Results of Proficiency Test
Fuel Oil
June 2020

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Author: ing. R.J. Starink
Correctors: ing. A.S. Noordman – de Neef & ing. M. Meijer
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1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies (iis) organizes a proficiency test for Fuel Oil every year and twice per year since 2016. During the annual proficiency testing program of 2019/2020, it was decided to continue twice per year with the round robin for the analysis of Fuel Oil in accordance with the latest version of the specifications ISO8217 and ASTM D396.

In the regular round robin of Fuel Oil 160 laboratories in 64 different countries registered for participation. In the round robin of Metals in Fuel Oil 112 laboratories in 51 different countries registered for participation. In total 165 laboratories in 64 different countries registered for one or both of these two rounds. See appendix 3 for the number of participants per country for both rounds.
In this report the results of this Fuel Oil proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory. Depending on the registration it was decided to send 1 L Fuel Oil labelled #20095 and/or 0.1 L Fuel Oil labelled #20096 specifically prepared for metal determinations.
Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PTs falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by means of questionnaires.

2.2 PROTOCOL

The protocol followed in the organization of these proficiency tests was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5). This protocol is electronically available through the iis website 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

Approximately 200 L of Fuel Oil was obtained from a supplier in Germany. After heating to 60°C and homogenization of this batch 195 amber glass bottles of 1 L were filled and labelled #20095. The homogeneity of these subsamples was checked by determination of Density at 15°C in accordance with ISO12185 on 8 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
Sample #20095-1	969.6
Sample #20095-2	969.5
Sample #20095-3	969.6
Sample #20095-4	969.5
Sample #20095-5	969.5
Sample #20095-6	969.5
Sample #20095-7	969.5
Sample #20095-8	969.5

Table 1: homogeneity test results of subsamples #20095

From the above test results the repeatability was calculated and compared with 0.3 times the reproducibility of the reference test method in agreement with the procedure of ISO13528, Annex B2 in the next table.

	Density at 15°C in kg/m^3
r (observed)	0.13
reference test method	ISO12185:96
0.3 * R (reference test method)	0.45

Table 2: evaluation of the repeatability of subsamples #20095

The calculated repeatability of sample #20095 was in agreement with 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.

For sample #20096 another batch of approximately 17 L of Fuel Oil which contains metals was obtained from a supplier in Germany. After heating to 60°C and homogenization of this batch 165 PE bottles of 0.1 L were filled and labelled #20096. The homogeneity of the subsamples was checked by determination of Nickel and Vanadium in accordance with IP501 on 8 stratified randomly selected subsamples.

	Nickel in mg/kg	Vanadium in mg/kg
Sample #20096-1	17	39
Sample #20096-2	18	39
Sample #20096-3	18	38
Sample #20096-4	20	40
Sample #20096-5	18	40
Sample #20096-6	17	34
Sample #20096-7	17	38
Sample #20096-8	18	40

Table 3: homogeneity test results of subsamples #20096

From above test results the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibility of the reference test method in agreement with the procedure of ISO13528, Annex B2 in the next table.

	Nickel in mg/kg	Vanadium in mg/kg
r (observed)	2.8	5.6
reference test method	IP470:05	IP470:05
0.3 * R (reference test method)	3.4	6.1

Table 4: evaluation of the repeatabilities of subsamples #20096

The calculated repeatabilities were in agreement with 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.

Depending on the registration of the participant the appropriate set of PT samples was sent on May 27, 2020. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

The stability of Fuel Oil packed in the amber glass and PE bottles was checked. The material was found to be sufficiently stable for the period of the proficiency test.

2.6 ANALYZES

The participants were requested to determine the following parameters:
On sample #20095: Total Acid Number, API Gravity, Ash Content, Asphaltenes, Calculated Carbon Aromaticity Index (CCAI), Carbon Residue micro method, Conradson Carbon Residue, Density at 15°C, Flash Point PMcc, Heat of Combustion (Gross and Net), Kinematic Viscosity (at 50°C and 100°C), Viscosity Stabinger (at 50°C and 100°C), Nitrogen, Pour Point (Lower, Upper and Automated), Sediment by Extraction, Total Sediment (Existent, Accelerated and Potential), Total Sulfur, Water by distillation, Water and Sediment, Vacuum Distillation at 10 mmHg but reported as AET (IBP, 5% - 50% recovered and FBP) and Total Carbon, Total Hydrogen and Total Nitrogen (CHN-analyzer).
Also, some extra information was requested about the determination of Total Acid Number.

On sample #20096: Aluminum, Silicon, Sum of Aluminum and Silicon, Iron, Nickel, Sodium, Vanadium, Calcium, Phosphorus and Zinc content.

It was explicitly requested to treat the samples as if they were routine samples and to report the test results using the indicated units on the report form and not to round the test results but report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluations.

To get comparable test results, a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the reference test methods that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis/. 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 reanalyzes). Additional or corrected test results are used for data analysis and the 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 June 2018 (iis-protocol, version 3.5).
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 ISO5725 the original test results per determination were submitted to Dixon's and/or Grubbs' and/or Rosner's outlier tests. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of 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. In this PT, the criterion of ISO13528, paragraph 9.2.1, was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.

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. EN, ISO or ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation in this interlaboratory study.

This 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 result tables of 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:

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

4 EVALUATION

Some problems were encountered with the dispatch of the samples due to COVID-19 pandemic. Therefore, the reporting time on the data entry portal was extended with another four weeks.
Twelve participants did not report any test results for sample #20095 and twenty-three participants did not report any test results for sample #20096. Not all laboratories were able to report all analyzes requested.
Finally, 153 participants reported in total 2810 numerical test results. Observed were 89 outlying test results, which is 3.2%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

Not all 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 SAMPLE AND PER TEST

In this section the reported test results are discussed per sample and per test. The test methods, which are used by the various laboratories, were taken into account for explaining the observed differences when possible and applicable. These test methods are also listed in the tables together with the reported test results. The abbreviations, used in these tables, are explained in appendix 4.

In the iis PT reports ASTM test methods are referred to with a number (e.g. D473) and an added designation for the year that the test method was adopted or revised (e.g. D473:07e1). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D473:07e1(2017)). In the test results tables of appendix 1 only the test method number and year of adoption or revision (e.g. D473:07e1) will be used.

Sample #20095

Total Acid Number: This determination was very problematic. Two statistical outliers were observed. About 60% of the participants reported to used Inflection Point (41 participants). About 15% of the participants reported to use BEP (9 participants. Unfortunately, 21 participants did not mention which determination pathway (IP/BEP and Volume) was used.
The variation in the test results was very high compared to the requirements of test method ASTM D664:18e2. Therefore, no z-scores were calculated.
ASTM D664 was updated in 2018. One of the major changes is the buffer used for in the end point detection (pH11 is changed into pH10). The solubility of Fuel Oil in either solvent mentioned in ASTM D664 can be poor. Regular cleaning of the electrodes as described in the method is recommended to obtain reliable and consistent test results.

API Gravity: This determination was problematic for a number of participants. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1298:12b(2017).

Ash Content: This determination was very problematic at an ash content of 0.016%M/M. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ISO6245:01 and ASTM D482:19.

Asphaltenes: This determination was problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of IP143:04.ASTM D6560:19 is equivalent to IP143.

Calculated Carbon Aromaticity Index: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO8217:17.

Carbon Residue micro method: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ISO10370:14.

Conradson Carbon Residue: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D189:06(2014).

Density at 15°C: This determination was problematic. Ten statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO12185:96.

Flash Point PMcc: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO2719-B:16.

Heat of Combustion (Gross): 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 D240:19.

Heat of Combustion (Net): This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D240:19.

Kinematic Viscosity at 50°C: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3104:94.

Kinematic Viscosity at 100°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 ISO3104:94.

Viscosity Stabinger at 50°C: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D7042:16e3.

Viscosity Stabinger at 100°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 D7042:16e3.

Nitrogen: 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 D5762:18a.

Pour Point Lower: 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 ISO3016:94.

Pour Point Upper: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3016:94.

Pour Point Automated: 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 D5950:14(2020).

Total Sediment by Extraction: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D473:07(2017).

Total Sediment Existent (TSE): 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 IP375:11.

Total Sediment Accelerated (TSA): 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 IP390:11. IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870:18.

Total Sediment Potential (TSP): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of IP390:11. IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870:18.

Total Sulfur: 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 ISO8754:03 and with the stricter requirements of ASTM D4294:16e1.

Water by distillation: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3733:99 or ASTM D95:13(2018).

Water and Sediment: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D1796:11(2016).

Vacuum Distillation at 10 mmHg but reported as AET: This determination was problematic for all parameters except for IBP and 20% recovered. In total four statistical outliers were observed. The calculated reproducibilities of IBP and 20% recovered after rejection of the statistical outliers is in agreement with the requirements of ASTM D1160:18. The calculated reproducibilities for the other parameters after rejection of the statistical outliers are not in agreement with the requirements of ASTM D1160:18.

CHN-Analyzer: This determination was not problematic for Carbon and Hydrogen but problematic for Nitrogen. In total two statistical outliers were observed. The calculated reproducibilities for Carbon and Hydrogen after rejection of the statistical outlier are in agreement with the requirements of ASTM D5291-ABC:16. The calculated reproducibility for Nitrogen after rejection of the statistical outlier is not in agreement with the requirements of ASTM D5291-ABC:16.

Sample #20096

Aluminum: 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 IP470:05 and IP501:05.

Silicon: 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 IP470:05 and IP501:05.

Total Al/Si: 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 IP470:05 and IP501:05.

Iron: This determination was problematic depending on the test method used. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of IP470:05 but not in agreement with the stricter requirements of IP501:05.

Nickel: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of IP470:05 and IP501:05.

Sodium: This determination was problematic depending on the test method used. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP470:05 but not in agreement with the stricter requirements of IP501:05.

Vanadium: 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 IP470:05 and IP501:05.

Calcium: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of IP470:05 and IP501:05.

Phosphorus: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP501:05.

Zinc: This determination was problematic depending on the test method used. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP470:05 but not in agreement with the stricter requirements of IP501:05.

Finally, it should be noted that proper attention for homogenization is crucial for a material such as Fuel Oil. Due to the nature of the material it is very susceptible to problems when not handled correctly. Practically every test method for the determination of metals in Fuel Oil has similar statements regarding homogenization. It is recommended to use a quality control fuel oil with known amounts of metals like Al, Fe, Si and V. This control standard may be of use to detect deviations in metals with respect to the preparation steps.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of participating laboratories. The number of significant test results, the average, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility derived from literature reference test methods (in casu ASTM and IP standards) are compared in the next tables.

Parameters	unit	n	average	2.8 * sd	R(lit)
Total Acid Number	mg KOH/g	69	0.18	0.12	(0.04)
API Gravity		79	14.3	0.3	0.5
Ash Content	%M/M	100	0.016	0.014	0.005
Asphaltenes	%M/M	61	2.37	0.88	0.47
Calc. Carbon Aromaticity Index		55	830.8	1.4	2.2

Parameters	unit	n	average	2.8 * sd	R(lit)
Carbon Residue micro method	%M/M	93	10.05	1.09	1.14
Conradson Carbon Residue	%M/M	23	10.46	1.38	1.67
Density at 15°C	kg/m^3	122	969.7	1.9	1.5
Flash Point PMcc	°C	119	111.0	6.7	6
Heat of Combustion (Gross)	MJ/kg	65	43.41	0.41	0.40
Heat of Combustion (Net)	MJ/kg	57	41.02	0.41	0.40
Kinematic Viscosity at 50°C	mm^2/s	106	370.7	19.9	27.4
Kinematic Viscosity at 100°C	mm^2/s	87	33.61	1.22	1.66
Viscosity Stabinger at 50°C	mm^2/s	24	367.7	16.5	37.8
Viscosity Stabinger at 100°C	mm^2/s	22	33.52	0.83	2.41
Nitrogen	mg/kg	28	3139	1145	835
Pour Point, Lower	°C	47	23.8	11.2	6.6
Pour Point, Upper	°C	74	27.9	4.6	6.6
Pour Point Automated, Δ3°C	°C	30	26.8	3.7	6.1
Total Sediment by Extraction	%M/M	61	0.013	0.021	0.036
Total Sediment Existent (TSE)	%M/M	60	0.011	0.013	0.030
Total Sediment Accel. (TSA)	%M/M	57	0.012	0.010	0.032
Total Sediment Potential (TSP)	%M/M	59	0.011	0.013	0.031
Total Sulfur	%M/M	131	0.89	0.07	0.08
Water by distillation	%V/V	70	0.04	0.07	0.2
Water and Sediment	%V/V	37	0.05	0.08	0.11
Vacuum Distillation at 10 mmHg but reported at AET					
Initial Boiling Point	°C	16	209.1	43.7	49
5% recovered	°C	18	287.4	55.8	27.7
10% recovered	°C	18	353.3	53.3	22.1
20% recovered	°C	17	409.8	13.6	16.4
30% recovered	°C	18	432.8	16.6	14.1
40% recovered	°C	18	465.1	30.2	18.8
50% recovered	°C	4	544.9	(99.6)	(21.8)
Final Boiling Point	°C	17	515.1	90.0	27
CHN analyzer					
Total Carbon	%M/M	30	87.3	1.7	2.4
Total Hydrogen	%M/M	28	11.1	0.7	0.8
Total Nitrogen	%M/M	26	0.39	0.32	0.10

Table 5: reproducibilities of tests on sample #20095

Elements	unit	n	average	2.8 * sd	R(lit)
Aluminum as Al	mg/kg	83	14.1	7.6	4.6
Silicon as Si	mg/kg	84	15.1	9.9	8.5
Total Aluminum + Silicon	mg/kg	80	29.0	15.8	9.7
Iron as Fe	mg/kg	78	21.3	9.5	11.8
Nickel as Ni	mg/kg	81	18.1	7.8	11.5
Sodium as Na	mg/kg	76	10.5	5.6	5.4
Vanadium as V	mg/kg	88	40.2	15.0	20.7
Calcium as Ca	mg/kg	80	8.0	5.5	4.5
Phosphorus as P	mg/kg	58	2.1	1.4	1.9
Zinc as Zn	mg/kg	67	1.8	1.0	0.9

Table 6: reproducibilities of tests on sample #20096

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF JUNE 2020 WITH PREVIOUS PTS

	June 2020	December 2019	June 2019	December 2018	June 2018
Number of reporting laboratories	153	137	147	134	149
Number of test results	2810	2945	2713	2948	2631
Number of statistical outliers	89	115	86	92	88
Percentage of statistical outliers	3.2%	3.9%	3.2%	3.1%	3.3%

Table 7: comparison with previous proficiency tests

The performance of the determinations of the proficiency tests was compared against the requirements of the reference test methods. The conclusions are given in the following table.

Determination	June 2020	December 2019	June 2019	December 2018	June 2018
Total Acid Number	(--)	(--)	(--)	+	-
API Gravity	+	++	+	++	+
Ash Content	--	--	--	-	-
Asphaltenes	--	(--)	-	-	-
Calc. Carbon Aromaticity Index	+	+	+	+	++
Carbon Residue micro method	+	+	+	+	+
Conradson Carbon Residue	+	+/-	+/-	+	+/-
Density at 15°C	-	+	-	+	+
Flash Point PMcc	-	+	+/-	+/-	-
Heat of Combustion (Gross)	+/-	+	+	+	+/-

Determination	June 2020	December 2019	June 2019	December 2018	June 2018
Heat of Combustion (Net)	+/-	+/-	+	+	+/-
Kinematic Viscosity at 50°C	+	-	+	+/-	+
Kinematic Viscosity at 100°C	+	+	+/-	+	+
Viscosity Stabinger at 50°C	++	+	++	+	++
Viscosity Stabinger at 100°C	++	++	++	+	++
Nitrogen	-	-	+/-	-	-
Pour Point Lower	-	+	-	-	+/-
Pour Point Upper	+	+	-	-	-
Pour Point Automated, Δ3°C	+	+/-	-	-	-
Total Sediment by Extraction	+	+	+	++	+
Total Sediment Existent (TSE)	++	++	++	++	++
Total Sediment Accel. (TSA)	++	++	++	++	++
Total Sediment Potential (TSP)	++	++	++	++	++
Total Sulfur	+	+	+	+/-	+/-
Water by distillation	++	++	++	++	++
Water and Sediment	+	+	++	+	+
Distillation at 10 mmHg to AET	-	+/-	-	+	+/-
Total Carbon	+	+	+	+	+
Total Hydrogen	+	+	+	+	+
Total Nitrogen	--	+	-	-	++
Aluminum as Al	-	+/-	+/-	+/-	-
Silicon as Si	-	+	+	+/-	-
Total Aluminum + Silicon	-	+/-	+/-	+/-	-
Iron as Fe	+	+	+	++	+/-
Nickel as Ni	+	++	++	++	-
Sodium as Na	+/-	+	+	+	-
Vanadium as V	+	+	+	+	+
Calcium as Ca	-	-	-	+/-	-
Phosphorus as P	+	+	+/-	+	+/-
Zinc as Zn	-	+/-	+/-	+	-

Table 8: comparison determinations against the reference test methods

The evaluations between brackets no -z-scores are calculated

The following performance categories were used:

++: group performed much better than the reference test method
+ : group performed better than the reference test method
+/-: group performance equals the reference test method
- : group performed worse than the reference test method
-- : group performed much worse than the reference test method
n.e.: not evaluated

