Results of Proficiency Test
Vacuum Gasoil
December 2016

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 2013, the Institute for Interlaboratory Studies (iis) organizes a proficiency test (PT) for Vacuum Gas Oil (VGO). During the annual proficiency testing program 2016/2017, it was decided to continue the round robin for the analysis of VGO.
In this interlaboratory study 80 laboratories from 32 different countries registered for participation. See appendix 2 for the number of participants per country. In this report, the results of the 2016 proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SETUP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. In this proficiency test the participants received a 1 litre bottle with VGO, labelled #16270. Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for the statistical evaluation.

2.1 QUALITY SYSTEM

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system based on ISO/IEC17043:2010. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on a regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol can be downloaded from the FAQ page of the iis website www.iisnl.com.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

The necessary bulk material for sample #16270 was obtained from a local supplier. The approximately 150 litres bulk material was homogenised in a pre-cleaned drum. After homogenisation 108 amber glass bottles of 1 litre were filled with Vacuum Gasoil (VGO) and labelled #16270. The homogeneity of the sub samples #16270 was checked by determination of Density in accordance with ISO12185 on 8 stratified randomly selected samples.

	Density at 15 °C in kg/m^3
Sample #16270-1	905.0
Sample #16270-2	905.0
Sample #16270-3	905.0
Sample #16270-4	905.0
Sample #16270-5	905.1
Sample #16270-6	905.0
Sample #16270-7	905.0
Sample #16270-8	905.0

Table 1: homogeneity test results of subsamples #16270

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

	Density at 15 °C in kg/m^3
r (observed)	0.10
Reference test method	ISO12185:96
0.3 x R(ref. test method)	0.45

Table 2: evaluation of the repeatability of the subsamples #16270

The calculated repeatability is less than 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples #16270 was assumed.

To each of the participating laboratories, 1 times a 1 L amber glass bottle (labelled #16270) was sent on November 23, 2016. A SDS was added to the package

2.5 STABILITY OF THE SAMPLES

The stability of Vacuum Gasoil (VGO), packed in the amber glass bottles, was tested in the past. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were asked to determine on sample #16270: Acid Number (Total), Aniline Point, Asphaltenes, Carbon Residue (Micro method), Density at 15°C, Flash Point PMcc, Kinematic Viscosity at 50°C and at 100°C, Nitrogen, Pour Point (manual or automatic), Sulphur (Total), Metals (Arsenic, Calcium, Copper, Iron, Nickel, Silicon, Sodium, Vanadium),

Simulated Distillation and Distillation (IBP, 10% rec, 30% rec, 50% rec, 70% rec, 90% rec and FBP).

It was explicitly requested to treat the sample as it was a routine sample and to report the test results using the indicated units on the report form and not to round the test results, but report as much significant figures as possible. It was also requested not to report 'less than' test results, which are above the detection limit, because such test results cannot be used for meaningful statistical calculations.

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

3 RESULTS

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

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalysis). Additional or corrected test results are used for data analysis and original test results are placed under 'Remarks' in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3).
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.
First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the results of the statistical evaluation should be used with due care.

According to ISO 5725 the original test results per determination were submitted to Dixon's, Grubbs' and/or Rosner's outlier tests. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.
Finally, the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

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

Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve 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, EN or ISO reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation, independent of the variation in this interlaboratory study.
The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility based on former iis proficiency tests could be used.
When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate whether the reported test result is fit-for-use.

The z-scores were calculated according to:

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

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

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

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

4 EVALUATION

In this interlaboratory study, some problems with sample dispatch were encountered to laboratories in Côte D'Ivoire, Egypt, Kazakhstan, Russian Federation, Turkey and United Kingdom due to several reasons. Seven participants did not report any test results at all. Not all laboratories were able to report all requested parameters. In total 73 participants reported 1241 test results. Observed were 53 outlying test results, which is 4.3% of the numerical test results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER TEST

In this section, the reported test results are discussed per test. The methods, which were used by the various laboratories were 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.

In the iis PT reports, ASTM methods are referred to with a number (e.g. D611) and an added designation for the year that the method was adopted or revised (e.g. D611:12). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D611:12(2016)). In the results tables of Appendix 1 only the method number and year of adoption or revision e.g. D611:12 will be used.

Although VGO is an important feedstock for cracking installations, there are very few analytical standard methods specifically designed for the analysis of VGO. Most parameters are to be determined by using methods that are intented for residual fuel oil and blending components. Where applicable precision data for Fuel Oil were used.
The IP-PM-CW standard is a specific method for the determination of metallic elements in vacuum gasoil in the concentration range 0.1 mg/kg to 10 mg/kg. Regretfully IP-PM-CW does

not mention precision data. It is expected that the precision data of this method will be determined in the near future.

Acid Number (total): 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 D664:11ae1.

Aniline Point: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D611:12(2016).

Asphaltenes: No significant conclusions were drawn because the precision data of IP143:04 are applicable to values between 0.50% M/M and 30.0% M/M. However, in comparison to the previous round robin (iis15G06), the reproducibility of the current PT is small.

Carbon Residue: (Micro method) This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4530:15.

Density at 15°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 ISO 12185:96.

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 requirements of ASTM D93-B:16a.

Kin.Visco. at 50°C: This determination was not problematic. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D445:15a.

Kin.Visco.at 100°C: This determination was not problematic. Six statistical outliers was observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D445:15a.

Nitrogen: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with ASTM D5762:12.

Pour Point (Manual): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with ASTM D97:16.

Pour Point (Automatic): This determination was not problematic. One test result was excluded from the statistical evaluation as the temperature interval of 1°C was used instead of 3°C. However, the calculated reproducibility after rejection of the suspect data is in good agreement with ASTM D5950:14.

Sulphur (Total): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D4294:16e1.

Arsenic (As): All reported test results were near or below the application range of the used test methods. Therefore no statistical conclusions were drawn

Calcium (Ca): This determination may be not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of IP501:05 and IP470:05.

Copper (Cu): All reported test results were near or below the application range of used test methods. Therefore no statistical conclusions were drawn.

Iron (Fe): This determination may be problematic depending on the test method used. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is almost in agreement with the requirements of IP501:05, but in good agreement with the requirements of IP470:05.

Nickel (Ni): This determination may not be problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP501:05 and IP470:05.

Silicon (Si): All reported test results were near or below the application range of used test methods. Therefore no statistical conclusions were drawn

Sodium (Na): This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier in agreement with the requirements of IP501:05 and IP470:05.

Vanadium (V): This determination may not be problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of IP501:05 and IP470:05.

Sim. Distillation The Simulated Distillation according to ASTM D6352:15 was not problematic. In total five statistical outliers were observed. However, the calculated reproducibilities were in agreement with the requirements of ASTM D6352:15 for IBP, 10%, 30%, 50%, 70% and 90% recovery. For

FBP the calculated reproducibility is not in agreement with the requirements of ASTM D6352:15.

Distillation Acc. D1160

The distillation according to ASTM D1160 was partly problematic. In total four statistical outliers were observed and two test results were excluded as three of the five reported test results from one laboratory were statistical outliers. The test results are not independent from each other. The calculated reproducibilities were in agreement with the requirements of ASTM D1160:15 for 50% and 90% recovery. However, for IBP, 10%, 30%, 70% recovery and FBP the calculated reproducibilities were not in agreement with the requirements of ASTM D1160:15.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of participating laboratories that participated. The average results, calculated reproducibilities and reproducibilities derived from literature standards (in casu ASTM and IP standards), are compared in the next table.

Parameter	unit	n	Average	2.8 * sd	R(lit)
Acid Number (Total)	mg KOH/g	46	0.28	0.07	0.18
Aniline Point	°C	26	91.8	1.3	1.0
Asphaltenes	%M/M	31	0.12	0.18	(0.02)
Carbon Residue, micro method	%M/M	55	0.65	0.22	0.17
Density at 15 °C	kg/m^3	67	905.4	1.6	1.5
Flash Point PMcc	°C	53	184.3	5.9	10.0
Kinematic Viscosity at 50 °C	mm^2/s	58	36.83	0.90	2.73
Kinematic Viscosity at 100 °C	mm^2/s	54	7.567	0.115	0.623
Nitrogen	mg/kg	38	954	252	254
Pour Point, manual	°C	51	36.7	5.2	9.0
Pour Point, automated, Δ3°C	°C	19	36.3	5.5	6.1
Sulphur Content (Total)	%M/M	70	0.628	0.042	0.054
Arsenic (As)	mg/kg	11	<1	n.a.	n.a.
Calcium (Ca)	mg/kg	30	0.6	0.5	0.4
Copper (Cu)	mg/kg	35	<0.1	n.a.	n.a.
Iron (Fe)	mg/kg	49	1.7	1.7	1.2
Nickel (Ni)	mg/kg	45	0.6	0.3	1.3
Silicon (Si)	mg/kg	19	<1	n.a.	n.a.
Sodium (Na)	mg/kg	46	0.9	0.8	1.0
Vanadium (V)	mg/kg	45	1.3	0.6	2.0

Table 3a: reproducibilities of results of sample #16270

results between brackets should used with care, because the average was below the application range

Parameter	unit	n	Average	2.8 * sd	R(lit)
Simulated distillation D6352					
- Initial Boiling Point	°C	19	263.5	24.3	49.1
- Temp 10% recovered	°C	20	357.2	4.5	7.1
- Temp 30% recovered	°C	19	405.2	5.6	5.9
- Temp 50% recovered	°C	19	440.3	5.1	6.4
- Temp 70% recovered	°C	20	481.2	7.7	7.2
- Temp 90% recovered	°C	19	540.6	11.1	10.5
- Final Boiling Point	°C	18	646.0	83.1	38.1
Distillation D1160					
- Initial Boiling Point	°C	32	282.0	76.0	49.5
- Temp 10% recovered	°C	34	375.8	19.2	17.1
- Temp 30% recovered	°C	34	413.9	13.1	11.7
- Temp 50% recovered	°C	34	446.0	11.5	11.7
- Temp 70% recovered	°C	34	482.7	12.6	10.2
- Temp 90% recovered	°C	32	539.0	18.1	22.5
- Final Boiling Point	°C	31	554.4	35.1	26.9

Table 3b: reproducibilities of results of sample #16270

Without further statistical calculations it can be concluded that for a number of tests there is a good compliance of the group of participants with the relevant test methods. The tests that are problematic have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF DECEMBER 2016 WITH PREVIOUS PTS

	December 2016	*December 2015*	*December 2014*	*November 2013*
Number of reporting labs	73	54	51	32
Number of results reported	1241	897	785	474
Statistical outliers	53	22	35	12
Percentage outliers	4.3%	2.5%	4.5%	2.5%

Table 4: 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	*December 2016*	*December 2015*	*December 2014*	*November 2013*
Acid Number (Total)	++	+	+	++
Aniline Point	-	--	--	--
Asphaltenes	(--)	(--)	(--)	(--)
Carbon Residue, micro method	-	+/-	--	+
Density at 15 °C	+/-	+/-	+/-	+/-
Flash Point PMcc	++	+	+/-	+
Kinematic Viscosity at 50 °C	++	++	--	++
Kinematic Viscosity at 100 °C	++	++	++	++
Nitrogen	+/-	+/-	-	+
Pour Point, manual	++	n.e.	n.e.	n.e.
Pour Point, automated Δ3°C	++	n.e.	n.e.	n.e.
Sulphur Content (Total)	+	+	+/-	+/-
Arsenic (As)	n.e.	n.e.	n.e.	n.e.
Calcium (Ca)	+/-	+/-	--	-
Copper (Cu)	n.e.	n.e.	n.e.	n.e.
Iron (Fe)	-	+/-	+	++
Nickel (Ni)	++	++	+/-	++
Silicon (Si)	n.e.	--	(--)	(--)
Sodium (Na)	+	+/-	+/-	+/-
Vanadium (V)	++	+	++	++
Simulated distillation D6352				
- Initial Boiling Point	++	+	+/-	+
- Temp 10% recovered	+	-	-	+
- Temp 30% recovered	+/-	+/-	-	-
- Temp 50% recovered	+	+/-	-	-
- Temp 70% recovered	+/-	-	+/-	-
- Temp 90% recovered	+/-	-	+/-	+
- Final Boiling Point	--	--	-	+
Distillation D1160				
- Initial Boiling Point	--	-	--	--
- Temp 10% recovered	-	-	+	+
- Temp 30% recovered	-	+	+/-	+
- Temp 50% recovered	+/-	+/-	+/-	+
- Temp 70% recovered	-	-	-	+
- Temp 90% recovered	+	+	++	++
- Final Boiling Point	-	+/-	-	-

Table 5: comparison determinations against the standard

results between brackets should used with care, because the average was below the application range

The performance of the determinations against the requirements of the respective standards is listed in the above table. The following performance categories were used:

++:	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
n.e.:	not evaluated

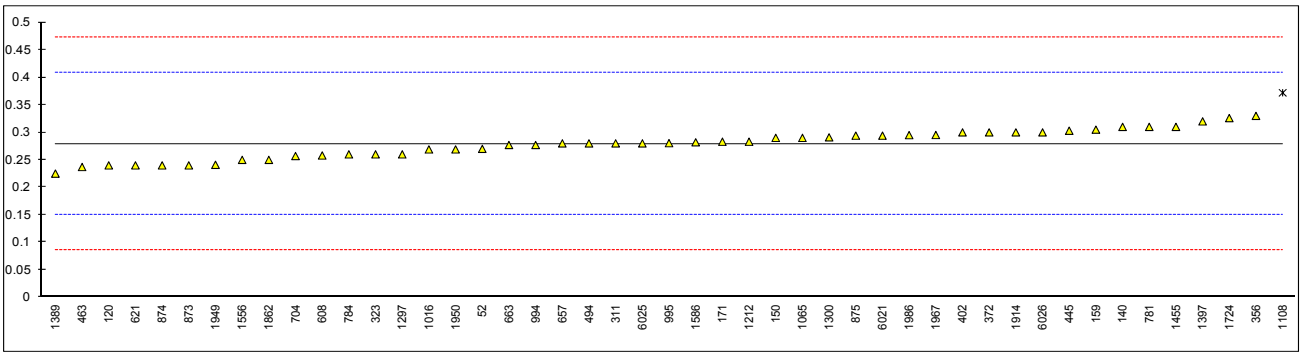
APPENDIX 1

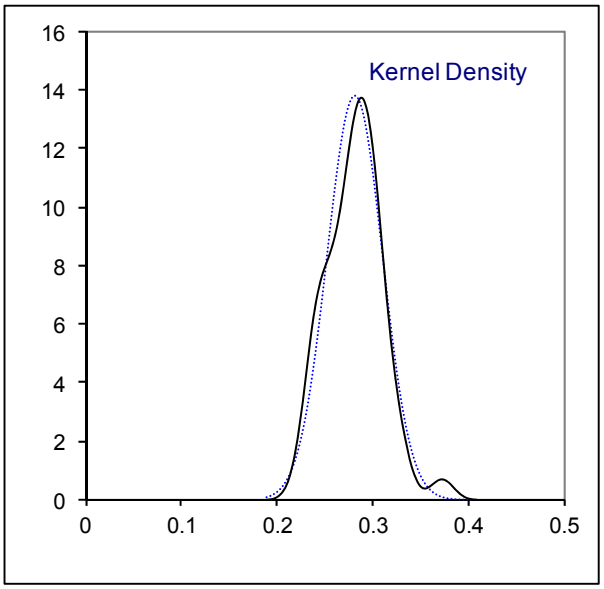
Determination of Acid Number (Total) on sample #16270; results in mg KOH/g

lab	method	value	mark	z(targ)	remarks
52	D664-A	0.27		-0.14	
62		-----		-----	
120	D664-A	0.24		-0.60	
131		-----		-----	
133		-----		-----	
140	D664-A	0.31		0.48	
150	D664-A	0.29		0.17	
158		-----		-----	
159	D664-A	0.305		0.40	
171	D664-A	0.283		0.06	
225		-----		-----	
311	D664-A	0.28		0.02	
313		-----		-----	
317		-----		-----	
323	D664-A	0.26		-0.29	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	D664-A	0.33		0.79	
371		-----		-----	
372	D664-A	0.3		0.33	
399		-----		-----	
402	D664-A	0.3		0.33	
445	D664-A	0.303		0.37	
463	D664-A	0.237		-0.65	
494	D664-A	0.28		0.02	
608	D664-A	0.258		-0.32	
621	D664-A	0.24		-0.60	
657	D664-A	0.28		0.02	
663	D664-A	0.277		-0.03	
704	D664-A	0.257		-0.34	
732		-----		-----	
743		-----		-----	
781	D664-A	0.31		0.48	
784	D664-A	0.26		-0.29	
785		-----		-----	
791		-----		-----	
873	D664-A	0.24		-0.60	
874	D664-A	0.24		-0.60	
875	D664-A	0.294		0.23	
970		-----		-----	
994	D664-A	0.277		-0.03	
995	D664-A	0.2804		0.02	
997		-----		-----	
1016	D664-A	0.269		-0.15	
1065	D664-A	0.290		0.17	
1081		-----		-----	
1108	D664-A	0.372	R(0.05)	1.44	
1134		-----		-----	
1161		-----		-----	
1191		-----		-----	
1212	D664-A	0.283		0.06	
1229		-----		-----	
1297	D664-A	0.26		-0.29	
1300	D664-A	0.291		0.19	
1389	D664-A	0.225		-0.84	
1394		-----		-----	
1397	D664-A	0.32		0.64	
1455	D664-A	0.31		0.48	
1510		-----		-----	
1556	D664-A	0.250		-0.45	
1586	D664-A	0.282	C	0.05	First reported 0.52
1631		-----		-----	
1635		-----		-----	
1724	D664-A	0.326		0.73	
1810		-----		-----	
1832		-----		-----	
1862	D664-A	0.250		-0.45	
1914	D664-A	0.30		0.33	
1949	D664-A	0.241		-0.59	
1950	D664-A	0.269		-0.15	
1967	D664-A	0.2952		0.25	
1986	D664-A	0.295		0.25	
1995		-----		-----	
6016		-----		-----	

6021	D664-A	0.294	0.23
6025	D664-A	0.28	0.02
6026	D664-A	0.30	0.33
6054		-----	-----
6057		-----	-----

normality	OK
n	46
outliers	1
mean (n)	0.2789
st.dev. (n)	0.02581
R(calc.)	0.0723
R(D664:11ae1)	0.1803



