOM
2 labs in VIETNAM

APPENDIX 3

Abbreviations:

C	= final result after checking of first reported suspect 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
n.a.	= not applicable
n.d.	= not detected
fr.	= first reported result
ac	= analytical correction *cfr* EN71-3:1994, paragraph 4.2

Literature:

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010

2 Council Directive 88/378/EEC

3 Council Directive 2009/48/EC

4 EN71-3:1994 + A1:2000, Safety of Toys - Migration of certain elements

5 Horwitz. Journal of AOAC International Vol. 79 No.3. 1996

6 P.L. Davies. Fr Z. Anal. Chem. 351. 513. (1988)

7 W.J. Conover. Practical; Nonparametric Statistics. J. Wiley&Sons. NY. p.302. (1971)

8 ISO 5725 (1986)

9 ISO 5725 parts 1-6. (1994)

10 ISC7/GF/csteeop/toysinorg/220604 D(04) Assessment of bioavailability of certain elements in toys

11 ISO13528:2005 Statistical methods for use in proficiency testing by interlaboratory comparisons

12 M. Thompson and R. Wood. J. AOAC Int. 76. 926. (1993)

13 Analytical Methods Committee Technical brief, No4 January 2001.

14 The Royal Society of Chemistry 2002, Analyst 2002, 127 page 1359-1364, P.J. Lowthian and M. Thompson (see http://www.rsc.org/suppdata/an/b2/b205600n/).

15 Draft prEN71-3:2012, Safety of Toys - Migration of certain elements