APPENDIX 1

Determination of Total Acid Number on sample #20095; results in mg KOH/g

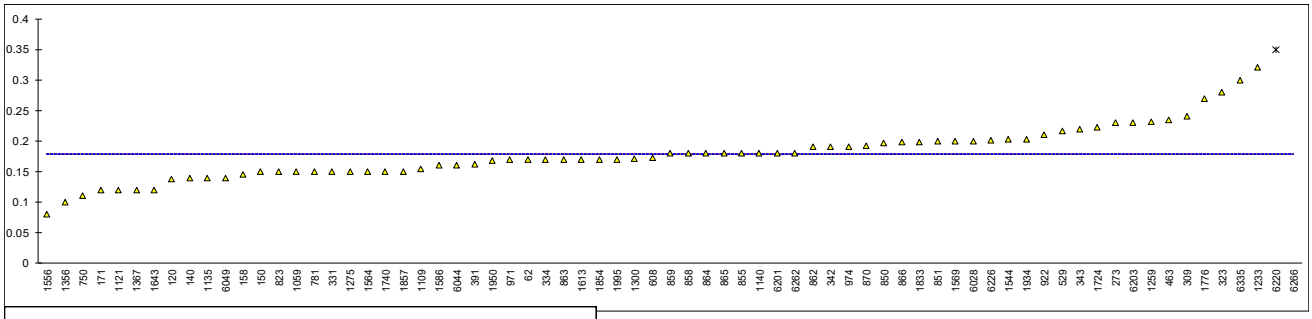
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D664-A	0.17		-----	870	D664-A	0.192		-----
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120	D664-A	0.138		-----	912		-----		-----
140	D664-B	0.14		-----	913		-----		-----
150	D664-A	0.15		-----	922	D664-A	0.21		-----
154		-----		-----	962		-----		-----
158	D664-A	0.145		-----	963		-----		-----
159		-----		-----	971	D664-A	0.17		-----
168		-----		-----	974	D664-A	0.19		-----
169		-----		-----	982		-----		-----
171	D664-A	0.12		-----	1019		-----		-----
175		-----		-----	1059	ISO6619	0.15		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109	D664-A	0.155		-----
225		-----		-----	1121	D664-A	0.12		-----
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	D664-A	0.14		-----
253		-----		-----	1140	IP177	0.18		-----
254		-----		-----	1177		-----		-----
273	D664-A	0.23		-----	1191		-----		-----
309	D664-A	0.24		-----	1229		-----		-----
311		-----		-----	1233	D664-A	0.32		-----
313		-----		-----	1259	D664-A	0.232		-----
323	D664-A	0.28		-----	1266		-----		-----
331	D664Mod.	0.15		-----	1269		-----		-----
333		-----		-----	1275	IP177	0.15		-----
334	D664-A	0.17		-----	1300	D664-A	0.1717		-----
335		-----		-----	1356	D664-A	0.1		-----
336		-----		-----	1367	IP177	0.12		-----
339		-----		-----	1412		-----		-----
342	D664-A	0.19		-----	1438		-----	W	-----
343	D664-A	0.22		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371		-----		-----	1510		-----		-----
391	D664-A	0.162		-----	1544	D664-A	0.203		-----
398		-----		-----	1556	D664-A	0.08		-----
399		-----		-----	1564	D664-A	0.15		-----
444		-----		-----	1569	D664-A	0.20		-----
463	D664-A	0.235		-----	1586	D664-A	0.16		-----
511		-----		-----	1613	D664-A	0.170		-----
529	D664-A	0.2169		-----	1631		-----		-----
541		-----		-----	1643	D664-A	0.120	C	-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724	D664-A	0.222		-----
575		-----		-----	1728		-----		-----
603		-----		-----	1740	D664-A	0.15		-----
604		-----		-----	1761		-----		-----
608	D664-A	0.173	C	-----	1776	D664-A	0.27		-----
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
750	D664-A	0.1105		-----	1833	D664-A	0.1983		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	D664-A	0.17		-----
759		-----		-----	1857	D664-A	0.150		-----
781	D664-A	0.15		-----	1862		-----		-----
785		-----		-----	1906		-----		-----
823	D664-A	0.15		-----	1934	D664-A	0.2035		-----
825		-----		-----	1942		-----		-----
850	D664-A	0.197		-----	1943		-----		-----
851	D664-A	0.200		-----	1950	D664-A	0.168		-----
855	D664-A	0.18		-----	1956		-----		-----
858	D664-A	0.18		-----	1964		-----		-----
859	D664-A	0.18		-----	1995	D664-A	0.17		-----
862	D664-A	0.19		-----	6016		-----		-----
863	D664-A	0.17		-----	6026		-----		-----
864	D664-A	0.18		-----	6028	D664-A	0.2	C	-----
865	GB/T7304	0.180		-----	6039		-----		-----
866	D664-A	0.198		-----	6044	D664-A	0.160	C	-----

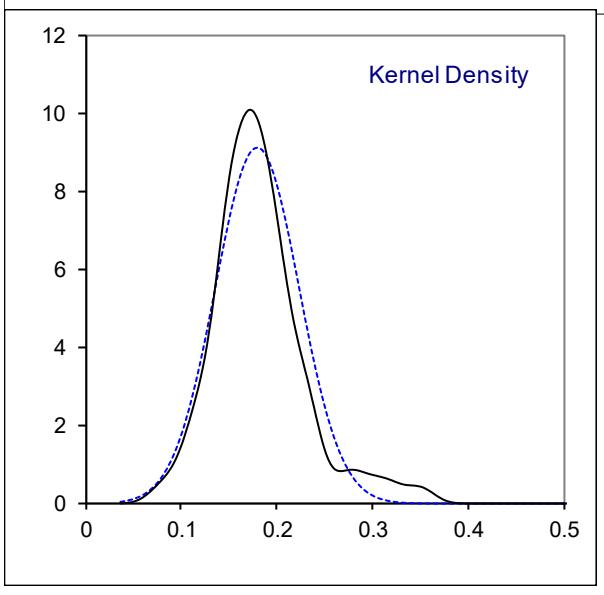
Lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	D664-A	0.14		-----	6203	D664-A	0.23		-----
6057		-----		-----	6220	D664-A	0.35	C,R(0.05)	-----
6075		-----		-----	6226	D664-A	0.201		-----
6092		-----		-----	6262	D664-A	0.18		-----
6143		-----		-----	6266	D664-A	1.178	R(0.01)	-----
6192		-----		-----	6308		-----		-----
6201	D664-A	0.18		-----	6335	D664-A	0.30		-----

			IP only	BEP only
	normality	suspect	not OK	OK
	n	69	40	9
	outliers	2	1	0
	mean (n)	0.1793	0.1854	0.17767
	st.dev. (n)	0.04379	0.04426	0.05597
	R(calc.)	0.1226	0.1239	0.1567
	st.dev.(D664-A:18e2 IP 125 mL)	(0.01306)	---	---
	R(D664-A:18e2 IP 125 mL)	(0.0364)	(0.0377)	---
compare				
	R(D664-A:18e2 IP 60 mL)	(0.0356)	(0.0366)	---
	R(D664-A:18e2 BEP 125 mL)	(0.0519)	---	(0.0514)
	R(D664-A:18e2 BEP 60 mL)	(0.1036)	---	(0.1027)

application range: 0.1 – 150 mg KOH/g

Lab 608: first reported 0.082
Lab 1438: test result was withdrawn, reported 1.908
Lab 1643: first reported 0.066
Lab 6028: first reported 2.14
Lab 6044: first reported 0.375
Lab 6220: first reported 0.53





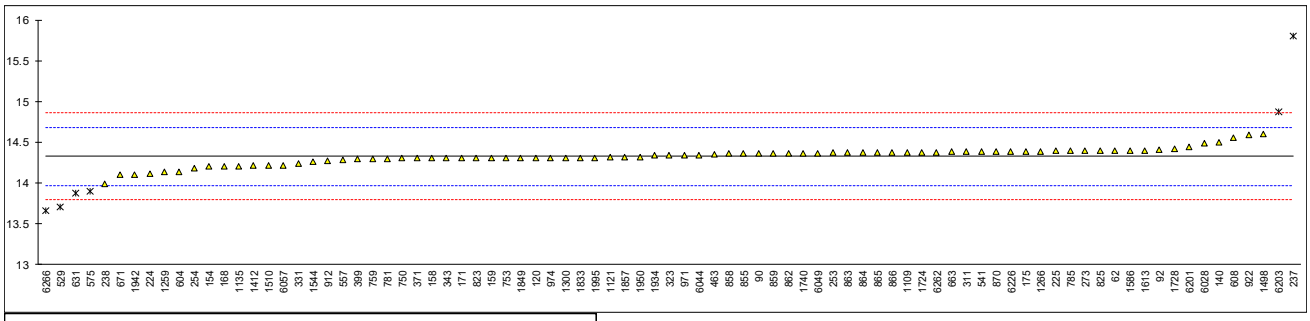
Determination of API Gravity on sample #20095

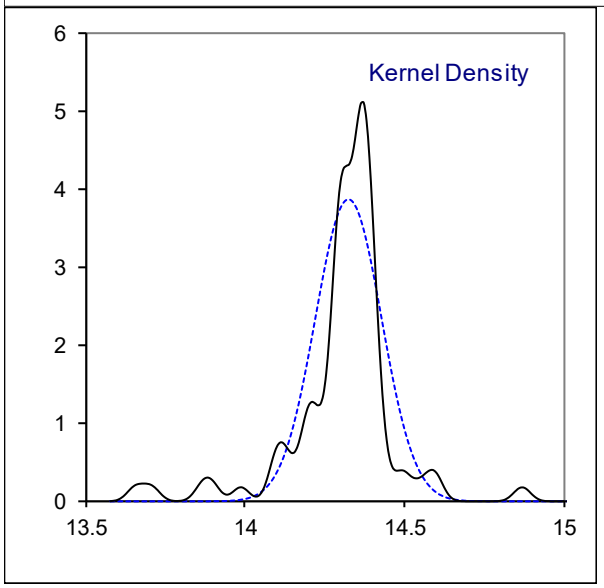
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4052	14.4		0.41	870	D1298	14.38		0.30
90	D4052	14.36		0.19	875		-----		-----
92	D1298	14.41		0.47	886		-----		-----
120	D4052	14.31		-0.09	912	D1298	14.27		-0.32
140	D4052	14.5		0.97	913		-----		-----
150		-----		-----	922	D1298	14.59		1.48
154	D4052	14.2		-0.71	962		-----		-----
158	D4052	14.3		-0.15	963		-----		-----
159	D1298	14.30		-0.15	971	ISO12185	14.34		0.08
168	D287	14.2		-0.71	974	Calculation	14.31		-0.09
169		-----		-----	982		-----		-----
171	D4052	14.3		-0.15	1019		-----		-----
175	D4052	14.39		0.36	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224	D1298	14.11		-1.21	1109	D287	14.37		0.24
225	D4052	14.4		0.41	1121	D4052	14.32		-0.04
228		-----		-----	1126		-----		-----
237	D4052	15.80	R(0.01)	8.25	1131		-----		-----
238	D4052	13.99		-1.88	1135	D4052	14.20		-0.71
253	D4052	14.37		0.24	1140		-----		-----
254	D1298	14.18		-0.82	1177		-----		-----
273	D4052	14.4	C	0.41	1191		-----		-----
309		-----		-----	1229		-----		-----
311	D4052	14.38		0.30	1233		-----		-----
313		-----		-----	1259		14.13		-1.10
323	D1298	14.34		0.08	1266	D1298	14.39		0.36
331	ISO12185	14.24		-0.48	1269		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1300	ISO12185	14.31		-0.09
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D1250	14.21		-0.65
342		-----		-----	1438		-----		-----
343	D4052	14.3		-0.15	1459		-----		-----
349		-----		-----	1498	D1298	14.6		1.53
371	D4052	14.3		-0.15	1510	D4052	14.22		-0.60
391		-----		-----	1544	ISO12185	14.256		-0.39
398		-----		-----	1556		-----		-----
399	D1298	14.29		-0.20	1564		-----		-----
444		-----		-----	1569		-----		-----
463	ISO12185	14.35		0.13	1586	D4052	14.4		0.41
511		-----		-----	1613	D1298	14.40		0.41
529	D4052	13.71	R(0.01)	-3.45	1631		-----		-----
541	D4052	14.38		0.30	1643		-----		-----
557	D4052	14.28		-0.26	1720		-----		-----
562		-----		-----	1724	D4052	14.37		0.24
575	D1298	13.9	C,R(0.01)	-2.39	1728	D287	14.419		0.52
603		-----		-----	1740	ISO12185	14.361		0.19
604	D4052	14.14		-1.04	1761		-----		-----
608	D4052	14.55		1.25	1776		-----		-----
631	D1298	13.87	R(0.01)	-2.56	1788		-----		-----
633		-----		-----	1807		-----		-----
663	D4052	14.38		0.30	1810		-----		-----
671	D287	14.1		-1.27	1811		-----		-----
750	D1298	14.3		-0.15	1833	D1298	14.31		-0.09
751		-----		-----	1849	ISO3675	14.3		-0.15
753	ISO12185	14.30		-0.15	1854		-----		-----
759	D1298	14.29		-0.20	1857	D1298	14.32		-0.04
781	D1250	14.29		-0.20	1862		-----		-----
785	D1298	14.4		0.41	1906		-----		-----
823	D4052	14.3		-0.15	1934	D4052	14.335		0.05
825	D1298	14.4		0.41	1942		14.1	C	-1.27
850		-----		-----	1943		-----		-----
851		-----		-----	1950	D1250	14.32		-0.04
855	D4052	14.36		0.19	1956		-----		-----
858	D1298	14.36		0.19	1964		-----		-----
859	D4052	14.36		0.19	1995	D4052	14.31		-0.09
862	D1298	14.36		0.19	6016		-----		-----
863	ISO12185	14.37		0.24	6026		-----		-----
864	ISO12185	14.37		0.24	6028	D1298	14.49		0.92
865	GB/T1884	14.37		0.24	6039		-----		-----
866	D4052	14.37		0.24	6044	D1298	14.34		0.08

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO12185	14.361		0.19	6203	D1298	14.87	R(0.01)	3.04
6057	ISO12185	14.22		-0.60	6220		-----		-----
6075		-----		-----	6226	ISO12185	14.38		0.30
6092		-----		-----	6262	D4052	14.37		0.24
6143		-----		-----	6266	D4052	13.66	R(0.01)	-3.73
6192		-----		-----	6308		-----		-----
6201	D1298	14.44		0.64	6335		-----		-----

normality	suspect
n	79
outliers	6
mean (n)	14.326
st.dev. (n)	0.1035
R(calc.)	0.290
st.dev.(D1298:12b)	0.1786
R(D1298:12b)	0.500

Lab 273: first reported 13.8
Lab 575: first reported 15.2
Lab 1942: first reported 13.8





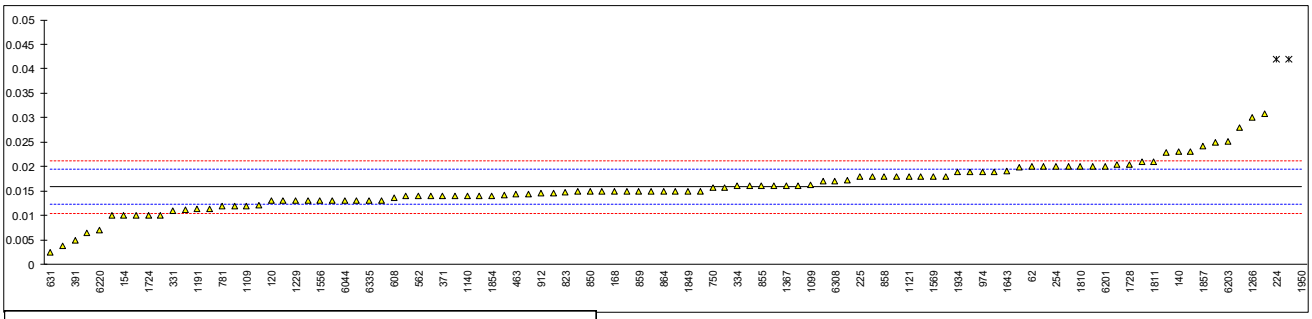
Determination of Ash Content on sample #20095; results in %M/M

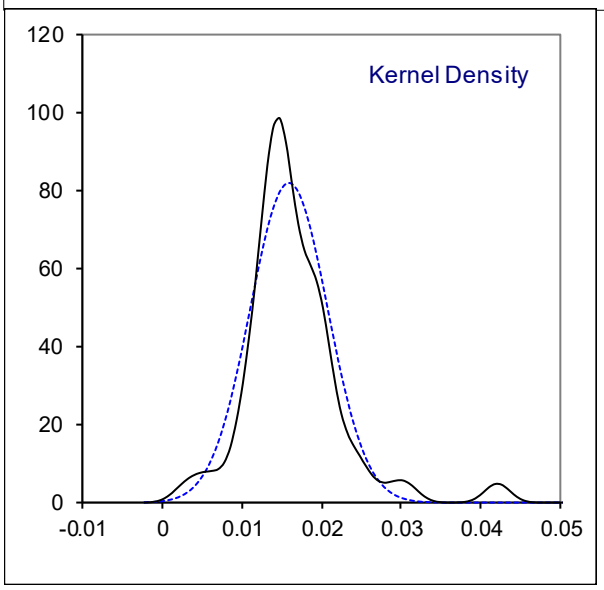
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D482	0.02		2.33	870	ISO6245	0.0122		-2.04
90	D482	0.0142		-0.92	875		-----		-----
92	D482	0.014		-1.03	886		-----		-----
120	D482	0.013		-1.59	912	ISO6245	0.0145		-0.75
140	D482	0.023		4.01	913		-----		-----
150		-----		-----	922	D482	0.014		-1.03
154	D482	0.010		-3.27	962		-----		-----
158	D482	0.023		4.01	963		-----		-----
159		-----		-----	971	ISO6245	0.019		1.77
168	D482	0.015		-0.47	974	D482	0.019		1.77
169	D482	0.014		-1.03	982		-----		-----
171	ISO6245	0.016		0.09	1019	ISO6245	0.0146		-0.70
175		-----		-----	1059	ISO6245	0.010		-3.27
194		-----		-----	1082		-----		-----
221	D482	0.015		-0.47	1099	ISO6245	0.0162	C	0.20
224	D482	0.042	C,R(0.01)	14.65	1109	D482	0.012		-2.15
225	D482	0.018		1.21	1121	IP4	0.018		1.21
228	D482	0.02095		2.86	1126		-----		-----
237	D482	0.028		6.81	1131		-----		-----
238		-----		-----	1135	ISO6245	0.018		1.21
253		-----		-----	1140	IP4	0.014		-1.03
254	D482	0.020		2.33	1177		-----		-----
273	D482	0.02		2.33	1191	ISO6245	0.01137		-2.50
309		-----		-----	1229	ISO6245	0.013		-1.59
311	ISO6245	0.015		-0.47	1233	ISO6245	0.042	R(0.01)	14.65
313		-----		-----	1259	ISO6245	0.013		-1.59
323	ISO6245	0.01		-3.27	1266	ISO6245	0.030	C	7.93
331	ISO6245	0.011		-2.71	1269		-----		-----
333		-----		-----	1275	IP4	0.011391		-2.49
334	ISO6245	0.016		0.09	1300	ISO6245	0.02286		3.93
335		-----		-----	1356	ISO6245	0.017		0.65
336		-----		-----	1367	IP4	0.016	C	0.09
339		-----		-----	1412		-----		-----
342	ISO6245	0.018		1.21	1438		-----		-----
343	ISO6245	0.016		0.09	1459		-----		-----
349		-----		-----	1498		-----		-----
371	ISO6245	0.014		-1.03	1510	ISO6245	0.0308		8.38
391	D482	0.005		-6.07	1544	ISO6245	0.0205		2.61
398		-----		-----	1556	ISO6245	0.013		-1.59
399		-----		-----	1564	D482	0.020		2.33
444		-----		-----	1569	ISO6245	0.018		1.21
463	ISO6245	0.0143		-0.86	1586	D482	0.013		-1.59
511		-----		-----	1613	D482	0.0144		-0.81
529		-----		-----	1631	ISO6245	0.014		-1.03
541		-----		-----	1643	D482	0.0192		1.88
557	D482	0.017188		0.75	1720		-----		-----
562	D482	0.014		-1.03	1724	D482	0.0100		-3.27
575		-----		-----	1728	D482	0.0205		2.61
603	D482	0.006432	C	-5.27	1740	ISO6245	0.0158		-0.02
604		-----		-----	1761		-----		-----
608	D482	0.0136		-1.26	1776		-----		-----
631	D482	0.00247		-7.49	1788		-----		-----
633		-----		-----	1807	ISO6245	0.0111		-2.66
663	D482	0.0130		-1.59	1810	ISO6245	0.02		2.33
671		-----		-----	1811	ISO6245	0.021	C	2.89
750	D482	0.0158		-0.02	1833	ISO6245	0.01		-3.27
751		-----		-----	1849	ISO6245	0.015		-0.47
753		-----		-----	1854	ISO6245	0.014		-1.03
759		-----		-----	1857	ISO6245	0.0242		4.68
781	ISO6245	0.012		-2.15	1862		-----		-----
785	ISO6245	0.0198		2.22	1906		-----		-----
823	ISO6245	0.0148		-0.58	1934	ISO6245	0.01899		1.76
825	ISO6245	0.015		-0.47	1942	ISO6245	0.025		5.13
850	ISO6245	0.015		-0.47	1943		-----		-----
851	ISO6245	0.015		-0.47	1950	ISO6245	0.19	R(0.01)	97.53
855	D482	0.016		0.09	1956		-----		-----
858	D482	0.018		1.21	1964		-----		-----
859	D482	0.015		-0.47	1995	D482	0.02		2.33
862	ISO6245	0.012		-2.15	6016		-----		-----
863	D482	0.015		-0.47	6026		-----		-----
864	ISO6245	0.015		-0.47	6028		-----		-----
865	GB/T508	0.019		1.77	6039		-----		-----
866	ISO6245	0.018		1.21	6044	ISO6245	0.013		-1.59