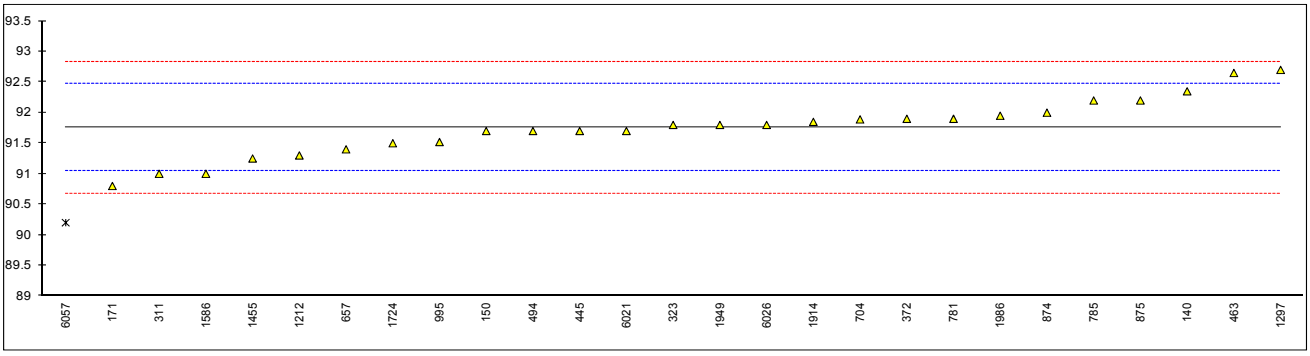


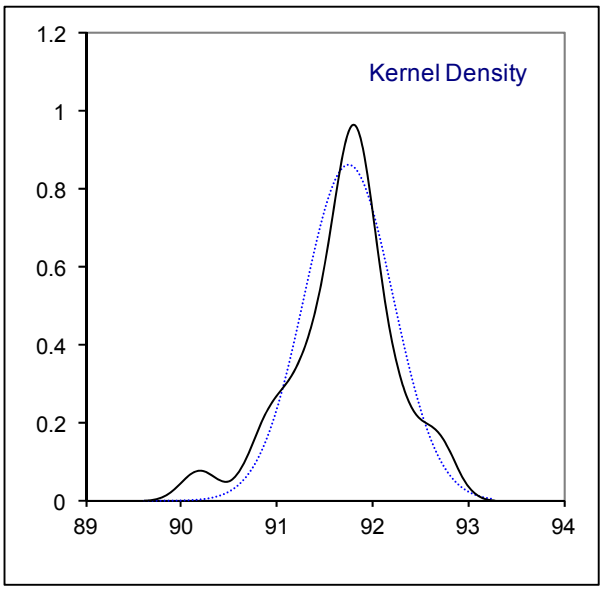
Determination of Aniline Point on sample #16270; results in °C

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
131		-----		-----	
133		-----		-----	
140	D611-B	92.35		1.67	
150	D611-E	91.70		-0.15	
158		-----		-----	
159		-----		-----	
171	D611-E	90.80		-2.67	
225		-----		-----	
311	D611-B	91.0		-2.11	
313		-----		-----	
317		-----		-----	
323	D611-A	91.8		0.13	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356		-----		-----	
371		-----		-----	
372	D611-E	91.90		0.41	
399		-----		-----	
402		-----		-----	
445	D611-B	91.70		-0.15	
463	D611-B	92.65		2.51	
494	D611-E	91.7		-0.15	
608		-----		-----	
621		-----		-----	
657	D611-B	91.4		-0.99	
663		-----		-----	
704	D611-B	91.89		0.39	
732		-----		-----	
743		-----		-----	
781	D611-E	91.90		0.41	
784		-----		-----	
785	D611-B	92.20		1.25	
791		-----		-----	
873		-----		-----	
874	D611-E	92.00		0.69	
875	D611-E	92.20		1.25	
970		-----		-----	
994		-----		-----	
995	D611-B	91.52		-0.65	
997		-----		-----	
1016		-----		-----	
1065		-----		-----	
1081		-----		-----	
1108		-----		-----	
1134		-----		-----	
1161		-----		-----	
1191		-----		-----	
1212	D611-B	91.3		-1.27	
1229		-----		-----	
1297	D611-E	92.7		2.65	
1300		-----		-----	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455	D611-E	91.25		-1.41	
1510		-----		-----	
1556		-----		-----	
1586	D611-B	91.0		-2.11	
1631		-----		-----	
1635		-----		-----	
1724	D611-E	91.5		-0.71	
1810		-----		-----	
1832		-----		-----	
1862		-----		-----	
1914	D611-E	91.85		0.27	
1949	D611-B	91.80		0.13	
1950		-----		-----	
1967		-----		-----	
1986	D611-B	91.95		0.55	
1995		-----		-----	
6016		-----		-----	

6021	D611-B	91.70		-0.15
6025		-----		-----
6026	D611-B	91.80		0.13
6054		-----		-----
6057	D611-EMod.	90.2	R(0.05)	-4.35

normality	OK
n	26
outliers	1
mean (n)	91.752
st.dev. (n)	0.4643
R(calc.)	1.300
R(D611:12)	1.000



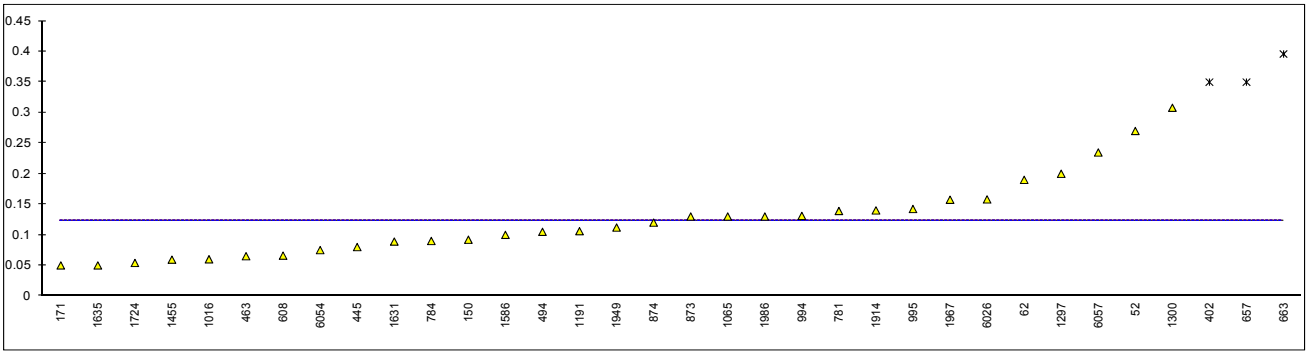


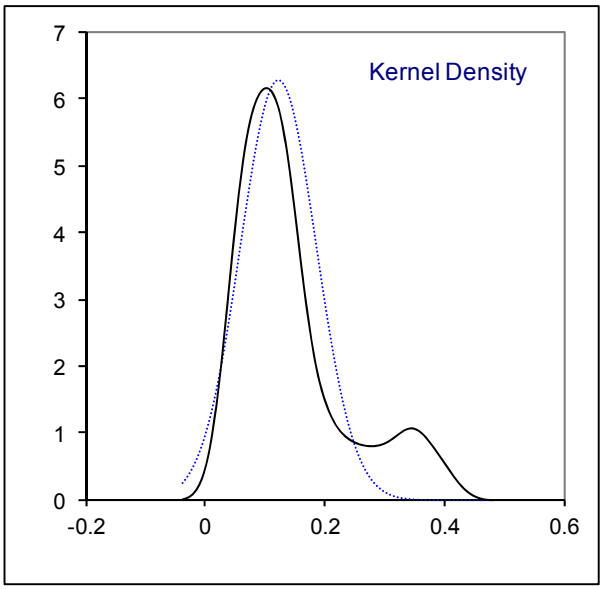
Determination of Asphaltenes on sample #16270; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	IP143	0.27		-----	
62	IP143	0.19		-----	
120		-----		-----	
131		-----		-----	
133		-----		-----	
140		-----		-----	
150	IP143	0.092		-----	
158		-----		-----	
159		-----		-----	
171	IP143	0.05		-----	
225		-----		-----	
311		-----		-----	
313		-----		-----	
317		-----		-----	
323	IP143	<0.50		-----	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	IP143	Below 0.50		-----	
371	IP143	<0.50		-----	
372	IP143	< 0.5		-----	
399		-----		-----	
402	D6560	0.35	R(0.05)	-----	
445	IP143	0.08		-----	
463	IP143	0.065		-----	
494	D6560	0.105		-----	
608	IP143	0.066		-----	
621		-----		-----	
657	IP143	0.35	R(0.05)	-----	
663	IP143	0.396	R(0.05)	-----	
704	IP143	<0.50		-----	
732		-----		-----	
743		-----		-----	
781	INH-642	0.139		-----	
784	IP143	0.09		-----	
785		-----		-----	
791		-----		-----	
873	IP143	0.130		-----	
874	IP143	0.12		-----	
875		-----		-----	
970		-----		-----	
994	D6560	0.131		-----	
995	IP143	0.1423		-----	
997		-----		-----	
1016	IP143	0.06		-----	
1065	D6560	0.13		-----	
1081		-----		-----	
1108		-----		-----	
1134		-----		-----	
1161		-----		-----	
1191	In house	0.106		-----	
1212		-----		-----	
1229		-----		-----	
1297	D6560	0.20		-----	
1300	IP143	0.308		-----	
1389	IP143	<0.5		-----	
1394		-----		-----	
1397	D6560	<0,5		-----	
1455	INH-642	0.0594		-----	
1510	IP143	< 0.50		-----	
1556	IP143	<0,5		-----	
1586	IP143	0.10		-----	
1631	IP143	0.089		-----	
1635	D6560	0.05		-----	
1724	IP143	0.054		-----	
1810		-----		-----	
1832		-----		-----	
1862	IP143	<0.50		-----	
1914	INH-642	0.140		-----	
1949	IP143	0.112		-----	
1950		-----		-----	
1967	IP143	0.15745		-----	
1986	IP143	0.130		-----	
1995		-----		-----	
6016		-----		-----	

6021		-----	-----
6025		-----	-----
6026	IP143	0.158	-----
6054	D6560	0.075	-----
6057	IP143	0.2348	-----

normality	not OK	
n	31	
outliers	3	
mean (n)	0.1237	
st.dev. (n)	0.06350	
R(calc.)	0.1778	
R(IP143:04)	(0.0247)	Precision applicable between 0.50 and 30.0 %M/M
compare		
R((iis15G06)	(0.3074)	At a mean concentration of 0.1287



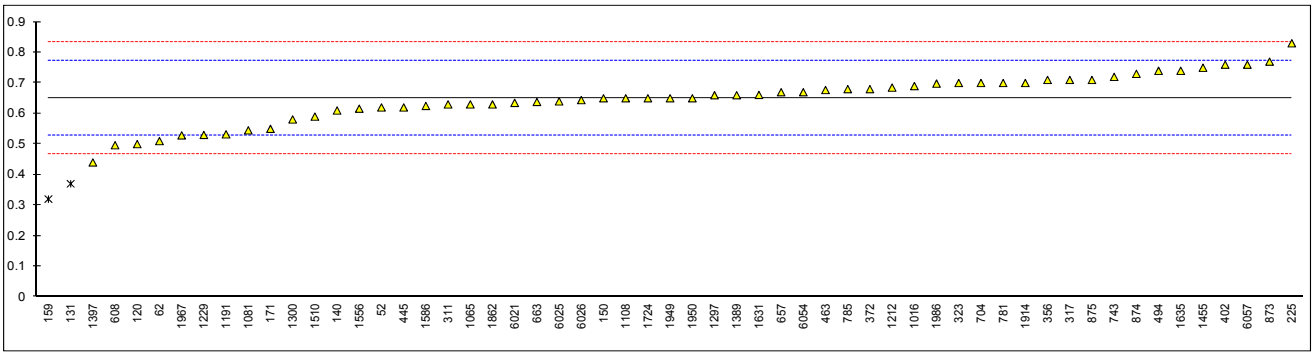


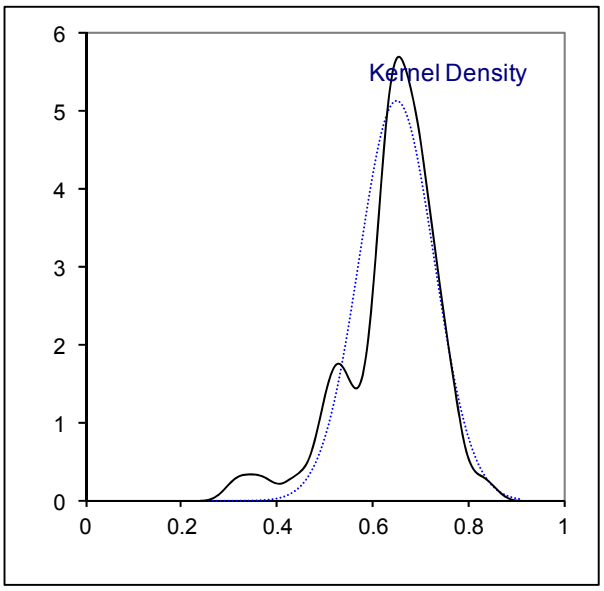
Determination of Carbon Residue, Micro method on sample #16270; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D4530	0.62		-0.49	
62	D4530	0.51		-2.29	
120	D4530	0.5		-2.46	
131	D4530	0.37	C,R(0.05)	-4.59	First reported 7.33
133		-----		-----	
140	D4530	0.61		-0.66	
150	D4530	0.65		0.00	
158		-----		-----	
159	D4530	0.32	C,R(0.05)	-5.41	First reported 2.51
171	D4530	0.55		-1.64	
225	D4530	0.83		2.95	
311	D4530	0.63		-0.33	
313		-----		-----	
317	D4530	0.71		0.98	
323	D4530	0.70		0.82	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	D4530	0.71		0.98	
371		-----		-----	
372	D4530	0.68		0.49	
399		-----		-----	
402	ISO10370	0.76		1.80	
445	D4530	0.62		-0.49	
463	ISO10370	0.677		0.44	
494	D4530	0.74		1.47	
608	D4530	0.4964		-2.52	
621		-----		-----	
657	D4530	0.67		0.33	
663	D4530	0.638		-0.20	
704	D4530	0.700		0.82	
732		-----		-----	
743	D4530	0.72		1.15	
781	D4530	0.70		0.82	
784		-----		-----	
785	D4530	0.68		0.49	
791		-----		-----	
873	D4530	0.77		1.97	
874	D4530	0.73		1.31	
875	D4530	0.71		0.98	
970		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1016	ISO10370	0.69		0.65	
1065	D4530	0.63		-0.33	
1081	ISO10370	0.545		-1.72	
1108	D4530	0.65		0.00	
1134		-----		-----	
1161		-----		-----	
1191	ISO10370	0.532		-1.93	
1212	ISO10370	0.685		0.57	
1229	ISO10370	0.53		-1.97	
1297	D4530	0.660		0.16	
1300	D4530	0.5808	C	-1.13	First reported 0.1795
1389	D4530	0.66		0.16	
1394		-----		-----	
1397	ISO10370	0.44		-3.44	
1455	D4530	0.75		1.64	
1510	D4530	0.59		-0.98	
1556	ISO10370	0.616		-0.56	
1586	D4530	0.625		-0.41	
1631	D4530	0.661		0.18	
1635	D4530	0.74		1.47	
1724	D4530	0.65		0.00	
1810		-----		-----	
1832		-----		-----	
1862	D4530	0.63		-0.33	
1914	D4530	0.70		0.82	
1949	D4530	0.650		0.00	
1950	D4530	0.65		0.00	
1967	D4530	0.5286		-1.99	
1986	D4530	0.698		0.79	
1995		-----		-----	
6016		-----		-----	

6021	D4530	0.635	-0.25
6025	D4530	0.64	-0.16
6026	D4530	0.644	-0.10
6054	D4530	0.67	0.33
6057	ISO10370	0.76	1.80

normality	OK
n	55
outliers	2
mean (n)	0.6500
st.dev. (n)	0.07785
R(calc.)	0.2180
R(D4530:15)	0.1709



