Results of Proficiency Test
Hydraulic Fluid (used)
November 2015

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1 INTRODUCTION

Since 2003, the Institute for Interlaboratory Studies organized a proficiency test for the analysis of used Hydraulic Fluid every year. It was decided to continue this interlaboratory study during the annual program 2015/2016. In this interlaboratory study, 58 laboratories from 37 different countries have participated. See appendix 2 for the number of participants per country. In this report, the test results of the 2015 interlaboratory study on used Hydraulic Fluid are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, The Netherlands, was the organiser of this proficiency test. Sample analysis for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. It was decided to send two different samples of used fluids: one sample of 1 litre used Hydraulic Fluid and one sample of 0.1 litre used Hydraulic Fluid (H576) especially for wear metals. The participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

2.1 QUALITY SYSTEM

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system on IEC/ISO17043:2010. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol is electronically available through the iis internet site 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

The necessary bulk materials for the two samples of used Hydraulic Fluid were obtained from a participating laboratory. The approximately 80 litre of the first bulk material was homogenised in a precleaned drum. After homogenisation, 73 amber glass one litre bottles were filled and labelled #15220. The homogeneity of the subsamples #15220 was checked by determination of Density in accordance with ASTM D4052 and Viscosity at 40 ºC according to ASTM D445 on 8 stratified randomly selected samples.

	Density at 15 ºC in kg/L	*Viscosity at 40 ºC in mm/s²*
Sample #15220-1	0.87608	42.22
Sample #15220-2	0.87605	42.21
Sample #15220-3	0.87608	42.25
Sample #15220-4	0.87608	42.22
Sample #15220-5	0.87607	42.25
Sample #15220-6	0.87608	42.25
Sample #15220-7	0.87608	42.23
Sample #15220-8	0.87607	42.16

Table 1: homogeneity test results of subsamples #15220

From the test results of table 1, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density at 15 ºC in kg/L	*Viscosity at 40 ºC in mm/s²*
r (Observed)	0.00003	0.09
reference method	ISO12185:96	D445:15
0.3 * R (ref. method)	0.00015	0.16

Table 2: repeatabilities of subsamples #15220

The approximately 5 litre of the second bulk material, positive on a number of metals, was homogenised. After homogenisation 99 HDPE containers of 50mL were filled and labelled #15221. The homogeneity of the subsamples #15221 was checked by determination of Density in accordance with ASTM D4052 and Nickel and Phosphorus in accordance with ASTM D5185 on 8 stratified randomly selected samples.

	Density at 15 ºC in kg/L	*Phosphorus in mg/kg*	*Nickel in mg/kg*
Sample #15221-1	0.87279	528	12
Sample #15221-2	0.87277	528	12
Sample #15221-3	0.87278	521	11
Sample #15221-4	0.87276	522	12
Sample #15221-5	0.87275	517	12
Sample #15221-6	0.87277	532	12
Sample #15221-7	0.87275	529	11
Sample #15221-8	0.87275	542	11

Table 3: homogeneity test results of subsamples #15221

From the test results of table 3, the repeatability was calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density at 15 ºC in kg/L	*Phosphorus in mg/kg*	*Nickel in mg/kg*
r (Observed)	0.00004	22	1.4
reference method	ISO12185:96	D5185:13	D5185:13
0.3* R (ref. method)	0.00015	30	1.5

Table 4: repeatability of subsamples #15221

Each calculated repeatability was equal or less than 0.3 times the corresponding reproducibility of the respective reference test method. Therefore, homogeneity of the subsamples #15220 and #15221 was assumed.

To each of the participating laboratories was dispatched: One 1 litre amber glass bottle, labelled #15220 and one 100 mL HDPE container, labelled #15221 on October 28, 2015.

2.5 STABILITY OF THE SAMPLES

The stability of Hydraulic Fluid, packed in the brown glass bottles or in HDPE containers, was checked. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were asked to determine Total Acid Number, Density at 15°C, Flash Point PMcc, Kinematic Viscosity at 40°C and at 100°C, Viscosity Stabinger at 40°C and at 100°C, Sulphur, Water content by KF and Level of Contamination on sample #15220 and 20 elements (17 wear metals and 3 additives) on sample #15221.

To get comparable results a detailed report form, on which the units were prescribed as well as the required standards and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/.
A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were gathered via the data entry portal www.kpmd.uk.co/sgs-iis/. The original data are tabulated per determination in the appendix 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 results at that moment.
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) found it to be an outlier. The laboratories that produced these suspect data were asked to check the results.

Additional or corrected results are used for data analysis and original results are placed under 'Remarks' in the result tables in appendix 1.

Results that came in after deadline were not taken into account in the screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3).

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.

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. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results should be used with due care.
In accordance to ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon, Grubbs and Rosner outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test and by R(0.01) for the Rosner General ESD test (see appendix 3, no.15). Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of the averages and the standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported 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 “x”. 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; nos.13 and 14). 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, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the spread of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8.

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 in accordance with:

$z_{(target)}$ = (result - average of PT) / 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. Therefore the usual interpretation of z-scores maybe as follows:

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

4 EVALUATION

In this proficiency test, some serious problems were encountered during dispatch and execution. Nine laboratories received the samples late or not at all. Nine laboratories reported the results after the final reporting date and three other laboratories did not report any results at all. The 55 reporting participants sent in 1126 numerical results. Observed were 43 outlying results, which is 3.8% of the numerical results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER TEST

In this section, the results are discussed per test. The methods that are used by the various laboratories are taken into account for explaining the observed differences when possible and applicable. These methods are also in the tables together with the original data. The abbreviations, used in these tables, are listed in appendix 3.
One should be aware that the sample “metals only” (#15221) contained a large number of elements, spectral interferences might explain part of the spread found for some elements.

Acid Number (Total): This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D664:11a.

Density at 15°C: This determination was problematic for a number of laboratories. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Flash Point PMcc: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D93:15 method B.

Kin.Visco.at 40°C: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D445:15.

Kin.Visco.at 100°C: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D445:15.

Visco. Stabinger at 40°C: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D7042:14.

Visco. Stabinger at 100°C: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D7042:14.

Sulphur: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D4294:10.

Water: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D6304:07.

Level of Contamination: This determination was very problematic. In total four statistical outliers were observed. The set of reported test results from two laboratories were excluded from the statistical evaluation as the reported test results are reported an ISO class instead of the number of particles per milliliter. All calculated reproducibilities after rejection of the suspect data are not in agreement with the requirements of ASTM D7647:10. Regretfully, the test methods ISO4406 and ISO4407 do not provide any precision data.

Aluminium: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5185:13e1.

Barium: As the average concentration found by the group (11.839 mg/kg) is above the application range given in ASTM D5185:13e1 table 3 (0.5 – 4 mg/kg), it was decided to use the estimated reproducibility using the Horwitz equation instead of the reproducibility of ASTM D5185:13e1. This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the estimated requirements from the Horwitz equation and also with the extrapolated reproducibility of ASTM D5185:13e1.

Chromium: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5185:13e1.

Copper: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D5185:13e1.

Iron: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5185:13e1.

Lead: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5185:13e1.

Lithium: This determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the estimated requirements using the Horwitz equation.

Magnesium: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D5185:13e1.

Manganese: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D5185:13e1.

Molybdenum This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D5185:13e1.

Nickel: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D5185:13e1.

Sodium: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5185:13e1.

Silicon: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5185:13e1.

Silver: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D5185:13e1.

Tin: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5185:13e1.

Titanium: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5185:13e1.

Vanadium: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5185:13e1.

Calcium: As the average concentration found by the group (30.24 mg/kg) is below the application range given in ASTM D5185:13e1 table 3 (40 – 9000 mg/kg), it was decided to use the estimated reproducibility using the Horwitz equation instead of the reproducibility of ASTM D5185:13e1. This determination may be problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is almost in agreement with the estimated requirements from the Horwitz equation.

Phosphorus: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5185:13e1.

Zinc: As the average concentration found by the group (28.67 mg/kg) is below the application range given in ASTM D5185:13e1 table 3 (60 – 1600 mg/kg), it was decided to use the estimated reproducibility using the Horwitz equation instead of the reproducibility of ASTM D5185:13e1. This determination may be problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated requirements from the Horwitz equation.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and these parameters as found for the group of participating laboratories. The average results and the calculated reproducibilities are compared in the next tables with the reproducibilities, derived from literature standards (in casu the ASTM and ISO standards, see tables in appendix 1).

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R(lit)*
Total Acid Number	mg KOH/g	45	0.48	0.18	0.21
Density at 15°C	kg/L	39	0.8761	0.0005	0.0005
Flash Point PMcc	^{o}C	38	139.7	8.2	10.0
Kinematic viscosity at 40°C	mm/s^2	41	42.276	0.386	0.516
Kinematic viscosity at 100°C	mm/s^2	37	7.951	0.114	0.110
Viscosity Stabinger at 40°C	mm/s^2	15	42.335	0.460	0.575
Viscosity Stabinger at 100°C	mm/s^2	14	7.940	0.086	0.100
Sulphur	mg/kg	27	4454	666	431
Water	mg/kg	46	97	82	263
Level of contamination ≥ 4µm	ml^{-1}	13	272	571	308
Level of contamination ≥ 6µm	ml^{-1}	13	81	153	62
Level of contamination ≥14µm	ml^{-1}	15	14	33	20

Table 5: reproducibilities of results of sample #15220.

Parameter	*Unit*	*n*	*average*	*2.8 * sd*	*R (lit)*
Aluminium as Al	mg/kg	42	11.0	4.1	7.1
Barium as Ba	mg/kg	35	(11.8)	3.4	3.7
Chromium as Cr	mg/kg	41	10.7	3.0	3.4
Copper as Cu	mg/kg	41	11.8	2.1	2.8
Iron as Fe	mg/kg	41	11.3	2.2	3.6
Lead as Pb	mg/kg	39	10.6	3.3	7.0
Lithium as Li	mg/kg	12	9.3	4.0	3.0
Magnesium as Mg	mg/kg	37	17.5	6.5	6.5
Manganese as Mn	mg/kg	34	10.7	2.1	2.2
Molybdenum as Mo	mg/kg	37	11.0	3.8	3.5
Nickel as Ni	mg/kg	40	10.9	2.3	5.0
Sodium as Na	mg/kg	36	11.3	6.4	6.1
Silicon as Si	mg/kg	41	11.1	3.6	7.4
Silver as Ag	mg/kg	36	11.7	3.4	4.1
Tin as Sn	mg/kg	40	10.5	3.5	9.0
Titanium as Ti	mg/kg	34	11.0	2.5	7.7
Vanadium as V	mg/kg	39	11.0	2.2	3.9
Calcium as Ca	mg/kg	36	(30.2)	9.0	8.1
Phosphorus as P	mg/kg	37	514.7	97.6	97.6
Zinc as Zn	mg/kg	36	(28.7)	11.2	7.8

Table 6: reproducibilities of results of sample #15221
results between brackets to be used with care, result was lower (or above) than application range of reference method

Without further statistical calculations, it could be concluded that for many tests there is a good compliance of the group of participating laboratories with the relevant standards. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF NOVEMBER 2015 WITH THE PREVIOUS PTS.

	November 2015	*November 2014*	*November 2013*	*November 2012*
Number of reporting labs	55	42	42	40
Number of results reported	1126	922	776	754
Statistical outliers	43	55	41	46
Percentage outliers	3.8%	6.0%	5.3%	6.1%

Table 7: comparison with previous proficiency tests.

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.
The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given the following table:

Determination	*November 2015*	*November 2014*	*November 2013*	*November 2012*
Total Acid Number	+	++	(--)	+/-
Density at 15°C	+/-	+/-	+/-	--
Flash Point PMcc	+	+/-	++	-
Kinematic viscosity at 40°C	++	-	--	--
Kinematic viscosity at 100°C	+/-	-	--	--
Viscosity Stabinger at 40ºC	++	++	n.e.	n.e.
Viscosity Stabinger at 100ºC	+	++	n.e.	n.e.
Pour Point (manual)	n.e.	-	n.e.	n.e.
Pour Point (automated)	n.e.	+	n.e.	n.e.
Sulphur	--	--	n.e.	n.e.
Water	++	++	++	++
Level of contamination	--	n.e.	n.e.	n.e.
Aluminium as Al	++	++	(++)	++
Barium as Ba	+	++	-	(-)
Chromium as Cr	+	++	--	++
Copper as Cu	+	+/-	+	+/-
Iron as Fe	++	++	-	+/-
Lead as Pb	++	++	(++)	++
Lithium as Li	-	-	++	++
Magnesium as Mg	+/-	++	+	++
Manganese as Mn	+/-	++	(--)	--
Molybdenum as Mo	+/-	+	(--)	++
Nickel as Ni	++	++	(++)	++
Sodium as Na	+/-	+	-	--
Silicon as Si	++	++	+	++
Silver as Ag	+	+	--	--
Tin as Sn	++	++	(+)	++
Titanium as Ti	++	++	(++)	++
Vanadium as V	++	++	--	++
Calcium as Ca	-	-	--	--
Phosphorus as P	+/-	+	--	--
Zinc as Zn	--	++	-	--

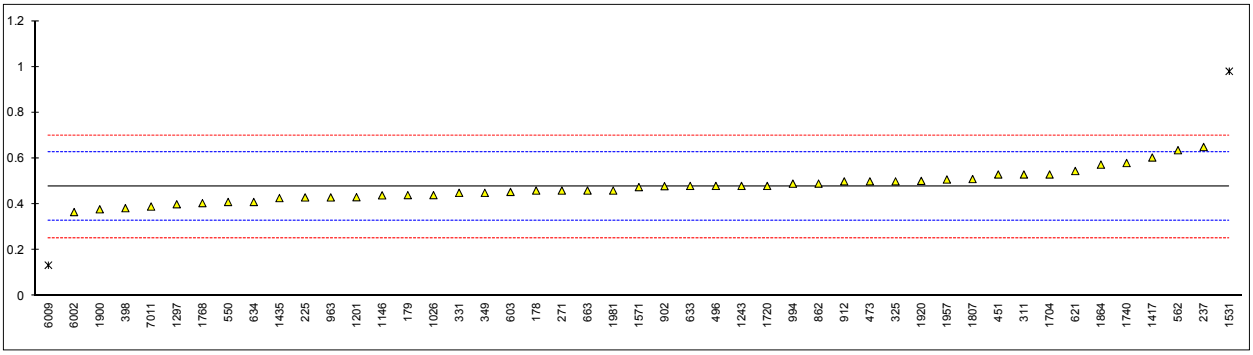
Table 8: comparison determinations against the standard
results between brackets to be used with care, result was lower (or above) than application range of reference method

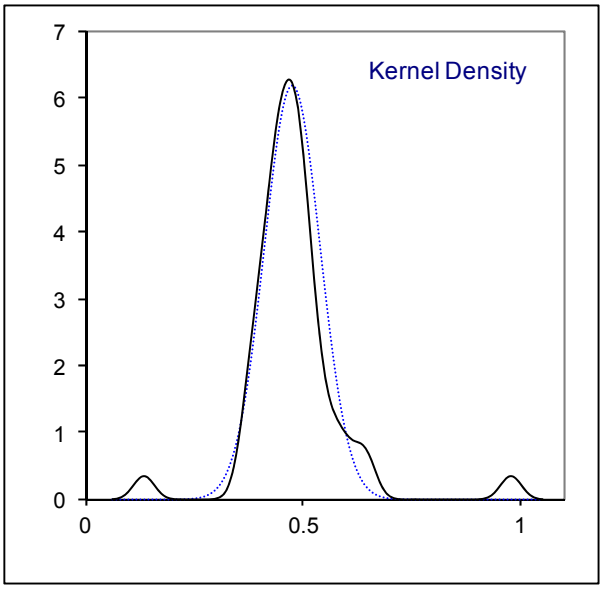
++: group performed much better than the standard
+ : group performed better than the standard
+/-: group performance equals the standard
- : group performed worse than the standard
-- : group performed much worse than the standard

APPENDIX 1

Determination of Acid Number (Total) on sample #15220; results in mg KOH/g.

lab	method	value	mark	z(targ)	remarks
178	INH-1118	0.46		-0.22	
179	D664	0.44		-0.48	
225	D664	0.43		-0.62	
237	D664	0.65		2.32	
255		-----		-----	
271	D664	0.46		-0.22	
311	D664	0.53		0.72	
325	D664	0.5		0.32	
331	D664	0.45		-0.35	
349	D664	0.45		-0.35	
398	D664	0.383		-1.24	
442		-----		-----	
451	D664	0.53		0.72	
473	D664	0.5		0.32	
496	D664	0.48		0.05	
541		-----		-----	
550	D664	0.41		-0.88	
562	D664	0.636		2.14	
603	D664	0.4538		-0.30	
614		-----		-----	
621	D664	0.5452		0.92	
633	D664	0.48		0.05	
634	D974	0.41		-0.88	
663	D664	0.46		-0.22	
862	D664	0.4902		0.19	
902	D664	0.479		0.04	
912	D664	0.5		0.32	
963	D974	0.43		-0.62	
994	D664	0.490		0.19	
1026	D664	0.44	C	-0.48	First reported 0.82
1059		-----		-----	
1146	D664	0.439		-0.50	
1201	D664	0.431		-0.60	
1243	D664	0.48		0.05	
1297	D664	0.40		-1.02	
1417	in house	0.604		1.71	
1435	D664	0.427		-0.66	
1461		-----		-----	
1468		-----		-----	
1531	D664	0.9804	R(0.01)	6.74	
1571	D664	0.475		-0.01	
1660		-----		-----	
1704	D664	0.530		0.72	
1720	D664	0.48		0.05	
1740	D664	0.58		1.39	
1768	ISO6618	0.4049		-0.95	
1807	D664	0.51		0.45	
1842		-----		-----	
1864	D664	0.573		1.29	
1900	in house	0.378		-1.31	
1920	D664	0.502		0.35	
1957	D664	0.508		0.43	
1981	D974	0.46		-0.22	
6002	D664	0.366		-1.47	
6009	D974	0.134	C,R(0.01)	-4.57	First reported 1.134
6016		-----		-----	
7003		-----		-----	
7011	D974	0.39		-1.15	
	normality	OK			
	n	45			
	outliers	2			
	mean (n)	0.4761			
	st.dev. (n)	0.06464			
	R(calc.)	0.1810			
	R(D664:11a)	0.2095			

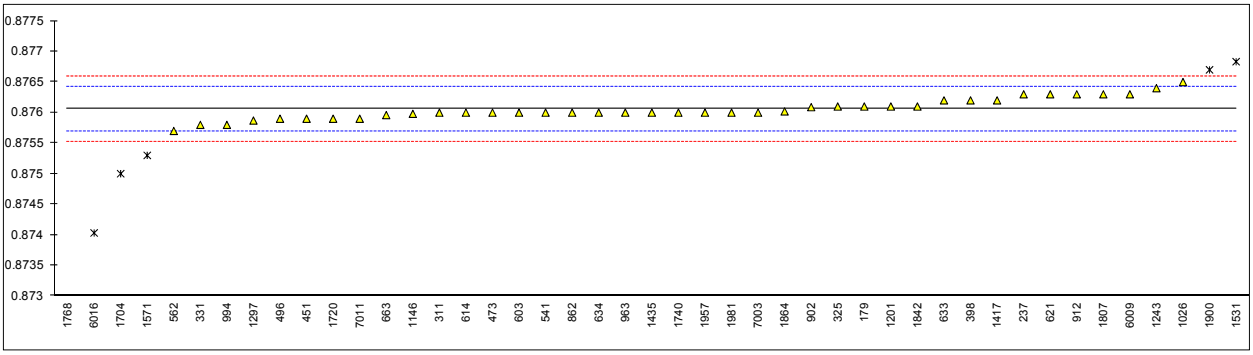

1.2
1
0.8
0.6
0.4
0.2
0
6009 6002 1900 398 7011 1297 1768 550 634 1435 225 963 1201 1146 179 1026 331 349 603 178 271 663 1981 1571 902 633 496 1243 1720 994 862 912 473 325 1920 1957 1807 451 311 1704 621 1864 1740 1417 562 237 1531

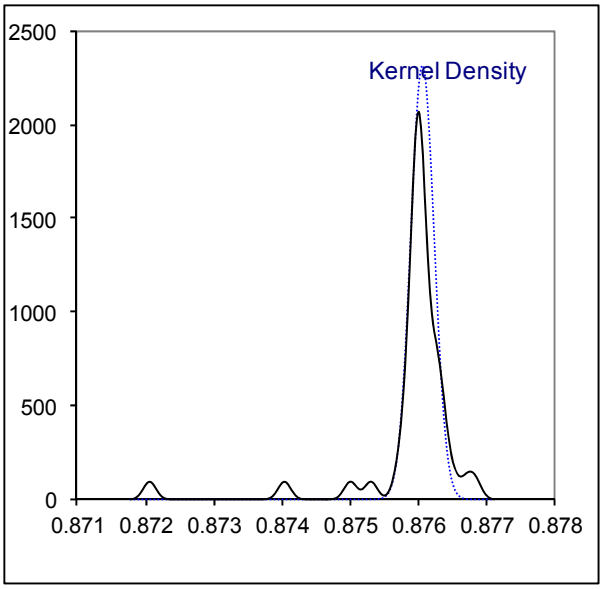

Kernel Density
7
6
5
4
3
2
1
0
0
0.5
1

Determination of Density at 15°C on sample #15220; results in kg/L.