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO6245	0.015		-0.47	6203	ISO6245	0.0251		5.18
6057		-----		-----	6220	D482	0.007		-4.95
6075	ISO6245	0.0131		-1.54	6226	ISO6245	0.018		1.21
6092	ISO6245	0.016		0.09	6262	ISO6245	0.013		-1.59
6143		-----		-----	6266	D482	0.0038196	C	-6.73
6192		-----		-----	6308	ISO6245	0.017		0.65
6201	ISO6245	0.020		2.33	6335	D482	0.013		-1.59

	normality	suspect
	n	100
	outliers	3
	mean (n)	0.01584
	st.dev. (n)	0.004864
	R(calc.)	0.01362
	st.dev.(ISO6245:01)	0.001786
	R(ISO6245:01)	0.005
Compare		
	R(D482:19)	0.005

Lab 224: first reported 0.034
Lab 603: reported 6.432%M/M, possibly a unit error?
Lab 1099: first reported 0.0262
Lab 1266: first reported 0.003
Lab 1367: first reported 0.16
Lab 1811: first reported 0.211
Lab 6266: reported 3.8186%M/M, possibly a unit error?





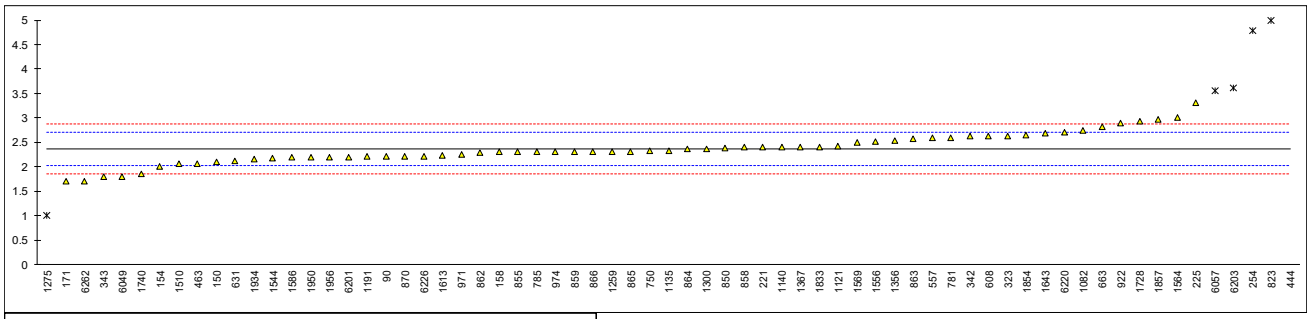
Determination of Asphaltenes on sample #20095; results in %M/M

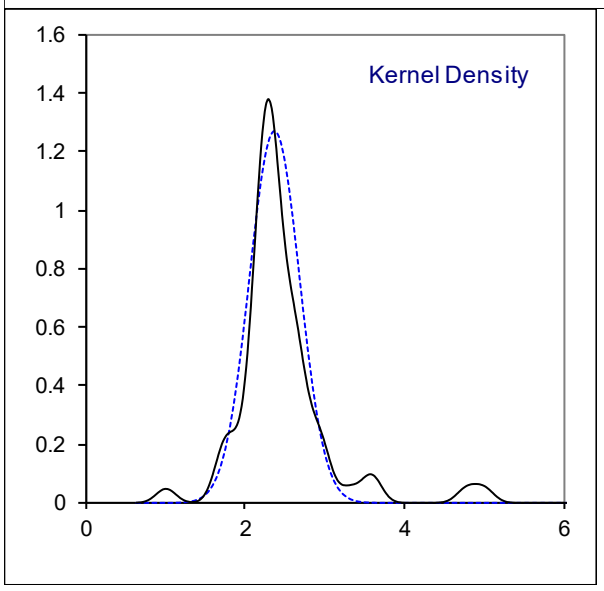
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	IP143	2.22		-0.87
90	D6560	2.21		-0.93	875		-----		-----
92		-----		-----	886		-----		-----
120		-----		-----	912		-----		-----
140		-----		-----	913		-----		-----
150	IP143	2.1		-1.58	922	D6560	2.9		3.15
154	D6560	2.0		-2.18	962		-----		-----
158	D6560	2.3		-0.40	963		-----		-----
159		-----		-----	971	IP143	2.26		-0.64
168		-----		-----	974	IP143	2.30		-0.40
169		-----		-----	982		-----		-----
171	IP143	1.7		-3.95	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082	DIN51595	2.73795		2.19
221	D6560	2.4		0.19	1099		-----		-----
224		-----		-----	1109		-----		-----
225	D6560	3.3		5.51	1121	IP143	2.42		0.31
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	IP143	2.33		-0.22
253		-----		-----	1140	IP143	2.4		0.19
254	IP143	4.78	C,R(0.01)	14.26	1177		-----		-----
273		-----		-----	1191	DIN51595	2.20597		-0.96
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259	D6560	2.30		-0.40
323	IP143	2.63		1.55	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275	IP143	1.005	R(0.05)	-8.06
334		-----		-----	1300	IP143	2.36		-0.05
335		-----		-----	1356	D6560	2.53		0.96
336		-----		-----	1367	IP143	2.4		0.19
339		-----		-----	1412		-----		-----
342	IP143	2.620		1.49	1438		-----		-----
343	IP143	1.791		-3.41	1459		-----		-----
349		-----		-----	1498		-----		-----
371		-----		-----	1510	IP143	2.06		-1.82
391		-----		-----	1544	D6560	2.170		-1.17
398		-----		-----	1556	IP143	2.52		0.90
399		-----		-----	1564	IP143	3.0	C	3.74
444	IP143	7.67	C,R(0.01)	31.35	1569	IP143	2.50		0.78
463	IP143	2.07		-1.76	1586	IP143	2.2		-0.99
511		-----		-----	1613	IP143	2.2420		-0.74
529		-----		-----	1631		-----		-----
541		-----		-----	1643	D6560	2.693		1.92
557	D6560	2.587968		1.30	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728	D6560	2.933		3.34
603		-----		-----	1740	IP143	1.85		-3.06
604		-----		-----	1761		-----		-----
608	D6560	2.6282		1.54	1776		-----		-----
631	D6560	2.122		-1.45	1788		-----		-----
633		-----		-----	1807		-----		-----
663	IP143	2.824		2.70	1810		-----		-----
671		-----		-----	1811		-----		-----
750	IP143	2.32		-0.28	1833	IP143	2.4		0.19
751		-----		-----	1849		-----		-----
753		-----		-----	1854	IP143	2.64		1.61
759		-----		-----	1857	IP143	2.97		3.56
781	IP143	2.6		1.37	1862		-----		-----
785	IP143	2.3		-0.40	1906		-----		-----
823	IP143	5.0	C,R(0.01)	15.56	1934	IP143	2.1505		-1.29
825		-----		-----	1942		-----	W	-----
850	IP143	2.38		0.07	1943		-----		-----
851		-----		-----	1950	IP143	2.2		-0.99
855	IP143	2.3		-0.40	1956	NF T60-115	2.2		-0.99
858	IP143	2.4		0.19	1964		-----		-----
859	D6560	2.3		-0.40	1995		-----		-----
862	IP143	2.29		-0.46	6016		-----		-----
863	IP143	2.58		1.25	6026		-----		-----
864	IP143	2.36		-0.05	6028		-----		-----
865	IP143	2.31		-0.34	6039		-----		-----
866	IP143	2.3		-0.40	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	IP143	1.8		-3.36	6203	IP143	3.61	R(0.05)	7.34
6057	IP143	3.56	R(0.05)	7.05	6220	IP143	2.71		2.02
6075		-----		-----	6226	IP143	2.22		-0.87
6092		-----		-----	6262	IP143	1.7		-3.95
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201	IP143	2.2		-0.99	6335		-----		-----

	normality	OK
	n	61
	outliers	6
	mean (n)	2.368
	st.dev. (n)	0.3144
	R(calc.)	0.880
	st.dev.(IP143:04)	0.1691
	R(IP143:04)	0.474
Compare		
	R(D6560:19)	0.474

Lab 254: first reported 3.99
Lab 444: first reported 5.34
Lab 823: first reported 3.28
Lab 1564: first reported 0.7
Lab 1942: test result was withdrawn, reported 3.8





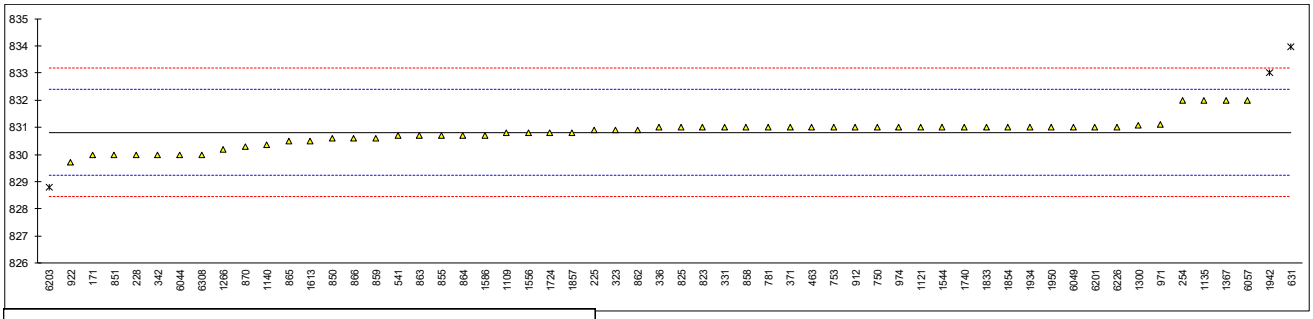
Determination of Calculated Carbon Aromaticity Index on sample #20095

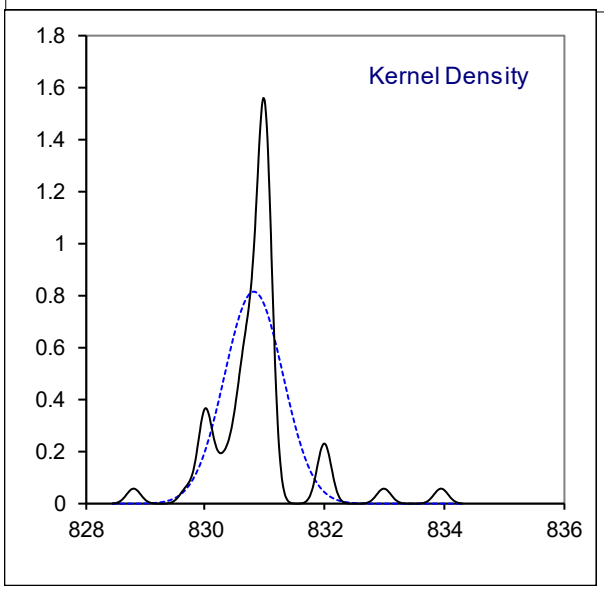
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	ISO8217	830.3		-0.66
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120		-----		-----	912	ISO8217	831		0.23
140		-----		-----	913		-----		-----
150		-----		-----	922	ISO8217	829.7		-1.42
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	ISO8217	831.1		0.36
168		-----		-----	974	ISO8217	831		0.23
169		-----		-----	982		-----		-----
171	ISO8217	830		-1.04	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109	ISO8217	830.8		-0.02
225	ISO8217	830.9		0.11	1121	ISO8217	831		0.23
228	ISO8217	830		-1.04	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	ISO8217	832		1.51
253		-----		-----	1140	ISO8217	830.37		-0.57
254	ISO8217	832		1.51	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323	ISO8217	830.90		0.11	1266	ISO8217	830.2		-0.79
331	ISO8217	831		0.23	1269		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1300	ISO8217	831.0803		0.33
335		-----		-----	1356		-----		-----
336	ISO8217	831		0.23	1367	ISO8217	832.0		1.51
339		-----		-----	1412		-----		-----
342	ISO8217	830		-1.04	1438		-----		-----
343		-----		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371	ISO8217	831		0.23	1510		-----		-----
391		-----		-----	1544	ISO8217	831.0		0.23
398		-----		-----	1556	ISO8217	830.8		-0.02
399		-----		-----	1564		-----		-----
444		-----		-----	1569		-----		-----
463	ISO8217	831.0		0.23	1586	ISO8217	830.7		-0.15
511		-----		-----	1613	ISO8217	830.5		-0.40
529		-----		-----	1631		-----		-----
541	ISO8217	830.7		-0.15	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724	ISO8217	830.8		-0.02
575		-----		-----	1728		-----		-----
603		-----		-----	1740	ISO8217	831		0.23
604		-----		-----	1761		-----		-----
608		-----		-----	1776		-----		-----
631	ISO8217	833.96	R(0.01)	4.00	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
750	ISO8217	831		0.23	1833	ISO8217	831		0.23
751		-----		-----	1849		-----		-----
753	ISO8217	831		0.23	1854	ISO8217	831		0.23
759		-----		-----	1857	ISO8217	830.8		-0.02
781	ISO8217	831		0.23	1862		-----		-----
785		-----		-----	1906		-----		-----
823	ISO8217	831		0.23	1934	ISO8217	831		0.23
825	ISO8217	831		0.23	1942	ISO8217	833	C,R(0.01)	2.78
850	ISO8217	830.6		-0.28	1943		-----		-----
851	ISO8217	830		-1.04	1950	ISO8217	831		0.23
855	ISO8217	830.7		-0.15	1956		-----		-----
858	ISO8217	831		0.23	1964		-----		-----
859	ISO8217	830.6		-0.28	1995		-----		-----
862	ISO8217	830.9		0.11	6016		-----		-----
863	ISO8217	830.7		-0.15	6026		-----		-----
864	ISO8217	830.7		-0.15	6028		-----		-----
865	ISO8217	830.5		-0.40	6039		-----		-----
866	ISO8217	830.6		-0.28	6044	ISO8217	830		-1.04

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO8217	831		0.23	6203	ISO8217	828.8	R(0.01)	-2.57
6057	ISO8217	832		1.51	6220		-----		-----
6075		-----		-----	6226	ISO8217	831		0.23
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308	ISO8217	830		-1.04
6201	ISO8217	831		0.23	6335		-----		-----

normality	suspect
n	55
outliers	3
mean (n)	830.817
st.dev. (n)	0.4910
R(calc.)	1.375
st.dev.(ISO8217:17)	0.7857
R(ISO8217:17)	2.2

Lab 1942: first reported 835





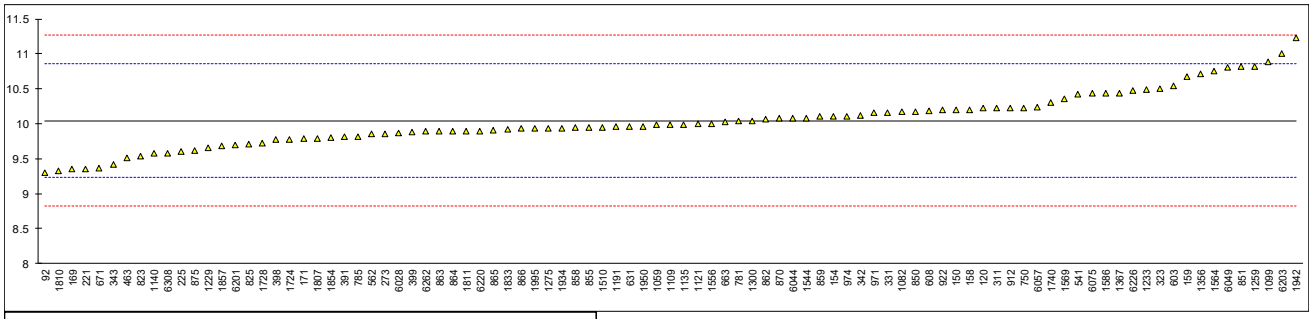
Determination of Carbon Residue micro method on sample #20095; results in %M/M