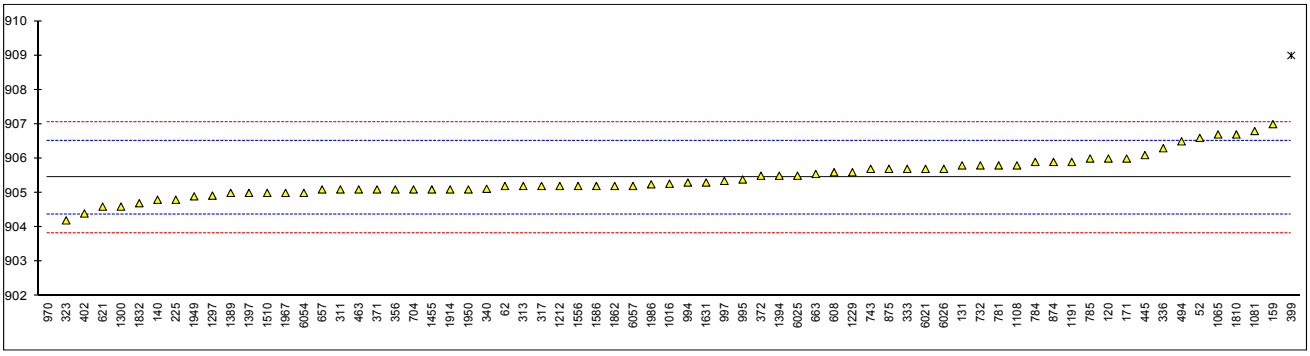


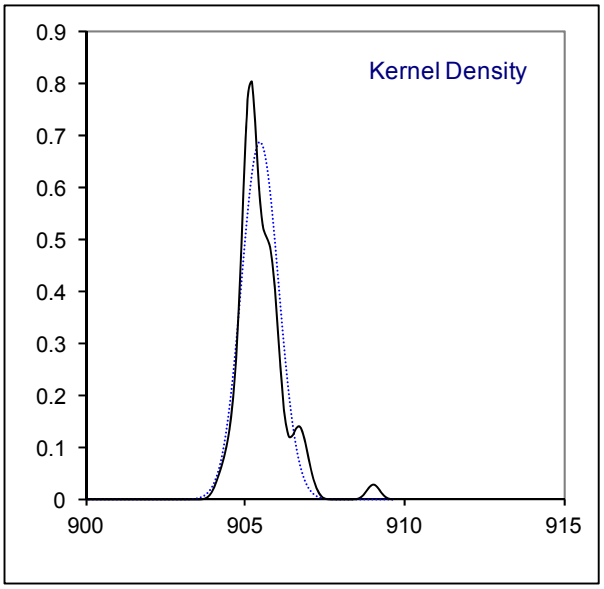
Determination of Density at 15°C on sample #16270; results in kg/m^3

lab	method	value	mark	z(targ)	remarks
52	D4052	906.6		2.16	
62	D4052	905.2		-0.46	
120	D4052	906.0		1.04	
131	D4052	905.80		0.66	
133		-----		-----	
140	D4052	904.8		-1.20	
150		-----		-----	
158		-----		-----	
159	D4052	907.0		2.90	
171	ISO12185	906.0		1.04	
225	D4052	904.8		-1.20	
311	ISO12185	905.1		-0.64	
313	ISO12185	905.2		-0.46	
317	D4052	905.2		-0.46	
323	ISO12185	904.2		-2.32	
333	ISO12185	905.7		0.48	
336	ISO12185	906.3		1.60	
340	ISO12185	905.12		-0.60	
356	D4052	905.1		-0.64	
371	D4052	905.1		-0.64	
372	ISO12185	905.5		0.10	
399	D1298	909.0	R(0.01)	6.64	
402	ISO12185	904.4		-1.95	
445	D4052	906.1		1.22	
463	ISO12185	905.10		-0.64	
494	ISO12185	906.5		1.97	
608	D4052	905.6		0.29	
621	D4052	904.6		-1.58	
657	D4052	905.1		-0.64	
663	D4052	905.55		0.20	
704	ISO12185	905.1		-0.64	
732	ISO12185	905.8		0.66	
743	D1298	905.7		0.48	
781	ISO12185	905.8		0.66	
784	D1298	905.9		0.85	
785	D1298	906.0		1.04	
791		-----		-----	
873		-----		-----	
874	ISO12185	905.9		0.85	
875	D1298	905.7		0.48	
970	D4052	880.6	R(0.01)	-46.38	
994	ISO12185	905.3		-0.27	
995	ISO12185	905.39		-0.10	
997	ISO12185	905.35		-0.18	
1016	ISO12185	905.267		-0.33	
1065	D4052	906.7		2.34	
1081	D4052	906.8		2.53	
1108	D1298	905.8	C	0.66	First reported 872.7
1134		-----		-----	
1161		-----		-----	
1191	ISO12185	905.9		0.85	
1212	ISO12185	905.2		-0.46	
1229	ISO12185	905.6		0.29	
1297	D4052	904.92		-0.98	
1300	ISO12185	904.6		-1.58	
1389	ISO12185	905.0		-0.83	
1394	ISO12185	905.5		0.10	
1397	ISO12185	905.0		-0.83	
1455	ISO12185	905.1		-0.64	
1510	IP365	905.0		-0.83	
1556	ISO12185	905.2		-0.46	
1586	ISO12185	905.2		-0.46	
1631	ISO12185	905.3		-0.27	
1635		-----		-----	
1724		-----	W	-----	Result withdrawn, reported 899.1
1810	ISO12185	906.7		2.34	
1832	ISO12185	904.7		-1.39	
1862	ISO12185	905.2		-0.46	
1914	ISO12185	905.1		-0.64	
1949	ISO12185	904.9		-1.02	
1950	ISO12185	905.1		-0.64	
1967	ISO12185	905.0		-0.83	
1986	ISO12185	905.25		-0.36	
1995		-----		-----	
6016		-----		-----	

6021	ISO12185	905.7	0.48
6025	D1298	905.5	0.10
6026	D1298	905.7	0.48
6054	D4052	905.0	-0.83
6057	ISO12185	905.2	-0.46

normality	OK
n	67
outliers	2
mean (n)	905.44
st.dev. (n)	0.581
R(calc.)	1.63
R(ISO12185:96)	1.50



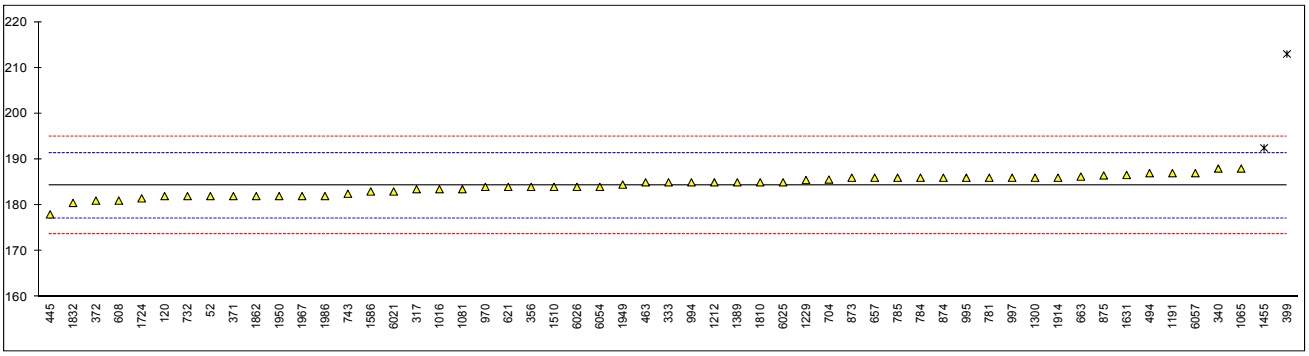


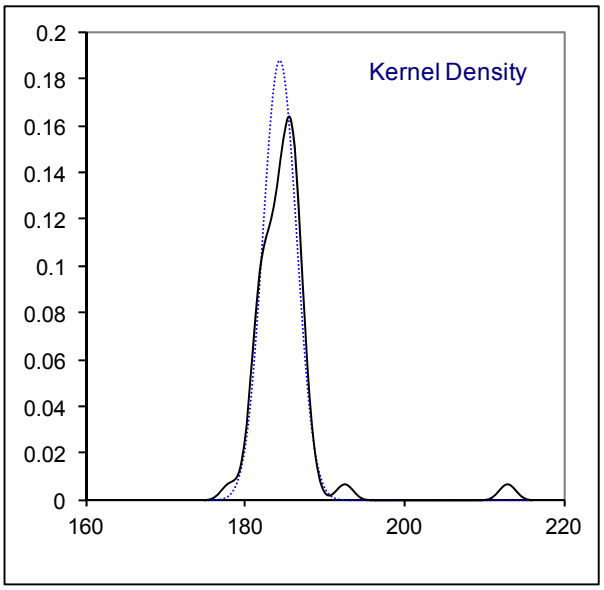
Determination of Flash Point PMcc on sample #16270; results in °C

lab	method	value	mark	z(targ)	remarks
52	D93-B	182.0		-0.64	
62		-----		-----	
120	D93-B	182		-0.64	
131		-----		-----	
133		-----		-----	
140	D93-B	>110		-----	
150	D93-B	>110		-----	
158		-----		-----	
159	D93-B	>230		-----	Reported probably in F instead of °C
171	D93-B	>230		-----	Reported probably in F instead of °C
225		-----		-----	
311	D93-B	>180		-----	
313	D93-B	>180		-----	
317	D93-B	183.5		-0.22	
323		-----		-----	
333	D93-B	185.0		0.20	
336		-----		-----	
340	D93-B	188.0		1.04	
356	D93-B	184.0		-0.08	
371	D93-B	182.0		-0.64	
372	D93-B	181.00		-0.92	
399	D93-B	213	R(0.01)	8.04	
402		-----		-----	
445	D93-B	178.0	C	-1.76	First reported 170
463	D93-B	185		0.20	
494	D93-A	187.0		0.76	
608	D93-B	181.0		-0.92	
621	D93-B	184.0		-0.08	
657	D93-B	186		0.48	
663	D93-B	186.25		0.55	
704	D93-B	185.6		0.36	
732	D93-B	182.0		-0.64	
743	D93-B	182.5		-0.50	
781	D93-B	186.0		0.48	
784	D93-B	186.0		0.48	
785	D93-B	186.0		0.48	
791		-----		-----	
873	D93-B	186.0		0.48	
874	D93-B	186.0		0.48	
875	D93-B	186.5		0.62	
970	D93-A	184		-0.08	
994	D93-B	185.0		0.20	
995	D93-B	186.0		0.48	
997	D93-B	186.0		0.48	
1016	D93-A	183.5		-0.22	
1065	D93-B	188		1.04	
1081	D93-A	183.5		-0.22	
1108		-----		-----	
1134		-----		-----	
1161		-----		-----	
1191	D93-A	187		0.76	
1212	D93-B	185.0		0.20	
1229	ISO2719	185.5		0.34	
1297		-----		-----	
1300	D93-B	186.0		0.48	
1389	D93-B	185.0		0.20	
1394		-----		-----	
1397		-----		-----	
1455	D93-A	192.5	R(0.05)	2.30	
1510	D93-B	184		-0.08	
1556	ISO2719	>210		-----	Reported probably in F instead of °C
1586	D93-B	183.0		-0.36	
1631	D93-A	186.6		0.64	
1635		-----		-----	
1724	D93-B	181.5		-0.78	
1810	D93-B	185		0.20	
1832	ISO2719	180.5		-1.06	
1862	D93-B	182.0		-0.64	
1914	D93-B	186.0		0.48	
1949	D93-B	184.5		0.06	
1950	D93-B	182.0		-0.64	
1967	D93-B	182.0		-0.64	
1986	D93-B	182.0		-0.64	
1995		-----		-----	
6016		-----		-----	

6021	D93-B	183.0	-0.36
6025	D93-B	185.0	0.20
6026	D93-B	184.0	-0.08
6054	D93-B	184.0	-0.08
6057	ISO2719	187.0	0.76

normality	OK
n	53
outliers	2
mean (n)	184.30
st.dev. (n)	2.121
R(calc.)	5.94
R(D93-B:16a)	10.00



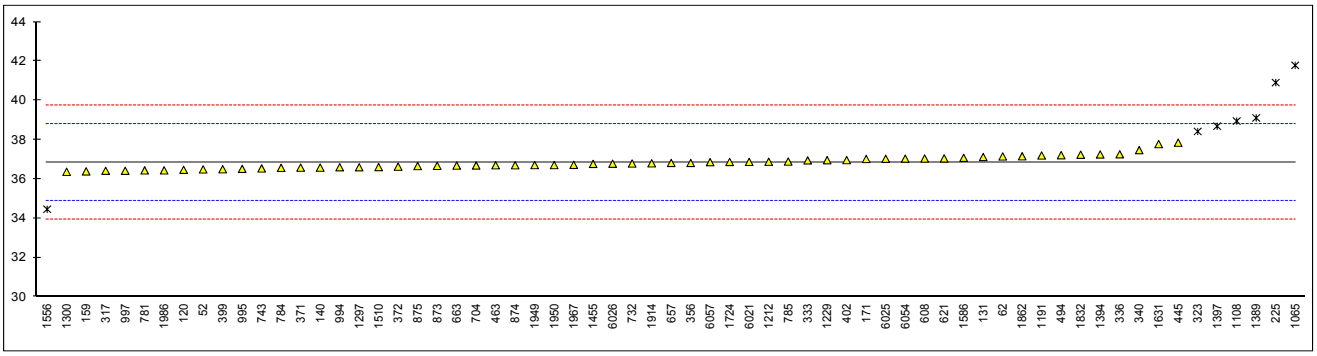


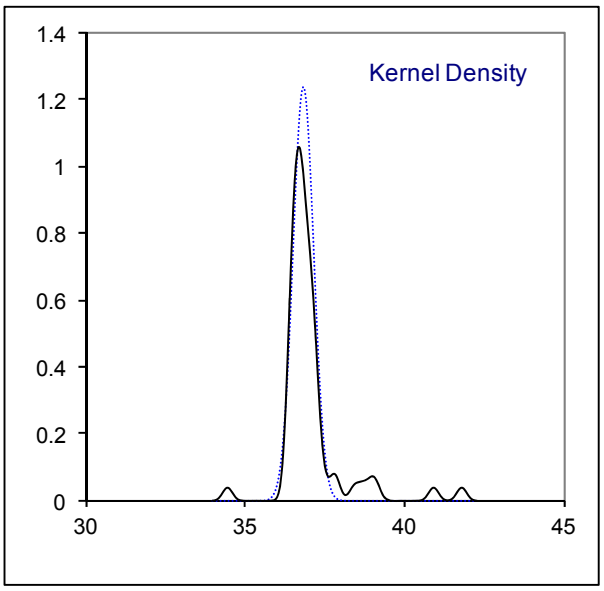
Determination of Kinematic Viscosity at 50°C on sample #16270; results in mm^2/s

lab	method	value	mark	z(targ)	remarks
52	D445	36.49		-0.35	
62	D445	37.15		0.32	
120	D445	36.47		-0.37	
131	D445	37.12		0.29	
133		-----		-----	
140	D445	36.58		-0.26	
150		-----		-----	
158		-----		-----	
159	D445	36.39		-0.46	
171	D445	37.02		0.19	
225	D445	40.91	R(0.01)	4.19	
311		-----		-----	
313		-----		-----	
317	D445	36.42		-0.43	
323	D445	38.42	R(0.01)	1.63	
333	D445	36.95		0.12	
336	D445	37.26		0.44	
340	D445	37.47		0.65	
356	D445	36.82		-0.01	
371	D445	36.58		-0.26	
372	D445	36.63		-0.21	
399	D445	36.50		-0.34	
402	D7042	36.963		0.13	
445	D445	37.85		1.04	
463	D445	36.700		-0.14	
494	D445	37.213		0.39	
608	D445	37.045		0.22	
621	D445	37.05		0.22	
657	D445	36.82		-0.01	
663	D445	36.685		-0.15	
704	D445	36.689		-0.15	
732	D445	36.79		-0.05	
743	D445	36.54		-0.30	
781	D445	36.44		-0.41	
784	D445	36.57		-0.27	
785	D445	36.89		0.06	
791		-----		-----	
873	D445	36.67		-0.17	
874	D445	36.70		-0.14	
875	D445	36.66		-0.18	
970		-----		-----	
994	D445	36.60		-0.24	
995	D445	36.517		-0.33	
997	D445	36.42		-0.43	
1016		-----		-----	
1065	D445	41.79	R(0.01)	5.09	
1081		-----		-----	
1108	D445	38.95	R(0.01)	2.17	
1134		-----		-----	
1161		-----		-----	
1191	ISO3104	37.20		0.38	
1212	D7042	36.88		0.05	
1229	ISO3104	36.96		0.13	
1297	D7042	36.60		-0.24	
1300	D445	36.368		-0.48	
1389	D445	39.11	R(0.01)	2.34	
1394	D445	37.25		0.43	
1397	D7042	38.69	R(0.01)	1.91	
1455	D445	36.77		-0.07	
1510	D445	36.61		-0.23	
1556	ISO3104	34.46	R(0.01)	-2.44	
1586	D445	37.08		0.25	
1631	D445	37.778		0.97	
1635		-----		-----	
1724	D445	36.87		0.04	
1810		-----		-----	
1832	ISO3104	37.237		0.41	
1862	D445	37.16		0.33	
1914	D445	36.80		-0.04	
1949	D445	36.709		-0.13	
1950	D445	36.71		-0.13	
1967	D445	36.723		-0.11	
1986	D445	36.44		-0.41	
1995		-----		-----	
6016		-----		-----	

6021	D445	36.871	0.04
6025	D445	37.03	0.20
6026	D445	36.78	-0.06
6054	D445	37.04	0.21
6057	ISO3104	36.86	0.03

normality	not OK
n	58
outliers	7
mean (n)	36.834
st.dev. (n)	0.3228
R(calc.)	0.904
R(D445:15a)	2.726



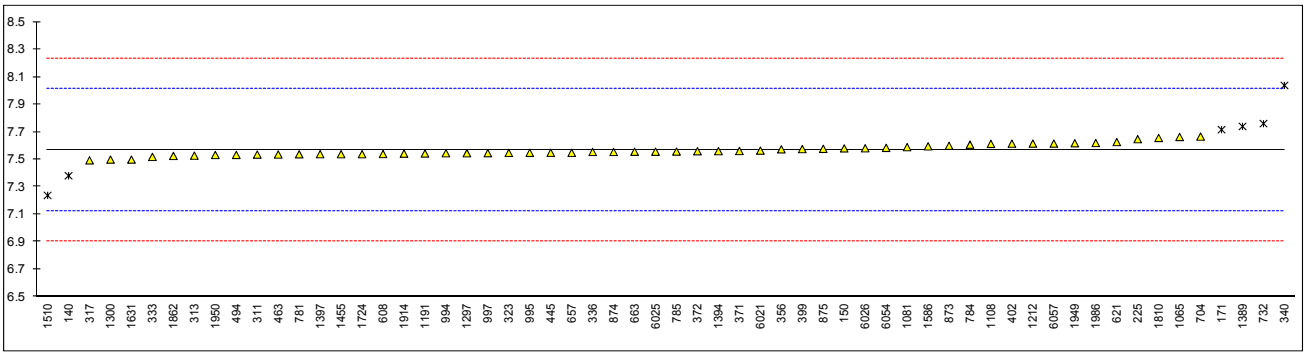


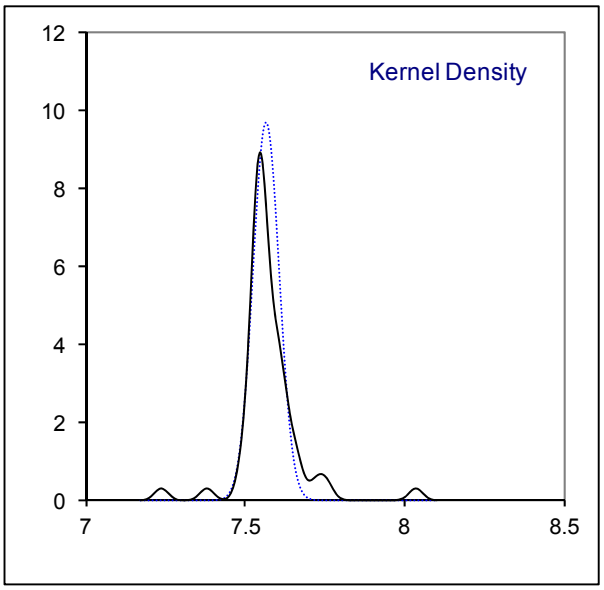
Determination of Kinematic Viscosity at 100°C on sample #16270; results in mm^2/s