lab	method	value	mark	z(targ)	remarks
178		-----		-----	
179	D4052	0.8761	C	0.24	Reported 876.1 kg/l
225		-----		-----	
237	D4052	0.8763		1.36	
255		-----		-----	
271		-----		-----	
311	D4052	0.8760		-0.32	
325	D4052	0.8761		0.24	
331	ISO12185	0.8758		-1.44	
349		-----		-----	
398	D4052	0.8762		0.80	
442		-----		-----	
451	D4052	0.8759		-0.88	
473	D4052	0.8760		-0.32	
496	D4052	0.8759		-0.88	
541	D4052	0.8760		-0.32	
550		-----		-----	
562	D4052	0.8757		-2.00	
603	D4052	0.87600		-0.32	
614	D4052	0.8760		-0.32	
621	D4052	0.8763		1.36	
633	D4052	0.8762		0.80	
634	D4052	0.8760		-0.32	
663	D4052	0.87596		-0.54	
862	D4052	0.8760		-0.32	
902	D4052	0.87609		0.18	
912	D4052	0.8763		1.36	
963	D4052	0.8760		-0.32	
994	D4052	0.8758		-1.44	
1026	D4052	0.8765		2.48	
1059		-----		-----	
1146	D4052	0.87598		-0.43	
1201	D4052	0.8761		0.24	
1243	ISO12185	0.8764		1.92	
1297	D4052	0.87587		-1.05	
1417	IP365	0.8762		0.80	
1435	D4052	0.876		-0.32	
1461		-----		-----	
1468		-----		-----	
1531	D4052	0.876833	R(0.01)	4.35	
1571	D7042	0.8753	R(0.01)	-4.24	
1660		-----		-----	
1704	D1298	0.8750	R(0.01)	-5.92	
1720	D4052	0.8759	C	-0.88	First reported 875.9 kg/l
1740	D4052	0.8760	C	-0.32	First reported 0.877
1768	ISO3675	0.87205	R(0.01)	-22.44	
1807	D4052	0.8763	C	1.36	First reported 876.3 mg/kg
1842	D4052	0.8761		0.24	
1864	D4052	0.87602		-0.21	
1900	D4052	0.8767	R(0.01)	3.60	
1920		-----		-----	
1957	D4052	0.8760		-0.32	
1981	D4052	0.8760		-0.32	
6002		-----		-----	
6009	D4052	0.8763		1.36	
6016	D4052	0.87403	R(0.01)	-11.35	
7003	D4052	0.8760		-0.32	
7011	D4052	0.8759		-0.88	

normality	OK
n	39
outliers	6
mean (n)	0.87606
st.dev. (n)	0.000173
R(calc.)	0.00048
R(ISO12185:96)	0.00050

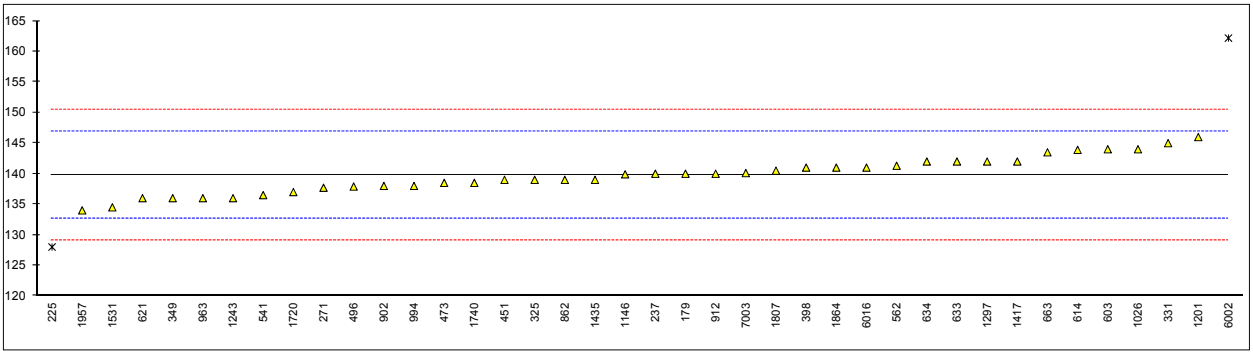

0.8775
0.877
0.8765
0.876
0.8755
0.875
0.8745
0.874
0.8735
0.873
1768 6016 1704 1571 562 331 994 1297 496 451 1720 7011 663 1146 311 614 473 603 541 862 634 963 1435 1740 1957 1981 7003 1864 902 325 179 1201 1842 633 398 1417 237 621 912 1807 6009 1243 1026 1900 1531

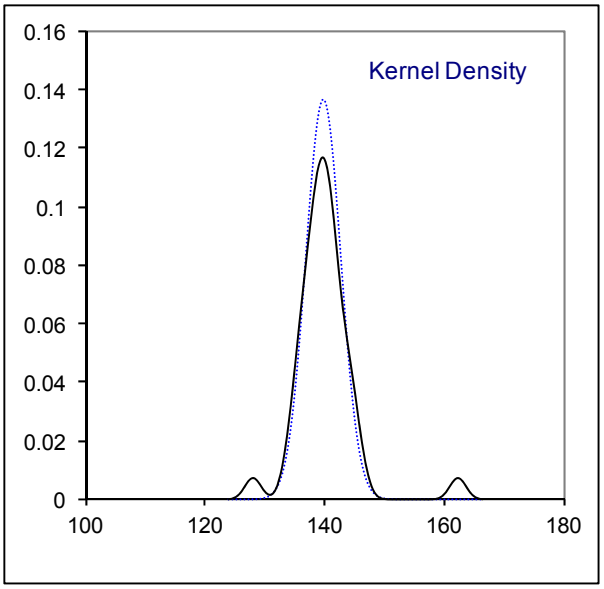

Kernel Density
2500
2000
1500
1000
500
0
0.871 0.872 0.873 0.874 0.875 0.876 0.877 0.878

Determination of Flash Point PMcc on sample #15220; results in °C.

lab	method	value	mark	z(targ)	remarks
178		-----		-----	
179	D93	140		0.08	
225	D93-B	128	R(0.05)	-3.28	
237	D93-A	140		0.08	
255		-----		-----	
271	D93-A	137.7		-0.57	
311		-----		-----	
325	D93-B	139		-0.20	
331	D93-A	145.0		1.48	
349	D93-A	136		-1.04	
398	D93-A	141		0.36	
442		-----		-----	
451	D93-A	139		-0.20	
473	D93-B	138.5		-0.34	
496	D93-A	137.9		-0.51	
541	D93-A	136.5		-0.90	
550		-----		-----	
562	D93-A	141.3		0.44	
603	D3828	144.0		1.20	
614	D93-A	143.9		1.17	
621	D93-A	136.0		-1.04	
633	D93-A	142.0		0.64	
634	D93-A	142.0		0.64	
663	D93-A	143.5		1.06	
862	D93-A	139.0		-0.20	
902	D93-A	138.0		-0.48	
912	D93-A	140		0.08	
963	D93-A	136		-1.04	
994	D93-B	138.0		-0.48	
1026	D93-A	144	C	1.20	First reported 205.0
1059		-----		-----	
1146	in house	139.9		0.05	
1201	D93-A	146.0		1.76	
1243	D93-A	136		-1.04	
1297	D93-B	142.0		0.64	
1417	IP34-B	142		0.64	
1435	D93-A	139.0		-0.20	
1461		-----		-----	
1468		-----		-----	
1531	D93-C	134.5		-1.46	
1571		-----		-----	
1660		-----		-----	
1704		-----		-----	
1720	D93	137.0	C	-0.76	First reported 165.5
1740	D93-B	138.5		-0.34	
1768		-----		-----	
1807	D93-A	140.5		0.22	
1842		-----		-----	
1864		141.0	C	0.36	First reported 172.7
1900		-----		-----	
1920		-----		-----	
1957	D93-A	134.0		-1.60	
1981		-----		-----	
6002	D93-A	162.2	R(0.01)	6.29	
6009		-----		-----	
6016	D93-B	141		0.36	
7003	D93-A	140.1		0.10	
7011		-----		-----	

normality	OK
n	38
outliers	2
mean (n)	139.73
st.dev. (n)	2.924
R(calc.)	8.19
R(D93-B:15)	10.00

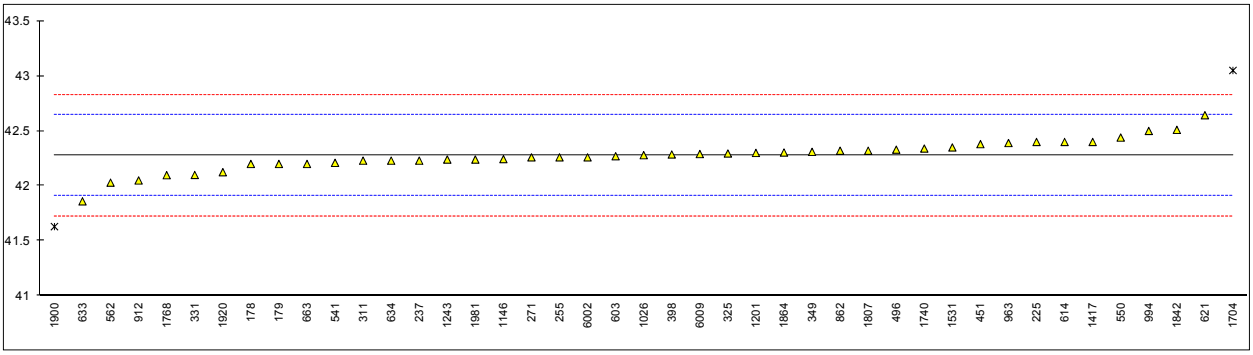

165
160
155
150
145
140
135
130
125
120
225
1957
1531
621
349
963
1243
541
1720
271
496
902
994
473
1740
451
325
862
1435
1146
237
179
912
7003
1807
398
1864
6016
562
634
633
1297
1417
663
614
603
1026
331
1201
6002

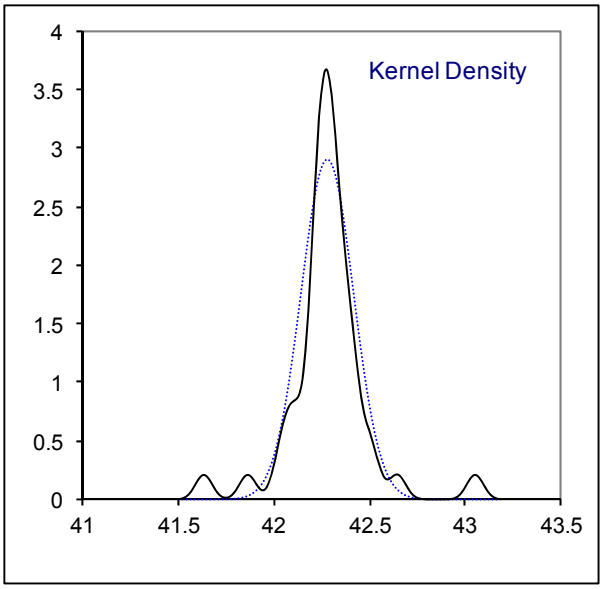

Kernel Density
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
100
120
140
160
180

Determination of Kinematic Viscosity at 40°C on sample #15220; results in mm/s^2.

lab	method	value	mark	z(targ)	remarks
178	D445	42.2		-0.41	
179	D445	42.2		-0.41	
225	D445	42.40		0.67	
237	D445	42.23		-0.25	
255	D7279	42.26		-0.09	
271	D445	42.26		-0.09	
311	D445	42.23		-0.25	
325	D445	42.295		0.10	
331	D7279	42.10		-0.96	
349	D445	42.31		0.18	
398	D445	42.286		0.05	
442		-----		-----	
451	D7279	42.38		0.56	
473		-----		-----	
496	D445	42.330		0.29	
541	D445	42.21		-0.36	
550	D7279	42.44		0.89	
562	D7279	42.03		-1.34	
603	D445	42.27		-0.03	
614	D445	42.4		0.67	
621	D445	42.643		1.99	
633	D7279	41.86		-2.26	
634	D445	42.23		-0.25	
663	D445	42.200		-0.41	
862	D445	42.32		0.24	
902		-----		-----	
912	D445	42.05		-1.23	
963	D445	42.39		0.62	
994	D445	42.50		1.21	
1026	D445	42.28		0.02	
1059		-----		-----	
1146	D445	42.244		-0.17	
1201	D445	42.30		0.13	
1243	D7279	42.24		-0.20	
1297		-----		-----	
1417	D445	42.40		0.67	
1435		-----		-----	
1461		-----		-----	
1468		-----		-----	
1531	D445	42.35		0.40	
1571		-----		-----	
1660		-----		-----	
1704	D445	43.05	C,R(0.01)	4.20	First reported 45.785
1720		-----		-----	
1740	D445	42.34		0.35	
1768	ISO3104	42.0976		-0.97	
1807	D445	42.32		0.24	
1842	IP71	42.51		1.27	
1864	D445	42.304		0.15	
1900	D445	41.63	R(0.01)	-3.51	
1920	D445	42.125		-0.82	
1957		-----		-----	
1981	D445	42.24		-0.20	
6002	ISO3104	42.26		-0.09	
6009	D445	42.29		0.07	
6016		-----		-----	
7003		-----		-----	
7011		-----		-----	

normality	suspect
n	41
outliers	2
mean (n)	42.2762
st.dev. (n)	0.13772
R(calc.)	0.3856
R(D445:15)	0.5158

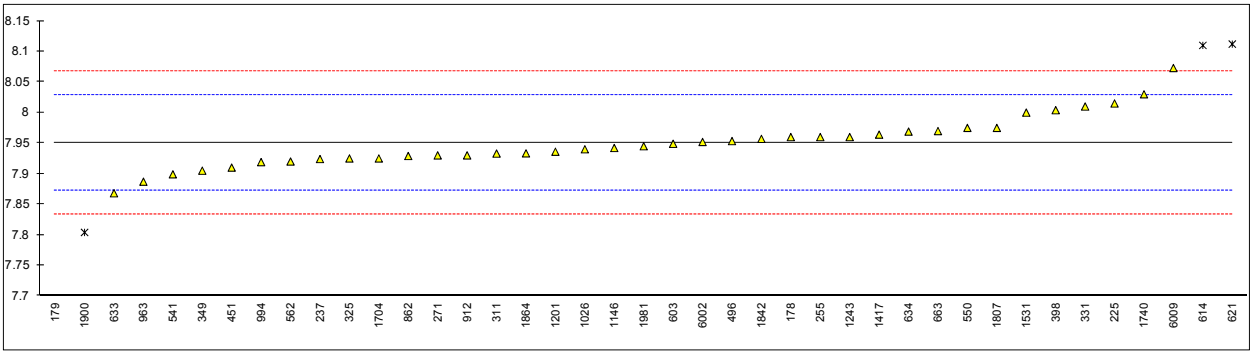

43.5
43
42.5
42
41.5
41
1900 633 562 912 1768 331 1920 178 179 663 541 311 634 237 1243 1981 1146 271 255 6002 603 1026 398 6009 325 1201 1864 349 862 1807 496 1740 1531 451 963 225 614 1417 550 994 1842 621 1704

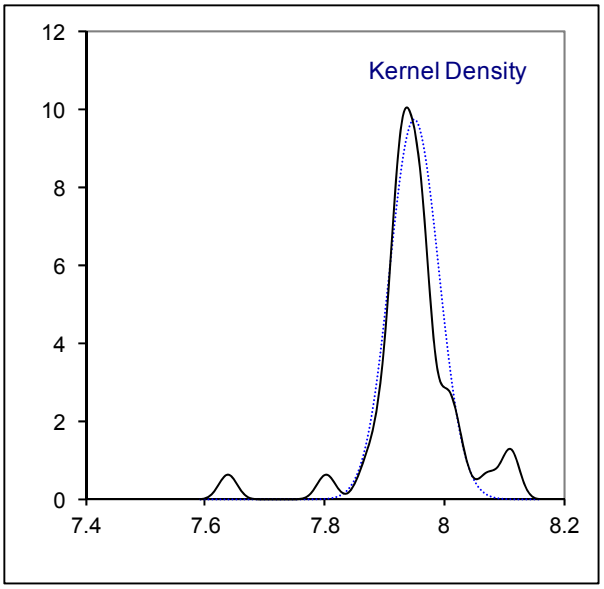

Kernel Density
4
3.5
3
2.5
2
1.5
1
0.5
0
41
41.5
42
42.5
43
43.5

Determination of Kinematic Viscosity at 100°C on sample #15220; results in mm/s^2.

lab	method	value	mark	z(targ)	remarks
178	D445	7.96		0.24	
179	D445	7.64	R(0.01)	-7.93	
225	D445	8.015		1.64	
237	D445	7.924		-0.68	
255	D7279	7.96		0.24	
271	D445	7.93		-0.53	
311	D445	7.933		-0.45	
325	D445	7.925		-0.66	
331	D7279	8.01		1.51	
349	D445	7.905	C	-1.17	First reported 7.751
398	D445	8.004		1.36	
442		-----		-----	
451	D7279	7.910		-1.04	
473		-----		-----	
496	D445	7.9534		0.07	
541	D445	7.899		-1.32	
550	D7279	7.975		0.62	
562	D7279	7.92		-0.78	
603	D445	7.949		-0.04	
614	D445	8.11	R(0.05)	4.06	
621	D445	8.1121	R(0.05)	4.12	
633	D7279	7.868		-2.11	
634	D445	7.969		0.47	
663	D445	7.9698		0.49	
862	D445	7.929		-0.55	
902		-----		-----	
912	D445	7.930		-0.53	
963	D445	7.887		-1.63	
994	D445	7.919		-0.81	
1026	D445	7.94		-0.27	
1059		-----		-----	
1146	D445	7.9421		-0.22	
1201	D445	7.936		-0.38	
1243	D7279	7.96		0.24	
1297		-----		-----	
1417	D445	7.964		0.34	
1435		-----		-----	
1461		-----		-----	
1468		-----		-----	
1531	D445	8		1.26	
1571		-----		-----	
1660		-----		-----	
1704	D445	7.925	C	-0.66	First reported 7.8078
1720		-----		-----	
1740	D445	8.030		2.02	
1768	ISO3104	-----		-----	
1807	D445	7.975		0.62	
1842	IP71	7.957		0.16	
1864	D445	7.9333		-0.44	
1900	D445	7.8039	R(0.05)	-3.75	
1920	D445	-----		-----	
1957		-----		-----	
1981	D445	7.945		-0.15	
6002	ISO3104	7.952		0.03	
6009	D445	8.0730		3.12	
6016		-----		-----	
7003		-----		-----	
7011		-----		-----	

normality	suspect
n	37
outliers	4
mean (n)	7.9507
st.dev. (n)	0.04090
R(calc.)	0.1145
R(D445:15)	0.1097

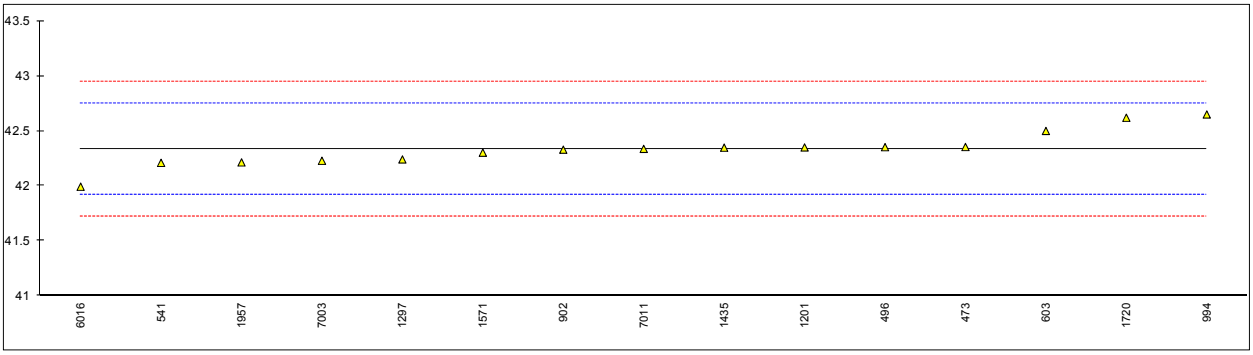

8.15
8.1
8.05
8
7.95
7.9
7.85
7.8
7.75
7.7
179 1900 633 963 541 349 451 994 562 237 325 1704 862 271 912 311 1864 1201 1026 1146 1981 603 6002 496 1842 178 255 1243 1417 634 663 550 1807 1531 398 331 225 1740 6009 614 621

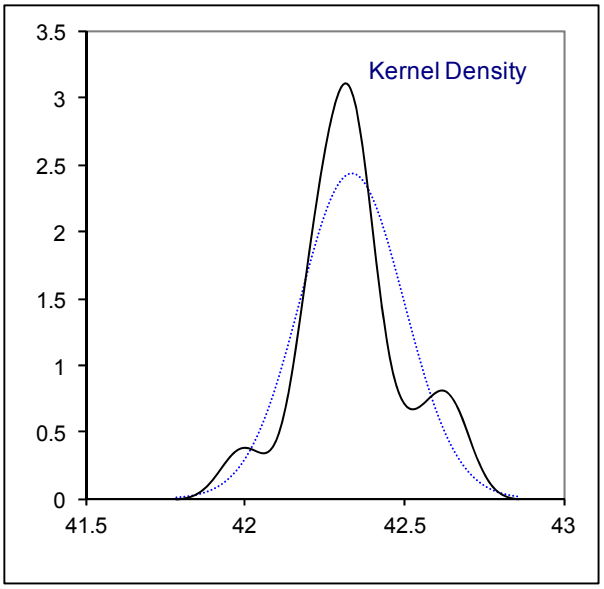

Kernel Density
12
10
8
6
4
2
0
7.4
7.6
7.8
8
8.2

Determination of Viscosity Stabinger at 40°C on sample #15220; results in mm/s^2.