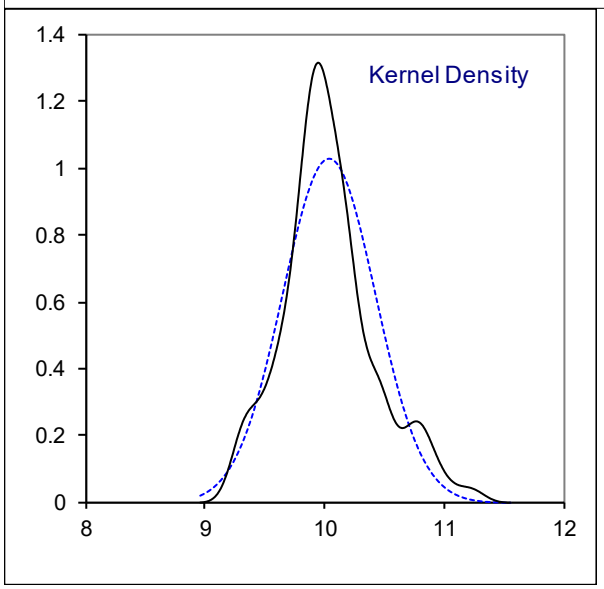
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	ISO10370	10.08		0.08
90		-----		-----	875	ISO10370	9.612		-1.06
92	D4530	9.30		-1.83	886		-----		-----
120	D4530	10.22		0.43	912	ISO10370	10.22		0.43
140		-----		-----	913		-----		-----
150	D4530	10.2		0.38	922	D4530	10.2		0.38
154	D4530	10.1		0.13	962		-----		-----
158	D4530	10.2	C	0.38	963		-----		-----
159	D4530	10.68		1.56	971	ISO10370	10.16		0.28
168		-----		-----	974	D4530	10.11		0.16
169	D4530	9.35		-1.71	982		-----		-----
171	ISO10370	9.79		-0.63	1019		-----		-----
175		-----		-----	1059	ISO10370	9.98		-0.16
194		-----		-----	1082	ISO10370	10.16862		0.30
221	D4530	9.35		-1.71	1099	ISO10370	10.89		2.07
224		-----		-----	1109	D4530	9.988		-0.14
225	D4530	9.60		-1.09	1121	ISO10370	10.00		-0.11
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	ISO10370	9.99		-0.14
253		-----		-----	1140	IP398	9.58		-1.14
254		-----		-----	1177		-----		-----
273	D4530	9.86		-0.46	1191	ISO10370	9.95479		-0.22
309		-----		-----	1229	ISO10370	9.65		-0.97
311	D4530	10.22		0.43	1233	ISO10370	10.49		1.09
313		-----		-----	1259	ISO10370	10.82		1.90
323	ISO10370	10.5		1.12	1266		-----		-----
331	ISO10370	10.16		0.28	1269		-----		-----
333		-----		-----	1275	IP398	9.9342		-0.27
334		-----		-----	1300	ISO10370	10.044		0.00
335		-----		-----	1356	ISO10370	10.715		1.64
336		-----		-----	1367	IP398	10.44		0.97
339		-----		-----	1412		-----		-----
342	ISO10370	10.12		0.18	1438		-----		-----
343	ISO10370	9.42		-1.53	1459		-----		-----
349		-----		-----	1498		-----		-----
371		-----		-----	1510	ISO10370	9.95		-0.23
391	ISO10370	9.81		-0.58	1544	ISO10370	10.082		0.09
398	ISO10370	9.77		-0.68	1556	ISO10370	10.0		-0.11
399	ISO10370	9.88		-0.41	1564	D4530	10.75		1.73
444		-----		-----	1569	ISO10370	10.35		0.75
463	ISO10370	9.506		-1.32	1586	D4530	10.43		0.94
511		-----		-----	1613		-----	W	-----
529		-----		-----	1631		-----		-----
541	D4530	10.42		0.92	1643		-----		-----
557		-----		-----	1720		-----		-----
562	D4530	9.86		-0.46	1724	D4530	9.778		-0.66
575		-----		-----	1728	D4530	9.72		-0.80
603	D4530	10.54		1.21	1740	ISO10370	10.3		0.62
604		-----		-----	1761		-----		-----
608	D4530	10.1837		0.34	1776		-----		-----
631	D4530	9.96		-0.21	1788		-----		-----
633		-----		-----	1807	ISO10370	9.79		-0.63
663	D4530	10.03		-0.04	1810	ISO10370	9.32		-1.78
671	D4530	9.37		-1.66	1811	ISO10370	9.90		-0.36
750	ISO10370	10.2235		0.44	1833	ISO10370	9.92	C	-0.31
751		-----		-----	1849		-----		-----
753		-----		-----	1854	ISO10370	9.80		-0.60
759		-----		-----	1857	ISO10370	9.677		-0.90
781	ISO10370	10.04		-0.01	1862		-----		-----
785	ISO10370	9.82		-0.55	1906		-----		-----
823	ISO10370	9.53		-1.26	1934	ISO10370	9.9360		-0.27
825	ISO10370	9.71		-0.82	1942	ISO10370	11.23		2.91
850	ISO10370	10.17		0.31	1943		-----		-----
851	ISO10370	10.82		1.90	1950	ISO10370	9.96		-0.21
855	ISO10370	9.95		-0.23	1956		-----		-----
858	D4530	9.94		-0.26	1964		-----		-----
859	D4530	10.1		0.13	1995	D4530	9.93		-0.28
862	ISO10370	10.07		0.06	6016		-----		-----
863	D4530	9.90		-0.36	6026		-----		-----
864	ISO10370	9.90		-0.36	6028	ISO10370	9.87		-0.43
865	GB/T17144	9.91		-0.33	6039		-----		-----
866	ISO10370	9.93		-0.28	6044	ISO10370	10.08		0.08

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO10370	10.8		1.85	6203	ISO10370	11.01		2.37
6057	ISO10370	10.24		0.48	6220	D4530	9.9		-0.36
6075	ISO10370	10.429		0.94	6226	ISO10370	10.47		1.04
6092		-----		-----	6262	ISO10370	9.89		-0.38
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308	ISO10370	9.58		-1.14
6201	ISO10370	9.70		-0.85	6335		-----		-----

normality	OK
n	93
outliers	0
mean (n)	10.0455
st.dev. (n)	0.38737
R(calc.)	1.0846
st.dev.(ISO10370:14)	0.40754
R(ISO10370:14)	1.1411

Lab 158: first reported 8.38
Lab 1613: test result was withdrawn, reported 7.726
Lab 1833: first reported 8.79





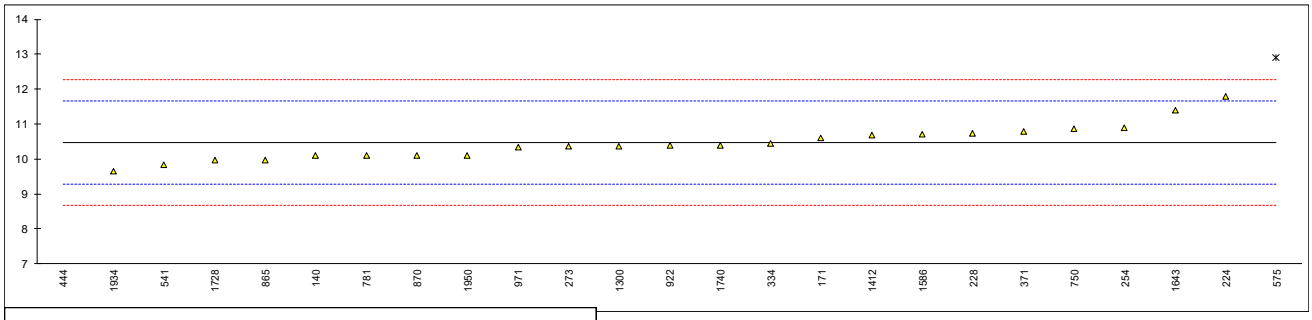
Determination of Conradson Carbon Residue on sample #20095; results in %M/M

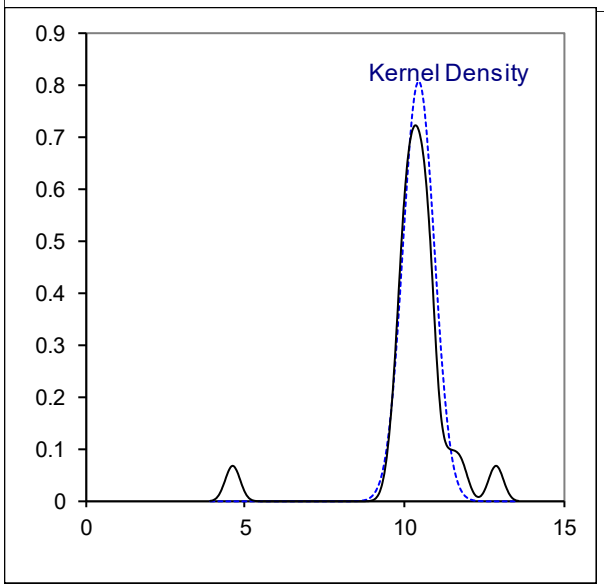
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	D189	10.1		-0.61
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120		-----		-----	912		-----		-----
140	D4530	10.1	C	-0.61	913		-----		-----
150		-----		-----	922	D189	10.4		-0.11
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	D189	10.35		-0.19
168		-----		-----	974		-----		-----
169		-----		-----	982		-----		-----
171	D189	10.6		0.23	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224	D189	11.79		2.22	1109		-----		-----
225		-----		-----	1121		-----		-----
228	D189	10.74		0.46	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135		-----		-----
253		-----		-----	1140		-----		-----
254	D189	10.9		0.73	1177		-----		-----
273	D189	10.37		-0.16	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323		-----		-----	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334	D189	10.45		-0.02	1300	D189	10.371		-0.16
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D189	10.69		0.38
342		-----		-----	1438		-----		-----
343		-----		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371	D189	10.79		0.55	1510		-----		-----
391		-----		-----	1544		-----		-----
398		-----		-----	1556		-----		-----
399		-----		-----	1564		-----		-----
444	D189	4.61	C,R(0.01)	-9.80	1569		-----		-----
463		-----		-----	1586	D189	10.7		0.40
511		-----		-----	1613		-----	W	-----
529		-----		-----	1631		-----		-----
541	D189	9.848		-1.03	1643	D189	11.395		1.56
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575	D189	12.9	C,R(0.01)	4.08	1728	D189	9.97		-0.83
603		-----		-----	1740	D189	10.4		-0.11
604		-----		-----	1761		-----		-----
608		-----		-----	1776		-----		-----
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
750	D189	10.868		0.68	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854		-----		-----
759		-----		-----	1857		-----		-----
781	D189	10.10		-0.61	1862		-----		-----
785		-----		-----	1906		-----		-----
823		-----		-----	1934	D189	9.65		-1.36
825		-----		-----	1942		-----		-----
850		-----		-----	1943		-----		-----
851		-----		-----	1950	D189	10.1		-0.61
855		-----		-----	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995		-----		-----
862		-----		-----	6016		-----		-----
863		-----		-----	6026		-----		-----
864		-----		-----	6028		-----		-----
865	GB/T268	9.98		-0.81	6039		-----		-----
866		-----		-----	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203		-----		-----
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201		-----		-----	6335		-----		-----

normality	suspect
n	23
outliers	2
mean (n)	10.4636
st.dev. (n)	0.49430
R(calc.)	1.3840
st.dev.(D189:06)	0.59704
R(D189:06)	1.6717

Lab 140: first reported 8.41
Lab 444: first reported 15.26
Lab 575: first reported 13.876
Lab 1613: test result was withdrawn, reported 7.95





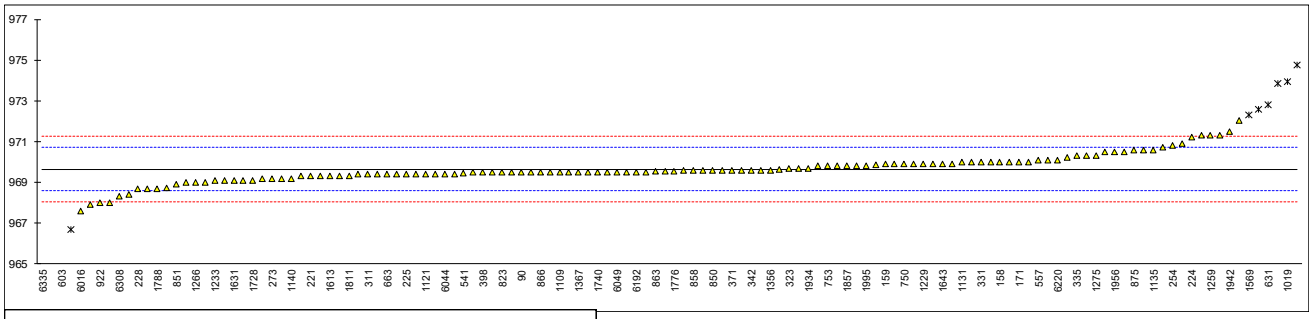
Determination of Density at 15°C on sample #20095; results in kg/m^3

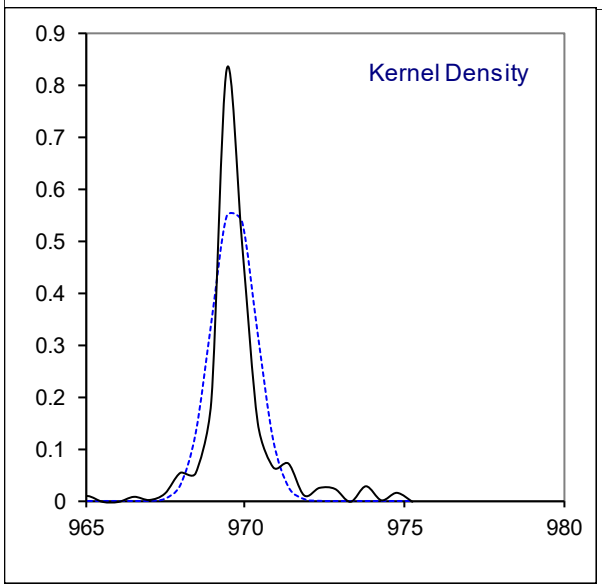
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4052	969.4		-0.47	870	ISO12185	969.4		-0.47
90	D4052	969.5		-0.28	875	ISO12185	970.6		1.77
92	D4052	969.2		-0.84	886		-----		-----
120	D4052	969.9		0.47	912	ISO12185	969.5		-0.28
140	D4052	968.4		-2.33	913		-----		-----
150		-----		-----	922	D1298	968.0		-3.08
154	D4052	970.6		1.77	962		-----		-----
158	D4052	970.0		0.65	963		-----		-----
159	D4052	969.9	C	0.47	971	ISO12185	969.7		0.09
168	ISO3675	970.9		2.33	974	D1298	969.9		0.47
169		-----		-----	982		-----		-----
171	ISO12185	970.0		0.65	1019	ISO3838	973.93	R(0.01)	7.99
175	D4052	969.3		-0.65	1059	ISO12185	969.2		-0.84
194		-----		-----	1082	ISO12185	969.53		-0.22
221	D4052	969.3		-0.65	1099	ISO12185	969.4		-0.47
224	D1298	971.2		2.89	1109	D4052	969.5		-0.28
225	D4052	969.4		-0.47	1121	ISO12185	969.4		-0.47
228	D1298	968.7		-1.77	1126		-----		-----
237	D4052	959.7	R(0.01)	-18.57	1131	ISO12185	969.98		0.62
238	D4052	972.04		4.46	1135	ISO12185	970.6		1.77
253	D4052	969.5		-0.28	1140	IP365	969.2		-0.84
254	D1298	970.8		2.15	1177		-----		-----
273	D4052	969.2	C	-0.84	1191	ISO12185	969.87		0.41
309		-----		-----	1229	ISO12185	969.9		0.47
311	ISO12185	969.4		-0.47	1233	ISO12185	969.1		-1.03
313	ISO12185	969.6		-0.09	1259	ISO12185	971.3		3.08
323	ISO12185	969.7		0.09	1266	ISO3675	969.0		-1.21
331	ISO12185	970		0.65	1269		-----		-----
333	D4052	969.8		0.28	1275	IP365	970.3		1.21
334	ISO12185	970.3		1.21	1300	ISO12185	969.5		-0.28
335	ISO12185	970.3		1.21	1356	ISO12185	969.6		-0.09
336	ISO12185	970.2		1.03	1367	IP365	969.5		-0.28
339		-----		-----	1412	D4052	970.5		1.59
342	D4052	969.6		-0.09	1438		-----		-----
343	D4052	968.7		-1.77	1459	ISO12185	969.1		-1.03
349		-----		-----	1498	D1298	968.0		-3.08
371	ISO12185	969.6		-0.09	1510	ISO12185	970.1		0.84
391	ISO12185	969.5		-0.28	1544	ISO12185	969.90		0.47
398	ISO12185	969.5		-0.28	1556	ISO12185	969.3		-0.65
399	ISO12185	970.0		0.65	1564	D4052	970.0		0.65
444	D4052	969.0		-1.21	1569	D4052	972.30	C,R(0.05)	4.95
463	ISO12185	969.62		-0.06	1586	D4052	969.4		-0.47
511		-----		-----	1613	D1298	969.3		-0.65
529	D4052	973.84	R(0.01)	7.82	1631	ISO12185	969.1		-1.03
541	ISO12185	969.45		-0.37	1643	D4052	969.9		0.47
557	D4052	970.09		0.82	1720		-----		-----
562		-----		-----	1724	D4052	969.5		-0.28
575	D4052	972.6	C,R(0.05)	5.51	1728	D4052	969.11		-1.01
603	D1298	964.9	R(0.01)	-8.87	1740	ISO12185	969.5		-0.28
604	D4052	970.7		1.96	1761		-----		-----
608	D4052	967.9		-3.27	1776	ISO12185	969.56		-0.17
631	D1298	972.8	R(0.01)	5.88	1788	D1298	968.7		-1.77
633		-----		-----	1807	ISO12185	969.1		-1.03
663	D4052	969.40		-0.47	1810	ISO12185	969.3		-0.65
671	D1298	971.3		3.08	1811	ISO12185	969.3		-0.65
750	D1298	969.9		0.47	1833	ISO12185	969.5		-0.28
751		-----		-----	1849	ISO3675	969.9		0.47
753	ISO12185	969.8		0.28	1854	ISO12185	969.8		0.28
759	D1298	970.0		0.65	1857	ISO12185	969.8		0.28
781	ISO12185	970.0		0.65	1862		-----		-----
785	D1298	969.6		-0.09	1906		-----		-----
823	ISO12185	969.5		-0.28	1934	ISO12185	969.7		0.09
825	ISO12185	969.4		-0.47	1942		971.5	C	3.45
850	ISO3675	969.6		-0.09	1943		-----		-----
851	ISO12185	968.9		-1.40	1950	ISO12185	969.8		0.28
855	ISO12185	969.60		-0.09	1956	ISO3675	970.5		1.59
858	ISO12185	969.6		-0.09	1964		-----		-----
859	ISO12185	969.5		-0.28	1995	D4052	969.8		0.28
862	ISO12185	969.6		-0.09	6016	D4052	967.59	C	-3.84
863	ISO12185	969.53		-0.22	6026		-----		-----
864	ISO12185	969.6		-0.09	6028	ISO3675	968.71		-1.75
865	GB/T1884	969.5		-0.28	6039		-----		-----
866	D4052	969.5		-0.28	6044	D4052	969.4		-0.47

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO12185	969.5		-0.28	6203	ISO12185	966.7	R(0.05)	-5.51
6057	ISO12185	970.5		1.59	6220	D4052	970.1		0.84
6075	ISO12185	971.3		3.08	6226	ISO12185	969.4		-0.47
6092	ISO12185	969.5		-0.28	6262	D4052	969.5		-0.28
6143		-----		-----	6266	D4052	974.74	R(0.01)	9.50
6192	D1298	969.5		-0.28	6308	ISO12185	968.3		-2.52
6201	ISO12185	969.0		-1.21	6335		852	R(0.01)	-219.61

normality	not OK
n	122
outliers	10
mean (n)	969.650
st.dev. (n)	0.6936
R(calc.)	1.942
st.dev.(ISO12185:96)	0.5357
R(ISO12185:96)	1.5