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
131		-----		-----	
133		-----		-----	
140	D445	7.381	R(0.05)	-0.84	
150	D445	7.580		0.06	
158		-----		-----	
159		-----		-----	
171	D445	7.716	R(0.05)	0.67	
225	D445	7.647		0.36	
311	D445	7.535		-0.14	
313	D445	7.527		-0.18	
317	D445	7.493		-0.33	
323	D445	7.547		-0.09	
333	D445	7.518		-0.22	
336	D445	7.554		-0.06	
340	D445	8.038	R(0.01)	2.12	
356	D445	7.573		0.03	
371	D445	7.5609		-0.03	
372	D445	7.559		-0.04	
399	D445	7.575		0.04	
402	D7042	7.6143		0.21	
445	D445	7.548		-0.09	
463	D445	7.5355		-0.14	
494	D445	7.5326		-0.16	
608	D445	7.539		-0.13	
621	D445	7.626		0.26	
657	D445	7.548		-0.09	
663	D445	7.5559		-0.05	
704	D445	7.6659		0.44	
732	D445	7.760	R(0.05)	0.87	
743		-----		-----	
781	D445	7.537		-0.14	
784	D445	7.607		0.18	
785	D445	7.557		-0.05	
791		-----		-----	
873	D445	7.599		0.14	
874	D445	7.554		-0.06	
875	D445	7.577		0.04	
970		-----		-----	
994	D445	7.545		-0.10	
995	D445	7.5478		-0.09	
997	D445	7.5452		-0.10	
1016		-----		-----	
1065	D445	7.663		0.43	
1081	D445	7.589		0.10	
1108	D445	7.613		0.21	
1134		-----		-----	
1161		-----		-----	
1191	ISO3104	7.543		-0.11	
1212	D7042	7.615		0.21	
1229		-----		-----	
1297	D7042	7.545		-0.10	
1300	D7042	7.4985		-0.31	
1389	D445	7.74	R(0.05)	0.78	
1394	D445	7.560		-0.03	
1397	D7042	7.538		-0.13	
1455	D445	7.538		-0.13	
1510	D445	7.238	R(0.01)	-1.48	
1556		-----		-----	
1586	D445	7.595		0.13	
1631	D445	7.4986		-0.31	
1635		-----		-----	
1724	D445	7.538		-0.13	
1810	D445	7.656		0.40	
1832		-----		-----	
1862	D445	7.525		-0.19	
1914	D445	7.542		-0.11	
1949	D445	7.6175		0.23	
1950	D445	7.532		-0.16	
1967		-----		-----	
1986	D445	7.619		0.23	
1995		-----		-----	
6016		-----		-----	

6021	D445	7.564	-0.01
6025	D445	7.556	-0.05
6026	D445	7.581	0.06
6054	D445	7.584	0.08
6057	ISO3104	7.615	0.21

normality	OK
n	54
outliers	6
mean (n)	7.5672
st.dev. (n)	0.04120
R(calc.)	0.1154
R(D445:15a)	0.6227



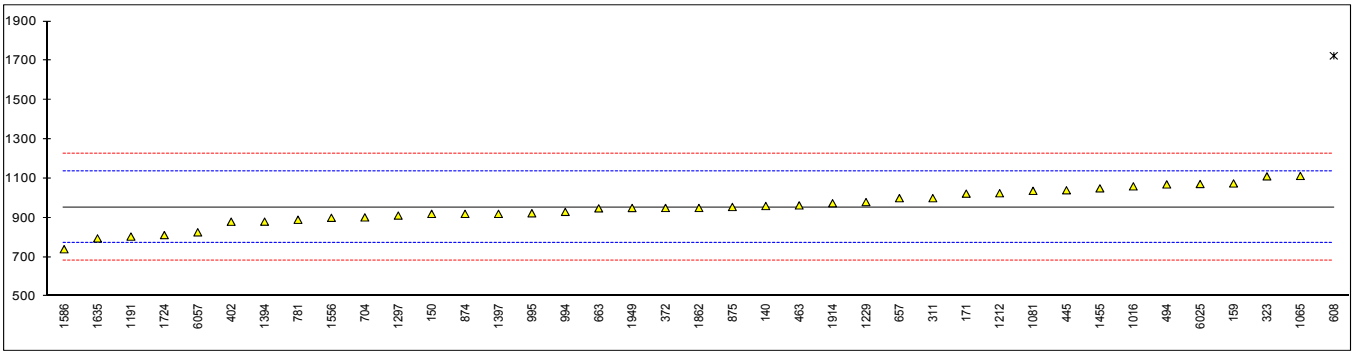


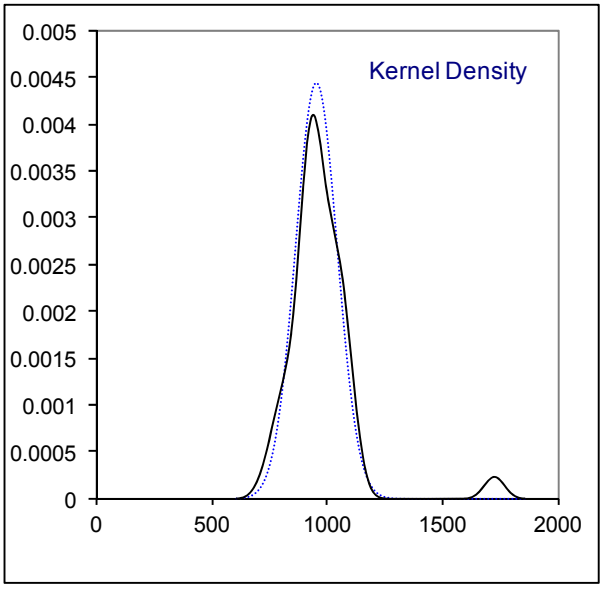
Determination of Nitrogen on sample #16270; results in mg/kg

lab	method	mode	value	mark	z(targ)	remarks
52		-----	-----		-----	
62		-----	-----		-----	
120		-----	-----		-----	
131		-----	-----		-----	
133		-----	-----		-----	
140	D5762	Gravimetric	960		0.06	
150	D5762	Gravimetric	920		-0.38	
158		-----	-----		-----	
159	D4629	-----	1075		1.33	
171	D5762	Volumetric	1023		0.76	
225		-----	-----		-----	
311	D5762	Volumetric	1000		0.51	
313		-----	-----		-----	
317		-----	-----		-----	
323	D5762	Gravimetric	1111		1.73	
333		-----	-----		-----	
336		-----	-----		-----	
340		-----	-----		-----	
356		-----	-----		-----	
371		-----	-----		-----	
372	D5762	Volumetric	950		-0.05	
399		-----	-----		-----	
402	D5762	Volumetric	880		-0.82	
445	D5762	Gravimetric	1040		0.95	
463	D5762	Gravimetric	963		0.10	
494	D5762	Volumetric	1070		1.28	
608	D5762	Gravimetric	1725	C,R(0.01)	8.50	First reported 1687
621		-----	-----		-----	
657	D5762	Gravimetric	1000		0.51	
663	D5762	Volumetric	948		-0.07	
704	D5762	Volumetric	902		-0.58	
732		-----	-----		-----	
743		-----	-----		-----	
781	D5762	Volumetric	890		-0.71	
784		-----	-----		-----	
785		-----	-----		-----	
791		-----	-----		-----	
873		-----	-----		-----	
874	D5762	Volumetric	920		-0.38	
875	D5762	Gravimetric	955		0.01	
970		-----	-----		-----	
994	D5762	Volumetric	930		-0.27	
995	D3228	-----	923		-0.34	
997		-----	-----		-----	
1016	D5762	Gravimetric	1060		1.17	
1065	D5762	Gravimetric	1113		1.75	
1081	D4629	-----	1037.2		0.92	
1108		-----	-----		-----	
1134		-----	-----		-----	
1161		-----	-----		-----	
1191	D5762	Volumetric	804.4		-1.65	
1212	D5762	Gravimetric	1025		0.78	
1229	In house	-----	980		0.28	
1297	D4629	-----	911.3		-0.47	
1300		-----	-----		-----	
1389		-----	-----		-----	
1394		-----	880.3		-0.82	
1397	In house	-----	920		-0.38	
1455	D5762	Volumetric	1050	C	1.06	First reported 4150
1510		-----	-----		-----	
1556	D5762	Gravimetric	900		-0.60	
1586	D5762	Gravimetric	740		-2.36	
1631		-----	-----		-----	
1635	D5762	Volumetric	795.0		-1.76	
1724	D4629	-----	812		-1.57	
1810		-----	-----		-----	
1832		-----	-----		-----	
1862	D5762	Gravimetric	950		-0.05	
1914	D5762	Gravimetric	974		0.22	
1949	D5762	Gravimetric	949.9		-0.05	
1950		-----	-----		-----	
1967		-----	-----		-----	
1986		-----	-----		-----	
1995		-----	-----		-----	
6016		-----	-----		-----	

6021		-----	-----	-----
6025	D5762	Volumetric	1072	1.30
6026		-----	-----	-----
6054		-----	-----	-----
6057	D5762	Volumetric	826	-1.41

		Only Gravimetric results	Only Volumetric results
	normality	OK	suspect	OK
	n	38	16	15
	outliers	1	1	0
	mean (n)	954.21	971.33	937.36
	st.dev. (n)	89.968	91.930	91.583
	R(calc.)	251.91	257.40	256.43
	R(D5762:12)	253.82	258.37	249.34



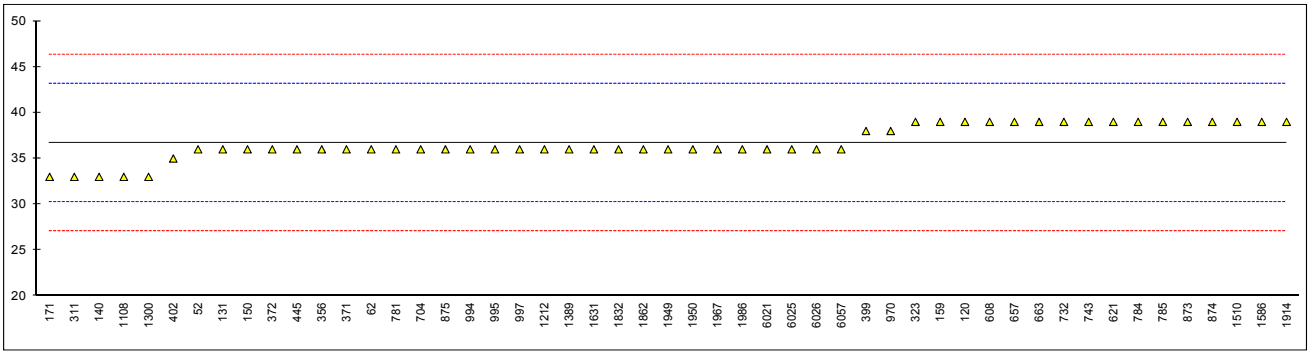


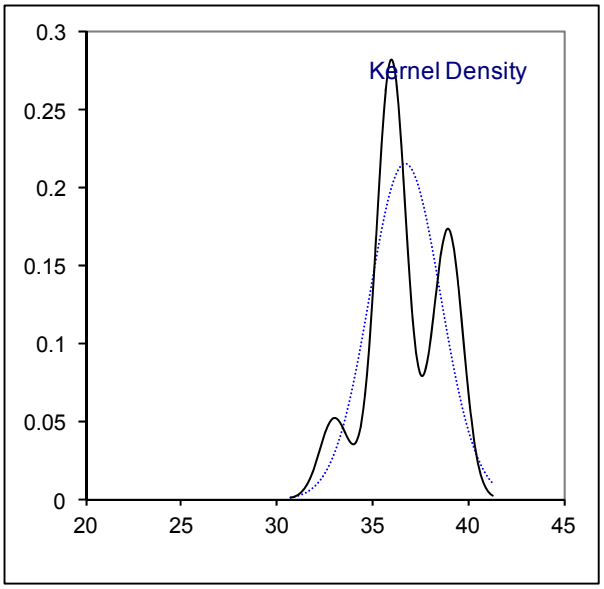
Determination of Pour Point, manual on sample #16270; results in °C

lab	method	value	mark	z(targ)	remarks
52	D97	36		-0.22	
62	D97	36		-0.22	
120	D97	39		0.71	
131	D97	36		-0.22	
133		-----		-----	
140	D97	33		-1.15	
150	D97	36		-0.22	
158		-----		-----	
159	D97	39		0.71	
171	D97	33		-1.15	
225		-----		-----	
311	D97	33		-1.15	
313		-----		-----	
317		-----		-----	
323	D97	39		0.71	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	D97	36		-0.22	
371	D97	36		-0.22	
372	D97	36		-0.22	
399	D97	38		0.40	
402	D97	35		-0.53	
445	D97	36		-0.22	
463		-----		-----	
494		-----		-----	
608	D97	39		0.71	
621	D97	39.0		0.71	
657	D97	39		0.71	
663	D97	39		0.71	
704	D97	36		-0.22	
732	D97	39		0.71	
743	D97	39		0.71	
781	D97	36		-0.22	
784	D97	39		0.71	
785	D97	39		0.71	
791		-----		-----	
873	D97	39		0.71	
874	D97	39		0.71	
875	D97	36		-0.22	
970	D97	38		0.40	
994	D97	36		-0.22	
995	D97	36		-0.22	
997	D97	36		-0.22	
1016		-----		-----	
1065		-----		-----	
1081		-----		-----	
1108	D97	33		-1.15	
1134		-----		-----	
1161		-----		-----	
1191		-----		-----	
1212	D97	36		-0.22	
1229		-----		-----	
1297		-----		-----	
1300	D97	33		-1.15	
1389	D97	36		-0.22	
1394		-----		-----	
1397		-----		-----	
1455		-----		-----	
1510	D97	39		0.71	
1556		-----		-----	
1586	D97	39		0.71	
1631	D97	36.0		-0.22	
1635		-----		-----	
1724		-----	W	-----	Result withdrawn, reported 139
1810		-----		-----	
1832	ISO3016	36.0		-0.22	
1862	D97	36		-0.22	
1914	D97	39		0.71	
1949	D97	36		-0.22	
1950	D97	36		-0.22	
1967	D97	36		-0.22	
1986	D97	36		-0.22	
1995		-----		-----	
6016		-----		-----	

6021	D97	36	-0.22
6025	D97	36	-0.22
6026	D97	36	-0.22
6054		-----	-----
6057	ISO3016	36	-0.22

normality	OK
n	51
outliers	0
mean (n)	36.71
st.dev. (n)	1.858
R(calc.)	5.20
R(D97:16)	9.00



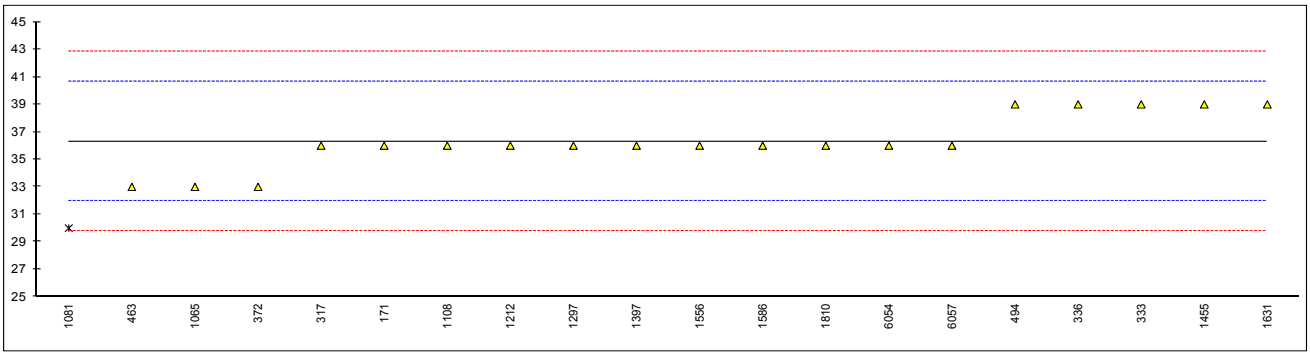


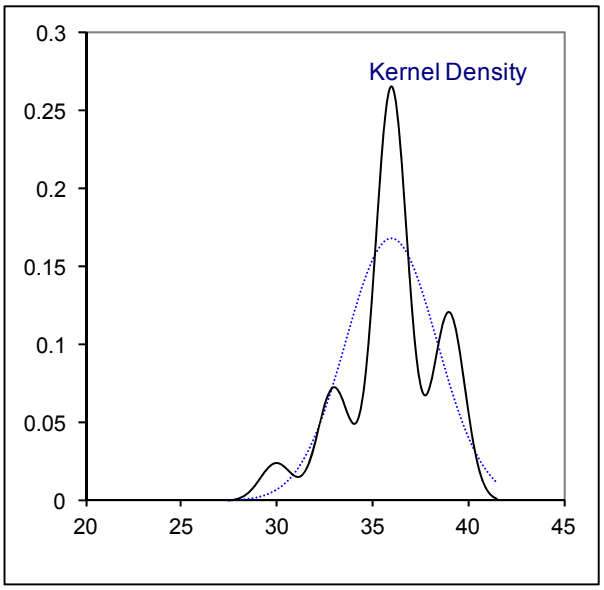
Determination of Pour Point, automated, 3°C interval on sample #16270; results in °C