lab	method	value	mark	z(targ)	remarks
178		-----		-----	
179		-----		-----	
225		-----		-----	
237		-----		-----	
255		-----		-----	
271		-----		-----	
311		-----		-----	
325		-----		-----	
331		-----		-----	
349		-----		-----	
398		-----		-----	
442		-----		-----	
451		-----		-----	
473	D7042	42.354		0.09	
496	D7042	42.3527		0.08	
541	D7042	42.21		-0.61	
550		-----		-----	
562		-----		-----	
603	D7042	42.50		0.80	
614		-----		-----	
621		-----		-----	
633		-----		-----	
634		-----		-----	
663		-----		-----	
862		-----		-----	
902	D7042	42.33		-0.03	
912		-----		-----	
963		-----		-----	
994	D7042	42.65		1.53	
1026		-----		-----	
1059		-----		-----	
1146		-----		-----	
1201	D7042	42.35		0.07	
1243		-----		-----	
1297	D7042	42.241		-0.46	
1417		-----		-----	
1435	D7042	42.348		0.06	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D7042	42.3025		-0.16	
1660		-----		-----	
1704		-----		-----	
1720	D7042	42.62		1.38	
1740		-----		-----	
1768		-----		-----	
1807		-----		-----	
1842		-----		-----	
1864		-----		-----	
1900		-----		-----	
1920		-----		-----	
1957	D7042	42.214		-0.59	
1981		-----		-----	
6002		-----		-----	
6009		-----		-----	
6016	D7042	41.993		-1.67	
7003	D7042	42.229		-0.52	
7011	D7042	42.337		0.01	

normality	suspect
n	15
outliers	0
mean (n)	42.3354
st.dev. (n)	0.16413
R(calc.)	0.4596
R(D7042:14)	0.5754

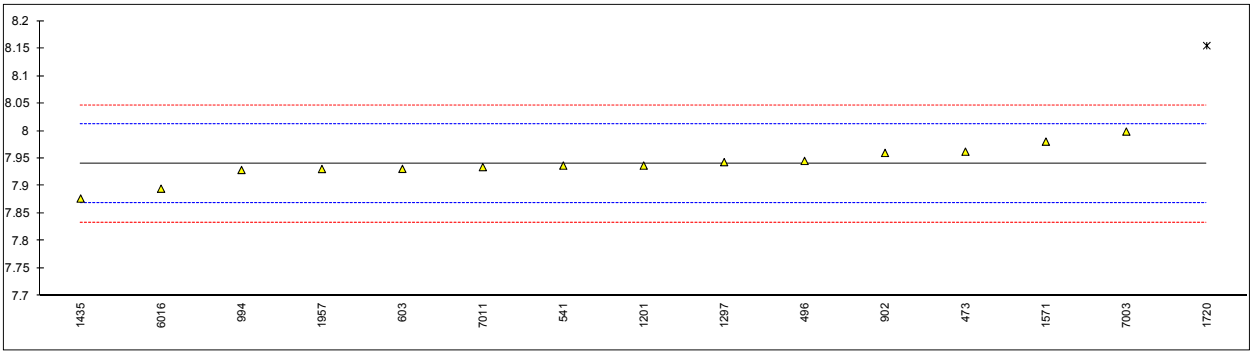

43.5
43
42.5
42
41.5
41
6016
541
1957
7003
1297
1571
902
7011
1435
1201
496
473
603
1720
994

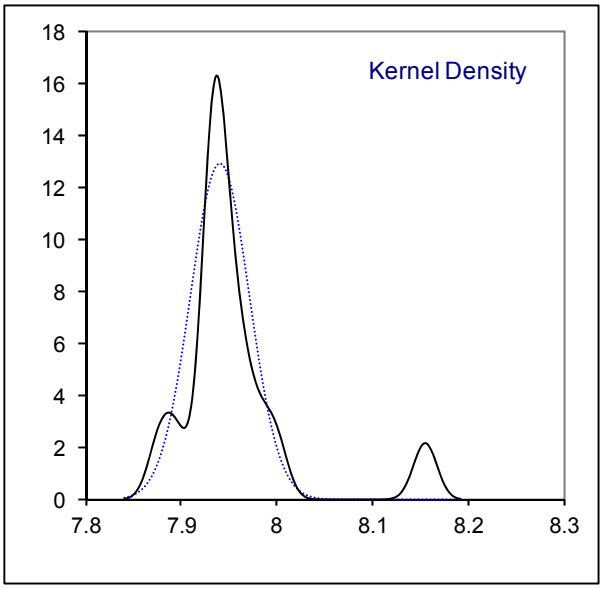

Kernel Density
3.5
3
2.5
2
1.5
1
0.5
0
41.5
42
42.5
43

Determination of Viscosity Stabinger at 100°C on sample #15220; results in mm/s^2.

lab	method	value	mark	z(targ)	remarks
178		-----		-----	
179		-----		-----	
225		-----		-----	
237		-----		-----	
255		-----		-----	
271		-----		-----	
311		-----		-----	
325		-----		-----	
331		-----		-----	
349		-----		-----	
398		-----		-----	
442		-----		-----	
451		-----		-----	
473	D7042	7.9623		0.62	
496	D7042	7.94546		0.15	
541	D7042	7.937		-0.09	
550		-----		-----	
562		-----		-----	
603	D7042	7.931		-0.26	
614		-----		-----	
621		-----		-----	
633		-----		-----	
634		-----		-----	
663		-----		-----	
862		-----		-----	
902	D7042	7.960		0.56	
912		-----		-----	
963		-----		-----	
994	D7042	7.929		-0.31	
1026		-----		-----	
1059		-----		-----	
1146		-----		-----	
1201	D7042	7.937		-0.09	
1243		-----		-----	
1297	D7042	7.9433		0.09	
1417		-----		-----	
1435	D7042	7.8771		-1.77	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D7042	7.9806		1.14	
1660		-----		-----	
1704		-----		-----	
1720	D7042	8.155	C,G(0.01)	6.03	First reported 8.092
1740		-----		-----	
1768		-----		-----	
1807		-----		-----	
1842		-----		-----	
1864		-----		-----	
1900		-----		-----	
1920		-----		-----	
1957	D7042	7.9308		-0.26	
1981		-----		-----	
6002		-----		-----	
6009		-----		-----	
6016	D7042	7.895		-1.27	
7003	D7042	7.9989		1.65	
7011	D7042	7.9343		-0.16	

normality	OK
n	14
outliers	1
mean (n)	7.9401
st.dev. (n)	0.03085
R(calc.)	0.0864
R(D7042:14)	0.0997

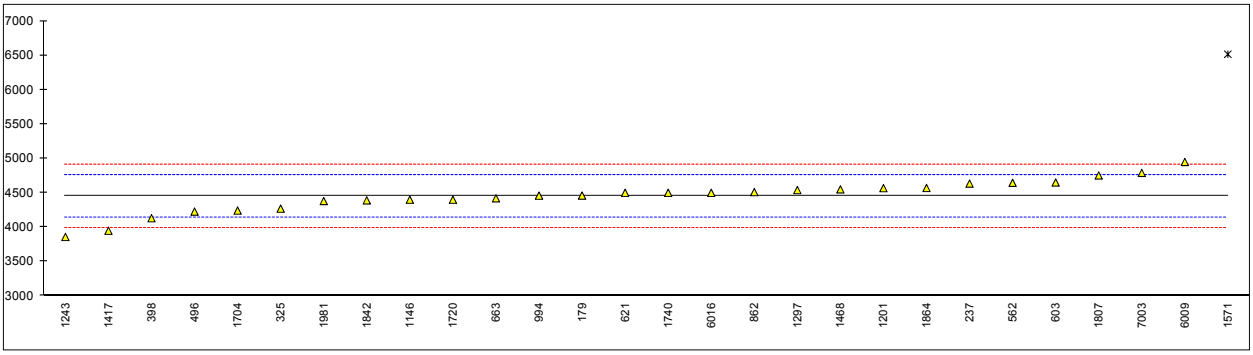

8.2
8.15
8.1
8.05
8
7.95
7.9
7.85
7.8
7.75
7.7
1435
6016
994
1957
603
7011
541
1201
1297
496
902
473
1571
7003
1720

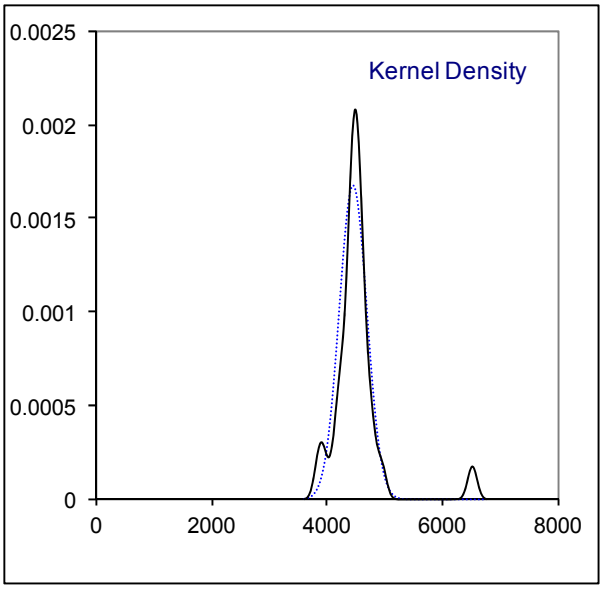

Kernel Density
18
16
14
12
10
8
6
4
2
0
7.8
7.9
8
8.1
8.2
8.3

Determination of Sulphur on sample #15220; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178		-----		-----	
179	D4294	4460	C	0.04	Reported 0.446 mg/kg (unit error?)
225		-----		-----	
237	D4294	4634.5		1.17	
255		-----		-----	
271		-----		-----	
311		-----		-----	
325	INH-6443	4270		-1.19	
331		-----		-----	
349		-----		-----	
398	D4294	4130	C	-2.10	First reported 0.4130
442		-----		-----	
451		-----		-----	
473		-----		-----	
496	D2622	4227		-1.47	
541		-----		-----	
550		-----		-----	
562	D4294	4646	C	1.25	First reported 0.4646
603	D4294	4650		1.28	
614		-----		-----	
621	D4294	4500		0.30	
633		-----		-----	
634		-----		-----	
663	D4294	4420		-0.22	
862	D2622	4510		0.37	
902		-----		-----	
912		-----		-----	
963		-----		-----	
994	D4294	4459		0.04	
1026		-----		-----	
1059		-----		-----	
1146	D4294	4400	C	-0.35	First reported 44000
1201	D4294	4568	C	0.74	Reported 0.4568 mg/kg (unit error?)
1243	D4294	3858		-3.87	
1297	D4294	4540		0.56	
1417	IP336	3948		-3.28	
1435		-----		-----	
1461		-----		-----	
1468	ISO8754	4550		0.63	
1531		-----		-----	
1571	D5185	6516.12	C,R(0.01)	13.39	First reported 7233.36
1660		-----		-----	
1704	D2622	4241.715		-1.37	
1720	D4294	4400	C	-0.35	First reported 0.440 mg/kg
1740	D4294	4500	C	0.30	First reported 0.45 mg/kg
1768		-----		-----	
1807	D4294	4753		1.94	
1842	INH-05	4390.0		-0.41	
1864	D4294	4570		0.76	
1900		-----		-----	
1920		-----		-----	
1957		-----		-----	
1981	D4294	4380	C	-0.48	First reported 3590
6002		-----		-----	
6009	D4294	4949		3.22	
6016	D4294	4500		0.30	
7003	D5453	4790		2.18	
7011		-----		-----	

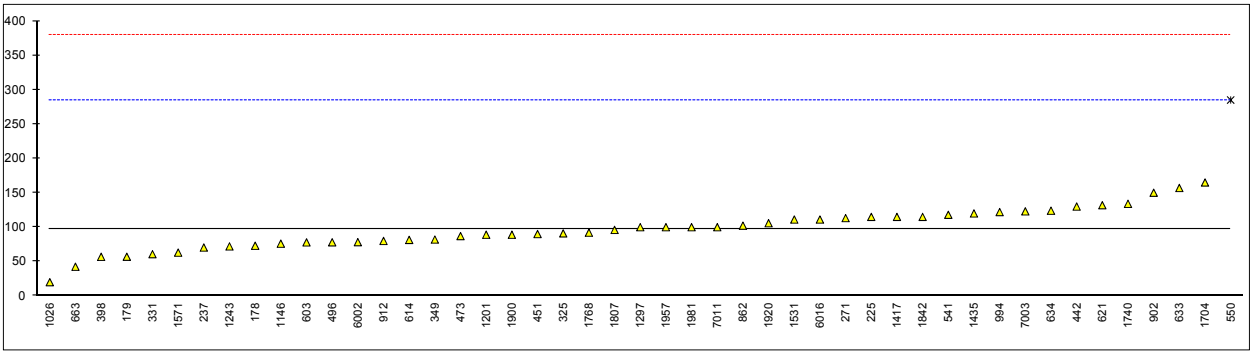
normality	suspect
n	27
outliers	1
mean (n)	4453.5
st.dev. (n)	237.86
R(calc.)	666.0
R(D4294:10)	431.4

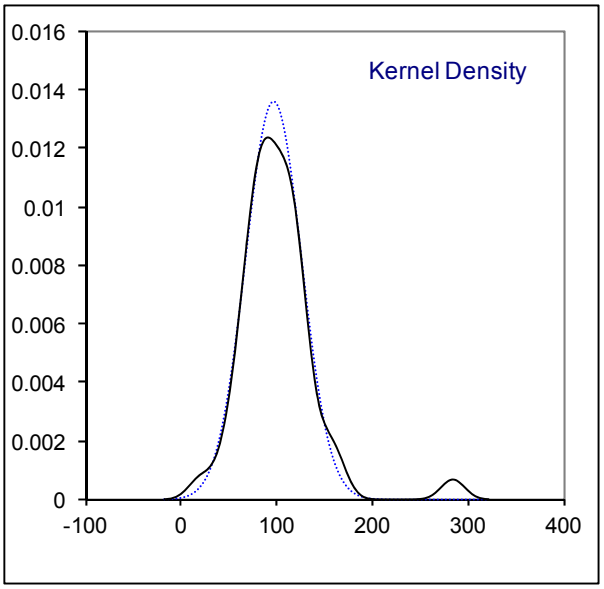

7000
6500
6000
5500
5000
4500
4000
3500
3000
1243
1417
398
496
1704
325
1981
1842
1146
1720
663
994
179
621
1740
6016
862
1297
1468
1201
1864
237
562
603
1807
7003
6009
1571


Kernel Density
0.0025
0.002
0.0015
0.001
0.0005
0
0
2000
4000
6000
8000

Determination of Water by KF on sample #15220; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D6304	73		-0.26	
179	D6304	57		-0.43	
225	D6304-A	115		0.19	
237	D6304-C	70.38		-0.28	
255		-----		-----	
271	D6304-C	113.2		0.17	
311		-----		-----	
325	D6304-C	91		-0.06	
331	D6304-C	60.7		-0.39	
349	D6304-A	82		-0.16	
398	D6304-C	56.9		-0.43	
442	IP438	130		0.35	
451	D6304-C	90		-0.08	
473	D6304-C	87		-0.11	
496	D6304-C	78		-0.20	
541	D6304-A	118		0.22	
550	E203	285	R(0.01)	2.00	
562		-----		-----	
603	D6304-C	77.9		-0.20	
614	D6304-C	81.5		-0.17	
621	D6304-B	132		0.37	
633	D6304-A	157		0.64	
634	D6304-A	124		0.29	
663	D6304-C	42.4		-0.58	
862	D6304-C	102.2		0.05	
902	D6304-A	150.1		0.56	
912	D6304-C	80		-0.18	
963		-----		-----	
994	D6304-C	122		0.27	
1026	D6304-C	20		-0.82	
1059		-----		-----	
1146	D6304-C	76		-0.22	
1201	D6304-A	89		-0.09	
1243	D6304-A	72		-0.27	
1297	D6304-A	100.0		0.03	
1417	D6304-A	115		0.19	
1435	D1744	120.0		0.24	
1461		-----		-----	
1468		-----		-----	
1531	D6304-A	111.1		0.15	
1571	D6304-C	63		-0.36	
1660		-----		-----	
1704	Coulometric	165	C	0.72	First reported 240
1720		-----		-----	
1740	D6304-A	134	C	0.39	First reported 434
1768	ISO3733	92		-0.05	
1807	D6304-A	96		-0.01	
1842	D6304-A	115		0.19	
1864		-----		-----	
1900	D6304-C	89		-0.09	
1920	D6304-C	105.8		0.09	
1957	D6304-A	100		0.03	
1981	D6304-C	100		0.03	
6002	ISO12937	78.231		-0.20	
6009		-----		-----	
6016	D6304-A	111.1		0.15	
7003	E1064	123		0.28	
7011	D6304-A	100		0.03	
	normality	OK			
	n	46			
	outliers	1			
	mean (n)	97.10			
	st.dev. (n)	29.293			
	R(calc.)	82.02			
	R(D6304:07)	263.03			


400
350
300
250
200
150
100
50
0
1026 663 398 179 331 1571 237 1243 178 1146 603 496 6002 912 614 349 473 1201 1900 451 325 1768 1807 1297 1957 1981 7011 862 1920 1531 6016 271 225 1417 1842 541 1435 994 7003 634 442 621 1740 902 633 1704 550


Kernel Density
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
-100
0
100
200
300
400

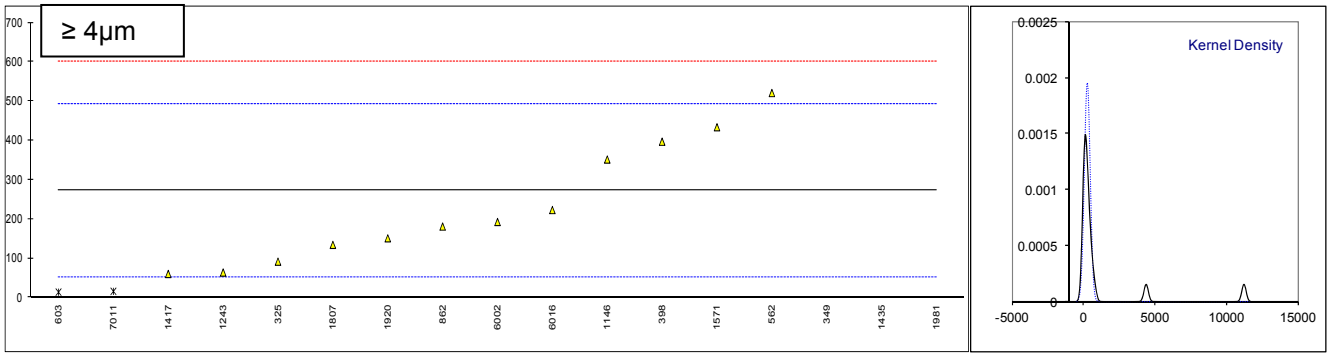
Determination of level of contamination on sample #15220; results in ml^{-1}.