Lab 159: first reported 0.0009699
Lab 273: first reported 973.2
Lab 575: first reported 967.1
Lab 1569: first reported 973.2
Lab 1942: first reported 973.5
Lab 6016: first reported 972.61





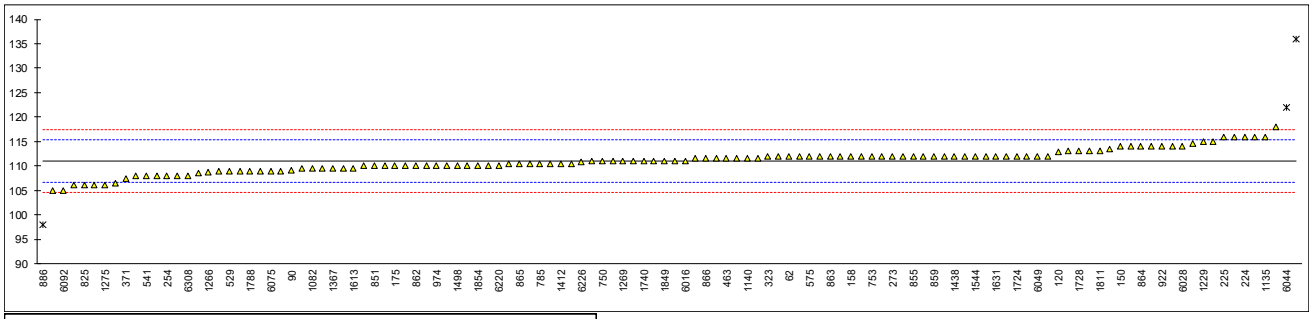
Determination of Flash Point PMcc on sample #20095; results in °C

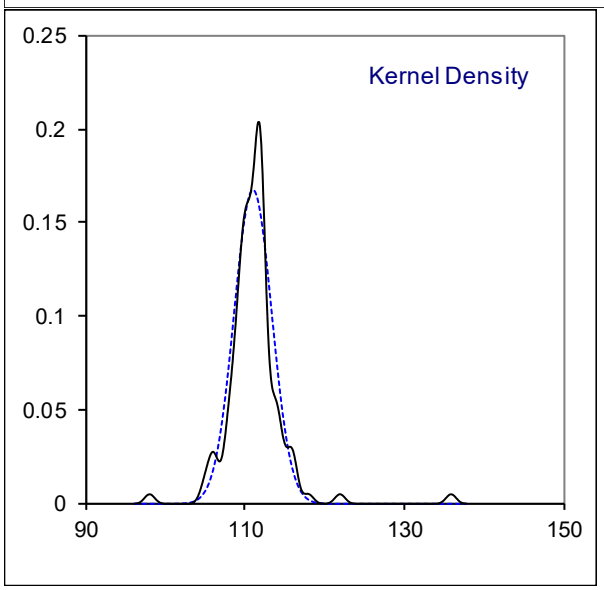
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D93-B	112		0.46	870	ISO2719-B	112		0.46
90	D93-B	109.06		-0.92	875	ISO2719-B	110		-0.48
92	D93-B	109.0		-0.94	886	D93-A	98.0	R(0.01)	-6.08
120	D93-B	112.8		0.83	912	ISO2719	118.0		3.26
140		-----		-----	913		-----		-----
150	D93-B	114		1.39	922	D93-B	114.0		1.39
154	D93-B	112.0		0.46	962		-----		-----
158	D93-B	112		0.46	963		-----		-----
159	D93-A	110		-0.48	971	ISO2719-B	111.0		-0.01
168	D93-B	105		-2.81	974	D93-B	110.0		-0.48
169	D93-B	>110		-----	982		-----		-----
171	ISO2719-A	108		-1.41	1019		-----		-----
175	D93-B	110		-0.48	1059	ISO2719-B	109.5		-0.71
194		-----		-----	1082	ISO2719-A	109.5		-0.71
221		-----		-----	1099	ISO2719-A	109.5		-0.71
224	D93-A	116.0		2.32	1109	D93-B	>100.0		-----
225	D93-B	116.0		2.32	1121	IP34-B	110.0		-0.48
228	D93-B	112.0		0.46	1126		-----		-----
237		-----		-----	1131		-----		-----
238	D93-B	106.0		-2.34	1135	D93-B	116.0		2.32
253	D93-B	110		-0.48	1140	IP34-B	111.5		0.22
254	D93-B	108		-1.41	1177		-----		-----
273	D93-B	112		0.46	1191	ISO2719-A	114.5		1.62
309		-----		-----	1229	ISO2719-A	115.0		1.86
311	D93-B	111.5		0.22	1233	ISO2719-B	>70		-----
313	D93-B	116.0		2.32	1259	ISO2719-A	114	C	1.39
323	ISO2719-A	112.0		0.46	1266	ISO2719-B	108.8		-1.04
331	D93-B	113		0.92	1269	D93-B	111.0		-0.01
333	D93-B	110.5		-0.24	1275	IP34-B	106.0		-2.34
334	ISO2719-B	112.0		0.46	1300	ISO2719-B	111.5		0.22
335		-----		-----	1356	ISO2719-B	136	C,R(0.01)	11.66
336	ISO2719-B	109.0		-0.94	1367	D93-B	109.5		-0.71
339		-----		-----	1412	D93-B	110.5		-0.24
342	ISO2719-B	108.0		-1.41	1438	D93-B	112		0.46
343	ISO2719-B	114	C	1.39	1459		-----		-----
349		-----		-----	1498	D93-B	110		-0.48
371	ISO2719-B	107.5		-1.64	1510	ISO2719-B	112.0		0.46
391	ISO2719-B	114		1.39	1544	ISO2719-B	112.00		0.46
398	ISO2719-B	112.0		0.46	1556	ISO2719-B	112.0		0.46
399	ISO2719-B	116		2.32	1564	D93-B	111		-0.01
444	D93-B	111.5		0.22	1569	ISO2719-A	109.5		-0.71
463	D93-B	111.5		0.22	1586	D93-B	110.0		-0.48
511		-----		-----	1613	D93-B	109.5		-0.71
529	D93	109.0		-0.94	1631	ISO2719-C	112		0.46
541	D93-B	108.0		-1.41	1643	D93-B	112		0.46
557	D93	110.5		-0.24	1720		-----		-----
562	D93-B	111		-0.01	1724	D93-B	112		0.46
575	D93-B	112		0.46	1728	D93-B	113		0.92
603	D93-B	112.0		0.46	1740	ISO2719-B	111.0		-0.01
604	D93-B	108		-1.41	1761		-----		-----
608	D93-A	110.0		-0.48	1776	ISO2719-B	>110		-----
631	D93	106.5		-2.11	1788	D93-B	109.0		-0.94
633		-----		-----	1807	ISO2719-B	112.0		0.46
663	D93-B	110.38		-0.30	1810	ISO2719-A	113.0		0.92
671	D93-B	>110.0		-----	1811	ISO2719-A	113.0		0.92
750	D93-B	111		-0.01	1833	ISO2719-B	111		-0.01
751		-----		-----	1849	ISO2719-B	111		-0.01
753	ISO2719-B	112.0		0.46	1854	ISO2719-B	110		-0.48
759	ISO2719-B	112.0		0.46	1857	ISO2719-B	109.0		-0.94
781	ISO2719-B	111.5		0.22	1862		-----		-----
785	D93-B	110.5		-0.24	1906		-----		-----
823	ISO2719-B	106.0		-2.34	1934	ISO2719-B	110.0		-0.48
825	ISO2719-B	106.0		-2.34	1942		-----		-----
850	ISO2719-B	112.0		0.46	1943		-----		-----
851	ISO2719-B	110.0		-0.48	1950	ISO2719	108.5		-1.18
855	D93-B	112.0		0.46	1956		-----		-----
858	D93-B	112.0		0.46	1964		-----		-----
859	ISO2719-B	112		0.46	1995	D93-A	111		-0.01
862	ISO2719-B	110.0		-0.48	6016	D93-B	111.0		-0.01
863	D93-B	112.0		0.46	6026		-----		-----
864	ISO2719-B	114.0		1.39	6028	ISO2719-B	114.0		1.39
865	GB/T261	110.5		-0.24	6039		-----		-----
866	ISO2719-B	111.5		0.22	6044	ISO2719-B	122	C,R(0.01)	5.12

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO2719-B	112		0.46	6203	ISO2719-B	110.5		-0.24
6057		-----		-----	6220	D93-B	110		-0.48
6075	ISO2719-B	109.0		-0.94	6226	ISO2719-B	110.8		-0.10
6092	D93-B	105		-2.81	6262	ISO2719-B	109.0		-0.94
6143		-----		-----	6266	D93-B	113.5		1.16
6192	D93-B	115		1.86	6308	ISO2719-B	108.0		-1.41
6201	ISO2719-B	112		0.46	6335		>95		-----

normality	OK
n	119
outliers	3
mean (n)	111.024
st.dev. (n)	2.3779
R(calc.)	6.658
st.dev.(ISO2719-B:16)	2.1429
R(ISO2719-B:16)	6

Lab 343: first reported 120.5
Lab 1259: first reported 124
Lab 1356: first reported 145
Lab 6044: first reported 118





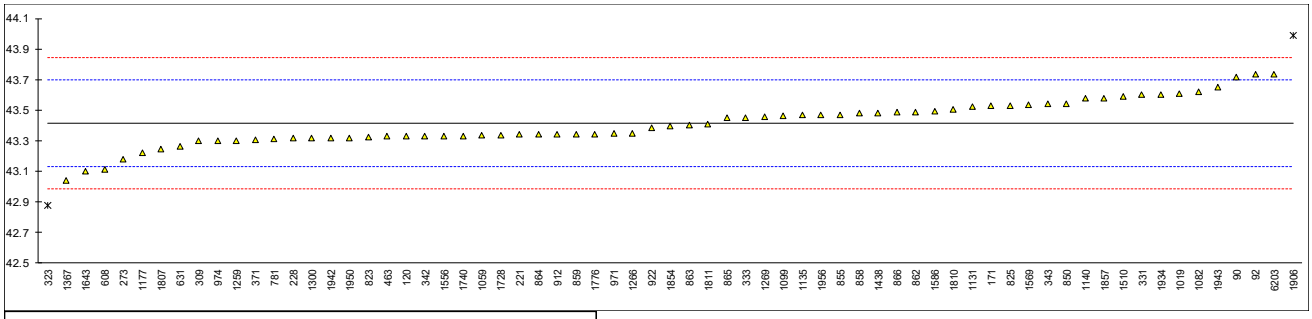
Determination of Heat of Combustion (Gross) on sample #20095; results in MJ/kg

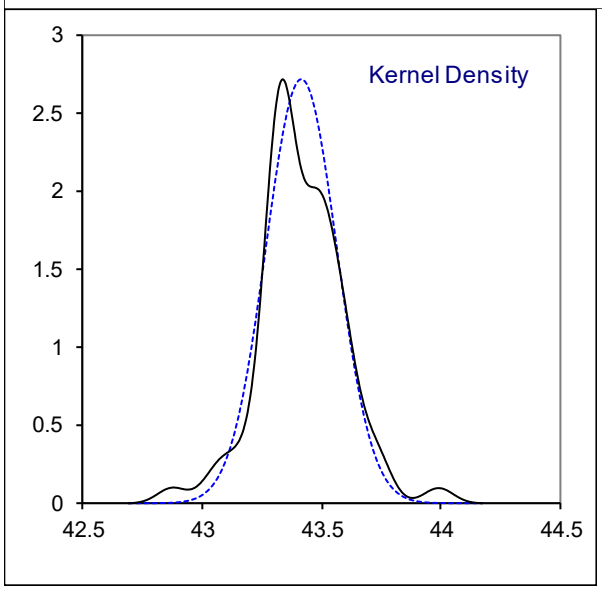
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90	D240	43.715		2.11	875		-----		-----
92	D240	43.732		2.22	886		-----		-----
120	D4868	43.33		-0.59	912	D240	43.34		-0.52
140		-----		-----	913		-----		-----
150		-----		-----	922	D240	43.382		-0.23
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	D240	43.350		-0.45
168		-----		-----	974	D4868	43.30		-0.80
169		-----		-----	982		-----		-----
171	D240	43.530		0.81	1019	D4809	43.606		1.34
175		-----		-----	1059	D240	43.334		-0.56
194		-----		-----	1082	D240	43.6171		1.42
221	D4868	43.34		-0.52	1099		43.461		0.33
224		-----		-----	1109		-----		-----
225		-----		-----	1121		-----		-----
228		43.316		-0.69	1126		-----		-----
237		-----		-----	1131	D4808	43.521		0.75
238		-----		-----	1135	D240	43.467		0.37
253		-----		-----	1140	ISO8217	43.5791		1.15
254		-----		-----	1177	DIN51900 1/2	43.220		-1.36
273	D4868	43.18		-1.64	1191		-----		-----
309		43.300		-0.80	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259	D4868	43.30		-0.80
323	D240	42.875	R(0.05)	-3.77	1266	D4868	43.35		-0.45
331	D240	43.60		1.30	1269		43.454		0.28
333	D240	43.450		0.25	1275		-----		-----
334		-----		-----	1300	D4868	43.320		-0.66
335		-----		-----	1356		-----		-----
336		-----		-----	1367	D240	43.037		-2.64
339		-----		-----	1412		-----		-----
342	D4868	43.33		-0.59	1438		43.481		0.47
343	D240	43.540		0.88	1459		-----		-----
349		-----		-----	1498		-----		-----
371	D4868	43.308		-0.74	1510	D240	43.59		1.23
391		-----		-----	1544		-----		-----
398		-----		-----	1556	D4868	43.33		-0.59
399		-----		-----	1564		-----		-----
444		-----		-----	1569	D240	43.5357	C	0.85
463	D4868	43.33		-0.59	1586		43.49		0.53
511		-----		-----	1613		-----	W	-----
529		-----		-----	1631		-----		-----
541		-----		-----	1643	D240	43.0971		-2.22
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728	D4868	43.334		-0.56
603		-----		-----	1740		43.331		-0.58
604		-----		-----	1761		-----		-----
608	D240	43.1098		-2.13	1776	D4868	43.34		-0.52
631	D240	43.265		-1.04	1788		-----		-----
633		-----		-----	1807	D240	43.245		-1.18
663		-----		-----	1810	D240	43.503		0.62
671		-----		-----	1811	D240	43.410		-0.03
750		-----		-----	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	D240	43.394		-0.14
759		-----		-----	1857	ISO8217	43.58		1.16
781	D4868	43.31		-0.73	1862		-----		-----
785		-----		-----	1906	D4809	43.987	R(0.05)	4.01
823	D240	43.325		-0.62	1934	D4868	43.600		1.30
825	D240	43.530		0.81	1942		43.32		-0.66
850	GB/T384	43.540		0.88	1943		43.647		1.63
851		-----		-----	1950	D4868	43.32		-0.66
855	GB/T384	43.470		0.39	1956		43.467		0.37
858	D4868	43.48		0.46	1964		-----		-----
859	D4868	43.34		-0.52	1995		-----		-----
862	D240	43.485		0.50	6016		-----		-----
863	D240	43.404		-0.07	6026		-----		-----
864	D240	43.34		-0.52	6028		-----		-----
865	GB/T384	43.450		0.25	6039		-----		-----
866	D240	43.484		0.49	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D240	43.7372		2.26
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201		-----		-----	6335		-----		-----

normality	OK
n	65
outliers	2
mean (n)	43.4142
st.dev. (n)	0.14708
R(calc.)	0.4118
st.dev.(D240:19)	0.14286
R(D240:19)	0.40

Lab 1569: first reported 45.5357
Lab 1613: test result withdrawn, reported 42.794





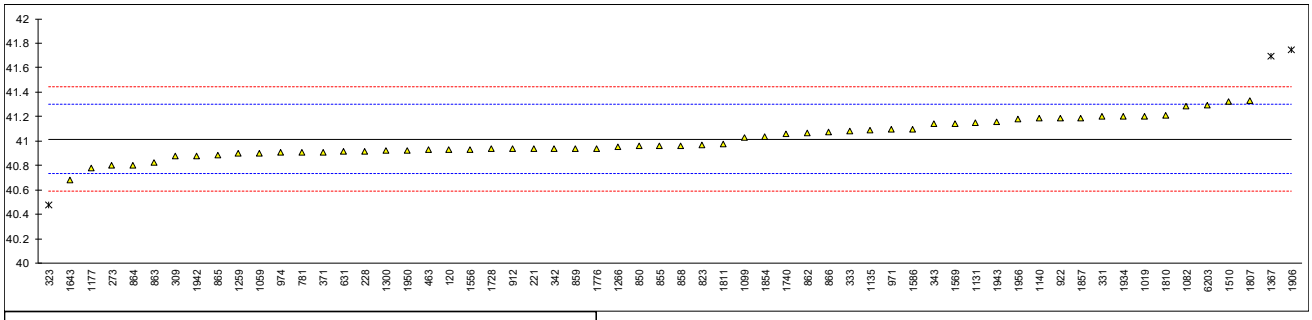
Determination of Heat of Combustion (Net) on sample #20095; results in MJ/kg