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
131		-----		-----	
133		-----		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
159		-----		-----	
171	D5950	36		-0.14	
225		-----		-----	
311		-----		-----	
313		-----		-----	
317	D6749	36		-0.14	
323		-----		-----	
333	D5950	39		1.23	
336	D5950	39		1.23	
340		-----		-----	
356		-----		-----	
371		-----		-----	
372	D5950	33		-1.52	
399		-----		-----	
402		-----		-----	
445		-----		-----	
463	D6892	33		-1.52	
494	D6892	39		1.23	
608		-----		-----	
621		-----		-----	
657		-----		-----	
663		-----		-----	
704		-----		-----	
732		-----		-----	
743		-----		-----	
781		-----		-----	
784		-----		-----	
785		-----		-----	
791		-----		-----	
873		-----		-----	
874		-----		-----	
875		-----		-----	
970		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1016		-----		-----	
1065	D5950	33		-1.52	
1081	D5950	30	ex	-2.90	at 1°C interval
1108	D5950	36		-0.14	
1134		-----		-----	
1161		-----		-----	
1191		-----		-----	
1212	D5950	36		-0.14	
1229		-----		-----	
1297	D5950	36.0		-0.14	
1300		-----		-----	
1389		-----		-----	
1394		-----		-----	
1397	D5950	36		-0.14	
1455	D6892	39		1.23	
1510		-----		-----	
1556	ISO3016	36		-0.14	
1586	D5950	36		-0.14	
1631	D5950	39.0		1.23	
1635		-----		-----	
1724		-----		-----	
1810	D5950	36		-0.14	
1832		-----		-----	
1862		-----		-----	
1914		-----		-----	
1949		-----		-----	
1950		-----		-----	
1967		-----		-----	
1986		-----		-----	
1995		-----		-----	
6016		-----		-----	

6021		-----		-----	
6025		-----		-----	
6026		-----		-----	
6054	D5950	36	C	-0.14	First reported 9
6057	D5950	36		-0.14	

normality	OK
n	19
outliers	0 (+1 excl)
mean (n)	36.32
st.dev. (n)	1.974
R(calc.)	5.53
R(D5950:14)	6.10



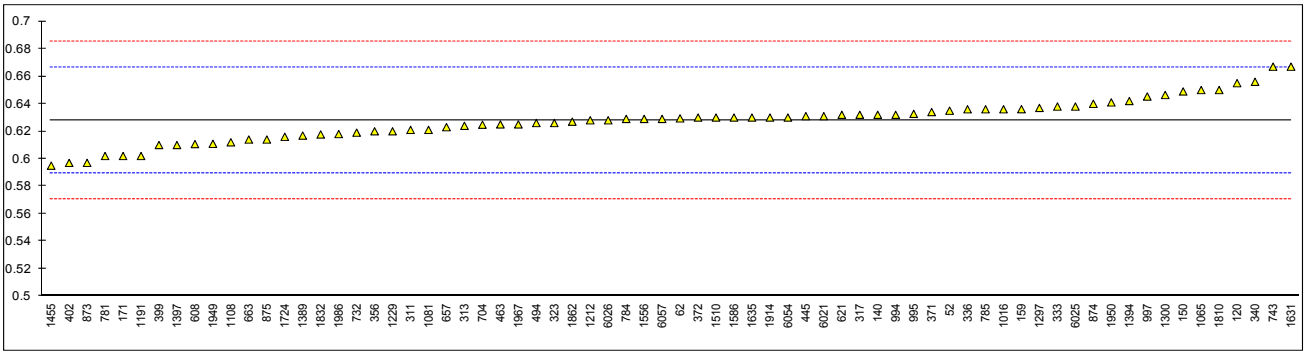


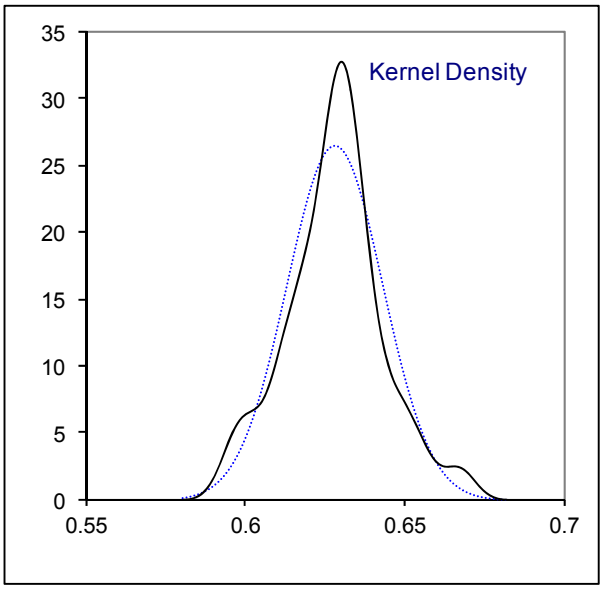
Determination of Total Sulphur on sample #16270; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D4294	0.635		0.37	
62	D4294	0.6294		0.08	
120	D4294	0.655		1.41	
131		-----		-----	
133		-----		-----	
140	D4294	0.632		0.21	
150	D4294	0.649		1.09	
158		-----		-----	
159	D4294	0.6361	C	0.42	First reported 0.7031
171	D4294	0.602		-1.35	
225		-----		-----	
311	D4294	0.621		-0.36	
313	D4294	0.624		-0.21	
317	D2622	0.632		0.21	
323	D4294	0.626		-0.10	
333	D4294	0.638		0.52	
336	D4294	0.636		0.42	
340	D4294	0.656		1.46	
356	D4294	0.62		-0.41	
371	D4294	0.634		0.31	
372	D4294	0.630		0.11	
399	D4294	0.61		-0.93	
402	D2622	0.597		-1.61	
445	D4294	0.631		0.16	
463	D4294	0.625		-0.15	
494	D4294	0.626		-0.10	
608	D4294	0.6107		-0.90	
621	D4294	0.632		0.21	
657	D4294	0.623		-0.26	
663	D4294	0.6140		-0.73	
704	D4294	0.6248		-0.16	
732	D4294	0.619		-0.47	
743	D4294	0.667		2.03	
781	D4294	0.602		-1.35	
784	D4294	0.629		0.05	
785	D4294	0.636		0.42	
791		-----		-----	
873	D4294	0.597		-1.61	
874	D4294	0.640		0.63	
875	D4294	0.614		-0.73	
970		-----		-----	
994	D4294	0.632		0.21	
995	D4294	0.6327		0.25	
997	D4294	0.6453		0.90	
1016	In house	0.636		0.42	
1065	D4294	0.65		1.15	
1081	D4294	0.621		-0.36	
1108	D4294	0.612		-0.83	
1134		-----		-----	
1161		-----		-----	
1191	ISO8754	0.602		-1.35	
1212	D4294	0.628		0.00	
1229	ISO8754	0.62		-0.41	
1297	D4294	0.6370		0.47	
1300	D4294	0.6464		0.96	
1389	D4294	0.61688		-0.58	
1394	D4294	0.6420		0.73	
1397	D2622	0.61		-0.93	
1455	D2622	0.595		-1.71	
1510	D4294	0.63		0.11	
1556	ISO8754	0.629		0.05	
1586	D4294	0.63		0.11	
1631	ISO8754	0.667		2.03	
1635	D4294	0.63		0.11	
1724	ISO8754	0.616		-0.62	
1810	D4294	0.65		1.15	
1832	ISO8754	0.6177		-0.53	
1862	D4294	0.627		-0.05	
1914	D4294	0.630		0.11	
1949	D4294	0.6109		-0.89	
1950	D4294	0.641		0.68	
1967	D4294	0.625		-0.15	
1986	D4294	0.618		-0.52	
1995		-----		-----	
6016		-----		-----	

6021	D4294	0.6310	0.16
6025	D4294	0.638	0.52
6026	D4294	0.628	0.00
6054	D4294	0.63	0.11
6057	ISO8754	0.629	0.05

normality	OK
n	70
outliers	0
mean (n)	0.6280
st.dev. (n)	0.01506
R(calc.)	0.0422
R(D4294:16e1)	0.0538





Determination of Arsenic as As on sample #16270; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	IP501	<1		-----	
131		-----		-----	
133		-----		-----	
140	D5708	0.100		-----	
150		-----		-----	
158		-----		-----	
159		-----		-----	
171	D5708	<0.100		-----	
225		-----		-----	
311	UOP986	<1		-----	
313		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356		-----		-----	
371		-----		-----	
372		-----		-----	
399		-----		-----	
402		-----		-----	
445		-----		-----	
463		-----		-----	
494		-----		-----	
608		-----		-----	
621		-----		-----	
657		-----		-----	
663		-----		-----	
704		-----		-----	
732		-----		-----	
743		-----		-----	
781		-----		-----	
784		-----		-----	
785		-----		-----	
791		-----		-----	
873		-----		-----	
874		-----		-----	
875		-----		-----	
970		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1016		-----		-----	
1065		-----		-----	
1081	In house	0.017		-----	
1108		-----		-----	
1134		-----		-----	
1161		-----		-----	
1191		-----		-----	
1212	D5185	0.35		-----	
1229		-----		-----	
1297	In house	0.018		-----	
1300	IP501	<1		-----	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455		-----		-----	
1510		-----		-----	
1556		-----		-----	
1586		-----		-----	
1631		-----		-----	
1635		-----		-----	
1724	UOP946	0.00485		-----	
1810		-----		-----	
1832		-----		-----	
1862		-----		-----	
1914	In house	< 0.05		-----	
1949		-----		-----	
1950		-----		-----	
1967		-----		-----	
1986		-----		-----	
1995		-----		-----	
6016		-----		-----	
6021		-----		-----	

6025		-----	-----
6026		-----	-----
6054		-----	-----
6057	IP PM CW	<0.1	-----

normality	n.a.
n	11
outliers	0
mean (n)	<1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(Lit.)	n.a.

Determination of Calcium as Ca on sample #16270; results in mg/kg

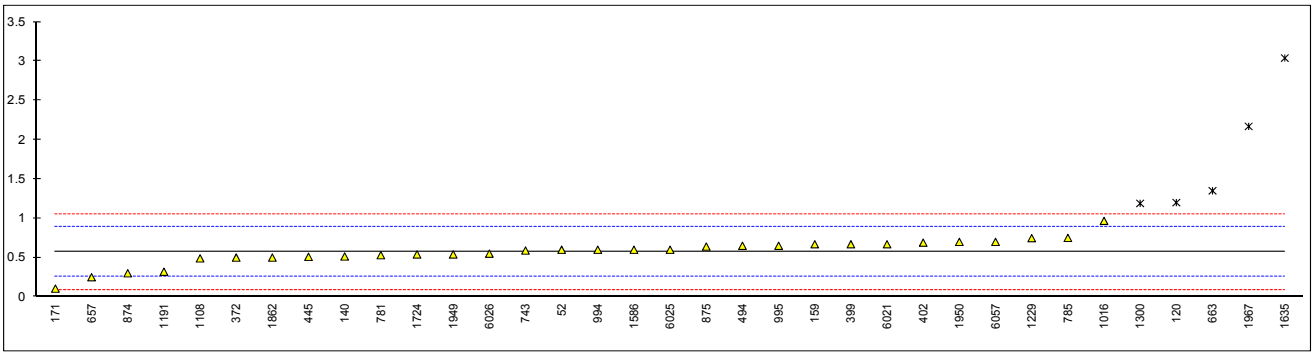
lab	method	value	mark	z(targ)	remarks
52	IP470	0.6		0.18	
62	IP470	<3		-----	
120	IP501	1.2	R(0.05)	3.93	
131		-----		-----	
133		-----		-----	
140	D5708	0.514		-0.36	
150	D5708	<1.00		-----	
158		-----		-----	
159	D5708	0.67		0.62	
171	D5708	0.105		-2.92	
225		-----		-----	
311		-----		-----	
313		-----		-----	
317	IP501	<3		-----	
323	IP501	<3		-----	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356		-----		-----	
371		-----		-----	
372	IP470	0.5		-0.45	
399	IP501	0.67		0.62	
402	IP470	0.69		0.74	
445	IP PM CW	0.51		-0.38	
463		-----		-----	
494	IP501	0.65		0.49	
608		-----		-----	
621		-----		-----	
657	IP501	0.25		-2.01	
663	IP501	1.35	C,R(0.05)	4.87	First reported 19.9
704	IP470	<3		-----	
732		-----		-----	
743	IP470	0.59		0.12	
781	IP PM CW	0.53		-0.26	
784		-----		-----	
785	IP470	0.75		1.12	
791		-----		-----	
873		-----		-----	
874	IP501	0.3		-1.70	
875	IP501	0.64		0.43	
970		-----		-----	
994	IP501	0.6		0.18	
995	IP470	0.65		0.49	
997		-----		-----	
1016	NEN6966	0.967		2.47	
1065		-----		-----	
1081	In house	<1		-----	
1108	D7111	0.49		-0.51	
1134		-----		-----	
1161		-----		-----	
1191	D5185	0.32		-1.57	
1212		-----		-----	
1229	In house	0.7475		1.10	
1297		-----		-----	
1300	IP501	1.19	C,R(0.05)	3.87	First reported 8.35
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455		-----		-----	
1510		-----		-----	
1556		-----		-----	
1586	IP PM CW	0.6		0.18	
1631		-----		-----	
1635	D1976	3.04	R(0.01)	15.44	
1724	IP501	0.54		-0.20	
1810		-----		-----	
1832		-----		-----	
1862	IP PM CW	0.5		-0.45	
1914	IP501	< 3		-----	
1949	IP PM CW	0.54	C	-0.20	First reported 1.95
1950	IP PM CW	0.7		0.80	
1967	IP470	2.17	R(0.01)	10.00	
1986		-----		-----	
1995		-----		-----	
6016		-----		-----	

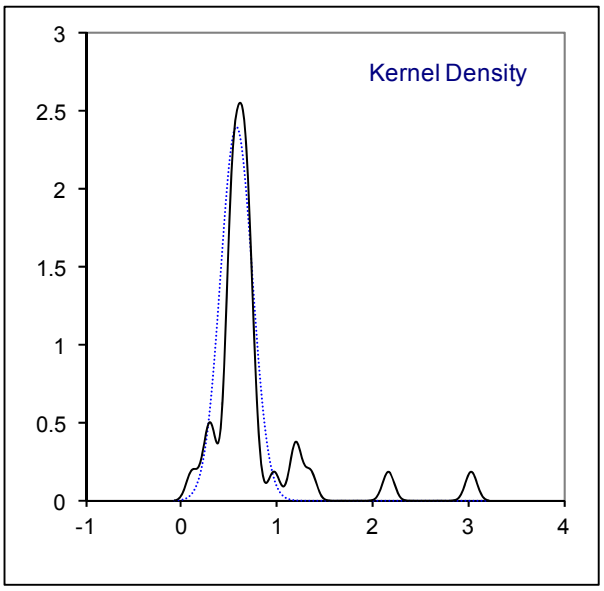
6021	IP PM CW	0.67	0.62
6025	IP470	0.6	0.18
6026	IP PM CW	0.55	-0.13
6054		-----	-----
6057	IP PM CW	0.7	0.80

normality	suspect
n	30
outliers	5
mean (n)	0.571
st.dev. (n)	0.1663
R(calc.)	0.466
R(IP501:05)	0.448

Application range IP501/IP470: 3 – 100 mg/kg
Application range IP-CW/04: 0.1 – 10 mg/kg

Compare R(IP470:05) = 3.571





Determination of Copper as Cu on sample #16270; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP470	<1		-----	
62		-----		-----	
120	IP501	0.1		-----	
131		-----		-----	
133		-----		-----	
140	D5708	0.197	G(0.01)	-----	False positive test result?
150	D5708	<1.00		-----	
158		-----		-----	
159	D5708	0.01		-----	
171	D5708	<0.100		-----	
225	IP501	0.54	G(0.01)	-----	False positive test result?
311	IP PM CW	<0.1		-----	
313		-----		-----	
317		-----		-----	
323	IP PM CW	<0.1		-----	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	IP PM CW	0.1		-----	
371	IP PM CW	<0.1		-----	
372	IP PM CW	< 0.1		-----	
399	IP501	<0.1		-----	
402	IP470	<1		-----	
445	IP PM CW	<0.1		-----	
463		-----		-----	
494		-----		-----	
608	IP501	<0.1		-----	
621		-----		-----	
657	IP501	0.02		-----	
663		-----		-----	
704	IP PM CW	<0.1		-----	
732		-----		-----	
743	IP470	0.01		-----	
781	IP PM CW	<0.1		-----	
784		-----		-----	
785	IP470	0.01		-----	
791		-----		-----	
873	IP PM CW	<0.1		-----	
874	IP501	<1		-----	
875	IP501	<1		-----	
970		-----		-----	
994	IP501	<0.1		-----	
995	IP470	<0.1		-----	
997		-----		-----	
1016		-----		-----	
1065		-----		-----	
1081	In house	0.117		-----	
1108	D7111	<0.1		-----	
1134		-----		-----	
1161		-----		-----	
1191	D5185	0.04		-----	
1212	IP PM CW	0.02		-----	
1229	In house	0.052		-----	
1297		-----		-----	
1300	IP501	<0,1		-----	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455	IP PM CW	<0.1		-----	
1510		-----		-----	
1556	In house	0.03		-----	
1586	IP PM CW	0.02		-----	
1631		-----		-----	
1635		-----		-----	
1724		-----		-----	
1810		-----		-----	
1832		-----		-----	
1862	IP PM CW	<0.1		-----	
1914	IP PM CW	< 0.1		-----	
1949	IP PM CW	0.01		-----	
1950	IP PM CW	0.05		-----	
1967		-----		-----	
1986	IP PM CW	0.01		-----	
1995		-----		-----	
6016		-----		-----	

6021	IP PM CW	0.01	-----
6025		-----	-----
6026	IP PM CW	0.01	-----
6054		-----	-----
6057	IP PM CW	<0.1	-----

normality	n.a.
n	35
outliers	n.a.
mean (n)	<0.1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(lit)	n.a.