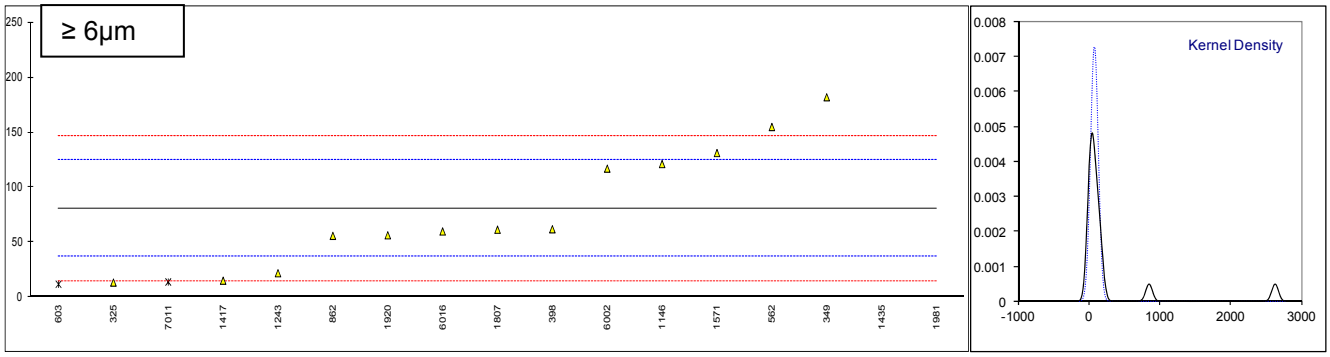
lab	method	≥ 4 µm	mark	z(targ)	≥ 6 µm	mark	z(targ)	≥ 14 µm	mark	z(targ)
178		-----		-----	-----		-----	-----		-----
179		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
255		-----		-----	-----		-----	-----		-----
271		-----		-----	-----		-----	-----		-----
311		-----		-----	-----		-----	-----		-----
325	ISO4406	91.67		-1.64	13.53		-3.07	2.93		-1.65
331		-----		-----	-----		-----	-----		-----
349	ISO4406	739		4.25	182		4.59	32		2.51
398	ISO4407	397		1.13	62		-0.87	4		-1.50
442		-----		-----	-----		-----	-----		-----
451		-----		-----	-----		-----	-----		-----
473		-----		-----	-----		-----	-----		-----
496		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
550		-----		-----	-----		-----	-----		-----
562	ISO4406	521		2.26	155		3.36	22		1.08
603	ISO4406	14	ex	-2.35	12	ex	-3.14	9	ex	-0.78
614		-----		-----	-----		-----	-----		-----
621		-----		-----	-----		-----	-----		-----
633		-----		-----	-----		-----	-----		-----
634		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
862	ISO4406	181		-0.83	56		-1.14	5		-1.36
902		-----		-----	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
1026		-----		-----	-----		-----	-----		-----
1059		-----		-----	-----		-----	-----		-----
1146	ISO11500	351.67		0.72	121.27		1.83	41.27		3.84
1201		-----		-----	-----		-----	-----		-----
1243	ISO4407	64		-1.90	22		-2.68	5		-1.36
1297		-----		-----	-----		-----	-----		-----
1417	ISO4406	60.33		-1.93	15.23		-2.99	1.30		-1.89
1435	ISO4406	4397.40	G(0.01)	37.53	853.43	G(0.01)	35.11	19.13		0.67
1461		-----		-----	-----		-----	-----		-----
1468		-----		-----	-----		-----	-----		-----
1531		-----		-----	-----		-----	-----		-----
1571	ISO4406	433.92		1.47	131.29		2.28	19.89		0.78
1660		-----		-----	-----		-----	-----		-----
1704		-----		-----	-----		-----	-----		-----
1720		-----		-----	-----		-----	-----		-----
1740		-----		-----	-----		-----	-----		-----
1768		-----		-----	-----		-----	-----		-----
1807	ISO4406	134.33		-1.26	61.60		-0.88	18.13		0.52
1842		-----		-----	-----		-----	-----		-----
1864		-----		-----	-----		-----	-----		-----
1900		-----		-----	-----		-----	-----		-----
1920	ISO4406	151.1		-1.10	56.5		-1.12	5.8		-1.24
1957		-----		-----	-----		-----	-----		-----
1981	ISO4406	11252	C,G(0.01)	99.89	2634	C,G(0.01)	116.06	9		-0.78
6002	ISO4406	192.6		-0.73	117.1		1.64	23.6	C	1.31
6009		-----		-----	-----		-----	-----		-----
6016	ISO4407	223		-0.45	60.0		-0.96	8		-0.93
7003		-----		-----	-----		-----	-----		-----
7011	ISO4406	16	ex	-2.33	14	ex	-3.05	10	ex	-0.64
	normality	suspect			OK			OK		
	n	13			13			15		
	outliers	2 (+ 2excl)			2 (+2 excl)			0 (+2 excl)		
	mean (n)	272.36			81.04			14.47		
	st.dev. (n)	204.006			54.691			11.870		
	R(calc.)	571.22			153.14			33.24		
	R(D7647:10)	307.76			61.59			19.53		

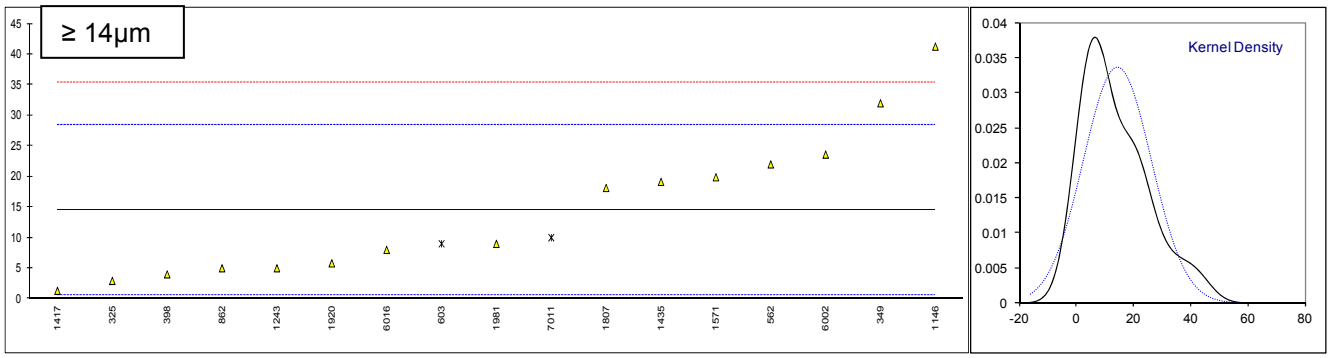
Results for lab 603 and 7011 were excluded, as reported results are classes instead of number of particles

Lab 1981: first reported resp. 1742, 351

Lab 6002: first reported resp. 53.6

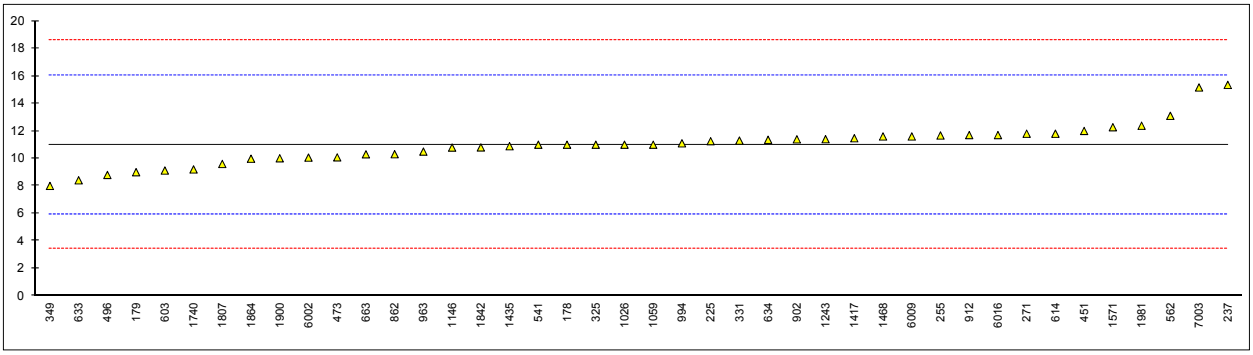

≥ 4µm
Kernel Density

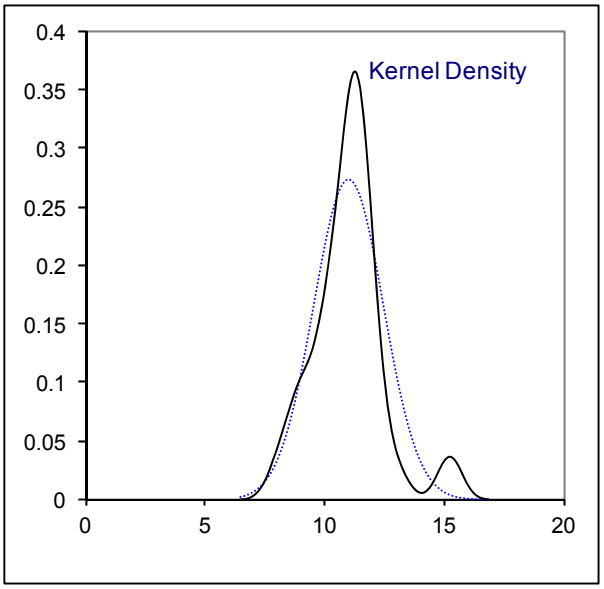

≥ 6µm
Kernel Density


≥ 14µm
Kernel Density

Determination of Aluminum (Al) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		0.00	
179	D5185	9		-0.79	
225	D6595	11.257		0.10	
237	D5185	15.35		1.72	
255	INH-01	11.67		0.26	
271	D5185	11.8		0.31	
311		-----		-----	
325	D5185	11		0.00	
331	D5185	11.3		0.12	
349	D5185	8		-1.19	
398		-----		-----	
442		-----		-----	
451	INH-116	12		0.39	
473	D5185	10.08		-0.37	
496	DIN 51399-1	8.8		-0.87	
541	D5185	11		0.00	
550		-----		-----	
562	D6595	13.1		0.83	
603	D5185	9.122		-0.74	
614	D5185	11.8		0.31	
621		-----		-----	
633	D6595	8.411		-1.03	
634	D6595	11.358		0.14	
663	D5185	10.3		-0.28	
862	D5185	10.31		-0.28	
902	D5185	11.39		0.15	
912	D5185	11.7		0.27	
963	D5185	10.5		-0.20	
994	D5185	11.10		0.04	
1026	D5185	11		0.00	
1059	in house	11		0.00	
1146	in house	10.79		-0.09	
1201		-----		-----	
1243	D5185	11.4		0.16	
1297		-----		-----	
1417	INH-D5185	11.47		0.18	
1435	D5185	10.89		-0.05	
1461		-----		-----	
1468	D5185	11.6		0.23	
1531		-----		-----	
1571	D5185	12.2711		0.50	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn, reported 20
1720		-----		-----	
1740	D6595	9.2		-0.71	
1768		-----		-----	
1807	D5185	9.6		-0.56	
1842	INH-01	10.8		-0.08	
1864	D5185	9.979		-0.41	
1900	D6595	10.013309		-0.39	
1920		-----		-----	
1957		-----		-----	
1981	D5185	12.38		0.54	
6002	D6595	10.06		-0.37	
6009	D6595	11.6		0.23	
6016	D5185	11.7		0.27	
7003	D857	15.165		1.64	
7011		-----		-----	
	normality	not OK			
	n	42			
	outliers	0			
	mean (n)	11.006			
	st.dev. (n)	1.4632			
	R(calc.)	4.097			
	R(D5185:13e1)	7.089			Application range: 6 – 40 mg/kg

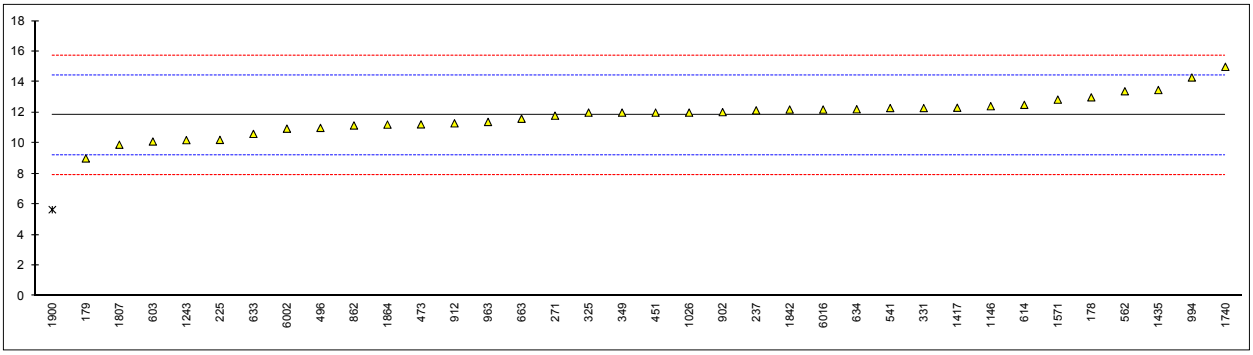

20
18
16
14
12
10
8
6
4
2
0
349 633 496 179 603 1740 1807 1864 1900 6002 473 663 862 963 1146 1842 1435 541 178 325 1026 1059 994 225 331 634 902 1243 1417 1468 6009 255 912 6016 271 614 451 1571 1981 562 7003 237

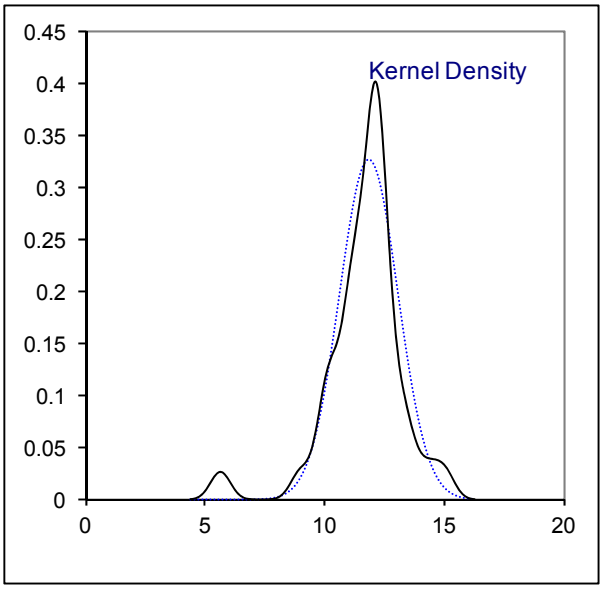

Kernel Density
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20

Determination of Barium (Ba) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	13		0.89	
179	D5185	9		-2.17	
225	D6595	10.216		-1.24	
237	D5185	12.15		0.24	
255		-----		-----	
271	D5185	11.8		-0.03	
311		-----		-----	
325	D5185	12		0.12	
331	D5185	12.3		0.35	
349	D5185	12		0.12	
398		-----		-----	
442		-----		-----	
451	INH-116	12		0.12	
473	D5185	11.23		-0.47	
496	DIN 51399-1	11.0		-0.64	
541	D5185	12.3		0.35	
550		-----		-----	
562	D6595	13.4		1.20	
603	D5185	10.11		-1.32	
614	D5185	12.51		0.51	
621		-----		-----	
633	D6595	10.605		-0.94	
634	D6595	12.220		0.29	
663	D5185	11.60		-0.18	
862	D5185	11.160		-0.52	
902	D5185	12.03		0.15	
912	D5185	11.3		-0.41	
963	D5185	11.39		-0.34	
994	D5185	14.30		1.88	
1026	D5185	12		0.12	
1059		-----		-----	
1146	in house	12.42		0.45	
1201		-----		-----	
1243	D5185	10.2		-1.25	
1297		-----		-----	
1417	INH-D5185	12.32		0.37	
1435	D5185	13.48		1.26	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D5185	12.8500		0.77	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	15		2.42	
1768		-----		-----	
1807	D5185	9.9		-1.48	
1842	INH-01	12.2		0.28	
1864	D5185	11.216		-0.48	
1900	D6595	5.6449666	R(0.01)	-4.74	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	10.95		-0.68	
6009		-----		-----	
6016	D5185	12.2		0.28	
7003		-----		-----	
7011		-----		-----	

	normality	OK	
	n	35	
	outliers	1	
	mean (n)	11.839	
	st.dev. (n)	1.2194	
	R(calc.)	3.414	
	R(Horwitz)	3.656	Compare R(D5185:13e1) = 5.732; application range 0.5 – 4 mg/kg


18
16
14
12
10
8
6
4
2
0
1900
179
1807
603
1243
225
633
6002
496
862
1864
473
912
963
663
271
325
349
451
1026
902
237
1842
6016
634
541
331
1417
1146
614
1571
178
562
1435
994
1740

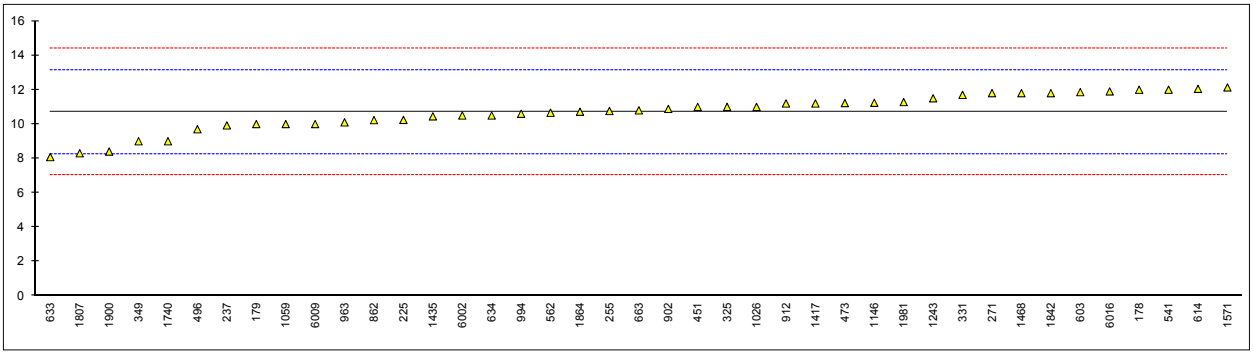

Kernel Density
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20

Determination of Chromium (Cr) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	12		1.06	
179	D5185	10		-0.57	
225	D6595	10.243		-0.37	
237	D5185	9.924		-0.63	
255	INH-01	10.76		0.05	
271	D5185	11.8		0.90	
311		-----		-----	
325	D5185	11		0.25	
331	D5185	11.7		0.82	
349	D5185	9		-1.38	
398		-----		-----	
442		-----		-----	
451	INH-116	11		0.25	
473	D5185	11.22		0.43	
496	DIN 51399-1	9.7		-0.81	
541	D5185	12		1.06	
550		-----		-----	
562	D6595	10.66		-0.03	
603	D5185	11.86		0.95	
614	D5185	12.05		1.10	
621		-----		-----	
633	D6595	8.079		-2.13	
634	D6595	10.501		-0.16	
663	D5185	10.8		0.08	
862	D5185	10.23		-0.38	
902	D5185	10.88		0.15	
912	D5185	11.2		0.41	
963	D5185	10.1		-0.49	
994	D5185	10.60		-0.08	
1026	D5185	11		0.25	
1059	in house	10		-0.57	
1146	in house	11.24		0.44	
1201		-----		-----	
1243	D5185	11.5		0.65	
1297		-----		-----	
1417	INH-D5185	11.20		0.41	
1435	D5185	10.45		-0.20	
1461		-----		-----	
1468	D5185	11.8		0.90	
1531		-----		-----	
1571	D5185	12.1340		1.17	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	9		-1.38	
1768		-----		-----	
1807	D5185	8.3		-1.95	
1842	INH-01	11.8		0.90	
1864	D5185	10.719		0.02	
1900	D6595	8.4012938		-1.87	
1920		-----		-----	
1957		-----		-----	
1981	D5185	11.28		0.48	
6002	D6595	10.50		-0.16	
6009	D6595	10.0		-0.57	
6016	D5185	11.9		0.98	
7003		-----		-----	
7011		-----		-----	

	normality	OK
	n	41
	outliers	0
	mean (n)	10.696
	st.dev. (n)	1.0576
	R(calc.)	2.961
	R(D5185:13e1)	3.438

Application range: 1 – 40 mg/kg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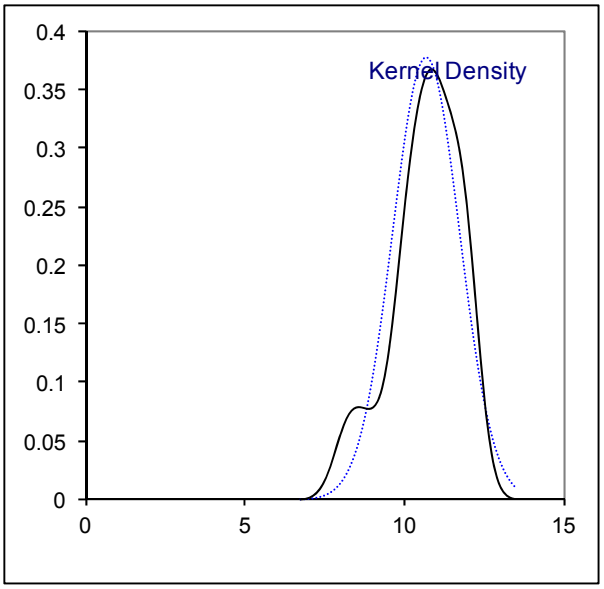
14
12
10
8
6
4
2
0
633
1807
1900
349
1740
496
237
179
1059
6009
963
862
225
1435
6002
634
994
562
1864
255
663
902
451
325
1026
912
1417
473
1146
1981
1243
331
271
1468
1842
603
6016
178
541
614
1571