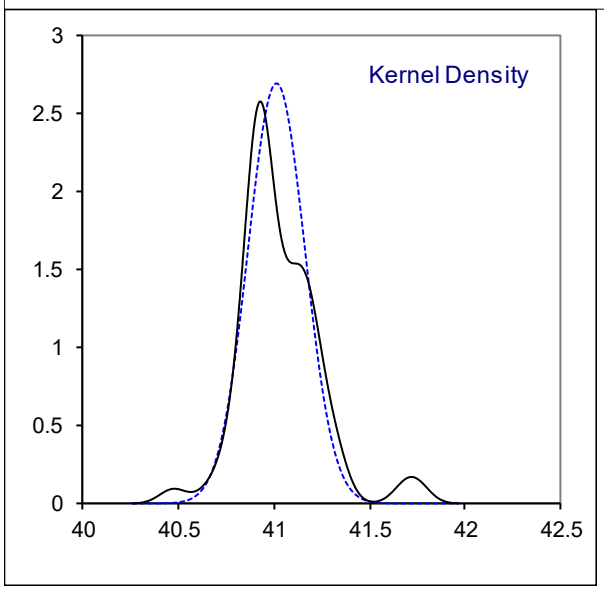
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120	D4868	40.93		-0.61	912	D240	40.94		-0.54
140		-----		-----	913		-----		-----
150		-----		-----	922	D240	41.189		1.21
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	D240	41.098		0.57
168		-----		-----	974	D4868	40.91		-0.75
169		-----		-----	982		-----		-----
171		-----		-----	1019	D4809	41.204		1.31
175		-----		-----	1059	D240	40.902		-0.80
194		-----		-----	1082	D240	41.2829		1.86
221	D4868	40.94		-0.54	1099		41.032		0.11
224		-----		-----	1109		-----		-----
225		-----		-----	1121		-----		-----
228		40.917		-0.70	1126		-----		-----
237		-----		-----	1131	D4808	41.148		0.92
238		-----		-----	1135	D240	41.092		0.53
253		-----		-----	1140	ISO8217	41.184847	C	1.18
254		-----		-----	1177	DIN51900 1/2	40.780		-1.66
273	D4868	40.80		-1.52	1191		-----		-----
309		40.880		-0.96	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259	D4868	40.90		-0.82
323	D240	40.480	R(0.05)	-3.76	1266	D4868	40.95		-0.47
331	D240	41.20		1.28	1269		-----		-----
333	D240	41.085		0.48	1275		-----		-----
334		-----		-----	1300	D4868	40.920		-0.68
335		-----		-----	1356		-----		-----
336		-----		-----	1367	D240	41.691	R(0.01)	4.72
339		-----		-----	1412		-----		-----
342	D4868	40.94		-0.54	1438		-----		-----
343	D240	41.140		0.86	1459		-----		-----
349		-----		-----	1498		-----		-----
371	D4868	40.911		-0.74	1510	D240	41.32		2.12
391		-----		-----	1544		-----		-----
398		-----		-----	1556	D4868	40.93		-0.61
399		-----		-----	1564		-----		-----
444		-----		-----	1569	D240	41.1439		0.89
463	D4868	40.93		-0.61	1586		41.1		0.58
511		-----		-----	1613		-----		-----
529		-----		-----	1631		-----		-----
541		-----		-----	1643	D240	40.6781		-2.37
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728	D4868	40.935		-0.57
603		-----		-----	1740		41.060		0.30
604		-----		-----	1761		-----		-----
608		-----		-----	1776	D4868	40.94		-0.54
631	D4868	40.913		-0.73	1788		-----		-----
633		-----		-----	1807	D240	41.333		2.21
663		-----		-----	1810	D240	41.208		1.34
671		-----		-----	1811	D240	40.975		-0.29
750		-----		-----	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	D240	41.040		0.16
759		-----		-----	1857	ISO8217	41.19		1.21
781	D4868	40.91		-0.75	1862		-----		-----
785		-----		-----	1906	D4809	41.750	R(0.01)	5.13
823	D240	40.969		-0.33	1934	D4868	41.200		1.28
825		-----		-----	1942		40.88		-0.96
850	GB/T384	40.958		-0.41	1943		41.158		0.99
851		-----		-----	1950	D4868	40.92		-0.68
855	GB/T384	40.960		-0.40	1956		41.177		1.12
858	D4868	40.96		-0.40	1964		-----		-----
859	D4868	40.94		-0.54	1995		-----		-----
862	D240	41.065		0.34	6016		-----		-----
863	GB/T384	40.824		-1.35	6026		-----		-----
864	D240	40.80		-1.52	6028		-----		-----
865	GB/T384	40.885		-0.92	6039		-----		-----
866	D240	41.076		0.42	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D240	41.2971		1.96
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201		-----		-----	6335		-----		-----

normality	OK
n	57
outliers	3
mean (n)	41.0167
st.dev. (n)	0.14812
R(calc.)	0.4147
st.dev.(D240:19)	0.14286
R(D240:19)	0.40

Lab 1140: first reported 41184.847





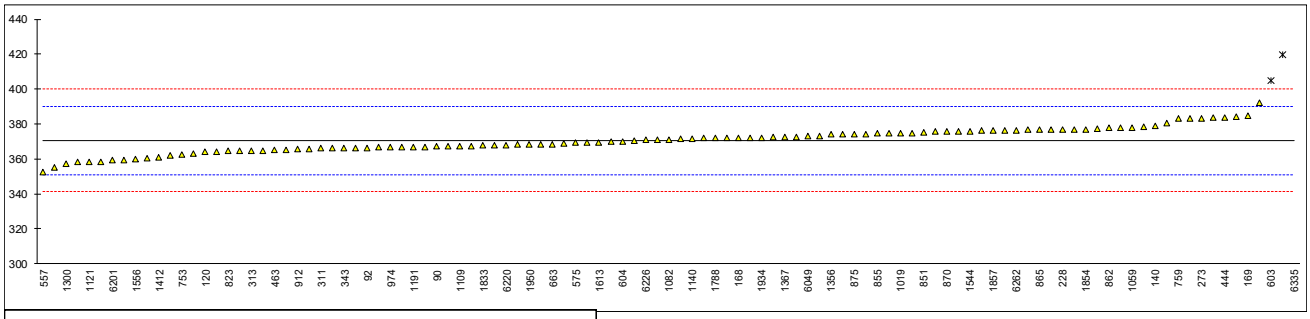
Determination of Kinematic Viscosity at 50°C on sample #20095; results in mm²/s

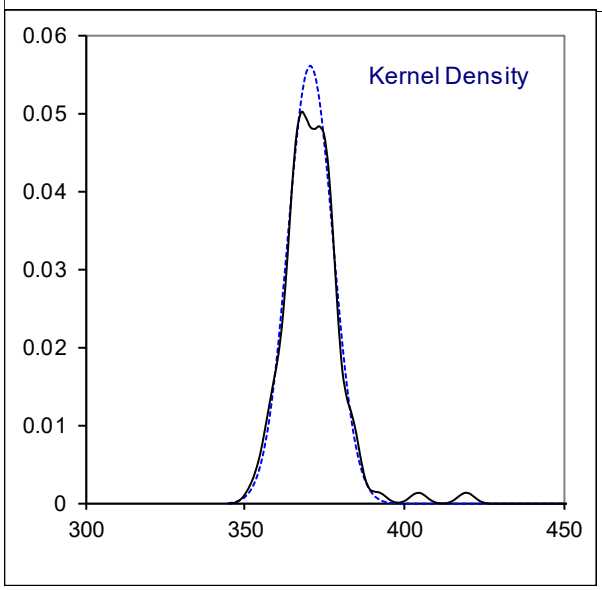
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D445	380.3	C	0.98	870	ISO3104	375.86		0.53
90	D445	367.20		-0.36	875	ISO3104	374.25		0.36
92	D445	366.44		-0.43	886		-----		-----
120	D445	363.9		-0.69	912	ISO3104	365.7		-0.51
140	D445	378.7		0.82	913		-----		-----
150	D445	374.1		0.35	922	D445	354.9		-1.61
154	D445	371.6		0.09	962		-----		-----
158	D445	358.2		-1.27	963		-----		-----
159	D445	383.52		1.31	971	ISO3104	364.1		-0.67
168	D445	372.2		0.16	974	D445	366.7		-0.41
169	D445	384.5239		1.41	982		-----		-----
171	ISO3104	419.6	R(0.01)	4.99	1019	ISO3104	374.9		0.43
175	D445	365.9		-0.49	1059	ISO3104	377.9		0.74
194		-----		-----	1082	ISO3104	371.14		0.05
221	D445	377.3		0.68	1099	ISO3104	384.44		1.40
224		-----		-----	1109	D445	367.34		-0.34
225	D445	377.9		0.74	1121	ISO3104	358.29		-1.26
228	D445	376.68		0.61	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	ISO3104	366.6		-0.42
253	D445	367		-0.38	1140	IP71	371.70		0.10
254	D445	374.6		0.40	1177		-----		-----
273	D445	383.4		1.30	1191	ISO3104	366.98		-0.38
309		-----		-----	1229	ISO3104	368.0		-0.27
311	D445	366.0		-0.48	1233	ISO3104	367.3		-0.35
313	D445	364.6		-0.62	1259	ISO3104	368.3		-0.24
323	ISO3104	369.0		-0.17	1266	ISO3104	371.8		0.11
331	D445Mod.	374.92		0.43	1269		-----		-----
333	D445	367.4		-0.33	1275	IP71	359.51		-1.14
334	ISO3104	369.4		-0.13	1300	ISO3104	357.3		-1.37
335		-----		-----	1356	ISO3104	374.0		0.34
336	ISO3104	370.7		0.00	1367	IP71	372.3		0.17
339		-----		-----	1412	D445	360.91		-1.00
342		-----		-----	1438		373.3		0.27
343	ISO3104	366.2		-0.46	1459		-----		-----
349		-----		-----	1498		-----		-----
371	D445	378.54		0.80	1510		-----		-----
391		-----		-----	1544	ISO3104	375.95308		0.54
398		-----		-----	1556	ISO3104	360.01		-1.09
399	ISO3104	369.7		-0.10	1564	D445	358.3		-1.26
444	D445	383.83		1.34	1569	D445	366.0	C	-0.48
463	ISO3104	364.90		-0.59	1586	D445	366.3		-0.45
511		-----		-----	1613	D445	369.5		-0.12
529		-----		-----	1631		-----		-----
541	D445	368.16		-0.26	1643	D445	364.6		-0.62
557	ISO3104	352.72378		-1.83	1720		-----		-----
562	D445	391.9		2.17	1724	D445	366.95		-0.38
575	D445	369.32		-0.14	1728	D445	383.1		1.27
603	D445	404.6	R(0.01)	3.46	1740	ISO3104	376.6		0.60
604	D445	369.93		-0.08	1761		-----		-----
608	D445	376.02		0.55	1776		-----		-----
631	D445	372.02		0.14	1788	D445	371.840		0.12
633		-----		-----	1807		-----		-----
663	D445	368.43		-0.23	1810		-----		-----
671		-----		-----	1811		-----		-----
750	D445	375.7		0.51	1833	ISO3104	367.7		-0.30
751		-----		-----	1849		-----		-----
753	ISO3104	362.5		-0.84	1854	ISO3104	377.0		0.65
759	ISO3104	383.1		1.27	1857	ISO3104	376.17		0.56
781	ISO3104	362.1		-0.88	1862		-----		-----
785	ISO3104	376.6		0.60	1906		-----		-----
823	D445	364.4		-0.64	1934	ISO3104	372.215		0.16
825	ISO3104	364.5		-0.63	1942		-----		-----
850	ISO3104	376.5		0.59	1943		-----		-----
851	ISO3104	375.1		0.45	1950	ISO3104	368.2		-0.25
855	D445	374.5		0.39	1956		-----		-----
858	D445	377.0		0.65	1964		-----		-----
859	D445	374.3		0.37	1995		-----		-----
862	D445	377.7		0.72	6016		-----		-----
863	D445	372.3		0.17	6026		-----		-----
864	ISO3104	375.9		0.53	6028	ISO3104	370.9		0.02
865	D445	376.6		0.60	6039		-----		-----
866	ISO3104	372.6		0.20	6044	ISO3104	372.2		0.16

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO3104	373.1		0.25	6203		-----		-----
6057	ISO3104	360.5		-1.04	6220	D445	368		-0.27
6075	ISO3104	365.39		-0.54	6226	ISO3104	370.8		0.01
6092	D445	362.9		-0.79	6262	ISO3104	376.5		0.59
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201	ISO3104	359.3		-1.16	6335	D445	701.9	R(0.01)	33.81

normality	OK
n	106
outliers	3
mean (n)	370.6802
st.dev. (n)	7.09518
R(calc.)	19.8665
st.dev.(ISO3104:94)	9.79655
R(ISO3104:94)	27.4303

Lab 62: first reported 408.7
Lab 1569: first reported 336





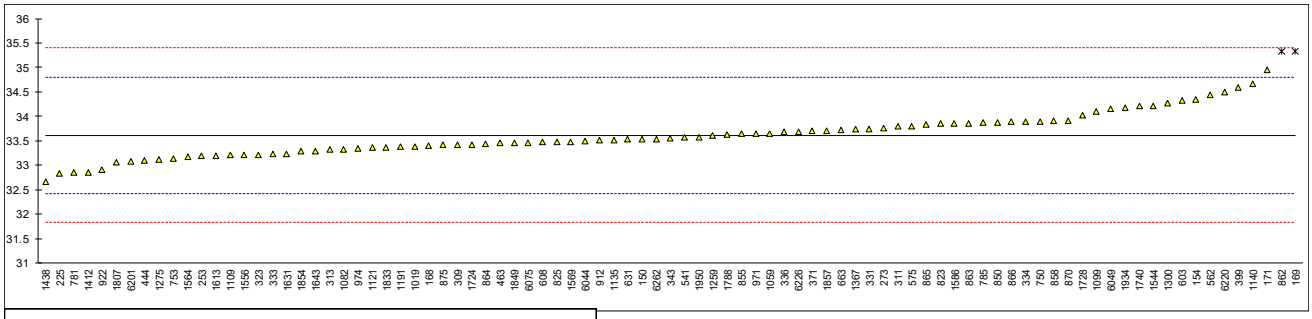
Determination of Kinematic Viscosity at 100°C on sample #20095; results in mm^2/s

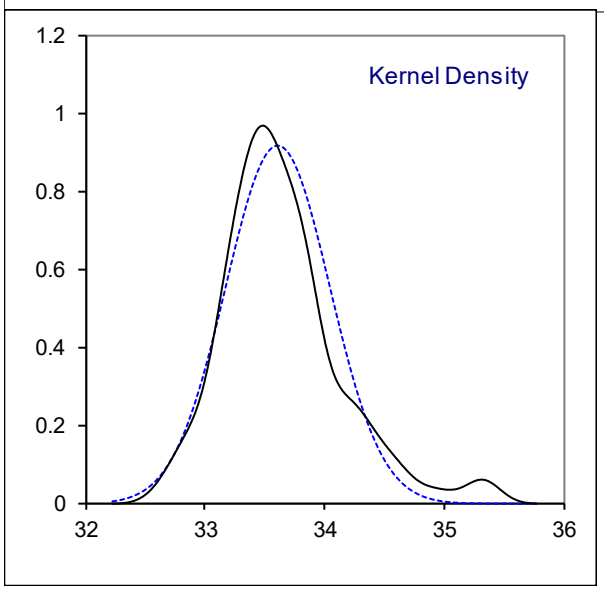
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	ISO3104	33.922		0.52
90		-----		-----	875	ISO3104	33.42		-0.33
92		-----		-----	886		-----		-----
120		-----		-----	912	ISO3104	33.51		-0.17
140		-----		-----	913		-----		-----
150	D445	33.54		-0.12	922	D445	32.91		-1.18
154	D445	34.35		1.24	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	ISO3104	33.65		0.06
168	D445	33.41		-0.34	974	D445	33.34		-0.46
169	D445	35.3370	R(0.05)	2.90	982		-----		-----
171	ISO3104	34.95		2.25	1019	ISO3104	33.39		-0.38
175		-----		-----	1059	ISO3104	33.65		0.06
194		-----		-----	1082	ISO3104	33.320		-0.49
221		-----		-----	1099	ISO3104	34.0975		0.81
224		-----		-----	1109	D445	33.21		-0.68
225	D445	32.83		-1.32	1121	ISO3104	33.37		-0.41
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	ISO3104	33.520		-0.16
253	D445	33.2		-0.70	1140	IP71	34.67		1.78
254		-----		-----	1177		-----		-----
273	D445	33.76		0.25	1191	ISO3104	33.3765		-0.40
309	D445	33.42		-0.33	1229		-----		-----
311	D445	33.79		0.30	1233		-----		-----
313	D445	33.32		-0.49	1259	ISO3104	33.61		-0.01
323	ISO3104	33.22		-0.66	1266		-----		-----
331	D445Mod.	33.75		0.23	1269		-----		-----
333	D445	33.23		-0.64	1275	IP71	33.126		-0.82
334	ISO3104	33.90		0.48	1300	ISO3104	34.28		1.12
335		-----		-----	1356		-----		-----
336	ISO3104	33.68		0.11	1367	IP71	33.74		0.21
339		-----		-----	1412	D445	32.856		-1.27
342		-----		-----	1438		32.67		-1.59
343	ISO3104	33.56		-0.09	1459		-----		-----
349		-----		-----	1498		-----		-----
371	D445	33.698		0.14	1510		-----		-----
391		-----		-----	1544	ISO3104	34.22006		1.02
398		-----		-----	1556	ISO3104	33.213		-0.67
399	ISO3104	34.60		1.66	1564	D445	33.18		-0.73
444	D445	33.106		-0.85	1569	D445	33.48		-0.22
463	ISO3104	33.455		-0.27	1586	D445	33.85		0.40
511		-----		-----	1613	D445	33.20		-0.70
529		-----		-----	1631	ISO3104	33.24		-0.63
541	D445	33.580		-0.06	1643	D445	33.298		-0.53
557		-----		-----	1720		-----		-----
562	D445	34.44		1.39	1724	D445	33.42		-0.33
575	D445	33.8	C	0.31	1728	D445	34.03		0.70
603	D445	34.32		1.19	1740	ISO3104	34.21		1.00
604		-----		-----	1761		-----		-----
608	D445	33.48		-0.22	1776		-----		-----
631	D445	33.534		-0.13	1788	D445	33.6366		0.04
633		-----		-----	1807	ISO3104	33.06		-0.93
663	D445	33.724		0.19	1810		-----		-----
671		-----		-----	1811		-----		-----
750	D445	33.90		0.48	1833	ISO3104	33.37		-0.41
751		-----		-----	1849	ISO3104	33.46		-0.26
753	ISO3104	33.13		-0.81	1854	ISO3104	33.28		-0.56
759		-----		-----	1857	ISO3104	33.703		0.15
781	ISO3104	32.85		-1.28	1862		-----		-----
785	ISO3104	33.87		0.43	1906		-----		-----
823	ISO3104	33.85		0.40	1934	ISO3104	34.179		0.95
825	ISO3104	33.48		-0.22	1942		-----		-----
850	ISO3104	33.87		0.43	1943		-----		-----
851		-----		-----	1950	ISO3104	33.58		-0.06
855	D445	33.65		0.06	1956		-----		-----
858	D445	33.91		0.50	1964		-----		-----
859		-----		-----	1995		-----		-----
862	D445	35.32	R(0.05)	2.87	6016		-----		-----
863	ISO3104	33.86		0.42	6026		-----		-----
864	ISO3104	33.44		-0.29	6028		-----		-----
865	D445	33.83		0.36	6039		-----		-----
866	ISO3104	33.89		0.47	6044	ISO3104	33.49		-0.21

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO3104	34.16		0.92	6203		-----		-----
6057		-----		-----	6220	D445	34.5		1.49
6075	ISO3104	33.464		-0.25	6226	ISO3104	33.69		0.13
6092		-----		-----	6262	ISO3104	33.54		-0.12
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201	ISO3104	33.08		-0.90	6335		-----		-----

normality	OK
n	87
outliers	2
mean (n)	33.6132
st.dev. (n)	0.43585
R(calc.)	1.2204
st.dev.(ISO3104:94)	0.59447
R(ISO3104:94)	1.6645