Application range IP PM CW/04: 0.1 - 10 mg/kg

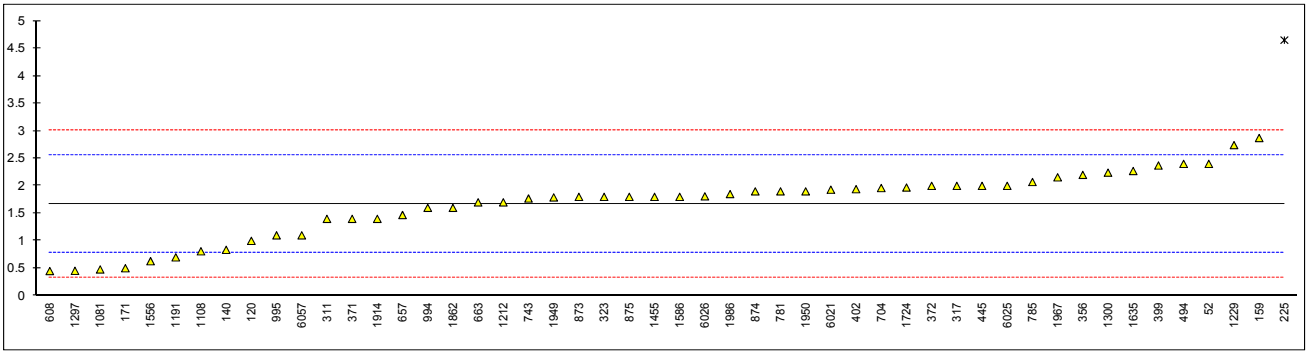
Determination of Iron as Fe on sample #16270; results in mg/kg

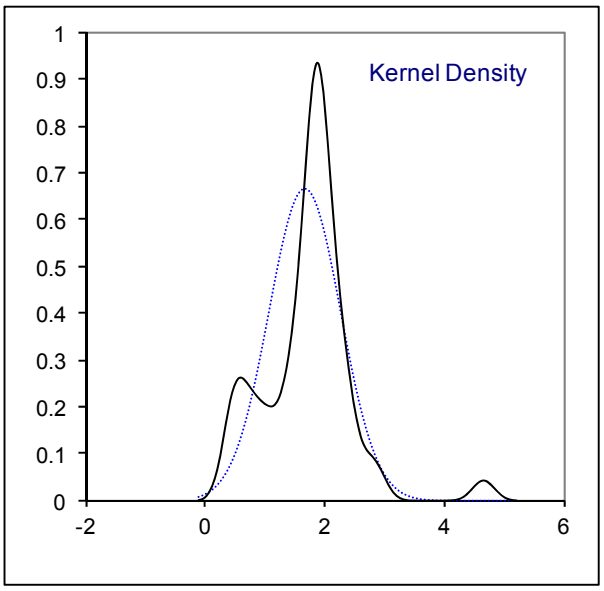
lab	method	value	mark	z(targ)	remarks
52	IP470	2.4		1.65	
62	IP470	<2		-----	
120	IP501	1.0		-1.51	
131		-----		-----	
133		-----		-----	
140	D5708	0.837		-1.87	
150	D5708	<1.00		-----	
158		-----		-----	
159	D5708	2.87		2.71	
171	D5708	0.502		-2.63	
225	IP501	4.65	R(0.01)	6.72	
311	IP PM CW	1.4		-0.61	
313		-----		-----	
317	IP501	2		0.75	
323	IP PM CW	1.8		0.30	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	IP PM CW	2.2		1.20	
371	IP PM CW	1.4		-0.61	
372	IP PM CW	2.0		0.75	
399	IP501	2.37		1.58	
402	IP470	1.94		0.61	
445	IP PM CW	2.00		0.75	
463		-----		-----	
494	IP501	2.4		1.65	
608	IP501	0.45		-2.75	
621		-----		-----	
657	IP501	1.47		-0.45	
663	IP501	1.70	C	0.07	First reported 16
704	IP PM CW	1.96		0.66	
732		-----		-----	
743	IP470	1.77		0.23	
781	IP PM CW	1.90		0.52	
784		-----		-----	
785	IP470	2.07		0.90	
791		-----		-----	
873	IP PM CW	1.8		0.30	
874	IP501	1.9		0.52	
875	IP501	1.80		0.30	
970		-----		-----	
994	IP501	1.6		-0.15	
995	IP470	1.1		-1.28	
997		-----		-----	
1016	In house	<2		-----	
1065		-----		-----	
1081	In house	0.48		-2.68	
1108	D7111	0.81		-1.94	
1134		-----		-----	
1161		-----		-----	
1191	D5185	0.7		-2.18	
1212	IP PM CW	1.70		0.07	
1229	In house	2.741		2.42	
1297	D5708	0.455		-2.74	
1300	IP501	2.24		1.29	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455	IP PM CW	1.8		0.30	
1510		-----		-----	
1556	In house	0.63		-2.34	
1586	IP PM CW	1.8		0.30	
1631		-----		-----	
1635	D1976	2.27		1.35	
1724	IP501	1.97		0.68	
1810		-----		-----	
1832		-----		-----	
1862	IP PM CW	1.6		-0.15	
1914	IP PM CW	1.4		-0.61	
1949	IP PM CW	1.79		0.27	
1950	IP PM CW	1.9		0.52	
1967	IP470	2.155		1.10	
1986	IP PM CW	1.85		0.41	
1995		-----		-----	
6016		-----		-----	

6021	IP PM CW	1.93	0.59
6025	IP470	2.0	0.75
6026	IP PM CW	1.81	0.32
6054		-----	-----
6057	IP PM CW	1.1	-1.28

		Only IP PM CW data:
	normality	OK	OK
	n	49	20
	outliers	1	0
	mean (n)	1.669	1.757
	st.dev. (n)	0.5976	0.2604
	R(calc.)	1.673	0.729
	R(IP501:05)	1.243	n.a.
	Compare		
	R(IP470:05)	2.566	

Application range (IP501/IP470) : 2 – 60 mg/kg
Application range (IP PM CW/04) = 0.1 – 10 mg/kg





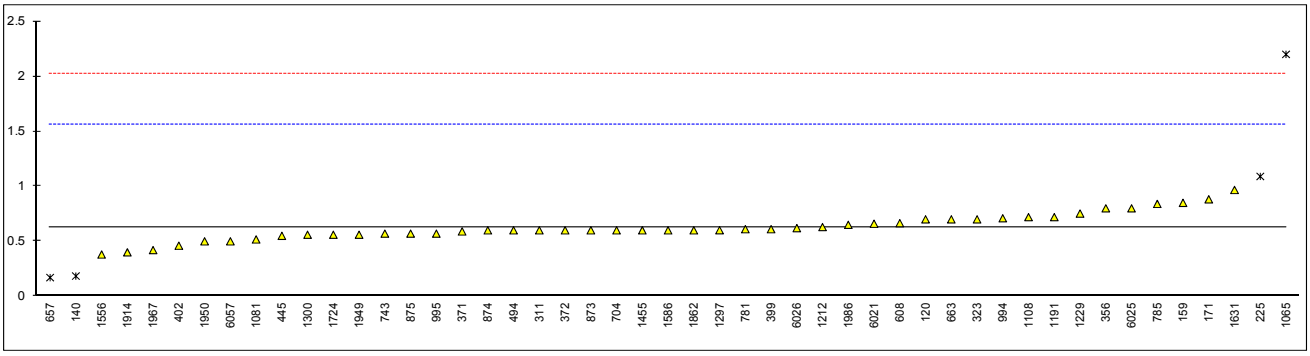
Determination of Nickel as Ni on sample #16270; results in mg/kg

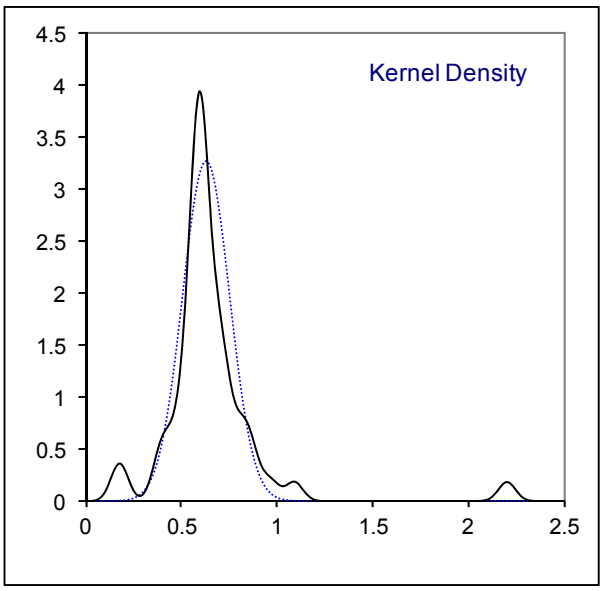
lab	method	value	mark	z(targ)	remarks
52	IP470	<1		-----	
62		-----		-----	
120	IP501	0.7		0.15	
131		-----		-----	
133		-----		-----	
140	D5708	0.184	R(0.05)	-0.96	
150	D5708	<1.00		-----	
158		-----		-----	
159	D5708	0.85		0.48	
171	D5708	0.882		0.54	
225	IP501	1.09	R(0.05)	0.99	
311	IP PM CW	0.6		-0.06	
313		-----		-----	
317	IP501	<1		-----	
323	IP PM CW	0.7		0.15	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	IP PM CW	0.8		0.37	
371	IP PM CW	0.59		-0.08	
372	IP PM CW	0.6		-0.06	
399	IP501	0.61		-0.04	
402	IP470	0.46		-0.36	
445	IP PM CW	0.55		-0.17	
463		-----		-----	
494	IP501	0.6		-0.06	
608	IP501	0.665		0.08	
621		-----		-----	
657	IP501	0.17	R(0.05)	-0.99	
663	IP501	0.70	C	0.15	First reported 19.9
704	IP PM CW	0.60		-0.06	
732		-----		-----	
743	IP470	0.57		-0.13	
781	IP PM CW	0.61		-0.04	
784		-----		-----	
785	IP470	0.84		0.45	
791		-----		-----	
873	IP PM CW	0.6		-0.06	
874	IP501	0.6		-0.06	
875	IP501	0.57		-0.13	
970		-----		-----	
994	IP501	0.71		0.17	
995	IP470	0.57		-0.13	
997		-----		-----	
1016	In house	<2		-----	
1065	IP470	2.20	R(0.01)	3.38	
1081	In house	0.517		-0.24	
1108	D7111	0.72		0.20	
1134		-----		-----	
1161		-----		-----	
1191	D5185	0.72		0.20	
1212	IP PM CW	0.63		0.00	
1229	In house	0.7525		0.27	
1297	D5708	0.601		-0.06	
1300	IP501	0.56		-0.15	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455	IP PM CW	0.6		-0.06	
1510		-----		-----	
1556	In house	0.38		-0.53	
1586	IP PM CW	0.6		-0.06	
1631	IP285	0.967		0.73	
1635	D1976	<0.2		-----	
1724	IP501	0.56		-0.15	
1810		-----		-----	
1832		-----		-----	
1862	IP PM CW	0.6		-0.06	
1914	IP PM CW	0.4		-0.49	
1949	IP PM CW	0.56		-0.15	
1950	IP PM CW	0.5		-0.28	
1967	IP470	0.42		-0.45	
1986	IP PM CW	0.65		0.05	
1995		-----		-----	
6016		-----		-----	

6021	IP PM CW	0.66	0.07
6025	IP470	0.8	0.37
6026	IP PM CW	0.62	-0.02
6054		-----	-----
6057	IP PM CW	0.5	-0.28

		Only IP PM CW data:
	normality	OK	not OK
	n	45	20
	outliers	4	0
	mean (n)	0.629	0.598
	st.dev. (n)	0.1225	0.0800
	R(calc.)	0.343	0.224
	R(IP501:05)	1.303	n.a.
	Compare		
	R(IP470:05)	1.808	

Application range (IP501/IP470) : 1 – 100 mg/kg
Application range (IP PM CW/04) = 0.1 – 10 mg/kg





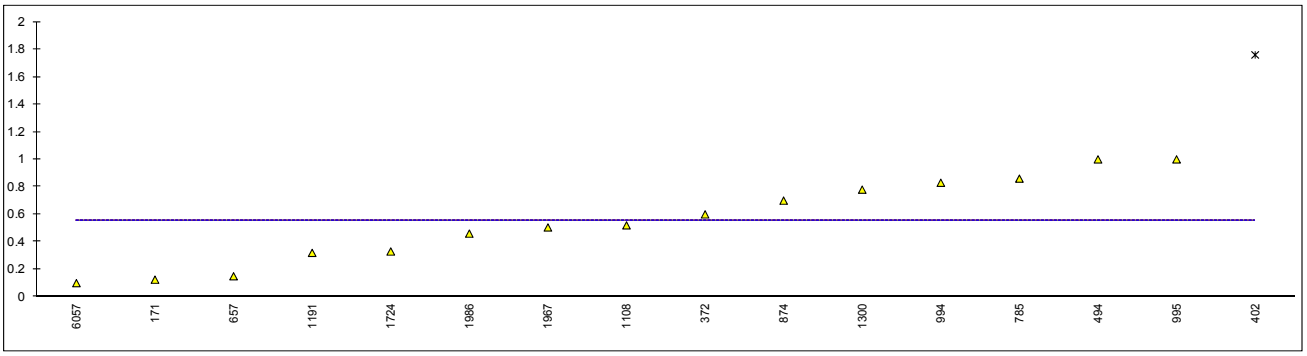
Determination of Silicon as Si on sample #16270; results in mg/kg

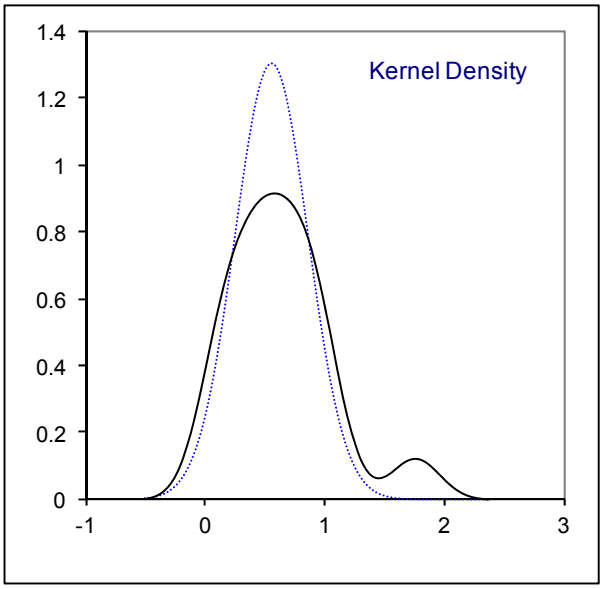
lab	method	value	mark	z(targ)	remarks
52	IP470	<10	C	-----	First reported 3.1
62	IP470	<10		-----	
120	IP501	<1		-----	
131		-----		-----	
133		-----		-----	
140	D5708	<1.0		-----	
150	D5708	<1.00		-----	
158		-----		-----	
159		-----		-----	
171	D5708	0.125		-----	
225	IP501	<10		-----	
311	UOP796	<1.0		-----	
313		-----		-----	
317	IP501	<10		-----	
323	IP501	<10		-----	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356		-----		-----	
371		-----		-----	
372	IP470	0.6		-----	
399	IP501	<10		-----	
402	IP470	1.76	G(0.05)	-----	False positive test result?
445		-----		-----	
463		-----		-----	
494	IP501	1.0		-----	
608		-----		-----	
621		-----		-----	
657	IP501	0.15		-----	
663	IP501	<10		-----	
704	IP470	<10		-----	
732		-----		-----	
743		-----		-----	
781	IP501	<10		-----	
784		-----		-----	
785	IP470	0.86		-----	
791		-----		-----	
873		-----		-----	
874	IP501	0.7		-----	
875	IP501	<1		-----	
970		-----		-----	
994	IP501	0.83		-----	
995	IP470	1.0		-----	
997		-----		-----	
1016		-----		-----	
1065		-----		-----	
1081		-----		-----	
1108	D5185	0.52		-----	
1134		-----		-----	
1161		-----		-----	
1191	D5185	0.32		-----	
1212		-----		-----	
1229	In house	<2		-----	
1297		-----		-----	
1300	IP501	0.78		-----	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455		-----		-----	
1510		-----		-----	
1556		-----		-----	
1586	IP501	<10		-----	
1631		-----		-----	
1635	D1976	<1		-----	
1724	IP501	0.33		-----	
1810		-----		-----	
1832		-----		-----	
1862		-----		-----	
1914	IP501	< 10		-----	
1949		-----		-----	
1950		-----		-----	
1967	IP470	0.505		-----	
1986	IP470	0.46		-----	
1995		-----		-----	
6016		-----		-----	

6021		-----	-----
6025		-----	-----
6026		-----	-----
6054		-----	-----
6057	IP PM CW	0.1	-----

normality	n.a.
n	19
outliers	n.a.
mean (n)	<1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(lit)	n.a.