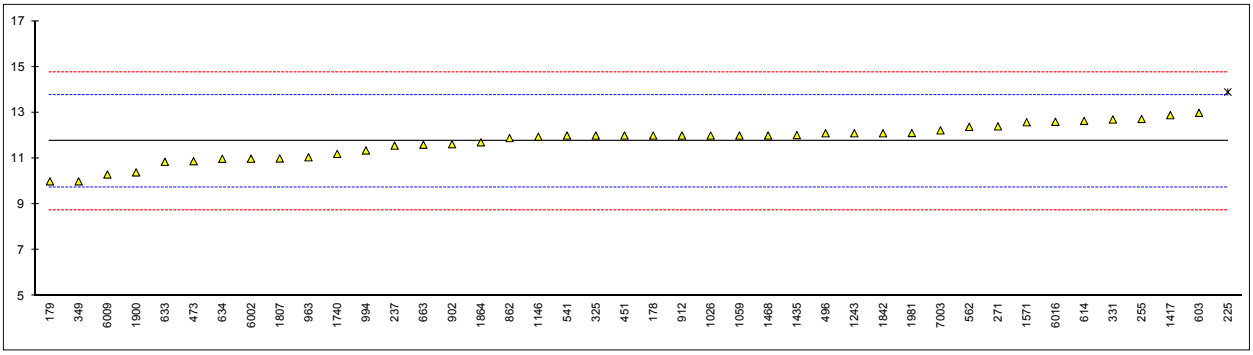

Kernel Density
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15

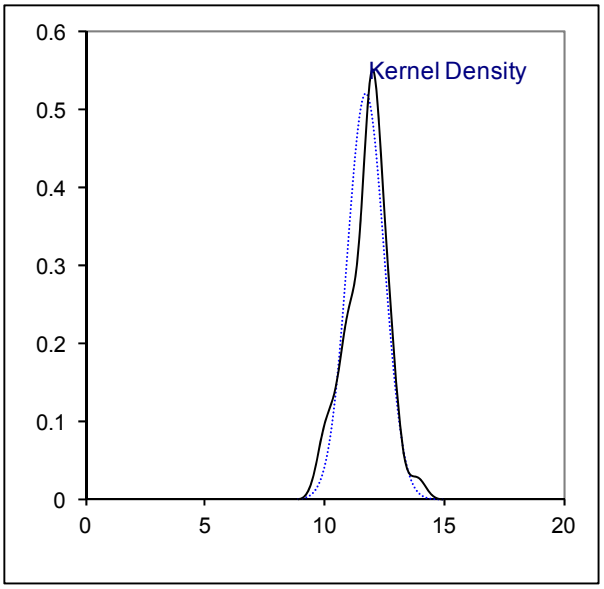
Determination of Copper (Cu) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	12		0.24	
179	D5185	10		-1.74	
225	D6595	13.899	R(0.01)	2.13	
237	D5185	11.56		-0.19	
255	INH-01	12.725		0.96	
271	D5185	12.4		0.64	
311		-----		-----	
325	D5185	12		0.24	
331	D5185	12.7		0.94	
349	D5185	10		-1.74	
398		-----		-----	
442		-----		-----	
451	INH-116	12		0.24	
473	D5185	10.88		-0.87	
496	DIN 51399-1	12.1		0.34	
541	D5185	12		0.24	
550		-----		-----	
562	D6595	12.38		0.62	
603	D5185	12.99		1.23	
614	D5185	12.64		0.88	
621		-----		-----	
633	D6595	10.855		-0.89	
634	D6595	10.987		-0.76	
663	D5185	11.6		-0.15	
862	D5185	11.89		0.14	
902	D5185	11.62		-0.13	
912	D5185	12		0.24	
963	D5185	11.05		-0.70	
994	D5185	11.35		-0.40	
1026	D5185	12		0.24	
1059	in house	12		0.24	
1146	in house	11.95		0.20	
1201		-----		-----	
1243	D5185	12.1		0.34	
1297		-----		-----	
1417	INH-D5185	12.89		1.13	
1435	D5185	12.02		0.26	
1461		-----		-----	
1468	D5185	12.0		0.24	
1531		-----		-----	
1571	D5185	12.5808		0.82	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	11.2		-0.55	
1768		-----		-----	
1807	D5185	11		-0.75	
1842	INH-01	12.1		0.34	
1864	D5185	11.704		-0.05	
1900	D6595	10.391351		-1.35	
1920		-----		-----	
1957		-----		-----	
1981	D5185	12.11		0.35	
6002	D6595	10.99		-0.76	
6009	D6595	10.3		-1.44	
6016	D5185	12.6		0.84	
7003	D1688	12.225		0.47	
7011		-----		-----	

	normality	OK
	n	41
	outliers	1
	mean (n)	11.753
	st.dev. (n)	0.7657
	R(calc.)	2.144
	R(D5185:13e1)	2.821

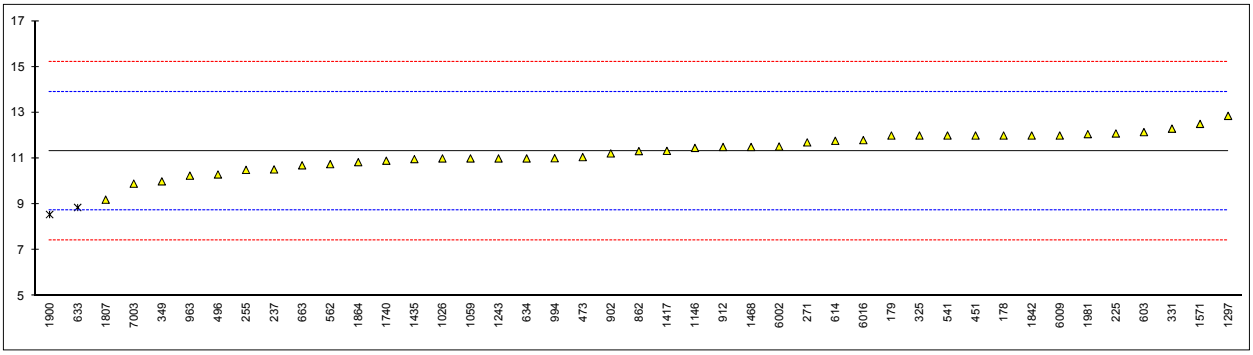
Application range: 2 – 160 mg/kg

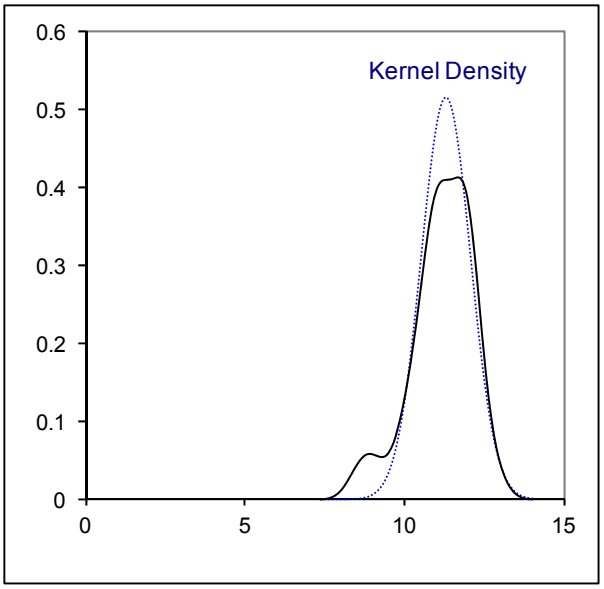

17
15
13
11
9
7
5
179 349 6009 1900 633 473 634 6002 1807 963 1740 994 237 663 902 1864 862 1146 541 325 451 178 912 1026 1059 1468 1435 496 1243 1842 1981 7003 562 271 1571 6016 614 331 255 1417 603 225


Kernel Density
0.6
0.5
0.4
0.3
0.2
0.1
0
0 5 10 15 20

Determination of Iron (Fe) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	12		0.53	
179	D5185	12		0.53	
225	D6595	12.09		0.60	
237	D5185	10.52		-0.62	
255	INH-01	10.5		-0.63	
271	D5185	11.7		0.30	
311		-----		-----	
325	D5185	12		0.53	
331	D5185	12.3		0.76	
349	D5185	10		-1.02	
398		-----		-----	
442		-----		-----	
451	INH-116	12		0.53	
473	D5185	11.06		-0.20	
496	DIN 51399-1	10.3		-0.79	
541	D5185	12		0.53	
550		-----		-----	
562	D6595	10.75		-0.44	
603	D5185	12.15		0.64	
614	D5185	11.77		0.35	
621		-----		-----	
633	D6595	8.859	DG(0.05)	-1.90	
634	D6595	11.001		-0.24	
663	D5185	10.7		-0.48	
862	D5185	11.32		0.00	
902	D5185	11.22		-0.07	
912	D5185	11.5		0.14	
963	D5185	10.25		-0.82	
994	D5185	11.01		-0.24	
1026	D5185	11		-0.24	
1059	in house	11		-0.24	
1146	in house	11.46		0.11	
1201		-----		-----	
1243	D5185	11.0		-0.24	
1297	D5708	12.859		1.19	
1417	INH-D5185	11.33		0.01	
1435	D5185	10.97		-0.27	
1461		-----		-----	
1468	D5185	11.5		0.14	
1531		-----		-----	
1571	D5185	12.5085		0.92	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn, reported 20
1720		-----		-----	
1740	D6595	10.9		-0.32	
1768		-----		-----	
1807	D5185	9.2		-1.64	
1842	INH-01	12.0		0.53	
1864	D5185	10.839		-0.37	
1900	D6595	8.55159	DG(0.05)	-2.14	
1920		-----		-----	
1957		-----		-----	
1981	D5185	12.06		0.57	
6002	D6595	11.52		0.16	
6009	D6595	12.0		0.53	
6016	D5185	11.8		0.37	
7003	D1068	9.9		-1.10	
7011		-----		-----	
	normality	OK			
	n	41			
	outliers	2			
	mean (n)	11.317			
	st.dev. (n)	0.7759			
	R(calc.)	2.173			
	R(D5185:13e1)	3.622			Application range: 2 – 140 mg/kg

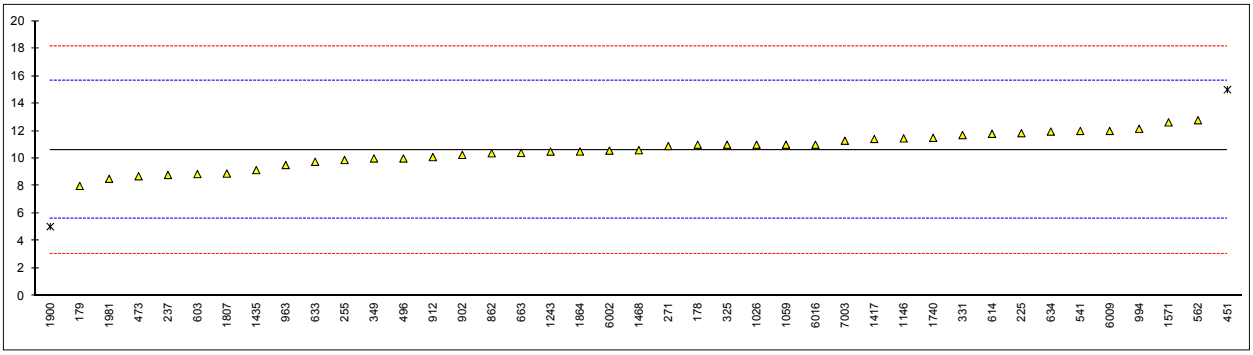

17
15
13
11
9
7
5
1900 633 1807 7003 349 963 496 255 237 663 562 1864 1740 1435 1026 1059 1243 634 994 473 902 862 1417 1146 912 1468 6002 271 614 6016 179 325 541 451 178 1842 6009 1981 225 603 331 1571 1297

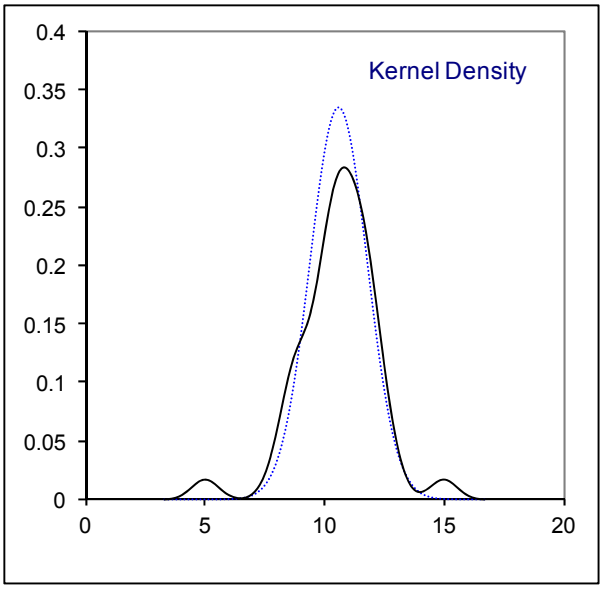

Kernel Density
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15

Determination of Lead (Pb) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		0.16	
179	D5185	8		-1.04	
225	D6595	11.836		0.49	
237	D5185	8.799		-0.72	
255	INH-01	9.89		-0.29	
271	D5185	10.9		0.12	
311		-----		-----	
325	D5185	11		0.16	
331	D5185	11.7		0.43	
349	D5185	10		-0.24	
398		-----		-----	
442		-----		-----	
451	INH-116	15	R(0.05)	1.75	
473	D5185	8.709		-0.76	
496	DIN 51399-1	10.0		-0.24	
541	D5185	12		0.55	
550		-----		-----	
562	D6595	12.78		0.86	
603	D5185	8.864		-0.70	
614	D5185	11.79		0.47	
621		-----		-----	
633	D6595	9.756		-0.34	
634	D6595	11.955		0.54	
663	D5185	10.4		-0.08	
862	D5185	10.38		-0.09	
902	D5185	10.26		-0.14	
912	D5185	10.1		-0.20	
963	D5185	9.52		-0.44	
994	D5185	12.16		0.62	
1026	D5185	11		0.16	
1059	in house	11		0.16	
1146	in house	11.46		0.34	
1201		-----		-----	
1243	D5185	10.5		-0.04	
1297		-----		-----	
1417	INH-D5185	11.42		0.32	
1435	D5185	9.153		-0.58	
1461		-----		-----	
1468	D5185	10.6		0.00	
1531		-----		-----	
1571	D5185	12.6238		0.80	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	11.5		0.35	
1768		-----		-----	
1807	D5185	8.9		-0.68	
1842		-----		-----	
1864	D5185	10.504		-0.04	
1900	D6595	5.0426188	R(0.01)	-2.22	
1920		-----		-----	
1957		-----		-----	
1981	D5185	8.52		-0.83	
6002	D6595	10.57		-0.02	
6009	D6595	12.0		0.55	
6016	D5185	11.0		0.16	
7003	D3559	11.290		0.27	
7011		-----		-----	

	normality	OK	
	n	39	
	outliers	2	
	mean (n)	10.611	
	st.dev. (n)	1.1949	
	R(calc.)	3.346	
	R(D5185:13e1)	7.021	Application range: 10 – 160 mg/kg

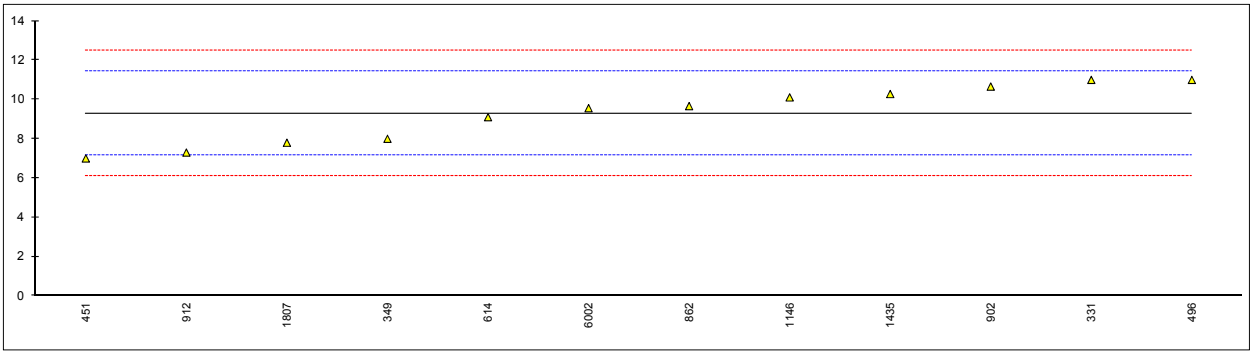

20
18
16
14
12
10
8
6
4
2
0
1900
179
1981
473
237
603
1807
1435
963
633
255
349
496
912
902
862
663
1243
1864
6002
1468
271
178
325
1026
1059
6016
7003
1417
1146
1740
331
614
225
634
541
6009
994
1571
562
451

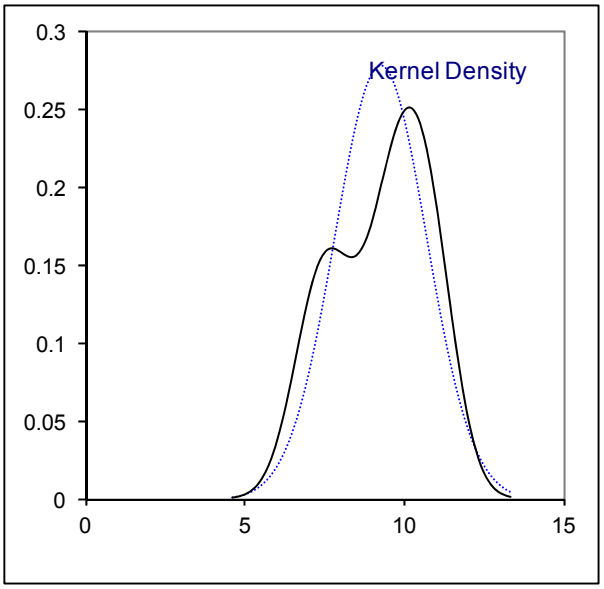

Kernel Density
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20

Determination of Lithium (Li) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178		-----		-----	
179		-----		-----	
225		-----		-----	
237		-----		-----	
255		-----		-----	
271		-----		-----	
311		-----		-----	
325		-----		-----	
331	D5185	11.0		1.61	
349	D5185	8		-1.21	
398		-----		-----	
442		-----		-----	
451	INH-116	7		-2.15	
473		-----		-----	
496	DIN 51399-1	11.0		1.61	
541		-----		-----	
550		-----		-----	
562		-----		-----	
603		-----		-----	
614	D5185	9.1		-0.18	
621		-----		-----	
633		-----		-----	
634		-----		-----	
663		-----		-----	
862	D5185	9.666		0.35	
902	D5185	10.66		1.29	
912	D5185	7.3		-1.87	
963		-----		-----	
994		-----		-----	
1026		-----		-----	
1059		-----		-----	
1146	in house	10.11		0.77	
1201		-----		-----	
1243		-----		-----	
1297		-----		-----	
1417		-----		-----	
1435	D5185	10.28		0.93	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571		-----		-----	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740		-----		-----	
1768		-----		-----	
1807	D5185	7.8		-1.40	
1842		-----		-----	
1864		-----		-----	
1900		-----		-----	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	9.56		0.25	
6009		-----		-----	
6016		-----		-----	
7003		-----		-----	
7011		-----		-----	

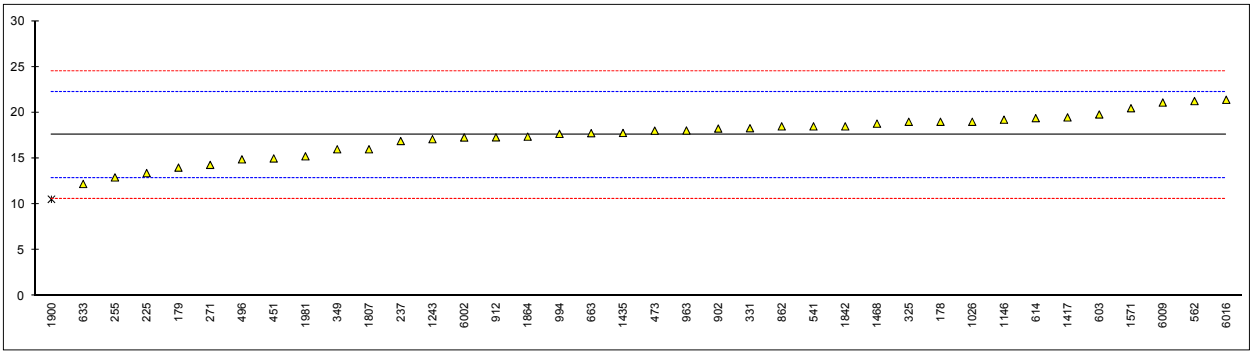
normality	OK
n	12
outliers	0
mean (n)	9.290
st.dev. (n)	1.4371
R(calc.)	4.024
R(Horwitz)	2.976

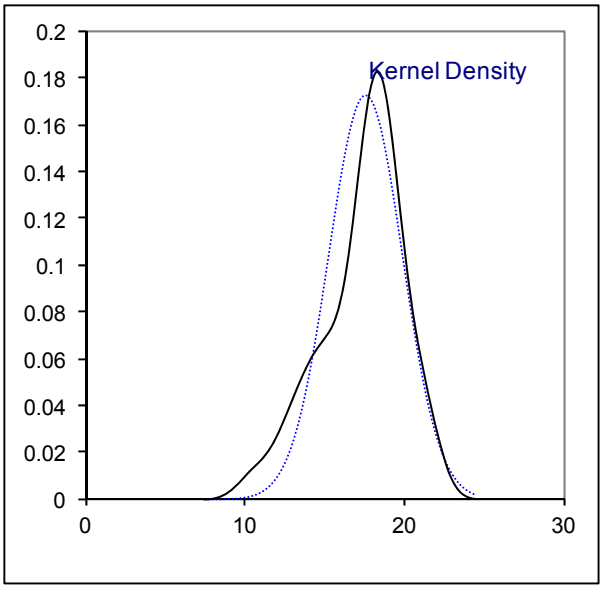

14
12
10
8
6
4
2
0
451
912
1807
349
614
6002
862
1146
1435
902
331
496


Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15

Determination of Magnesium (Mg) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	19		0.62	
179	D5185	14		-1.52	
225	D6595	13.399		-1.78	
237	D5185	16.90		-0.28	
255	INH-01	12.93		-1.98	
271	D5185	14.3		-1.39	
311		-----		-----	
325	D5185	19		0.62	
331	D5185	18.3		0.32	
349	D5185	16		-0.66	
398		-----		-----	
442		-----		-----	
451	INH-116	15		-1.09	
473	D5185	18.03		0.21	
496	DIN 51399-1	14.9		-1.13	
541	D5185	18.5		0.41	
550		-----		-----	
562	D6595	21.26		1.59	
603	D5185	19.80		0.96	
614	D5185	19.4		0.79	
621		-----		-----	
633	D6595	12.216		-2.28	
634		-----		-----	
663	D5185	17.76		0.09	
862	D5185	18.50		0.41	
902	D5185	18.26		0.31	
912	D5185	17.3		-0.11	
963	D5185	18.05		0.22	
994	D5185	17.68		0.06	
1026	D5185	19		0.62	
1059		-----		-----	
1146	in house	19.23		0.72	
1201		-----		-----	
1243	D5185	17.1		-0.19	
1297		-----		-----	
1417	INH-D5185	19.48		0.83	
1435	D5185	17.78		0.10	
1461		-----		-----	
1468	D5185	18.8		0.54	
1531		-----		-----	
1571	D5185	20.4778		1.26	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740		-----		-----	
1768		-----		-----	
1807	D5185	16	C	-0.66	First reported 28
1842	INH-01	18.5		0.41	
1864	D5185	17.378		-0.07	
1900	D6595	10.544809	R(0.05)	-3.00	
1920		-----		-----	
1957		-----		-----	
1981	D5185	15.23		-0.99	
6002	D6595	17.29		-0.11	
6009	D6595	21.1		1.52	
6016	D5185	21.4		1.65	
7003		-----		-----	
7011		-----		-----	
	normality	OK			
	n	37			
	outliers	1			
	mean (n)	17.547			
	st.dev. (n)	2.3077			
	R(calc.)	6.462			
	R(D5185:13e1)	6.537			Application range : 5 – 1700 mg/kg