Lab 575: first reported 37.47



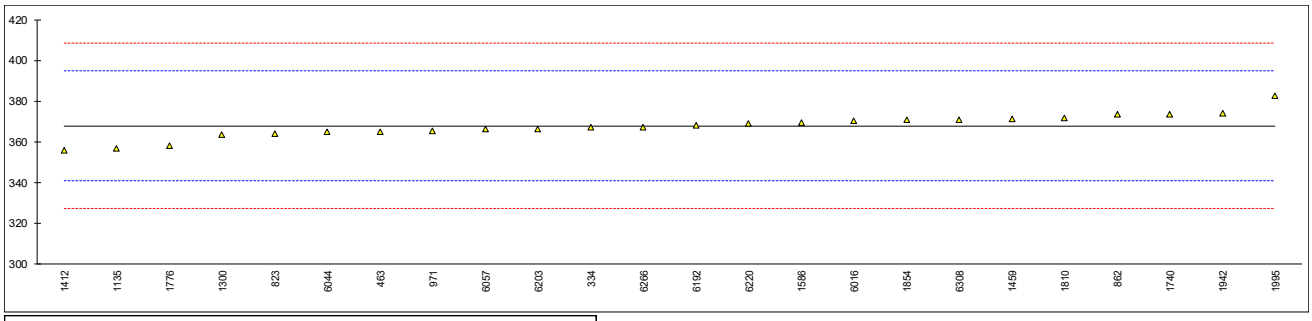


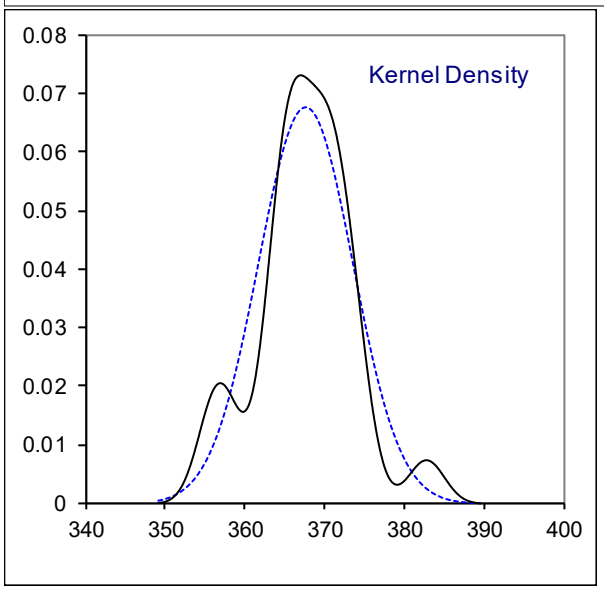
Determination of Viscosity Stabinger at 50°C on sample #20095; results in mm²/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120		-----		-----	912		-----		-----
140		-----		-----	913		-----		-----
150		-----		-----	922		-----		-----
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	D7042	365.2		-0.18
168		-----		-----	974		-----		-----
169		-----		-----	982		-----		-----
171		-----		-----	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109		-----		-----
225		-----		-----	1121		-----		-----
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	D7042	356.66		-0.82
253		-----		-----	1140		-----		-----
254		-----		-----	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323		-----		-----	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334	D7042	366.96		-0.05	1300	D7042	363.6		-0.30
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D7042	356.01		-0.86
342		-----		-----	1438		-----		-----
343		-----		-----	1459	D7042	371.13		0.25
349		-----		-----	1498		-----		-----
371		-----		-----	1510		-----		-----
391		-----		-----	1544		-----		-----
398		-----		-----	1556		-----		-----
399		-----		-----	1564		-----		-----
444		-----		-----	1569		-----		-----
463	D7042	364.86		-0.21	1586	D7042	369.3		0.12
511		-----		-----	1613		-----		-----
529		-----		-----	1631		-----		-----
541		-----		-----	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728		-----		-----
603		-----		-----	1740	D7042	373.7		0.44
604		-----		-----	1761		-----		-----
608		-----		-----	1776	D7042	358.29		-0.70
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810	D7042	371.76		0.30
671		-----		-----	1811		-----		-----
750		-----		-----	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	D7042	370.8		0.23
759		-----		-----	1857		-----		-----
781		-----		-----	1862		-----		-----
785		-----		-----	1906		-----		-----
823	D7042	363.9		-0.28	1934		-----		-----
825		-----		-----	1942	D7042	373.9		0.46
850		-----		-----	1943		-----		-----
851		-----		-----	1950		-----		-----
855		-----		-----	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995	D7042	382.78		1.12
862	D7042	373.5		0.43	6016	D7042	370.375		0.20
863		-----		-----	6026		-----		-----
864		-----		-----	6028		-----		-----
865		-----		-----	6039		-----		-----
866		-----		-----	6044	D7042	364.7		-0.22

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D7042	366.35		-0.10
6057	D7042	366.1		-0.12	6220	D7042	369		0.10
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266	D7042	366.98		-0.05
6192	D7042	367.9		0.02	6308	D7042	370.8		0.23
6201		-----		-----	6335		-----		-----

normality	suspect
n	24
outliers	0
mean (n)	367.6898
st.dev. (n)	5.90319
R(calc.)	16.5289
st.dev.(D7042:16e3)	13.51260
R(D7042:16e3)	37.8353



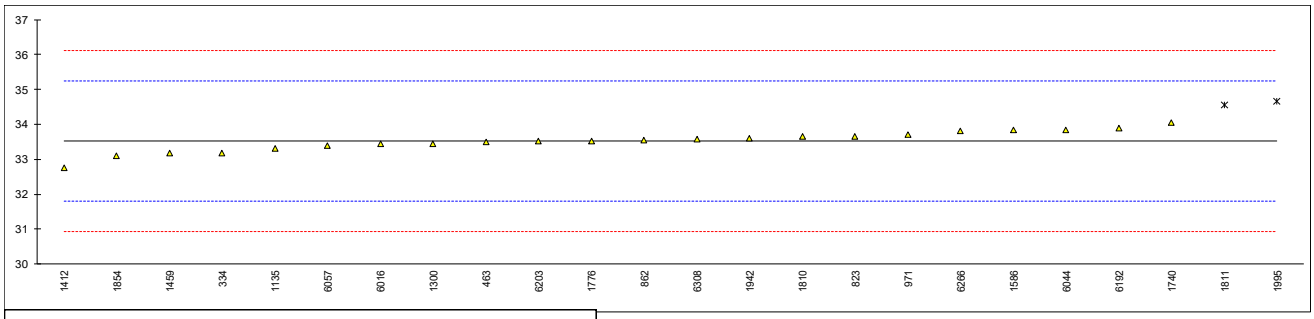


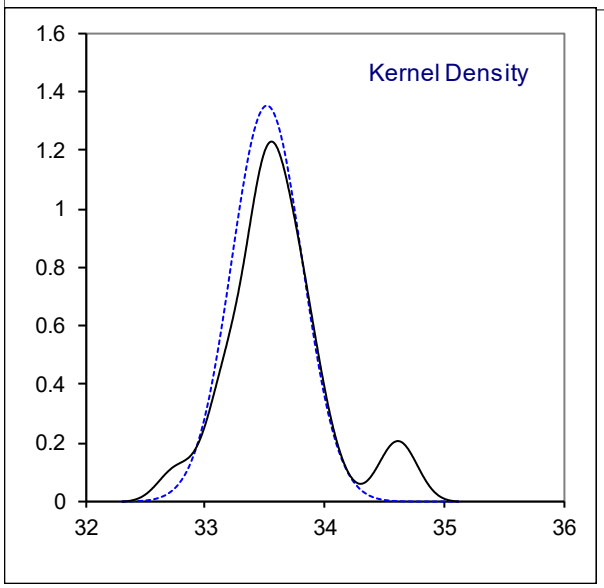
Determination of Viscosity Stabinger at 100°C on sample #20095; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120		-----		-----	912		-----		-----
140		-----		-----	913		-----		-----
150		-----		-----	922		-----		-----
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	D7042	33.72		0.23
168		-----		-----	974		-----		-----
169		-----		-----	982		-----		-----
171		-----		-----	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109		-----		-----
225		-----		-----	1121		-----		-----
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	D7042	33.311		-0.25
253		-----		-----	1140		-----		-----
254		-----		-----	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323		-----		-----	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334	D7042	33.188		-0.39	1300	D7042	33.45		-0.09
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D7042	32.768		-0.88
342		-----		-----	1438		-----		-----
343		-----		-----	1459	D7042	33.17		-0.41
349		-----		-----	1498		-----		-----
371		-----		-----	1510		-----		-----
391		-----		-----	1544		-----		-----
398		-----		-----	1556		-----		-----
399		-----		-----	1564		-----		-----
444		-----		-----	1569		-----		-----
463	D7042	33.501		-0.03	1586	D7042	33.83		0.36
511		-----		-----	1613		-----		-----
529		-----		-----	1631		-----		-----
541		-----		-----	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728		-----		-----
603		-----		-----	1740	D7042	34.05		0.61
604		-----		-----	1761		-----		-----
608		-----		-----	1776	D7042	33.520		0.00
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810	D7042	33.659		0.16
671		-----		-----	1811	D7042	34.562	DG(0.05)	1.21
750		-----		-----	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	D7042	33.10		-0.49
759		-----		-----	1857		-----		-----
781		-----		-----	1862		-----		-----
785		-----		-----	1906		-----		-----
823	D7042	33.66		0.16	1934		-----		-----
825		-----		-----	1942	D7042	33.59		0.08
850		-----		-----	1943		-----		-----
851		-----		-----	1950		-----		-----
855		-----		-----	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995	D7042	34.67	DG(0.05)	1.33
862	D7042	33.56		0.04	6016	D7042	33.439		-0.10
863		-----		-----	6026		-----		-----
864		-----		-----	6028		-----		-----
865		-----		-----	6039		-----		-----
866		-----		-----	6044	D7042	33.83		0.36

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D7042	33.516		-0.01
6057	D7042	33.39		-0.16	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266	D7042	33.806		0.33
6192	D7042	33.89		0.43	6308	D7042	33.58		0.07
6201		-----		-----	6335		-----		-----

normality	OK
n	22
outliers	2
mean (n)	33.5240
st.dev. (n)	0.29500
R(calc.)	0.8260
st.dev.(D7042:16e3)	0.86037
R(D7042:16e3)	2.4090



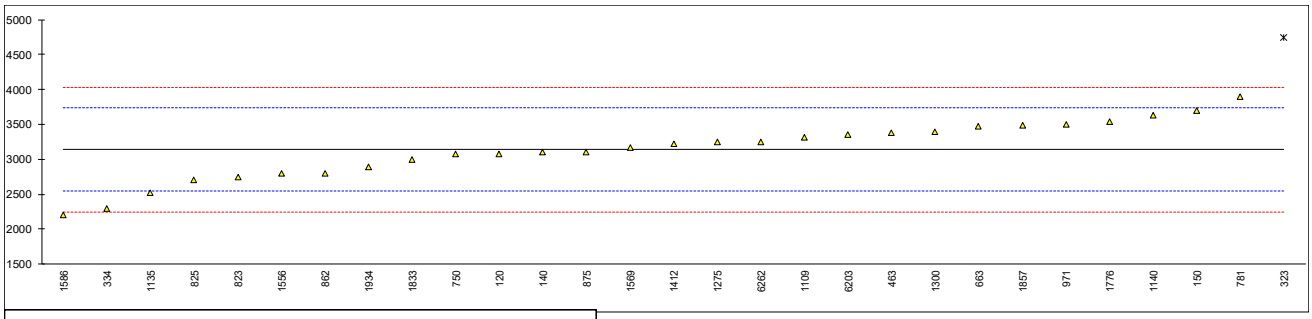


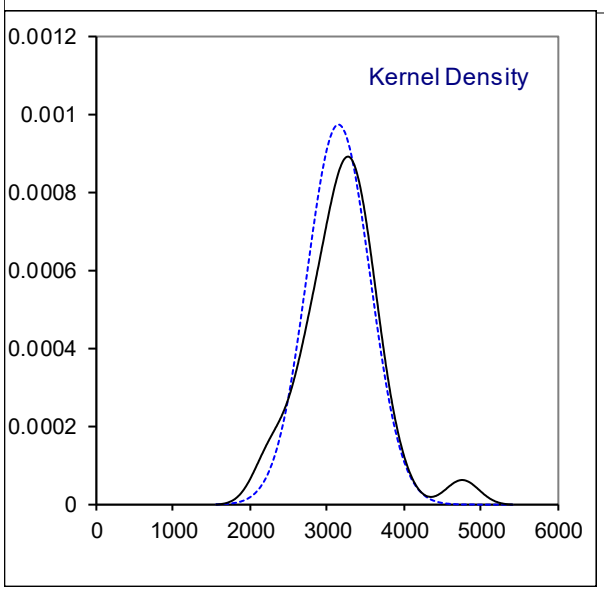
Determination of Nitrogen on sample #20095; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90		-----		-----	875	D5762 Gravimetric	3107		-0.11
92		-----		-----	886		-----		-----
120	D4629	3080.62		-0.19	912		-----		-----
140	D5762 Gravimetric	3100		-0.13	913		-----		-----
150	D5762 Volumetric	3700		1.88	922		-----		-----
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	D5762 Gravimetric	3505		1.23
168		-----		-----	974		-----		-----
169		-----		-----	982		-----		-----
171		-----		-----	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109	D4629	3315		0.59
225		-----		-----	1121		-----		-----
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	D5762 Gravimetric	2526.6		-2.05
253		-----		-----	1140	IP379	3636.5043		1.67
254		-----		-----	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323	D5762 Gravimetric	4748	R(0.05)	5.40	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275	IP379	3245.21		0.36
334	D4629	2300		-2.81	1300	D5762 Gravimetric	3388.0		0.84
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D5762 Gravimetric	3223		0.28
342		-----		-----	1438		-----		-----
343		-----		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371		-----		-----	1510		-----		-----
391		-----		-----	1544		-----		-----
398		-----		-----	1556	D5762 Volumetric	2797		-1.15
399		-----		-----	1564		-----		-----
444		-----		-----	1569	D4629	3175		0.12
463	D5762 Gravimetric	3375		0.79	1586	D5762 Volumetric	2203		-3.14
511		-----		-----	1613		-----		-----
529		-----		-----	1631		-----		-----
541		-----		-----	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728		-----		-----
603		-----		-----	1740		-----		-----
604		-----		-----	1761		-----		-----
608		-----		-----	1776	D5762 Volumetric	3533		1.32
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663	D5762 Gravimetric	3473		1.12	1810		-----		-----
671		-----		-----	1811		-----		-----
750	D5762 Gravimetric	3077		-0.21	1833	D4629	3000		-0.47
751		-----		-----	1849		-----		-----
753		-----		-----	1854		-----		-----
759		-----		-----	1857	D5762	3490		1.18
781	D3228	3900		2.55	1862		-----		-----
785		-----		-----	1906		-----		-----
823	D5762 Gravimetric	2740		-1.34	1934	D5762 Gravimetric	2895		-0.82
825	D5762 Gravimetric	2700		-1.47	1942		-----		-----
850		-----		-----	1943		-----		-----
851		-----		-----	1950		-----		-----
855		-----		-----	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995		-----		-----
862	D5762 Volumetric	2800		-1.14	6016		-----		-----
863		-----		-----	6026		-----		-----
864		-----		-----	6028		-----		-----
865		-----		-----	6039		-----		-----
866		-----		-----	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D5762 Gravimetric	3350		0.71
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262	D5762 Gravimetric	3250		0.37
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201		-----		-----	6335		-----		-----

normality	OK
n	28
outliers	1
mean (n)	3138.75
st.dev. (n)	409.062
R(calc.)	1145.37
st.dev.(D5762:18a)	298.181
R(D5762:18a)	834.91





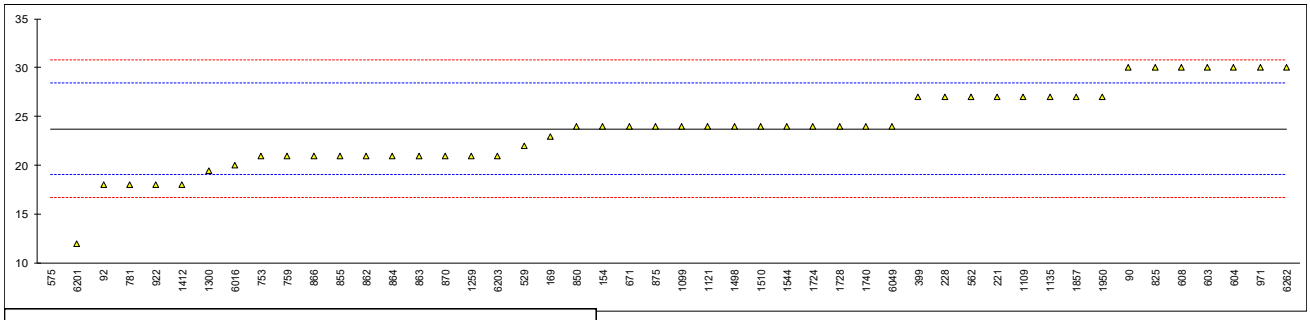
Determination of Pour Point, Lower on sample #20095; results in °C