Application range IP501/IP470: 10 – 250 mg/kg
Application range IP PM CW/04: 0.1 – 10 mg/kg





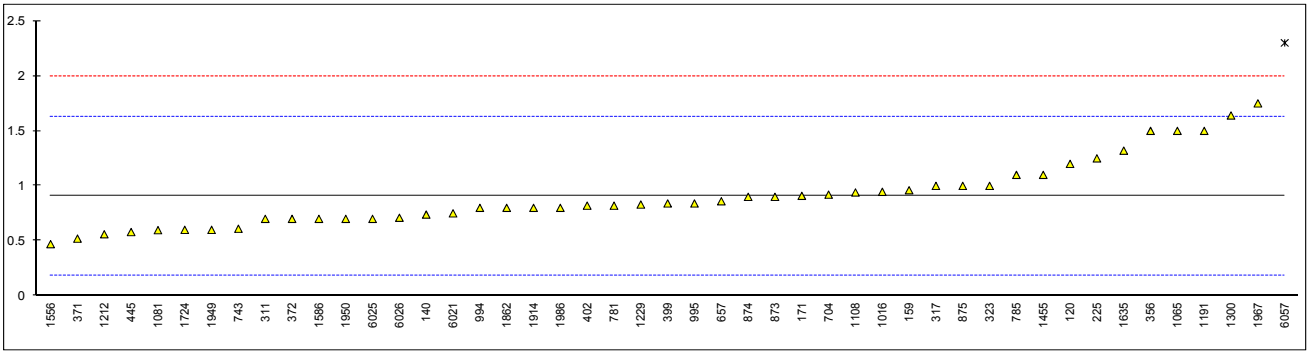
Determination of Sodium as Na on sample #16270; results in mg/kg

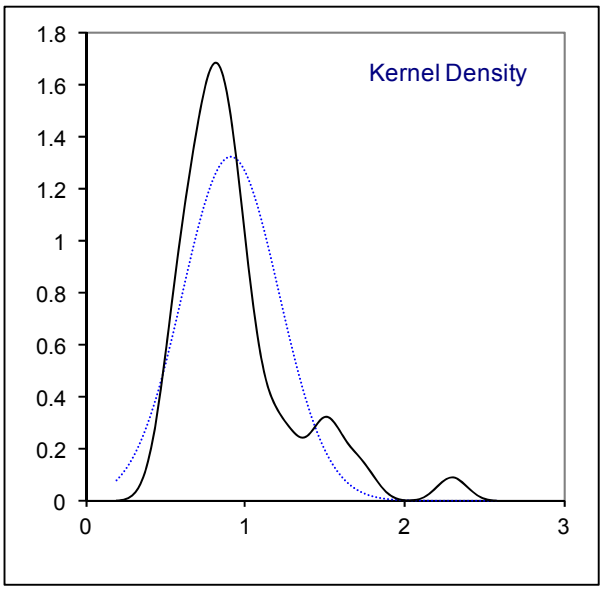
lab	method	value	mark	z(targ)	remarks
52	IP470	<1		<0.25	
62	IP470	<1		<0.25	
120	IP501	1.2		0.81	
131		-----		-----	
133		-----		-----	
140	D5708	0.739		-0.47	
150	D5708	<1.00		<0.25	
158		-----		-----	
159	D5708	0.96		0.14	
171	D5708	0.909		0.00	
225	IP501	1.25		0.95	
311	IP PM CW	0.7		-0.58	
313		-----		-----	
317	IP501	1	C	0.25	First reported 2
323	IP PM CW	1.0		0.25	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	IP PM CW	1.5		1.64	
371	IP PM CW	0.52		-1.07	
372	IP PM CW	0.7		-0.58	
399	IP501	0.84		-0.19	
402	IP470	0.82		-0.24	
445	IP PM CW	0.58		-0.91	
463		-----		-----	
494	IP501	<1		<0.25	
608		-----		-----	
621		-----		-----	
657	IP501	0.86		-0.13	
663	IP501	<1	C	<0.25	First reported 9.9
704	IP PM CW	0.92		0.03	
732		-----		-----	
743	IP470	0.61		-0.83	
781	IP501	0.82		-0.24	
784		-----		-----	
785	IP470	1.10		0.53	
791		-----		-----	
873	IP PM CW	0.9		-0.02	
874	IP501	0.9		-0.02	
875	IP501	1		0.25	
970		-----		-----	
994	IP501	0.8		-0.30	
995	D5863	0.84		-0.19	
997		-----		-----	
1016	NEN6966	0.946		0.10	
1065	IP470	1.50	C	1.64	First reported 4.16
1081	In house	0.597		-0.86	
1108	D7111	0.94		0.09	
1134		-----		-----	
1161		-----		-----	
1191	D5185	1.5		1.64	
1212	IP PM CW	0.56		-0.96	
1229	In house	0.83		-0.22	
1297		-----		-----	
1300	IP501	1.64		2.03	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455	IP PM CW	1.1		0.53	
1510		-----		-----	
1556	In house	0.47		-1.21	
1586	IP PM CW	0.7		-0.58	
1631		-----		-----	
1635	D1976	1.32		1.14	
1724	IP501	0.60		-0.85	
1810		-----		-----	
1832		-----		-----	
1862	IP PM CW	0.8		-0.30	
1914	IP PM CW	0.8		-0.30	
1949	IP PM CW	0.60		-0.85	
1950	IP PM CW	0.7		-0.58	
1967	IP470	1.75		2.33	
1986	IP PM CW	0.80		-0.30	
1995		-----		-----	
6016		-----		-----	

6021	IP PM CW	0.75		-0.44
6025	IP470	0.7		-0.58
6026	IP PM CW	0.71		-0.55
6054		-----		-----
6057	IP PM CW	2.3	R(0.01)	3.85

		Only IP PM CW data:
	normality	suspect	not OK
	n	46	18
	outliers	1	1
	mean (n)	0.908	0.797
	st.dev. (n)	0.3021	0.2325
	R(calc.)	0.846	0.651
	R(IP501:05)	1.012	n.a.
	Compare		
	R(IP470:05)	1.230	

Application range IP501/IP470: 1 – 100 mg/kg
Application range IP PM CW/04: 0.1 – 10 mg/kg





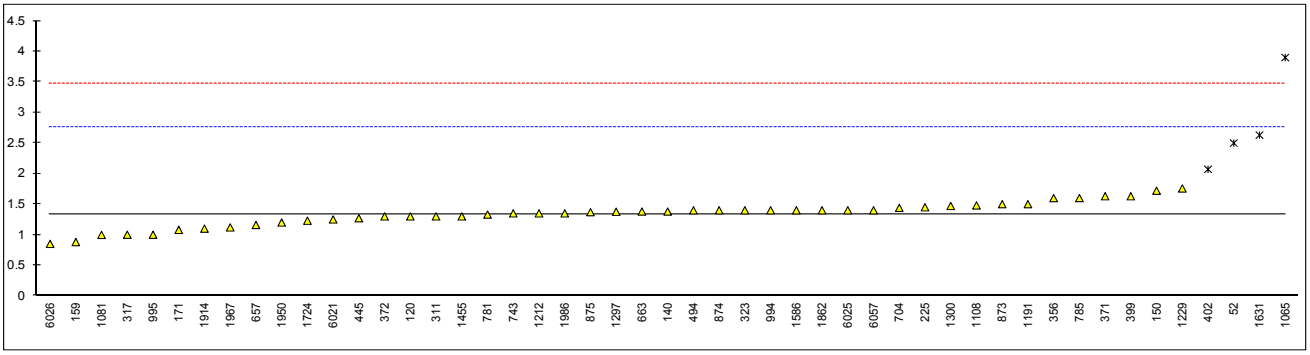
Determination of Vanadium as V on sample #16270; results in mg/kg

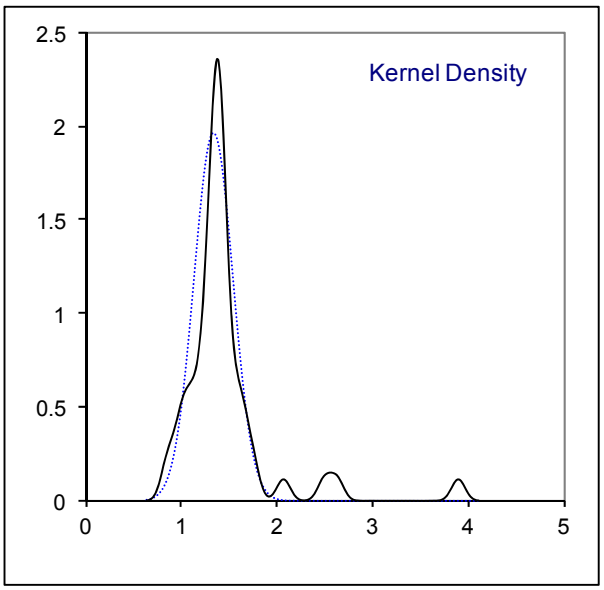
lab	method	value	mark	z(targ)	remarks
52	IP470	2.5	R(0.01)	1.63	
62		-----		-----	
120	IP501	1.3		-0.05	
131		-----		-----	
133		-----		-----	
140	D5708	1.38		0.06	
150	D5708	1.72		0.53	
158		-----		-----	
159	D5708	0.88		-0.64	
171	D5708	1.08		-0.36	
225	IP501	1.45		0.16	
311	IP PM CW	1.3		-0.05	
313		-----		-----	
317	IP501	1		-0.47	
323	IP PM CW	1.4		0.09	
333		-----		-----	
336		-----		-----	
340		-----		-----	
356	IP PM CW	1.6		0.37	
371	IP PM CW	1.63		0.41	
372	IP PM CW	1.3		-0.05	
399	IP501	1.63		0.41	
402	IP470	2.07	R(0.05)	1.02	
445	IP PM CW	1.27		-0.09	
463		-----		-----	
494	IP501	1.4		0.09	
608		-----		-----	
621		-----		-----	
657	IP501	1.16		-0.25	
663	IP501	1.38	C	0.06	First reported 116.1
704	IP PM CW	1.44		0.14	
732		-----		-----	
743	IP470	1.35		0.02	
781	IP PM CW	1.33		-0.01	
784		-----		-----	
785	IP470	1.60		0.37	
791		-----		-----	
873	IP PM CW	1.5		0.23	
874	IP501	1.4		0.09	
875	IP501	1.37		0.05	
970		-----		-----	
994	IP501	1.4		0.09	
995	IP470	1.0		-0.47	
997		-----		-----	
1016	In house	<2		<0.93	
1065	IP470	3.90	R(0.01)	3.59	
1081	In house	0.998		-0.48	
1108	D7111	1.48		0.20	
1134		-----		-----	
1161		-----		-----	
1191	D5185	1.5		0.23	
1212	IP PM CW	1.35		0.02	
1229	In house	1.7575		0.59	
1297	D5708	1.376		0.05	
1300	IP501	1.47		0.19	
1389		-----		-----	
1394		-----		-----	
1397		-----		-----	
1455	IP PM CW	1.3		-0.05	
1510		-----		-----	
1556		-----		-----	
1586	IP PM CW	1.4		0.09	
1631	IP285	2.630	R(0.01)	1.81	
1635	D1976	<1		<-0.47	
1724	IP501	1.23		-0.15	
1810		-----		-----	
1832		-----		-----	
1862	IP PM CW	1.4		0.09	
1914	IP PM CW	1.1		-0.33	
1949		-----		-----	
1950	IP PM CW	1.2		-0.19	
1967	IP470	1.12		-0.30	
1986	IP PM CW	1.35		0.02	
1995		-----		-----	
6016		-----		-----	

6021	IP PM CW	1.25	-0.12
6025	IP470	1.4	0.09
6026	IP PM CW	0.85	-0.68
6054		-----	-----
6057	IP PM CW	1.4	0.09

		Only IP PM CW data:
	normality	OK	not OK
	n	45	19
	outliers	4	0
	mean (n)	1.338	1.335
	st.dev. (n)	0.2036	0.1727
	R(calc.)	0.570	0.483
	R(IP501:05)	2.000	n.a.
	Compare		
	R(IP470:05)	3.771	

Application range IP501/IP470: 1 – 400 mg/kg
Application range IP PM CW/04: 0.1 – 10 mg/kg





Determination of Simulated Distillation acc. to ASTM D6352 on sample #16270; result in °C

lab	method	IBP	10% rec	30% rec	50% rec	70% rec	90% rec	FBP
52	D7213	269.5	360.0	409.0	445.0	486.0	542.5	635.5
62		-----	-----	-----	-----	-----	-----	-----
120		-----	-----	-----	-----	-----	-----	-----
131		-----	-----	-----	-----	-----	-----	-----
133		-----	-----	-----	-----	-----	-----	-----
140		-----	-----	-----	-----	-----	-----	-----
150	D6352	266.0	357.0	405.5	441.5	483.5	542.0	679.0
158		-----	-----	-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----	-----	-----
171		-----	-----	-----	-----	-----	-----	-----
225		-----	-----	-----	-----	-----	-----	-----
311	D6352	266.5	357.5	406.0	441.5	483.5	542.0	***738.5*** R(5)
313		-----	-----	-----	-----	-----	-----	-----
317	D6352	270.0 C	358.5 C	***463.5*** C,R(1)	439.5 C	478.5 C	535.0 C	636.0 C
323	D6352	274.8	357.3	404.6	439.9	478.7	535.5	632.7
333		-----	-----	-----	-----	-----	-----	-----
336		-----	-----	-----	-----	-----	-----	-----
340		-----	-----	-----	-----	-----	-----	-----
356		-----	-----	-----	-----	-----	-----	-----
371		-----	-----	-----	-----	-----	-----	-----
372		-----	-----	-----	-----	-----	-----	-----
399		-----	-----	-----	-----	-----	-----	-----
402		-----	-----	-----	-----	-----	-----	-----
445	D7169	264.7	357.6	405.7	441.3	482.4	542.1	672.3
463		-----	-----	-----	-----	-----	-----	-----
494	D6352	259.6	357.2	405.3	441.1	482.6	541.6	697.0
608		-----	-----	-----	-----	-----	-----	-----
621		-----	-----	-----	-----	-----	-----	-----
657	D6352	***225.0*** R(1)	354.0	402.0	438.0	479.0	538.0	633.0
663		-----	-----	-----	-----	-----	-----	-----
704		-----	-----	-----	-----	-----	-----	-----
732		-----	-----	-----	-----	-----	-----	-----
743		-----	-----	-----	-----	-----	-----	-----
781		-----	-----	-----	-----	-----	-----	-----
784		-----	-----	-----	-----	-----	-----	-----
785		-----	-----	-----	-----	-----	-----	-----
791		-----	-----	-----	-----	-----	-----	-----
873		-----	-----	-----	-----	-----	-----	-----
874		-----	-----	-----	-----	-----	-----	-----
875		-----	-----	-----	-----	-----	-----	-----
970		-----	-----	-----	-----	-----	-----	-----
994		-----	-----	-----	-----	-----	-----	-----
995		-----	-----	-----	-----	-----	-----	-----
997		-----	-----	-----	-----	-----	-----	-----
1016	D7169	267.0	360.0	409.8	***448.0*** R(1)	485.4 C	547.6 C	***>750*** R(1)
1065	D6352	270.2	357.0	404.8	440.0	480.4	538.0	656.2
1081	IP480	267.6	357.6	405.6	441.2	482.6	542.0	663.0
1108	D6352	269.5	355.5	403.0	438.5	482.5	545.0	691.5
1134		-----	-----	-----	-----	-----	-----	-----
1161		-----	-----	-----	-----	-----	-----	-----
1191		-----	-----	-----	-----	-----	-----	-----
1212		-----	-----	-----	-----	-----	-----	-----
1229		-----	-----	-----	-----	-----	-----	-----
1297	D6352	256.8	355.4	403.8	439.0	479.4	547.4	649.2
1300		-----	-----	-----	-----	-----	-----	-----
1389		-----	-----	-----	-----	-----	-----	-----
1394		-----	-----	-----	-----	-----	-----	-----
1397	D6352	253.0	357.0	406.0	441.0	481.0	538.0	615.0
1455		-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----
1556		-----	-----	-----	-----	-----	-----	-----
1586		-----	-----	-----	-----	-----	-----	-----
1631	D7169	262.4	356.4	403.7	438.4	478.6	536.8	645.5
1635	D2887	241	355	404	440	481	540	624
1724	D7169	274.4	358.6	405.3	440.1	480.7	539.7	644.7
1810	D7213	261.4	356.6	403.4	438.4	476.4	528.6	581.8
1832		-----	-----	-----	-----	-----	-----	-----
1862		-----	-----	-----	-----	-----	-----	-----
1914	D7169	263	356	403	438	477	534	606
1949	D6352	248.8	359.6	407.6	443.2	485.0	545.0	665.6
1950		-----	-----	-----	-----	-----	-----	-----
1967		-----	-----	-----	-----	-----	-----	-----
1986		-----	-----	-----	-----	-----	-----	-----
1995		-----	-----	-----	-----	-----	-----	-----
6016		-----	-----	-----	-----	-----	-----	-----

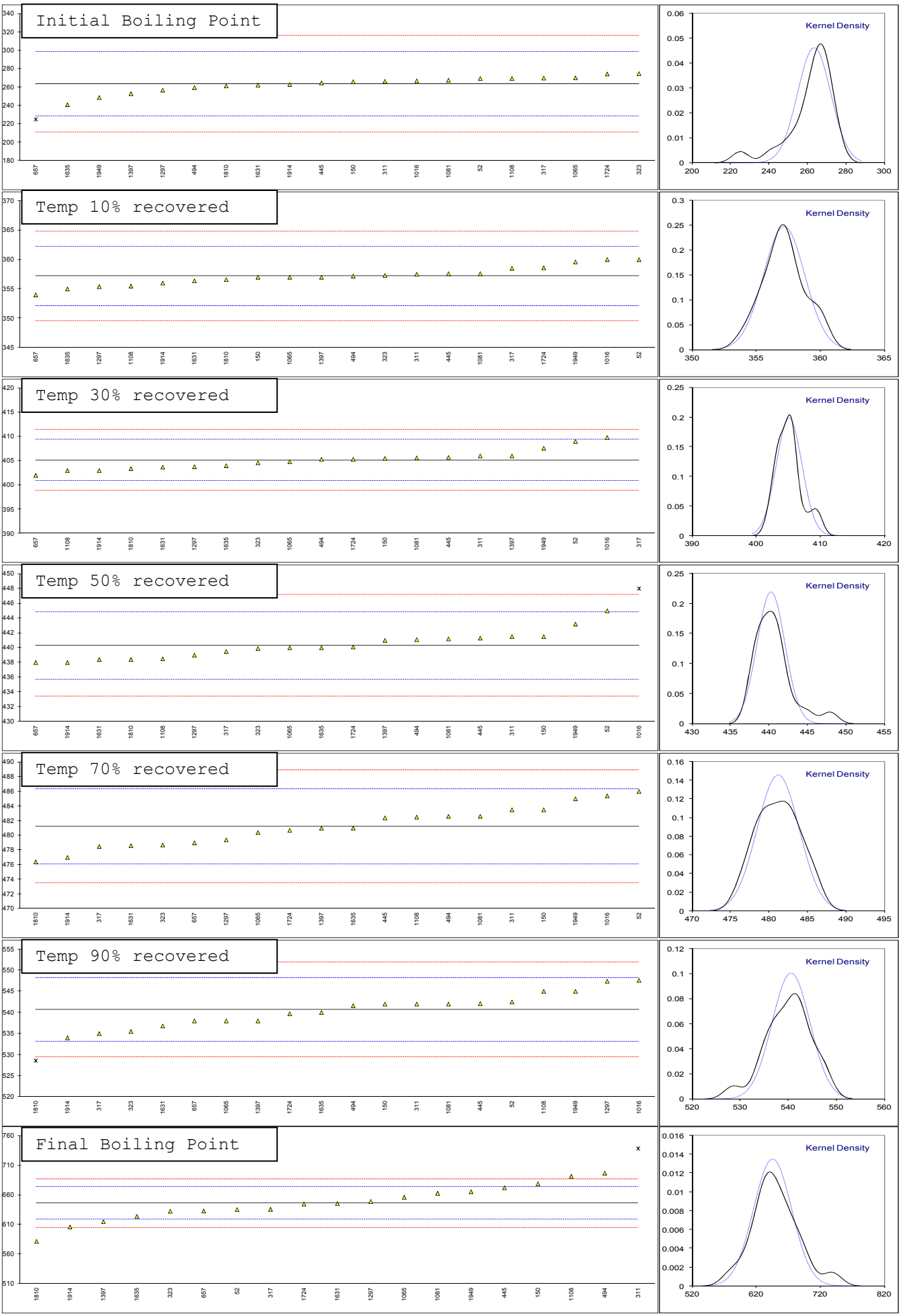
6021	-----	-----	-----	-----	-----	-----	-----
6025	-----	-----	-----	-----	-----	-----	-----
6026	-----	-----	-----	-----	-----	-----	-----
6054	-----	-----	-----	-----	-----	-----	-----
6057	-----	-----	-----	-----	-----	-----	-----
normality	suspect	OK	OK	suspect	OK	OK	OK
n	19	20	19	19	20	19	18
outliers	1	0	1	1	0	1	1
mean (n)	263.48	357.19	405.16	440.29	481.21	540.64	646.00
st.dev. (n)	8.660	1.610	2.006	1.827	2.741	3.969	29.669
R(calc.)	24.25	4.51	5.62	5.12	7.68	11.11	83.07
R(D6352:15)	49.10	7.10	5.90	6.40	7.20	10.50	38.10