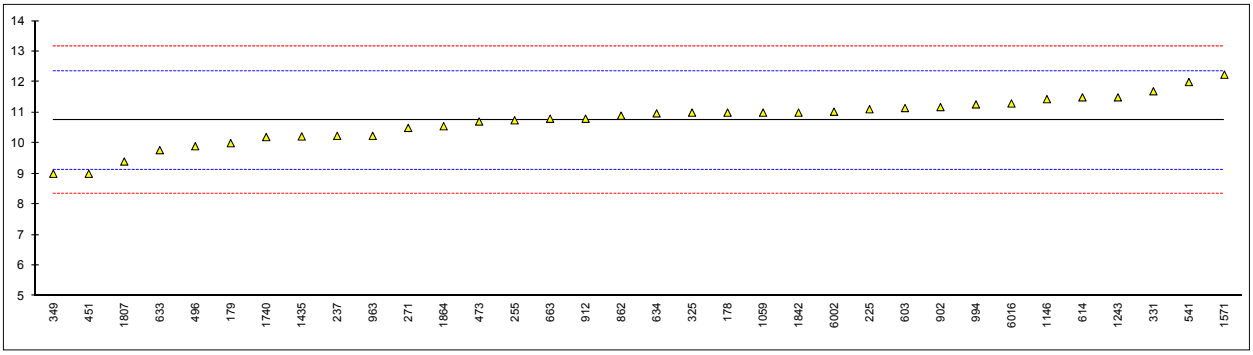

30
25
20
15
10
5
0
1900 633 255 225 179 271 496 451 1981 349 1807 237 1243 6002 912 1864 994 663 1435 473 963 902 331 862 541 1842 1468 325 178 1026 1146 614 1417 603 1571 6009 562 6016

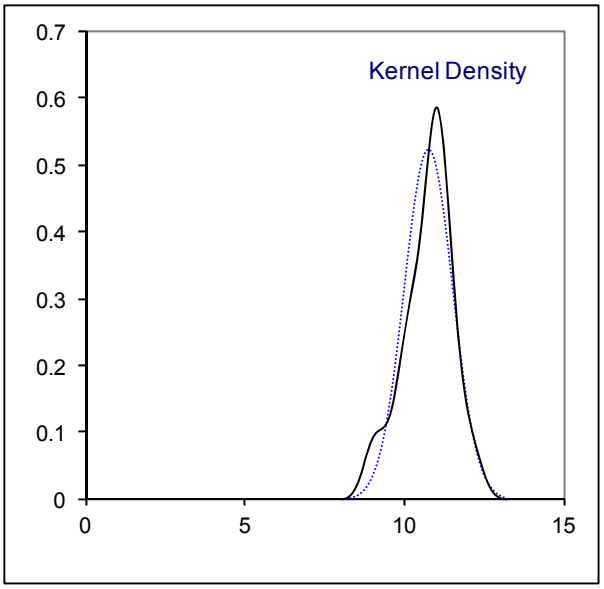

Kernel Density
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
10
20
30

Determination of Manganese (Mn) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		0.32	
179	D5185	10		-0.93	
225	D6595	11.11		0.45	
237	D5185	10.24		-0.63	
255	INH-01	10.75		0.00	
271	D5185	10.5		-0.31	
311		-----		-----	
325	D5185	11		0.32	
331	D5185	11.7		1.19	
349	D5185	9		-2.18	
398		-----		-----	
442		-----		-----	
451	INH-116	9		-2.18	
473	D5185	10.71		-0.05	
496	DIN 51399-1	9.9		-1.06	
541	D5185	12		1.56	
550		-----		-----	
562		-----		-----	
603	D5185	11.15		0.50	
614	D5185	11.5		0.94	
621		-----		-----	
633	D6595	9.772		-1.21	
634	D6595	10.977		0.29	
663	D5185	10.8		0.07	
862	D5185	10.9		0.19	
902	D5185	11.18		0.54	
912	D5185	10.8		0.07	
963	D5185	10.24		-0.63	
994	D5185	11.27		0.65	
1026		-----		-----	
1059	in house	11		0.32	
1146	in house	11.44		0.86	
1201		-----		-----	
1243	D5185	11.5		0.94	
1297		-----		-----	
1417		-----		-----	
1435	D5185	10.22		-0.66	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D5185	12.2424		1.86	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	10.2		-0.68	
1768		-----		-----	
1807	D5185	9.4		-1.68	
1842	INH-01	11.0		0.32	
1864	D5185	10.555		-0.24	
1900		-----		-----	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	11.03		0.35	
6009		-----		-----	
6016	D5185	11.3		0.69	
7003		-----		-----	
7011		-----		-----	

	normality	OK	
	n	34	
	outliers	0	
	mean (n)	10.747	
	st.dev. (n)	0.7616	
	R(calc.)	2.133	
	R(D5185:13e1)	2.246	Application range: 5 – 700 mg/kg


14
13
12
11
10
9
8
7
6
5
349
451
1807
633
496
179
1740
1435
237
963
271
1864
473
255
663
912
862
634
325
178
1059
1842
6002
225
603
902
994
6016
1146
614
1243
331
541
1571

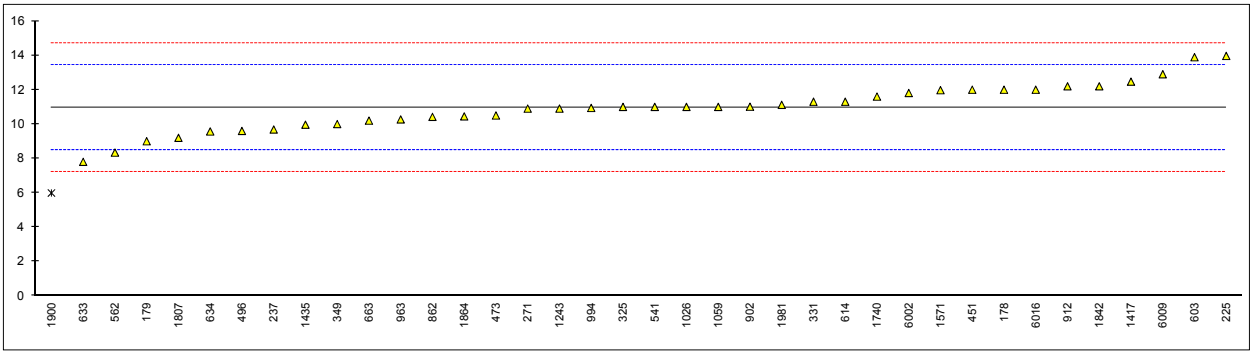

Kernel Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15

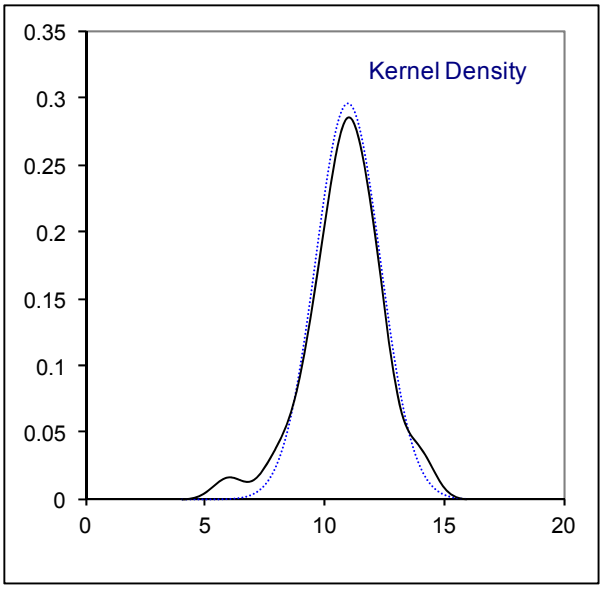
Determination of Molybdenum (Mo) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	12		0.83	
179	D5185	9		-1.57	
225	D6595	13.966		2.40	
237	D5185	9.683		-1.02	
255		-----		-----	
271	D5185	10.9		-0.05	
311		-----		-----	
325	D5185	11		0.03	
331	D5185	11.3		0.27	
349	D5185	10		-0.77	
398		-----		-----	
442		-----		-----	
451	INH-116	12		0.83	
473	D5185	10.50		-0.37	
496	DIN 51399-1	9.6		-1.09	
541	D5185	11		0.03	
550		-----		-----	
562	D6595	8.34		-2.09	
603	D5185	13.89		2.34	
614	D5185	11.3		0.27	
621		-----		-----	
633	D6595	7.802		-2.52	
634	D6595	9.570		-1.11	
663	D5185	10.2		-0.61	
862	D5185	10.42		-0.43	
902	D5185	11.01		0.04	
912	D5185	12.2		0.99	
963	D5185	10.27		-0.55	
994	D5185	10.94		-0.02	
1026	D5185	11		0.03	
1059	in house	11		0.03	
1146		-----		-----	
1201		-----		-----	
1243	D5185	10.9		-0.05	
1297		-----		-----	
1417	INH-D5185	12.47		1.21	
1435	D5185	9.964		-0.80	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D5185	11.9724		0.81	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	11.6		0.51	
1768		-----		-----	
1807	D5185	9.2		-1.41	
1842	INH-01	12.2		0.99	
1864	D5185	10.449		-0.41	
1900	D6595	5.988684	R(0.05)	-3.97	
1920		-----		-----	
1957		-----		-----	
1981	D5185	11.12		0.13	
6002	D6595	11.81		0.68	
6009	D6595	12.9		1.55	
6016	D5185	12.0		0.83	
7003		-----		-----	
7011		-----		-----	

	normality	OK
	n	37
	outliers	1
	mean (n)	10.959
	st.dev. (n)	1.3472
	R(calc.)	3.772
	R(D5185:13e1)	3.503

Application range: 5 – 200 mg/kg

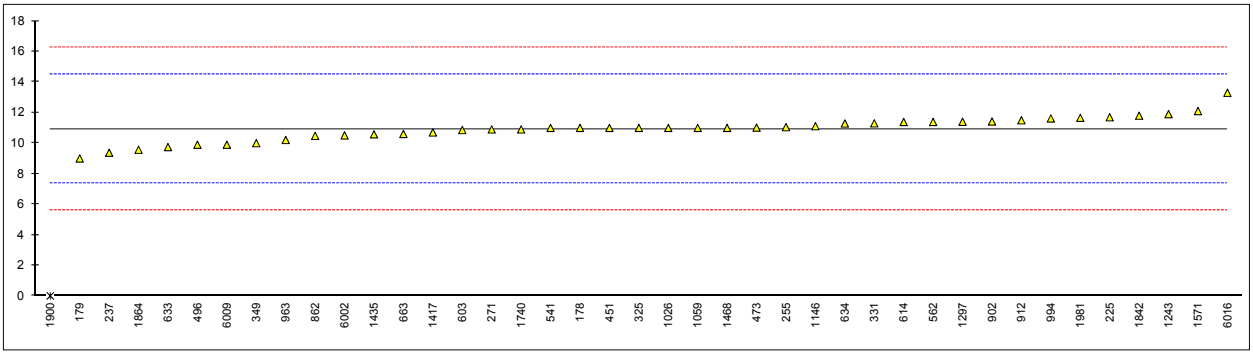

16
14
12
10
8
6
4
2
0
1900 633 562 179 1807 634 496 237 1435 349 663 963 862 1864 473 271 1243 994 325 541 1026 1059 902 1981 331 614 1740 6002 1571 451 178 6016 912 1842 1417 6009 603 225

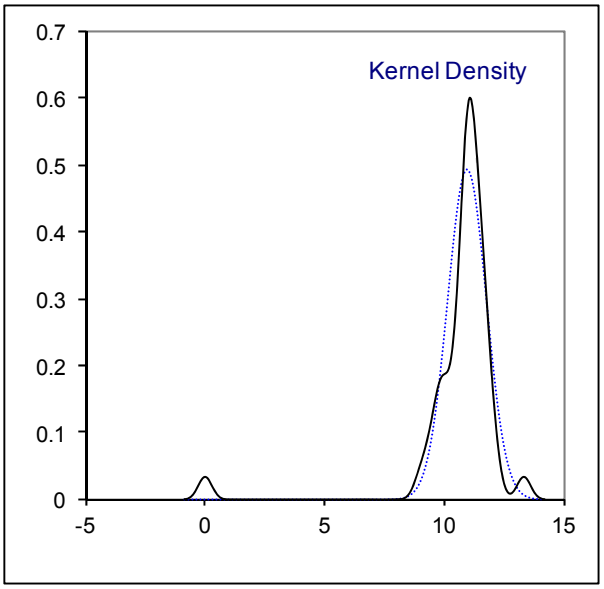

Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 5 10 15 20

Determination of Nickel (Ni) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		0.04	
179	D5185	9		-1.09	
225	D6595	11.696		0.43	
237	D5185	9.375		-0.88	
255	INH-01	11.05		0.07	
271	D5185	10.9		-0.02	
311		-----		-----	
325	D5185	11		0.04	
331	D5185	11.3		0.21	
349	D5185	10		-0.52	
398		-----		-----	
442		-----		-----	
451	INH-116	11		0.04	
473	D5185	11.02		0.05	
496	DIN 51399-1	9.9		-0.58	
541	D5185	11		0.04	
550		-----		-----	
562	D6595	11.39		0.26	
603	D5185	10.86		-0.04	
614	D5185	11.39		0.26	
621		-----		-----	
633	D6595	9.744		-0.67	
634	D6595	11.291		0.20	
663	D5185	10.6		-0.19	
862	D5185	10.48		-0.25	
902	D5185	11.42		0.28	
912	D5185	11.5		0.32	
963	D5185	10.21		-0.41	
994	D5185	11.62		0.39	
1026	D5185	11		0.04	
1059	in house	11		0.04	
1146	in house	11.11		0.10	
1201		-----		-----	
1243	D5185	11.9		0.55	
1297	D5708	11.401		0.27	
1417	INH-D5185	10.70		-0.13	
1435	D5185	10.58		-0.20	
1461		-----		-----	
1468	D5185	11.0		0.04	
1531		-----		-----	
1571	D5185	12.1026		0.66	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn reported 20
1720		-----		-----	
1740	D6595	10.9		-0.02	
1768		-----		-----	
1807	D5185	<2.5		<-4.76	False negative test result?
1842	INH-01	11.8		0.49	
1864	D5185	9.570		-0.77	
1900	D6595	0	R(0.01)	-6.17	
1920		-----		-----	
1957		-----		-----	
1981	D5185	11.66		0.41	
6002	D6595	10.51		-0.24	
6009	D6595	9.9		-0.58	
6016	D5185	13.3		1.34	
7003		-----		-----	
7011		-----		-----	

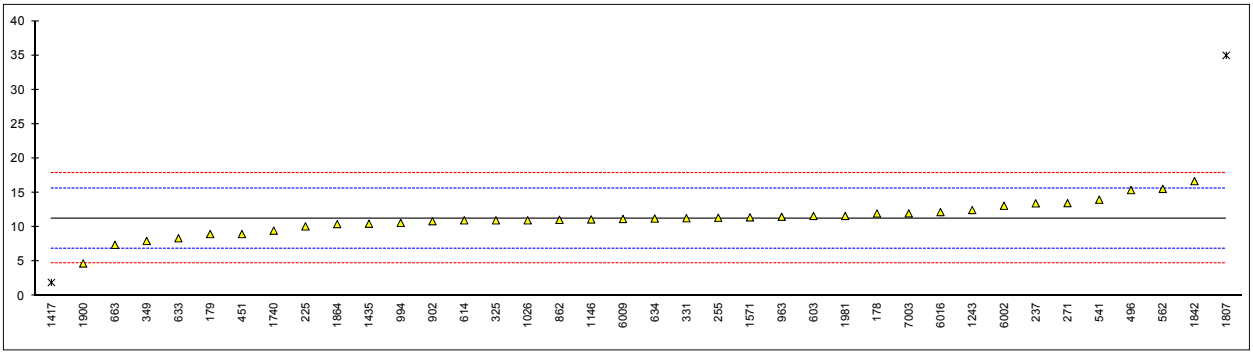
	normality	suspect	
	n	40	
	outliers	1	
	mean (n)	10.929	
	st.dev. (n)	0.8074	
	R(calc.)	2.261	
	R(D5185:13e1)	4.959	Application range: 5 – 40 mg/kg


18
16
14
12
10
8
6
4
2
0
1900
179
237
1864
633
496
6009
349
963
862
6002
1435
663
1417
603
271
1740
541
178
451
325
1026
1059
1468
473
255
1146
634
331
614
562
1297
902
912
994
1981
225
1842
1243
1571
6016


Kernel Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-5
0
5
10
15

Determination of Sodium (Na) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	12		0.33	
179	D5185	9		-1.03	
225	D6595	10.119		-0.52	
237	D5185	13.47		1.00	
255	INH-01	11.37		0.05	
271	D5185	13.5		1.02	
311		-----		-----	
325	D5185	11		-0.12	
331	D5185	11.3		0.01	
349	D5185	8		-1.49	
398		-----		-----	
442		-----		-----	
451	INH-116	9		-1.03	
473		-----		-----	
496	DIN 51399-1	15.4		1.88	
541	D5185	14		1.25	
550		-----		-----	
562	D6595	15.57		1.96	
603	D5185	11.64		0.17	
614	D5185	11.0		-0.12	
621		-----		-----	
633	D6595	8.386		-1.31	
634	D6595	11.259		0.00	
663	D5185	7.43		-1.75	
862	D5185	11.07		-0.09	
902	D5185	10.87		-0.18	
912		-----		-----	
963	D5185	11.52		0.12	
994	D5185	10.62		-0.30	
1026	D5185	11		-0.12	
1059		-----		-----	
1146	in house	11.13		-0.06	
1201		-----		-----	
1243	D5185	12.5		0.56	
1297		-----		-----	
1417	INH-D5185	1.957	R(0.05)	-4.25	
1435	D5185	10.50		-0.35	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D5185	11.4316		0.07	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	9.5		-0.81	
1768		-----		-----	
1807	D5185	35	C,R(0.01)	10.82	First reported 73
1842	INH-01	16.7		2.48	
1864	D5185	10.448		-0.37	
1900	D6595	4.7247930		-2.98	
1920		-----		-----	
1957		-----		-----	
1981	D5185	11.64		0.17	
6002	D6595	13.12		0.84	
6009	D6595	11.2		-0.03	
6016	D5185	12.2		0.43	
7003	INH-3500	12.01		0.34	
7011		-----		-----	
	normality	suspect			
	n	36			
	outliers	2			
	mean (n)	11.267			
	st.dev. (n)	2.2869			
	R(calc.)	6.403			
	R(D5185:13e1)	6.140			Application rang: 7 – 70 mg/kg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35
30
25
20
15
10
5
0
1417
1900
663
349
633
179
451
1740
225
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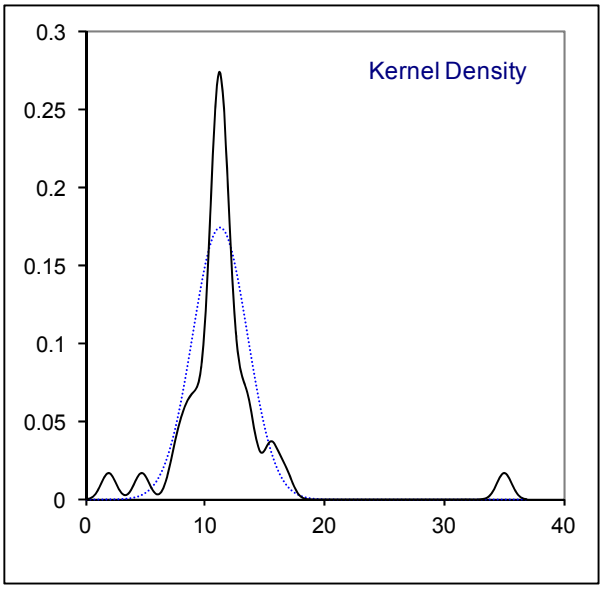
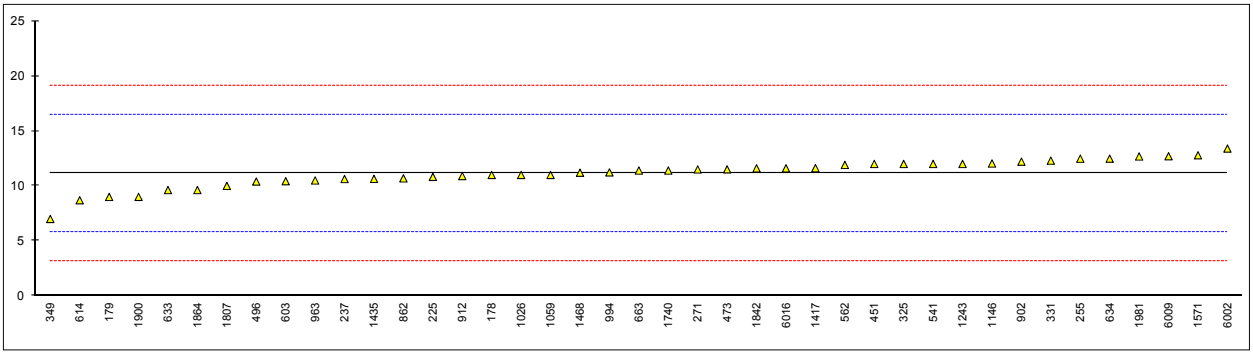
1435
994
902
614
325
1026
862
1146
6009
634
331
255
1571
963
603
1981
178
7003
6016
1243
6002
237
271
541
496
562
1842
1807


Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
0
10
20
30
40

Determination of Silicon (Si) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		-0.06	
179	D5185	9		-0.81	
225	D6595	10.826		-0.12	
237	D5185	10.63		-0.19	
255	INH-01	12.48		0.50	
271	D5185	11.5		0.13	
311		-----		-----	
325	D5185	12		0.32	
331	D5185	12.3		0.43	
349	D5185	7		-1.56	
398		-----		-----	
442		-----		-----	
451	INH-116	12		0.32	
473	D5185	11.51		0.14	
496	DIN 51399-1	10.4		-0.28	
541	D5185	12		0.32	
550		-----		-----	
562	D6595	11.91		0.29	
603	D5185	10.43		-0.27	
614	D5185	8.7		-0.92	
621		-----		-----	
633	D6595	9.622		-0.57	
634	D6595	12.483		0.50	
663	D5185	11.4		0.10	
862	D5185	10.69		-0.17	
902	D5185	12.21		0.40	
912	D5185	10.9		-0.09	
963	D5185	10.50		-0.24	
994	D5185	11.23		0.03	
1026	D5185	11		-0.06	
1059	in house	11		-0.06	
1146	in house	12.04		0.34	
1201		-----		-----	
1243	D5185	12.0		0.32	
1297		-----		-----	
1417	INH-D5185	11.62		0.18	
1435	D5185	10.64		-0.19	
1461		-----		-----	
1468	D5185	11.2		0.02	
1531		-----		-----	
1571	D5185	12.7896		0.62	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn, reported 30
1720		-----		-----	
1740	D6595	11.4		0.10	
1768		-----		-----	
1807	D5185	10		-0.43	
1842	INH-01	11.6		0.17	
1864	D5185	9.622		-0.57	
1900	D6595	9.0036964		-0.81	
1920		-----		-----	
1957		-----		-----	
1981	D5185	12.68		0.58	
6002	D6595	13.40		0.85	
6009	D6595	12.7		0.59	
6016	D5185	11.6		0.17	
7003		-----		-----	
7011		-----		-----	

	normality	suspect	
	n	41	
	outliers	0	
	mean (n)	11.147	
	st.dev. (n)	1.2717	
	R(calc.)	3.561	
	R(D5185:13e1)	7.427	Application range: 8 – 50 mg/kg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20
15
10
5
0
349
614
179
1900
633
1864
1807
496
603
963
237
1435
862
225
912
178
1026
1059
1468
994
663
1740
271
473
1842
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451
325
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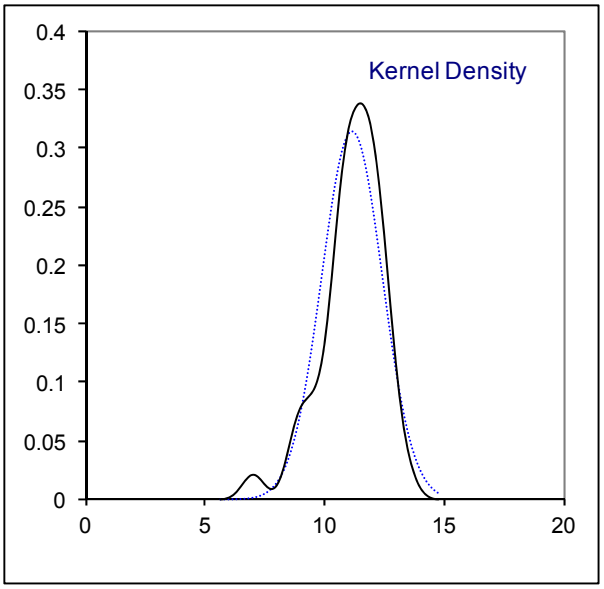
1146
902
331
255
634
1981
6009
1571
6002

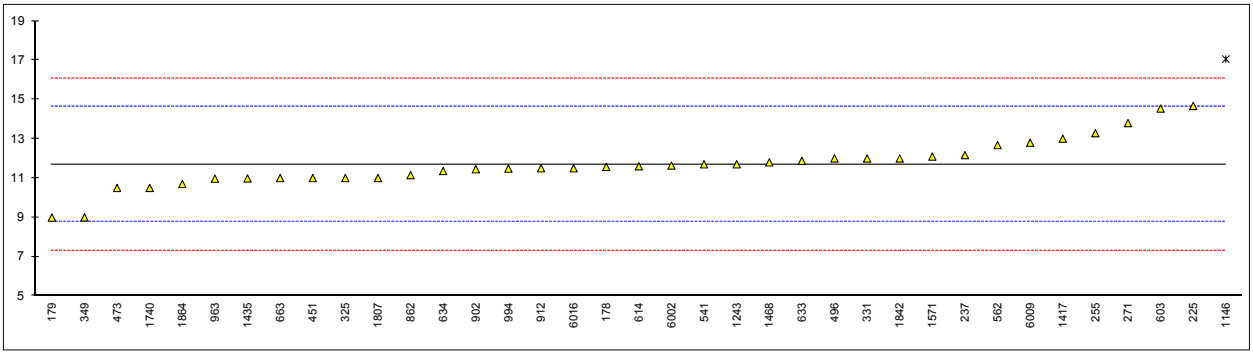

Kernel Density
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20

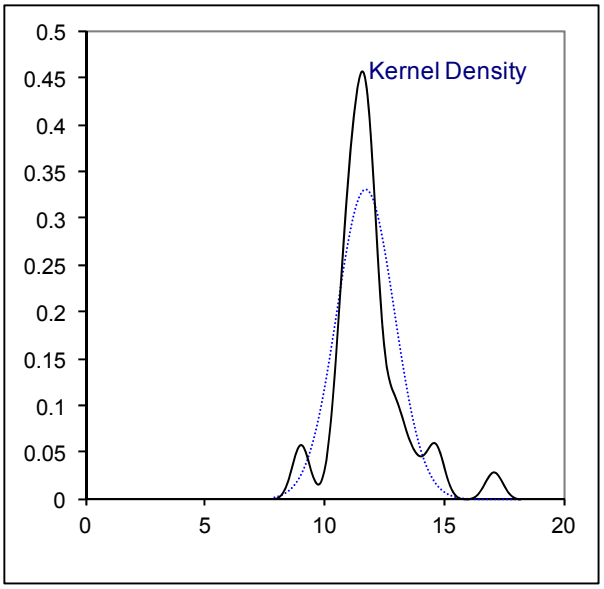
Determination of Silver (Ag) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11.57		-0.09	
179	D5185	8.99		-1.85	
225	D6595	14.673		2.04	
237	D5185	12.17		0.32	
255	INH-01	13.285		1.09	
271	D5185	13.8		1.44	
311		-----		-----	
325	D5185	11		-0.48	
331	D5185	12.0		0.21	
349	D5185	9		-1.84	
398		-----		-----	
442		-----		-----	
451	INH-116	11		-0.48	
473	D5185	10.50		-0.82	
496	DIN 51399-1	12.0		0.21	
541	D5185	11.7		0.00	
550		-----		-----	
562	D6595	12.68		0.67	
603	D5185	14.54		1.95	
614	D5185	11.6		-0.06	
621		-----		-----	
633	D6595	11.879		0.13	
634	D6595	11.358		-0.23	
663	D5185	11.0		-0.48	
862	D5185	11.15		-0.37	
902	D5185	11.45		-0.17	
912	D5185	11.5		-0.13	
963	D5185	10.97		-0.50	
994	D5185	11.48		-0.15	
1026		-----		-----	
1059		-----		-----	
1146	in house	17.06	R(0.01)	3.67	
1201		-----		-----	
1243	D5185	11.7		0.00	
1297		-----		-----	
1417	INH-D5185	13.01		0.90	
1435	D5185	10.98		-0.49	
1461		-----		-----	
1468	D5185	11.8		0.07	
1531		-----		-----	
1571	D5185	12.0953		0.27	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	10.5		-0.82	
1768		-----		-----	
1807	D5185	11		-0.48	
1842	INH-01	12.0		0.21	
1864	D5185	10.698		-0.68	
1900		-----		-----	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	11.64		-0.04	
6009	D6595	12.8		0.76	
6016	D5185	11.5		-0.13	
7003		-----		-----	
7011		-----		-----	

	normality	suspect
	n	36
	outliers	1
	mean (n)	11.695
	st.dev. (n)	1.2020
	R(calc.)	3.366
	R(D5185:13e1)	4.093

Application range: 0.5 – 50 mg/kg

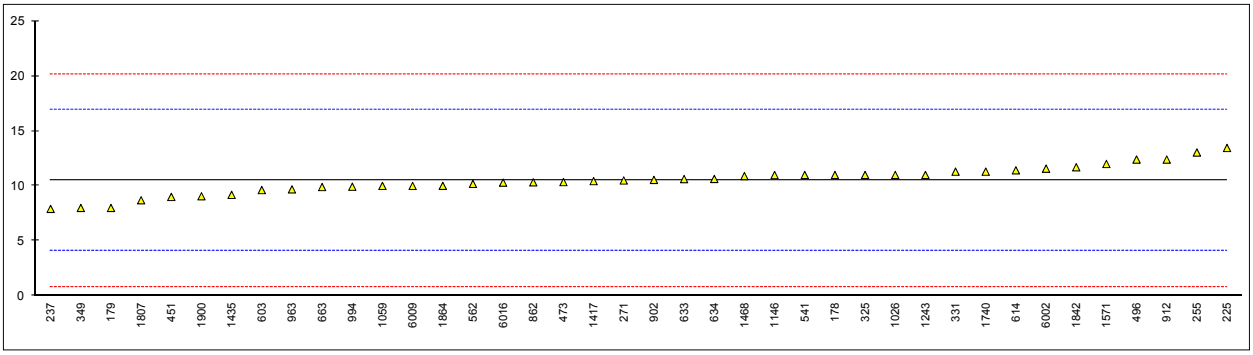

19
17
15
13
11
9
7
5
179 349 473 1740 1864 963 1435 663 451 325 1807 862 634 902 994 912 6016 178 614 6002 541 1243 1468 633 496 331 1842 1571 237 562 6009 1417 255 271 603 225 1146

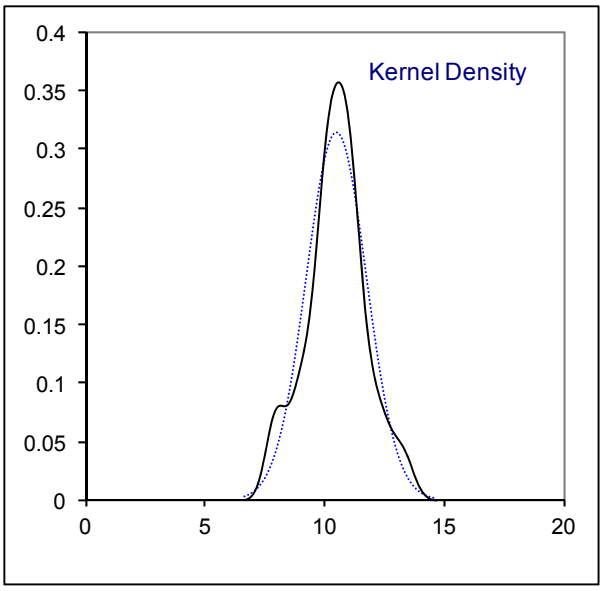

Kernel Density
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 5 10 15 20

Determination of Tin (Sn) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		0.15	
179	D5185	8		-0.78	
225	D6595	13.454		0.91	
237	D5185	7.913		-0.81	
255	INH-01	13.04		0.78	
271	D5185	10.5		0.00	
311		-----		-----	
325	D5185	11		0.15	
331	D5185	11.3		0.24	
349	D5185	8		-0.78	
398		-----		-----	
442		-----		-----	
451	INH-116	9		-0.47	
473	D5185	10.35		-0.05	
496	DIN 51399-1	12.4		0.59	
541	D5185	11		0.15	
550		-----		-----	
562	D6595	10.19		-0.10	
603	D5185	9.626		-0.27	
614	D5185	11.42		0.28	
621		-----		-----	
633	D6595	10.624		0.04	
634	D6595	10.635		0.04	
663	D5185	9.9		-0.19	
862	D5185	10.33		-0.06	
902	D5185	10.55		0.01	
912	D5185	12.4		0.59	
963	D5185	9.69		-0.25	
994	D5185	9.93		-0.18	
1026	D5185	11		0.15	
1059	in house	10		-0.16	
1146	in house	10.99		0.15	
1201		-----		-----	
1243	D5185	11.0		0.15	
1297		-----		-----	
1417	INH-D5185	10.44		-0.02	
1435	D5185	9.190		-0.41	
1461		-----		-----	
1468	D5185	10.9		0.12	
1531		-----		-----	
1571	D5185	11.9997		0.46	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	11.3		0.24	
1768		-----		-----	
1807	D5185	8.7		-0.56	
1842	INH-01	11.7		0.37	
1864	D5185	10.009		-0.16	
1900	D6595	9.0633993		-0.45	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	11.57		0.33	
6009	D6595	10.0		-0.16	
6016	D5185	10.3		-0.07	
7003		-----		-----	
7011		-----		-----	

	normality	OK	
	n	40	
	outliers	0	
	mean (n)	10.510	
	st.dev. (n)	1.2663	
	R(calc.)	3.546	
	R(D5185:13e1)	9.029	Application range: 10 – 40 mg/kg

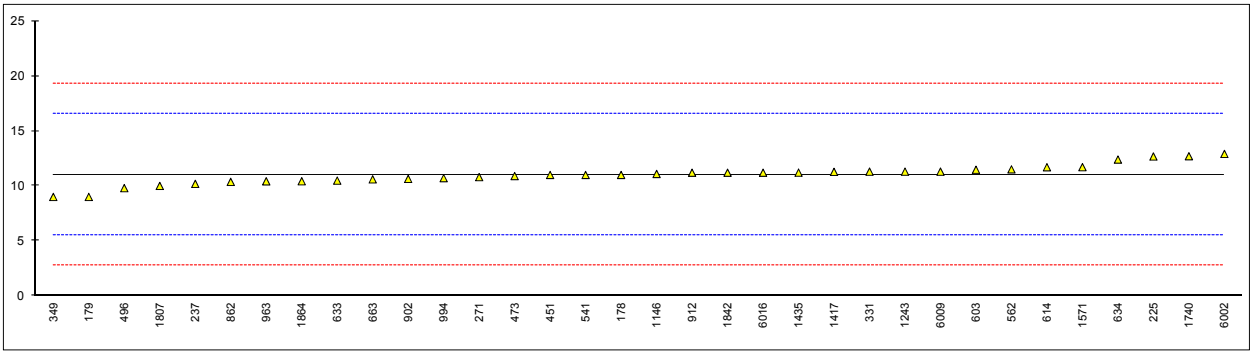

25
20
15
10
5
0
237 349 179 1807 451 1900 1435 603 963 663 994 1059 6009 1864 562 6016 862 473 1417 271 902 633 634 1468 1146 541 178 325 1026 1243 331 1740 614 6002 1842 1571 496 912 255 225

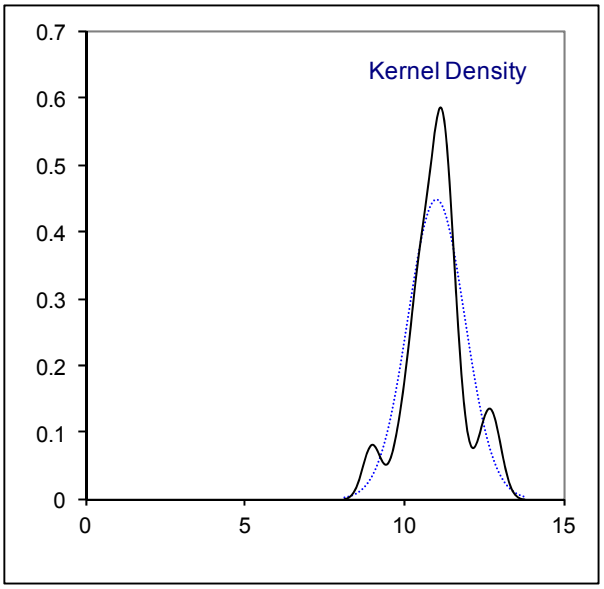

Kernel Density
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20

Determination of Titanium (Ti) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		-0.01	
179	D5185	9		-0.73	
225	D6595	12.677		0.60	
237	D5185	10.19		-0.30	
255		-----		-----	
271	D5185	10.8		-0.08	
311		-----		-----	
325		-----		-----	
331	D5185	11.3		0.10	
349	D5185	9		-0.73	
398		-----		-----	
442		-----		-----	
451	INH-116	11		-0.01	
473	D5185	10.90		-0.04	
496	DIN 51399-1	9.8		-0.44	
541	D5185	11		-0.01	
550		-----		-----	
562	D6595	11.51		0.18	
603	D5185	11.47		0.17	
614	D5185	11.7		0.25	
621		-----		-----	
633	D6595	10.485		-0.19	
634	D6595	12.399		0.50	
663	D5185	10.6		-0.15	
862	D5185	10.37		-0.23	
902	D5185	10.64		-0.14	
912	D5185	11.2		0.07	
963	D5185	10.42		-0.22	
994	D5185	10.71		-0.11	
1026		-----		-----	
1059		-----		-----	
1146	in house	11.09		0.03	
1201		-----		-----	
1243	D5185	11.3		0.10	
1297		-----		-----	
1417	INH-D5185	11.28		0.10	
1435	D5185	11.21		0.07	
1461		-----		-----	
1468		-----		-----	
1531		-----		-----	
1571	D5185	11.70895		0.25	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	12.7		0.61	
1768		-----		-----	
1807	D5185	10		-0.37	
1842	INH-01	11.2		0.07	
1864	D5185	10.428		-0.21	
1900		-----		-----	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	12.91		0.69	
6009	D6595	11.3		0.10	
6016	D5185	11.2		0.07	
7003		-----		-----	
7011		-----		-----	

	normality	OK	
	n	34	
	outliers	0	
	mean (n)	11.015	
	st.dev. (n)	0.8900	
	R(calc.)	2.492	
	R(D5185:13e1)	7.721	Application range: 5 – 40 mg/kg


25
20
15
10
5
0
349
179
496
1807
237
862
963
1864
633
663
902
994
271
473
451
541
178
1146
912
1842
6016
1435
1417
331
1243
6009
603
562
614
1571
634
225
1740
6002