Lab 317 : First reported 362.5, 409.5, 439.5, 463.5

Lab 1016: First reported 493, 569.8

z-scores

lab	IBP	10% rec	30% rec	50% rec	70% rec	90% rec	FBP
52	0.34	1.11	1.82	2.06	1.86	0.50	-0.77
150	0.14	-0.07	0.16	0.53	0.89	0.36	2.43
311	0.17	0.12	0.40	0.53	0.89	0.36	6.80
317	0.37	0.52	27.69	-0.35	-1.05	-1.50	-0.73
323	0.65	0.04	-0.27	-0.17	-0.98	-1.37	-0.98
445	0.07	0.16	0.25	0.44	0.46	0.39	1.93
494	-0.22	0.00	0.06	0.35	0.54	0.26	3.75
657	-2.19	-1.26	-1.50	-1.00	-0.86	-0.70	-0.96
1016	0.20	1.11	2.20	3.37	1.63	1.86	>7.64
1065	0.38	-0.07	-0.17	-0.13	-0.32	-0.70	0.75
1081	0.23	0.16	0.21	0.40	0.54	0.36	1.25
1108	0.34	-0.67	-1.03	-0.79	0.50	1.16	3.34
1297	-0.38	-0.71	-0.65	-0.57	-0.70	1.80	0.24
1397	-0.60	-0.07	0.40	0.31	-0.08	-0.70	-2.28
1631	-0.06	-0.31	-0.69	-0.83	-1.02	-1.02	-0.04
1635	-1.28	-0.86	-0.55	-0.13	-0.08	-0.17	-1.62
1724	0.62	0.56	0.06	-0.09	-0.20	-0.25	-0.10
1810	-0.12	-0.23	-0.84	-0.83	-1.87	-3.21	-4.72
1914	-0.03	-0.47	-1.03	-1.00	-1.64	-1.77	-2.94
1949	-0.84	0.95	1.16	1.27	1.47	1.16	1.44


Initial Boiling Point
Kernel Density
Temp 10% recovered
Kernel Density
Temp 30% recovered
Kernel Density
Temp 50% recovered
Kernel Density
Temp 70% recovered
Kernel Density
Temp 90% recovered
Kernel Density
Final Boiling Point
Kernel Density

Determination of Distillation acc. to ASTM D1160 on sample #16270; result in °C

lab	method	IBP	10% rec	30% rec	50% rec	70% rec	90% rec	FBP
52		-----	-----	-----	-----	-----	-----	-----
62		-----	-----	-----	-----	-----	-----	-----
120	D1160	299.4	364.7	405.7	442.4	477.5	527.4	569.6
131		-----	-----	-----	-----	-----	-----	-----
133		-----	-----	-----	-----	-----	-----	-----
140		-----	-----	-----	-----	-----	-----	-----
150		-----	-----	-----	-----	-----	-----	-----
158		-----	-----	-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----	-----	-----
171	D1160	327.7	376.5	412.3	444.1	480.4	532.3	554.6
225		-----	-----	-----	-----	-----	-----	-----
311		295.9	377.8	413.8	445.8	483.5	544.0	551.9
313		-----	-----	-----	-----	-----	-----	-----
317		-----	-----	-----	-----	-----	-----	-----
323	D1160	304	374	410	444	480	542	-----
333		-----	-----	-----	-----	-----	-----	-----
336		-----	-----	-----	-----	-----	-----	-----
340		-----	-----	-----	-----	-----	-----	-----
356	D1160	316	389	425	455	492	554	582
371	D1160	-----	-----	-----	-----	-----	-----	-----
372	D1160	290	382	420	452	492	552	-----
399		-----	-----	-----	-----	-----	-----	-----
402		-----	-----	-----	-----	-----	-----	-----
445	D1160	251.2	372.1	413.2	446.0	482.9	-----	533.5
463	D1160	280	375	411	441	476	531	532
494	D1160	300.8	372.8	409.9	442.1	480.7	542.5	544.4
608		-----	-----	-----	-----	-----	-----	-----
621		-----	-----	-----	-----	-----	-----	-----
657	D1160	268.1	376.0	414.1	445.8	481.0	539.4	545.7
663		-----	-----	-----	-----	-----	-----	-----
704	D1160	298	381	416	447	482	539	573
732		-----	-----	-----	-----	-----	-----	-----
743		-----	-----	-----	-----	-----	-----	-----
781	D1160	248.3	371.1	413.3	446.9	486.1	542.0	553
784		-----	-----	-----	-----	-----	-----	-----
785		-----	-----	-----	-----	-----	-----	-----
791		-----	-----	-----	-----	-----	-----	-----
873	D1160	266.2	368.7	409.1	438.1	474.3	534.0	550.2
874	D1160	267	371	410	443	478	538	551
875		-----	-----	-----	-----	-----	-----	-----
970		-----	-----	-----	-----	-----	-----	-----
994	D1160	246.0	371.0	410.0	444.0	486.0	542.0	545.0
995		-----	-----	-----	-----	-----	-----	-----
997		-----	-----	-----	-----	-----	-----	-----
1016		-----	-----	-----	-----	-----	-----	-----
1065		-----	-----	-----	-----	-----	-----	-----
1081		-----	-----	-----	-----	-----	-----	-----
1108	D1160	308.3	375.9	413.7	446.7	484.0	542.6	563.7
1134		-----	-----	-----	-----	-----	-----	-----
1161		-----	-----	-----	-----	-----	-----	-----
1191		-----	-----	-----	-----	-----	-----	-----
1212	D1160	318	387	423	454	490	545	569
1229		-----	-----	-----	-----	-----	-----	-----
1297		-----	-----	-----	-----	-----	-----	-----
1300	D1160	302.47 C	394.51 C	426.23 C	456.78 C	488.25 C	537.18 C	552.15
1389		-----	-----	-----	-----	-----	-----	-----
1394		-----	-----	-----	-----	-----	-----	-----
1397	D1160	304.2	379.0	413.4	442.9	481.1	539.4	564.5
1455	D1160	294.7	373.0	409.6	441.5	479.0	539.7	545.5
1510		-----	-----	-----	-----	-----	-----	-----
1556		-----	-----	-----	-----	-----	-----	-----
1586	D1160	317	383	420	448	484	542	572
1631	D1160	-----	377.4	415.6	448.9	486.5	545.4	549.9
1635	D1160	178.6 R(1)	379.7	417.1	446.1	480.2	530.2	576.2
1724	D1160	300.1	381.2	416.9	448.7	483.9	538.5	-----
1810	D1160	236.6	378.6	413.0	442.6	477.2	520.0	567.8
1832		-----	-----	-----	-----	-----	-----	-----
1862	D1160	269.0	372.0	411.0	445.0	481.0	541.0	563.0
1914	D1160	251	364	412	445	483	540	549
1949	D1160	288.5	377.6	417.0	448.1	483.1	538.7	549.2
1950	D1160	270 C	365	409	444	479	539	548
1967	D1160	299	377	416	451	493	-----	538
1986	D1160	288	382	415	448	483	537	552
1995		-----	-----	-----	-----	-----	-----	-----
6016		-----	-----	-----	-----	-----	-----	-----

6021	D1160	244		369		410		443		481		538	549
6025		237		368		411		444		482		537	543
6026	D1160	236		371		411		443		480		536	547
6054		-----		-----		-----		-----		-----		-----	-----
6057	D1160	305	ex	390	ex	432	R(1)	464	R(1)	504	R(1)	-----	-----
	normality	OK		OK		suspect		OK		OK		not OK	OK
	n	32		34		34		34		34		32	31
	outliers	1 (+1 excl)		0 (+1 excl)		1		1		1		0	0
	mean (n)	281.95		375.81		413.94		446.01		482.70		538.95	554.35
	st.dev. (n)	27.150		6.868		4.689		4.113		4.507		6.457	12.529
	R(calc.)	76.02		19.23		13.13		11.52		12.62		18.08	35.08
	R(D1160:15)	49.45		17.06		11.72		11.66		10.16		22.46	26.89

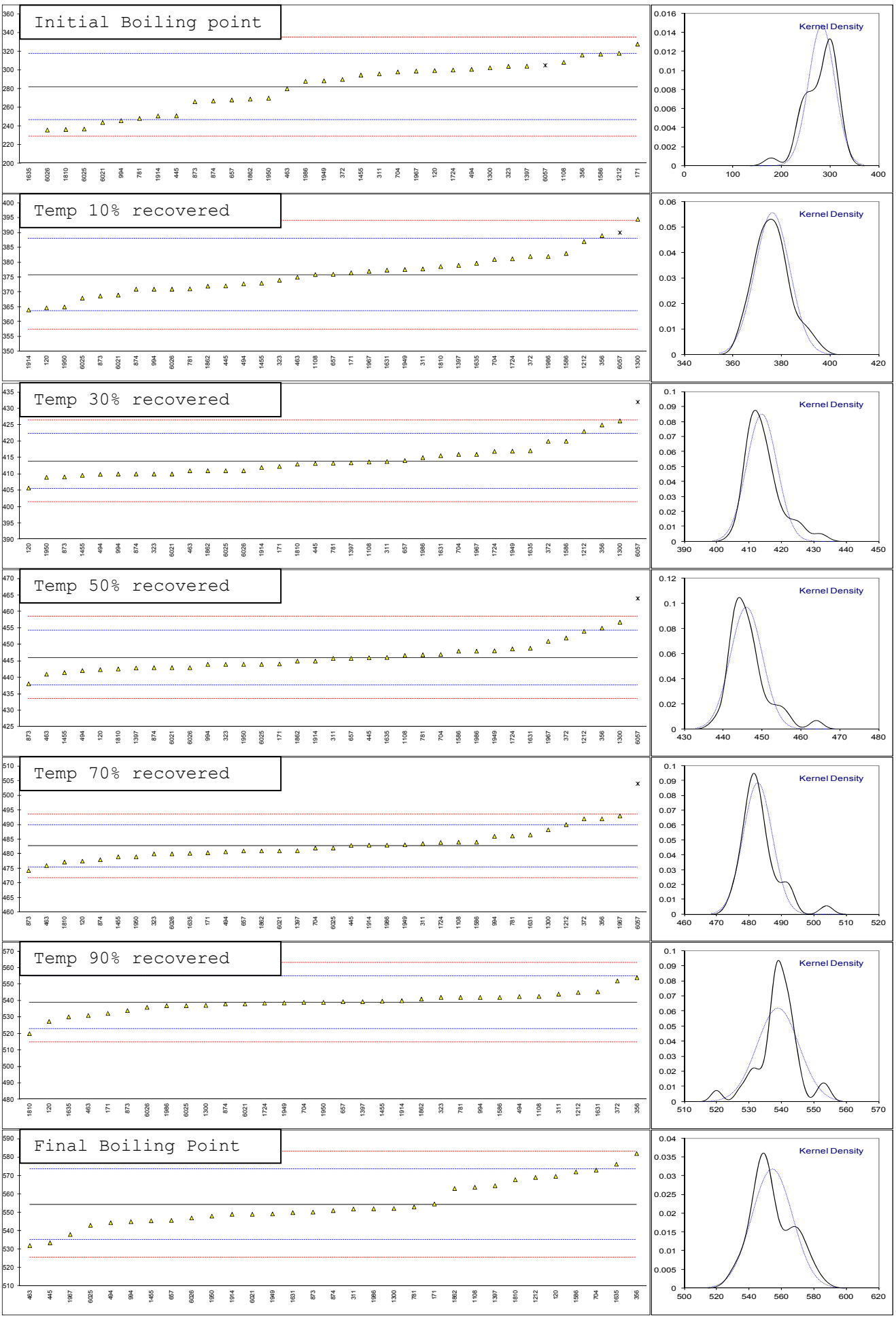
Lab 1300: first reported 184.62, 350.58, 385.18, 416.23, 452.97, 505.42

Lab 1950: first reported 210

Lab 6057: reported results for IBP and 10% rec. are exluded as thre other results were statistical outliers. Test results are not independent of each other.

z-scores

lab	IBP	10% rec	30% rec	50% rec	70% rec	90% rec	FBP
120	0.99	-1.82	-1.97	-0.87	-1.43	-1.44	1.59
171	2.59	0.11	-0.39	-0.46	-0.63	-0.83	0.03
311	0.79	0.33	-0.03	-0.05	0.22	0.63	-0.26
323	1.25	-0.30	-0.94	-0.48	-0.74	0.38	-----
356	1.93	2.16	2.64	2.16	2.56	1.88	2.88
372	0.46	1.02	1.45	1.44	2.56	1.63	-----
445	-1.74	-0.61	-0.18	0.00	0.06	-----	-2.17
463	-0.11	-0.13	-0.70	-1.20	-1.84	-0.99	-2.33
494	1.07	-0.49	-0.96	-0.94	-0.55	0.44	-1.04
657	-0.78	0.03	0.04	-0.05	-0.47	0.06	-0.90
704	0.91	0.85	0.49	0.24	-0.19	0.01	1.94
781	-1.91	-0.77	-0.15	0.21	0.94	0.38	-0.14
873	-0.89	-1.17	-1.16	-1.90	-2.31	-0.62	-0.43
874	-0.85	-0.79	-0.94	-0.72	-1.29	-0.12	-0.35
994	-2.04	-0.79	-0.94	-0.48	0.91	0.38	-0.97
1108	1.49	0.01	-0.06	0.16	0.36	0.46	0.97
1212	2.04	1.84	2.16	1.92	2.01	0.75	1.53
1300	1.16	3.07	2.94	2.59	1.53	-0.22	-0.23
1397	1.26	0.52	-0.13	-0.75	-0.44	0.06	1.06
1455	0.72	-0.46	-1.04	-1.08	-1.02	0.09	-0.92
1586	1.98	1.18	1.45	0.48	0.36	0.38	1.84
1631	-----	0.26	0.40	0.69	1.05	0.80	-0.46
1635	-5.85	0.64	0.76	0.02	-0.69	-1.09	2.27
1724	1.03	0.88	0.71	0.65	0.33	-0.06	-----
1810	-2.57	0.46	-0.22	-0.82	-1.51	-2.36	1.40
1862	-0.73	-0.63	-0.70	-0.24	-0.47	0.26	0.90
1914	-1.75	-1.94	-0.46	-0.24	0.08	0.13	-0.56
1949	0.37	0.29	0.73	0.50	0.11	-0.03	-0.54
1950	-0.68	-1.77	-1.18	-0.48	-1.02	0.01	-0.66
1967	0.97	0.19	0.49	1.20	2.84	-----	-1.70
1986	0.34	1.02	0.25	0.48	0.08	-0.24	-0.24
6021	-2.15	-1.12	-0.94	-0.72	-0.47	-0.12	-0.56
6025	-2.55	-1.28	-0.70	-0.48	-0.19	-0.24	-1.18
6026	-2.60	-0.79	-0.70	-0.72	-0.74	-0.37	-0.77
6057	1.31	2.33	4.31	4.32	5.87	-----	-----


Initial Boiling point
Kernel Density
Temp 10% recovered
Kernel Density
Temp 30% recovered
Kernel Density
Temp 50% recovered
Kernel Density
Temp 70% recovered
Kernel Density
Temp 90% recovered
Kernel Density
Final Boiling Point
Kernel Density

APPENDIX 2

Number of participants per country

1 lab in	AZERBAIJAN
1 lab in	BELGIUM
2 labs in	CANADA
2 labs in	COTE D'IVOIRE
2 labs in	CROATIA
1 lab in	CZECH REPUBLIC
1 lab in	EGYPT
2 labs in	ESTONIA
2 labs in	FINLAND
3 labs in	FRANCE
2 labs in	GEORGIA
2 labs in	GERMANY
2 labs in	GREECE
1 lab in	INDONESIA
1 lab in	ISRAEL
1 lab in	ITALY
2 labs in	KAZAKHSTAN
3 labs in	LATVIA
1 lab in	MALAYSIA
2 labs in	MALTA
6 labs in	NETHERLANDS
1 lab in	OMAN
1 lab in	ROMANIA
16 labs in	RUSSIAN FEDERATION
1 lab in	SINGAPORE
1 lab in	SPAIN
3 labs in	SWEDEN
1 lab in	THAILAND
3 labs in	TURKEY
2 labs in	UKRAINE
3 labs in	UNITED KINGDOM
8 labs in	UNITED STATES OF AMERICA

APPENDIX 3

Abbreviations

C = final test result after checking of first reported suspect test result
D(0.01) = outlier in Dixon's outlier test
D(0.05) = straggler in Dixon's outlier test
G(0.01) = outlier in Grubbs' outlier test
G(0.05) = straggler in Grubbs' outlier test
DG(0.01) = outlier in Double Grubbs' outlier test
DG(0.05) = straggler in Double Grubbs' outlier test
R(0.01),R(1) = outlier in Rosner's outlier test
R(0.05),R(5) = straggler in Rosner's outlier test
E = probably an error in calculations
U = test result probably reported in a different unit
W = test result withdrawn on request of participant
ex = test result excluded from statistical evaluation
n.a. = not applicable
n.e. = not evaluated
n.d. = not detected
fr. = first reported
SDS = safety data sheet

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