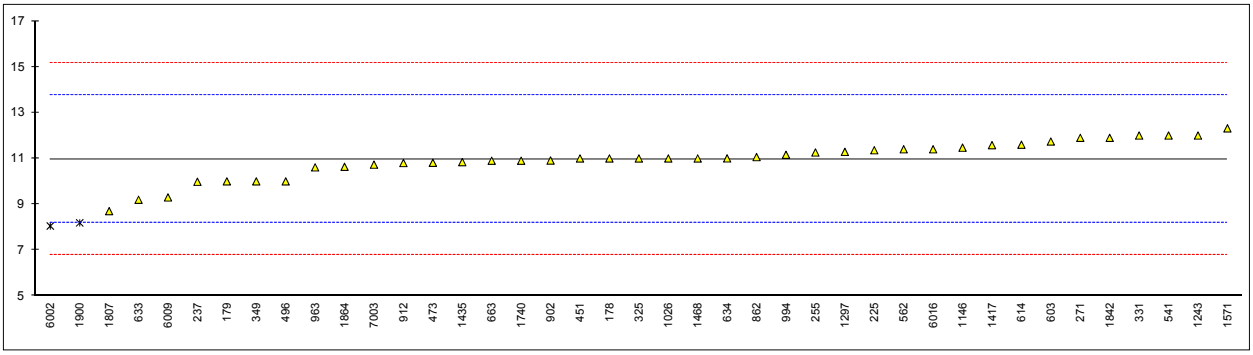

Kernel Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15

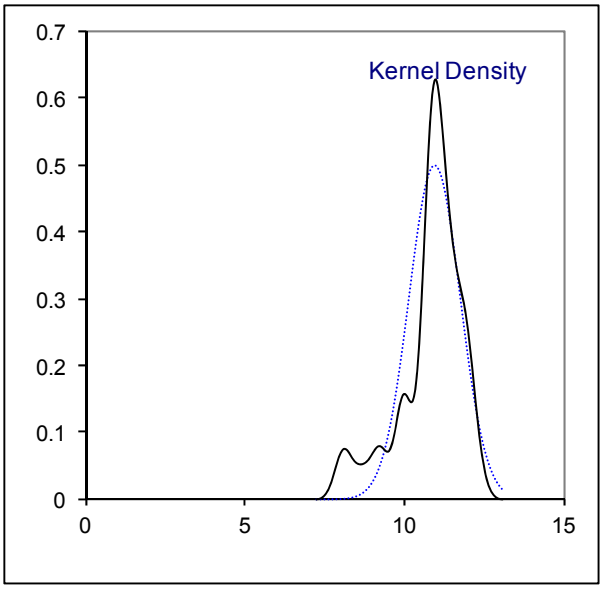
Determination of Vanadium (V) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	11		0.02	
179	D5185	10		-0.69	
225	D6595	11.358		0.28	
237	D5185	9.982		-0.71	
255	INH-01	11.26		0.21	
271	D5185	11.9		0.67	
311		-----		-----	
325	D5185	11		0.02	
331	D5185	12.0		0.74	
349	D5185	10		-0.69	
398		-----		-----	
442		-----		-----	
451	INH-116	11		0.02	
473	D5185	10.81		-0.11	
496	DIN 51399-1	10.0		-0.69	
541	D5185	12		0.74	
550		-----		-----	
562	D6595	11.4		0.31	
603	D5185	11.74		0.55	
614	D5185	11.6		0.45	
621		-----		-----	
633	D6595	9.198		-1.27	
634	D6595	11.002		0.02	
663	D5185	10.9		-0.05	
862	D5185	11.06		0.07	
902	D5185	10.91		-0.04	
912	D5185	10.8		-0.12	
963	D5185	10.61		-0.26	
994	D5185	11.16		0.14	
1026	D5185	11		0.02	
1059		-----		-----	
1146	in house	11.47		0.36	
1201		-----		-----	
1243	D5185	12.0		0.74	
1297	D5708	11.288		0.23	
1417	INH-D5185	11.58		0.44	
1435	D5185	10.84		-0.09	
1461		-----		-----	
1468	D5185	11.0		0.02	
1531		-----		-----	
1571	D5185	12.3140		0.97	
1660		-----		-----	
1704		-----		-----	
1720		-----		-----	
1740	D6595	10.9		-0.05	
1768		-----		-----	
1807	D5185	8.7		-1.63	
1842	INH-01	11.9		0.67	
1864	D5185	10.635		-0.24	
1900	D6595	8.1866331	DG(0.05)	-2.00	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	8.05	DG(0.05)	-2.09	
6009	D6595	9.3		-1.20	
6016	D5185	11.4		0.31	
7003	D3919	10.729		-0.17	
7011		-----		-----	

normality	OK
n	39
outliers	2
mean (n)	10.968
st.dev. (n)	0.8005
R(calc.)	2.241
R(D5185:13e1)	3.902

Application range: 1 – 50 mg/kg

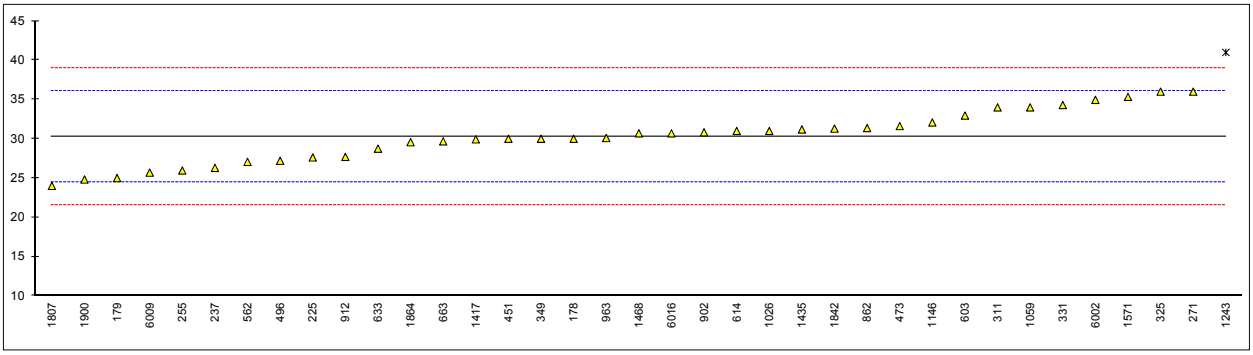

17
15
13
11
9
7
5
6002
1900
1807
633
6009
237
179
349
496
963
1864
7003
912
473
1435
663
1740
902
451
178
325
1026
1468
634
862
994
255
1297
225
562
6016
1146
1417
614
603
271
1842
331
541
1243
1571

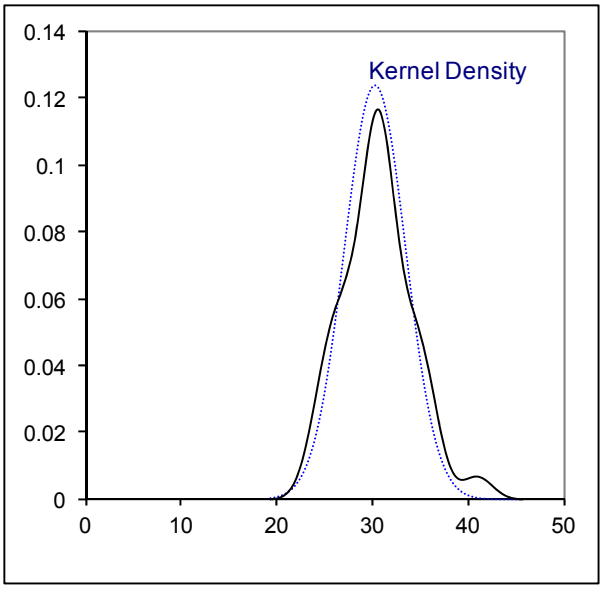

Kernel Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15

Determination of Calcium (Ca) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	30		-0.08	
179	D5185	25		-1.81	
225	D6595	27.626		-0.90	
237	D5185	26.30		-1.36	
255	INH-01	25.97		-1.48	
271	D5185	36.0		1.99	
311	D5185	34		1.30	
325	D5185	36		1.99	
331	D5185	34.3		1.40	
349	D4628	30		-0.08	
398		-----		-----	
442		-----		-----	
451	INH-116	30		-0.08	
473	D5185	31.62		0.48	
496	DIN 51399-1	27.2		-1.05	
541	D5185	<40		-----	
550		-----		-----	
562	D6595	27.06		-1.10	
603	D5185	32.96		0.94	
614	D5185	31.0		0.26	
621		-----		-----	
633	D6595	28.744		-0.52	
634		-----		-----	
663	D5185	29.68		-0.19	
862	D5185	31.37		0.39	
902	D5185	30.83		0.20	
912	D5185	27.7		-0.88	
963	D5185	30.1		-0.05	
994	D5185	<40		-----	
1026	D5185	31		0.26	
1059	in house	34		1.30	
1146	in house	32.08		0.63	
1201		-----		-----	
1243	D5185	41.0	R(0.05)	3.71	
1297		-----		-----	
1417	INH-D5185	29.93		-0.11	
1435	D5185	31.19		0.33	
1461		-----		-----	
1468	D5185	30.7		0.16	
1531		-----		-----	
1571	D5185	35.3384		1.76	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn, reported 70
1720		-----		-----	
1740		-----		-----	
1768		-----		-----	
1807	D5185	24		-2.16	
1842	INH-01	31.3		0.36	
1864	D5185	29.570		-0.23	
1900	D6595	24.816429		-1.87	
1920		-----		-----	
1957		-----		-----	
1981		-----		-----	
6002	D6595	34.96		1.63	
6009	D6595	25.7		-1.57	
6016	D5185	30.7		0.16	
7003		-----		-----	
7011		-----		-----	

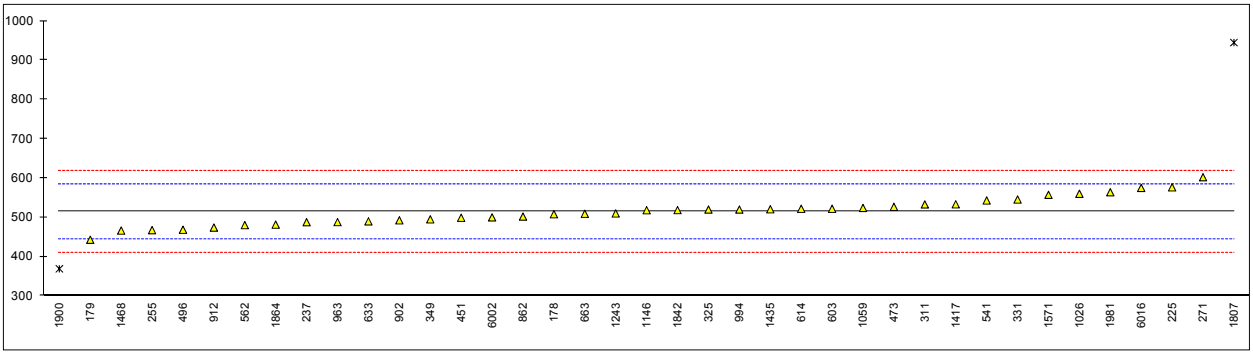
	normality	OK	
	n	36	
	outliers	1	
	mean (n)	30.243	
	st.dev. (n)	3.2223	
	R(calc.)	9.022	
	R(Horwitz)	8.110	Compare R(D5185:13e1) = 1.262, application range: 40 – 9000 mg/kg

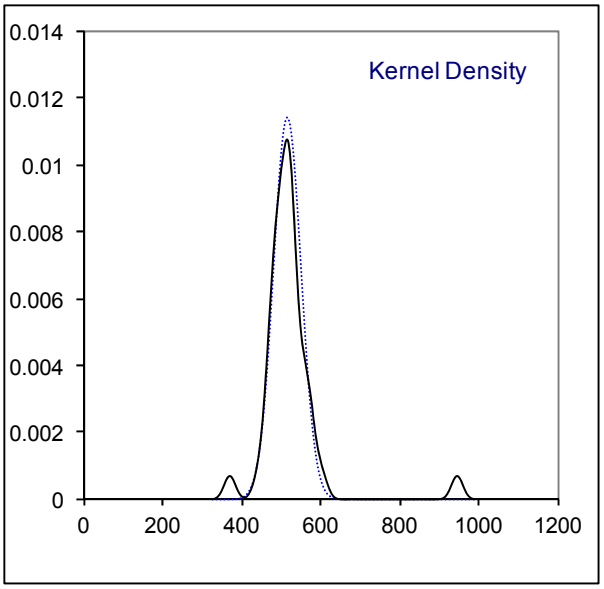

45
40
35
30
25
20
15
10
1807 1900 179 6009 255 237 562 496 225 912 633 1864 663 1417 451 349 178 963 1468 6016 902 614 1026 1435 1842 862 473 1146 603 311 1059 331 6002 1571 325 271 1243


Kernel Density
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0 10 20 30 40 50

Determination of Phosphorus (P) on sample #15221; results in mg/kg.

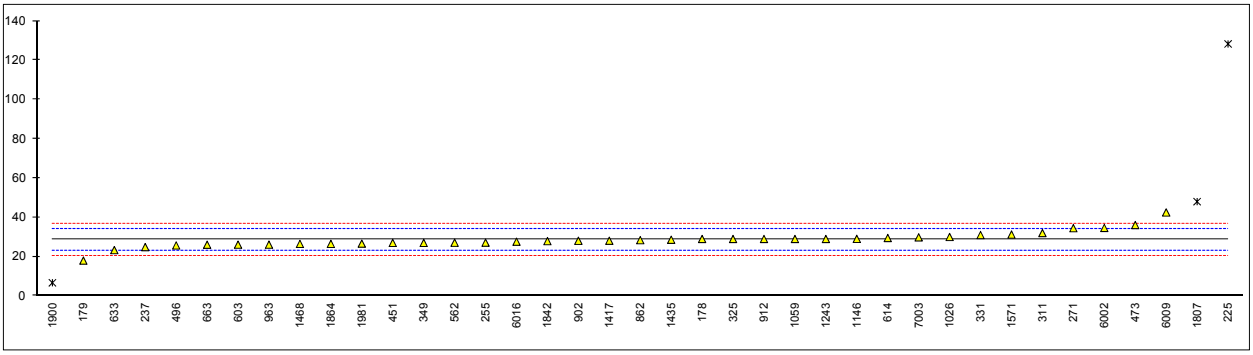
lab	method	value	mark	z(targ)	remarks
178	D5185	508		-0.19	
179	D5185	443		-2.06	
225	D6595	576.46		1.77	
237	D5185	487.8		-0.77	
255	INH-01	467.5		-1.35	
271	D5185	602.2		2.51	
311	D5185	533		0.53	
325	D5185	520		0.15	
331	D5185	545.5		0.88	
349	D4628	495		-0.57	
398		-----		-----	
442		-----		-----	
451	INH-116	499		-0.45	
473	D5185	526.8		0.35	
496	DIN 51399-1	468.5		-1.33	
541	D5185	543		0.81	
550		-----		-----	
562	D6595	480.15		-0.99	
603	D5185	521.8		0.20	
614	D5185	521.8		0.20	
621		-----		-----	
633	D6595	489.86		-0.71	
634		-----		-----	
663	D5185	509.1		-0.16	
862	D5185	502.0		-0.36	
902	D5185	492.5		-0.64	
912	D5185	474		-1.17	
963	D5185	487.9		-0.77	
994	D5185	520		0.15	
1026	D5185	560		1.30	
1059	in house	524		0.27	
1146	in house	518.2		0.10	
1201		-----		-----	
1243	D5185	510	C	-0.13	First reported 51
1297		-----		-----	
1417	INH-D5185	533.3		0.53	
1435	D5185	520.6		0.17	
1461		-----		-----	
1468	D5185	466.3		-1.39	
1531		-----		-----	
1571	D5185	557.488		1.23	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn, reported 1000
1720		-----		-----	
1740		-----		-----	
1768		-----		-----	
1807	D5185	945	C,R(0.01)	12.35	First reported 741
1842	INH-01	518.5		0.11	
1864	D5185	481.533		-0.95	
1900	D6595	369.03875	R(0.01)	-4.18	
1920		-----		-----	
1957		-----		-----	
1981	D5185	564		1.42	
6002	D6595	499.98		-0.42	
6009		-----		-----	
6016	D5185	575		1.73	
7003		-----		-----	
7011		-----		-----	
	normality	OK			
	n	37			
	outliers	2			
	mean (n)	514.696			
	st.dev. (n)	34.8650			
	R(calc.)	97.622			
	R(D5185:13e1)	97.554			Application range: 10 – 1000 mg/kg

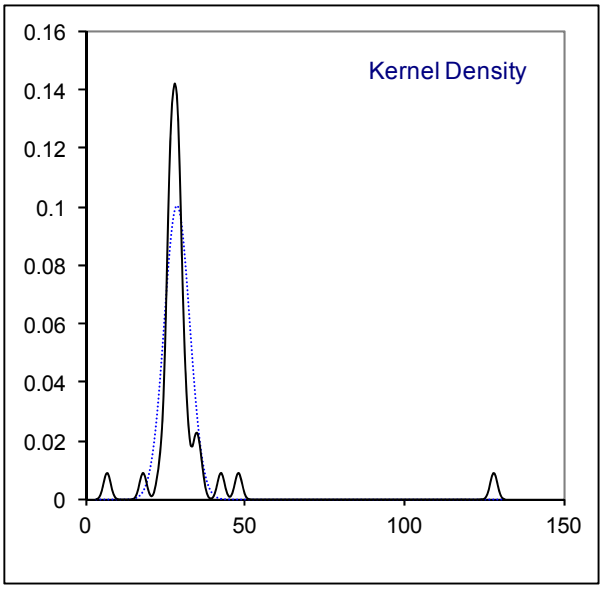

1000
900
800
700
600
500
400
300
1900 179 1468 255 496 912 562 1864 237 963 633 902 349 451 6002 862 178 663 1243 1146 1842 325 994 1435 614 603 1059 473 311 1417 541 331 1571 1026 1981 6016 225 271 1807


Kernel Density
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0 200 400 600 800 1000 1200

Determination of Zinc (Zn) on sample #15221; results in mg/kg.

lab	method	value	mark	z(targ)	remarks
178	D5185	29		0.12	
179	D5185	18		-3.85	
225	D6595	128.31	R(0.01)	36.00	
237	D5185	24.86		-1.38	
255	INH-01	27.13		-0.56	
271	D5185	34.5		2.11	
311	D5185	32		1.20	
325	D5185	29		0.12	
331	D5185	31.0		0.84	
349	D4628	27		-0.60	
398		-----		-----	
442		-----		-----	
451	INH-116	27		-0.60	
473	D5185	36.10		2.69	
496	DIN 51399-1	25.7		-1.07	
541	D5185	<60		-----	
550		-----		-----	
562	D6595	27.09		-0.57	
603	D5185	26.09		-0.93	
614	D5185	29.5		0.30	
621		-----		-----	
633	D6595	23.317		-1.93	
634		-----		-----	
663	D5185	26.06		-0.94	
862	D5185	28.4		-0.10	
902	D5185	28.07		-0.22	
912	D5185	29		0.12	
963	D5185	26.1		-0.93	
994	D5185	<60		-----	
1026	D5185	30		0.48	
1059	in house	29		0.12	
1146	in house	29.05		0.14	
1201		-----		-----	
1243	D5185	29.0		0.12	
1297		-----		-----	
1417	INH-D5185	28.1		-0.20	
1435	D5185	28.60		-0.02	
1461		-----		-----	
1468	D5185	26.5		-0.78	
1531		-----		-----	
1571	D5185	31.244		0.93	
1660		-----		-----	
1704		-----	W	-----	Result withdrawn, reported 30
1720		-----		-----	
1740		-----		-----	
1768		-----		-----	
1807	D5185	48	C,R(0.01)	6.99	First reported 65
1842	INH-01	27.9		-0.28	
1864	D5185	26.510		-0.78	
1900	D6595	6.6861072	R(0.01)	-7.94	
1920		-----		-----	
1957		-----		-----	
1981	D5185	26.62		-0.74	
6002	D6595	34.63		2.15	
6009	D6595	42.5		5.00	
6016	D5185	27.6		-0.39	
7003	D1691	29.82		0.42	
7011		-----		-----	
	normality	not OK			
	n	36			
	outliers	3			
	mean (n)	28.666			
	st.dev. (n)	3.9858			
	R(calc.)	11.160			
	R(Horwitz)	7.750			Compare R(D5185:13e1) = 3.328, application range: 60 – 1600 mg/kg


140
120
100
80
60
40
20
0
1900
179
633
237
496
663
603
963
1468
1864
1981
451
349
562
255
6016
1842
902
1417
862
1435
178
325
912
1059
1243
1146
614
7003
1026
331
1571
311
271
6002
473
6009
1807
225


Kernel Density
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
50
100
150

APPENDIX 2

Number of participants per country

1 laboratory in	ALGERIA
1 laboratory in	ARGENTINA
1 laboratory in	AUSTRALIA
1 laboratory in	AUSTRIA
1 laboratory in	AZERBAIJAN
2 laboratories in	BELGIUM
1 laboratory in	BRAZIL
1 laboratory in	BULGARIA
1 laboratory in	CHILE
1 laboratory in	CHINA, People's Republic of
1 laboratory in	COTE D'IVORE
1 laboratory in	FRANCE
2 laboratories in	GERMANY
3 laboratories in	GREECE
2 laboratories in	INDIA
1 laboratory in	INDONESIA
2 laboratories in	IRAN, Islamic Republic of
2 laboratories in	ITALY
1 laboratory in	KAZAKHSTAN
2 laboratories in	MALAYSIA
4 laboratories in	NETHERLANDS
1 laboratory in	NIGERIA
2 laboratories in	NORWAY
2 laboratories in	PHILIPPINES
1 laboratory in	POLAND
1 laboratory in	SAUDI ARABIA
1 laboratory in	SERBIA
1 laboratory in	SLOVENIA
1 laboratory in	SOUTH AFRICA
2 laboratories in	SPAIN
1 laboratory in	SUDAN
2 laboratories in	SWEDEN
1 laboratory in	TANZANIA
1 laboratory in	THAILAND
3 laboratories in	TURKEY
4 laboratories in	UNITED KINGDOM
2 laboratories in	UNITED STATES OF AMERICA

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
R(0.01)	= outlier in Rosner outlier test
R(0.05)	= straggler in Rosner outlier test
ex	= test result excluded from calculations
n.a.	= not applicable
E	= probably error in calculations
U	= reported in a deviating unit
W	= withdrawn result on request of participant
SDS	= Safety Data Sheet

Literature:

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