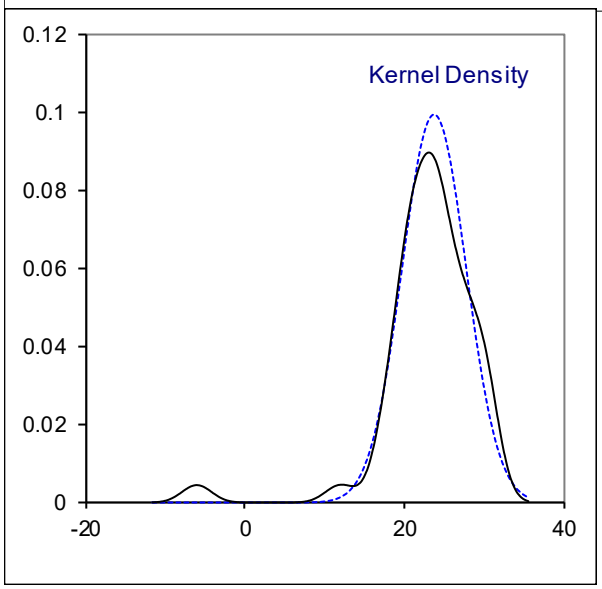
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	ISO3016	21		-1.17
90	D97	30		2.65	875	ISO3016	24		0.10
92	D97	18.0		-2.45	886		-----		-----
120		-----		-----	912		-----		-----
140		-----		-----	913		-----		-----
150		-----		-----	922	D97	18		-2.45
154	D97	24		0.10	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	ISO3016	30		2.65
168		-----		-----	974		-----		-----
169	D97	23		-0.32	982		-----		-----
171		-----		-----	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221	D97	27		1.38	1099	ISO3016	24		0.10
224		-----		-----	1109	D97	27		1.38
225		-----		-----	1121	D97	24		0.10
228	D97	27		1.38	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	ISO3016	27		1.38
253		-----		-----	1140		-----		-----
254		-----		-----	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259	ISO3016	21		-1.17
323		-----		-----	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1300	ISO3016	19.5		-1.81
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D97	18	C	-2.45
342		-----		-----	1438		-----		-----
343		-----		-----	1459		-----		-----
349		-----		-----	1498	D97	24	C	0.10
371		-----		-----	1510	ISO3016	24		0.10
391		-----		-----	1544	ISO3016	24.0		0.10
398		-----		-----	1556		-----		-----
399	ISO3016	27		1.38	1564		-----		-----
444		-----		-----	1569		-----		-----
463		-----		-----	1586		-----		-----
511		-----		-----	1613		-----	W	-----
529	D97	22		-0.75	1631		-----		-----
541		-----		-----	1643		-----		-----
557		-----		-----	1720		-----		-----
562	D97	27		1.38	1724	D97	24		0.10
575	D97	-6	C,R(0.01)	-12.64	1728	D97	24		0.10
603	D97	30		2.65	1740	ISO3016	24		0.10
604	D97	30		2.65	1761		-----		-----
608	D97	30		2.65	1776		-----		-----
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810		-----		-----
671	D97	24		0.10	1811		-----		-----
750		-----		-----	1833		-----		-----
751		-----		-----	1849		-----		-----
753	ISO3016	21		-1.17	1854		-----		-----
759	ISO3016	21		-1.17	1857	ISO3016	27		1.38
781	ISO3016	18		-2.45	1862		-----		-----
785		-----		-----	1906		-----		-----
823		-----		-----	1934		-----		-----
825	ISO3016	30		2.65	1942		-----	W	-----
850	ISO3016	24		0.10	1943		-----		-----
851		-----		-----	1950	ISO3016	27		1.38
855	D97	21		-1.17	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995		-----		-----
862	D97	21		-1.17	6016	D97	20		-1.60
863	D97	21		-1.17	6026		-----		-----
864	ISO3016	21		-1.17	6028		-----		-----
865		-----		-----	6039		-----		-----
866	ISO3016	21		-1.17	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO3016	24		0.10	6203	ISO3016	21		-1.17
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262	ISO3016	30		2.65
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201	ISO3016	12		-4.99	6335		-----		-----

normality	OK
n	47
outliers	1
mean (n)	23.76
st.dev. (n)	4.012
R(calc.)	11.23
st.dev.(ISO3016:94)	2.354
R(ISO3016:94)	6.59

Lab 575: first reported 12
Lab 1412: first reported 12
Lab 1498: first reported -24
Lab 1613: test result withdrawn, reported 12
Lab 1942: test result withdrawn, reported 6





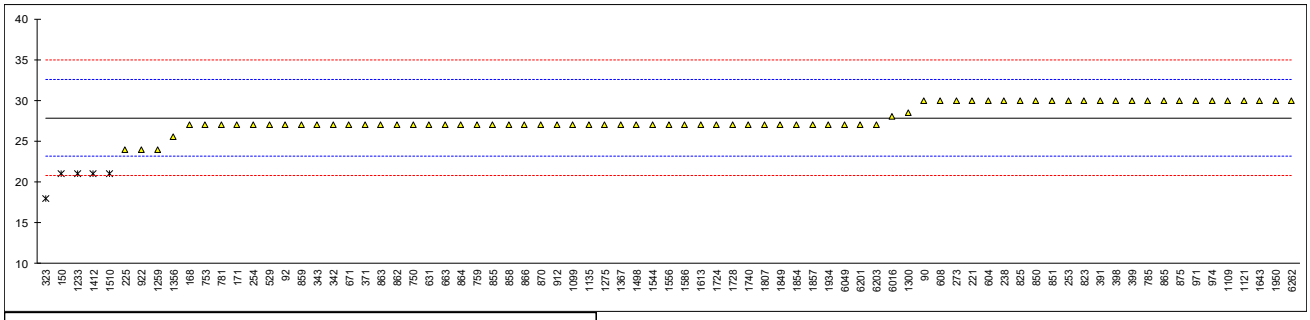
Determination of Pour Point, Upper on sample #20095; results in °C

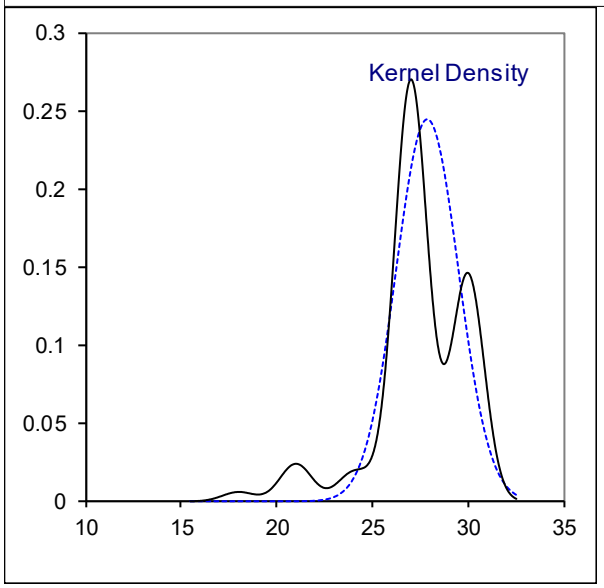
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870	ISO3016	27		-0.37
90	D97	30	C	0.91	875	ISO3016	30		0.91
92	D97	27.0		-0.37	886		-----		-----
120		-----		-----	912	ISO3016	27		-0.37
140		-----		-----	913		-----		-----
150	D97	21	R(0.01)	-2.92	922	D97	24		-1.64
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	ISO3016	30		0.91
168	D97	27		-0.37	974	D97	30		0.91
169		-----		-----	982		-----		-----
171	ISO3016	27		-0.37	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221	D97	30		0.91	1099	ISO3016	27		-0.37
224		-----		-----	1109	D97	30		0.91
225	D97	24		-1.64	1121	D97	30		0.91
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238	D97	30		0.91	1135	ISO3016	27		-0.37
253	D97	30		0.91	1140		-----		-----
254	D97	27		-0.37	1177		-----		-----
273	D97	30		0.91	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233	ISO3016	21	R(0.01)	-2.92
313		-----		-----	1259	ISO3016	24		-1.64
323	ISO3016	18	R(0.01)	-4.19	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275	IP15	27.0		-0.37
334		-----		-----	1300	ISO3016	28.5		0.27
335		-----		-----	1356	ISO3016	25.5		-1.00
336		-----		-----	1367	D97	27		-0.37
339		-----		-----	1412	D97	21	C,R(0.01)	-2.92
342	ISO3016	27		-0.37	1438		-----		-----
343	ISO3016	27		-0.37	1459		-----		-----
349		-----		-----	1498	D97	27	C	-0.37
371	ISO3016	27		-0.37	1510	ISO3016	21	R(0.01)	-2.92
391	ISO3016	30		0.91	1544	ISO3016	27.0		-0.37
398	ISO3016	30		0.91	1556	ISO3016	27		-0.37
399	ISO3016	30		0.91	1564		-----		-----
444		-----		-----	1569		-----		-----
463		-----		-----	1586	D97	27		-0.37
511		-----		-----	1613	D97	27		-0.37
529	D97	27		-0.37	1631		-----		-----
541		-----		-----	1643	D97	30		0.91
557		-----		-----	1720		-----		-----
562		-----		-----	1724	D97	27		-0.37
575		-----		-----	1728	D97	27		-0.37
603		-----		-----	1740	ISO3016	27		-0.37
604	D97	30		0.91	1761		-----		-----
608	D97	30		0.91	1776		-----		-----
631	D97	27		-0.37	1788		-----		-----
633		-----		-----	1807	ISO3016	27		-0.37
663	D97	27		-0.37	1810		-----		-----
671	D97	27		-0.37	1811		-----		-----
750	D97	27		-0.37	1833		-----		-----
751		-----		-----	1849	ISO3016	27		-0.37
753	ISO3016	27		-0.37	1854	ISO3016	27		-0.37
759	ISO3016	27		-0.37	1857	ISO3016	27		-0.37
781	ISO3016	27		-0.37	1862		-----		-----
785	ISO3016	30		0.91	1906		-----		-----
823	ISO3016	30		0.91	1934	ISO3016	27		-0.37
825	ISO3016	30		0.91	1942		-----	W	-----
850	ISO3016	30		0.91	1943		-----		-----
851	ISO3016	30		0.91	1950	ISO3016	30		0.91
855	D97	27		-0.37	1956		-----		-----
858	D97	27		-0.37	1964		-----		-----
859	D97	27		-0.37	1995		-----		-----
862	D97	27		-0.37	6016	D97	28		0.06
863	ISO3016	27		-0.37	6026		-----		-----
864	ISO3016	27		-0.37	6028		-----		-----
865	GB/T3535	30		0.91	6039		-----		-----
866	ISO3016	27		-0.37	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO3016	27		-0.37	6203	ISO3016	27		-0.37
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226		-----		-----
6092		-----		-----	6262	ISO3016	30		0.91
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308		-----		-----
6201	ISO3016	27		-0.37	6335		-----		-----

normality	OK
n	74
outliers	5
mean (n)	27.86
st.dev. (n)	1.627
R(calc.)	4.55
st.dev.(ISO3016:94)	2.354
R(ISO3016:94)	6.59

Lab 90: first reported 18
Lab 1412: first reported 15
Lab 1498: first reported -27
Lab 1942: test result withdrawn, reported 9



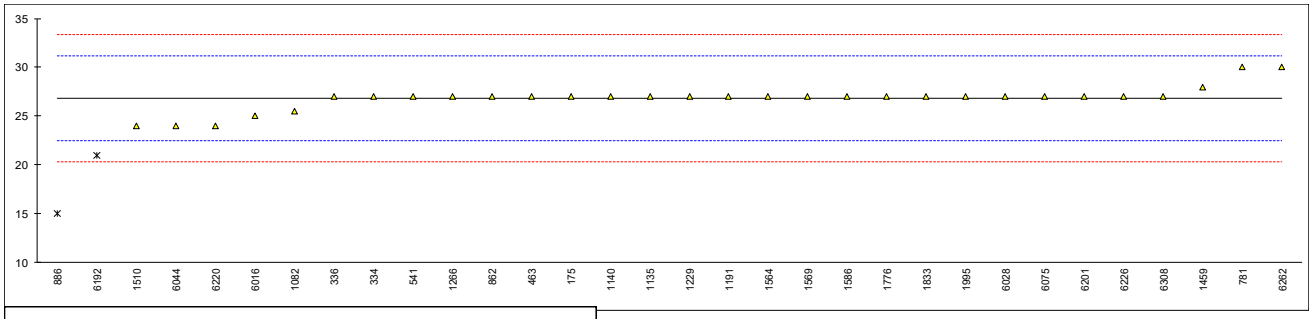


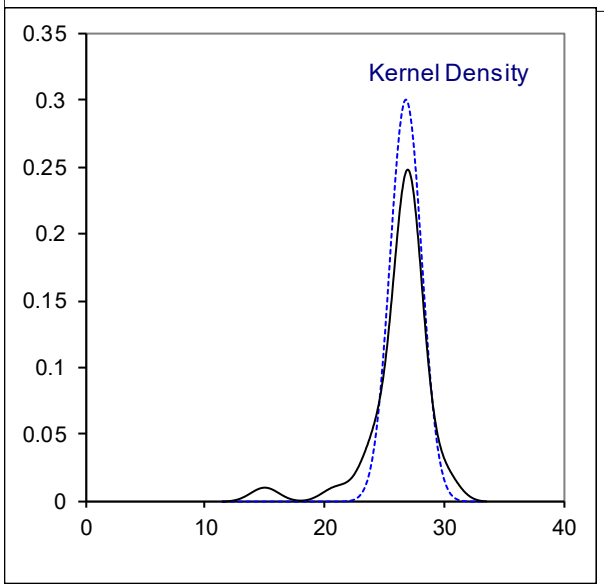
Determination of Pour Point, Automated, 3°C interval on sample #20095; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90		-----		-----	875		-----		-----
92		-----		-----	886	D5950	15	R(0.01)	-5.42
120		-----		-----	912		-----		-----
140		-----		-----	913		-----		-----
150		-----		-----	922		-----		-----
154		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971		-----		-----
168		-----		-----	974		-----		-----
169		-----		-----	982		-----		-----
171		-----		-----	1019		-----		-----
175	D5950	27		0.08	1059		-----		-----
194		-----		-----	1082	D5950	25.5		-0.60
221		-----		-----	1099		-----		-----
224		-----		-----	1109		-----		-----
225		-----		-----	1121		-----		-----
228		-----		-----	1126		-----		-----
237		-----		-----	1131		-----		-----
238		-----		-----	1135	D5950	27		0.08
253		-----		-----	1140	D5950	27		0.08
254		-----		-----	1177		-----		-----
273		-----		-----	1191	D5950	27		0.08
309		-----		-----	1229	D5950	27		0.08
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323		-----		-----	1266	D5950	27		0.08
331		-----		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334	D5950	27		0.08	1300		-----		-----
335		-----		-----	1356		-----		-----
336	D5950	27		0.08	1367		-----		-----
339		-----		-----	1412		-----		-----
342		-----		-----	1438		-----		-----
343		-----		-----	1459	In house	28.0		0.54
349		-----		-----	1498		-----		-----
371		-----		-----	1510	D5950	24		-1.29
391		-----		-----	1544		-----		-----
398		-----		-----	1556		-----		-----
399		-----		-----	1564	D5950	27		0.08
444		-----		-----	1569	D5950	27		0.08
463	D6892	27		0.08	1586	D5950	27		0.08
511		-----		-----	1613		-----		-----
529		-----		-----	1631		-----		-----
541	D5950	27		0.08	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728		-----		-----
603		-----		-----	1740		-----		-----
604		-----		-----	1761		-----		-----
608		-----		-----	1776	D5950	27		0.08
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663		-----		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
750		-----		-----	1833	D5950	27		0.08
751		-----		-----	1849		-----		-----
753		-----		-----	1854		-----		-----
759		-----		-----	1857		-----		-----
781	D5950	30		1.46	1862		-----		-----
785		-----		-----	1906		-----		-----
823		-----		-----	1934		-----		-----
825		-----		-----	1942		-----		-----
850		-----		-----	1943		-----		-----
851		-----		-----	1950		-----		-----
855		-----		-----	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995	D5950	27		0.08
862	D5950	27		0.08	6016	D5950	25		-0.83
863		-----		-----	6026		-----		-----
864		-----		-----	6028	D5950	27		0.08
865		-----		-----	6039		-----		-----
866		-----		-----	6044	D6749	24		-1.29

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203		-----		-----
6057		-----		-----	6220	D5949	24		-1.29
6075	NF T60-105	27		0.08	6226	D5950	27		0.08
6092		-----		-----	6262	D5950	30		1.46
6143		-----		-----	6266		-----		-----
6192	D5950	21	R(0.01)	-2.67	6308	D5950	27.0		0.08
6201	D5950	27		0.08	6335		-----		-----

normality	not OK
n	30
outliers	2
mean (n)	26.82
st.dev. (n)	1.329
R(calc.)	3.72
st.dev.(D5950:14)	2.179
R(D5950:14)	6.1



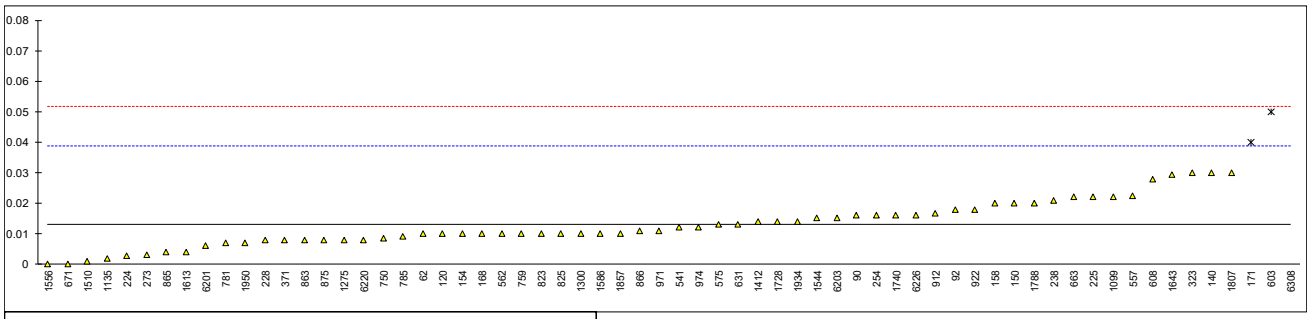


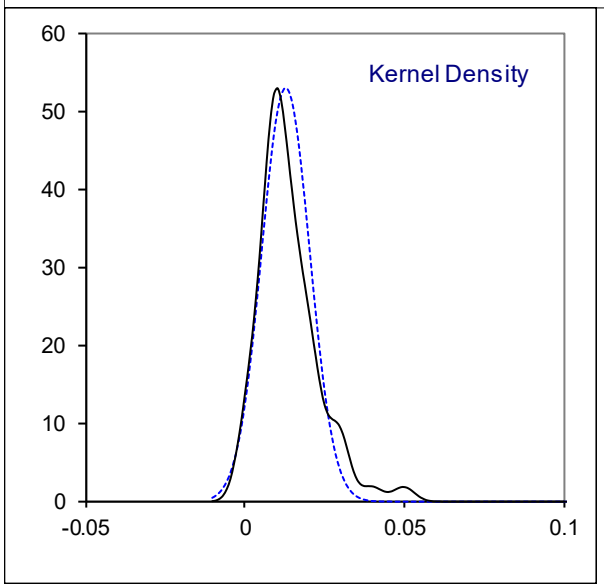
Determination of Total Sediment by Extraction on sample #20095; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D473	0.01		-0.23	870	D473	<0.005		-----
90	D473	0.016		0.23	875	D473	0.008		-0.38
92	D473	0.018		0.39	886		-----		-----
120	D473	0.01		-0.23	912	D473	0.0168		0.30
140	D473	0.03		1.31	913		-----		-----
150	D473	0.02		0.54	922	D473	0.018		0.39
154	D473	0.01		-0.23	962		-----		-----
158	D473	0.02		0.54	963		-----		-----
159		-----		-----	971	D473	0.011		-0.15
168	D473	0.01		-0.23	974	D473	0.012		-0.07
169		-----		-----	982		-----		-----
171	D473	0.04	R(0.05)	2.09	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099	ISO3735	0.022		0.70
224	D473	0.0028		-0.78	1109	D473	<0.01		-----
225	D473	0.022		0.70	1121		-----		-----
228	D473	0.0079		-0.39	1126		-----		-----
237		-----		-----	1131		-----		-----
238	D473	0.021		0.62	1135	ISO3735	0.0019		-0.85
253		-----		-----	1140		-----		-----
254	D473	0.016		0.23	1177		-----		-----
273	D473	0.003		-0.77	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259		-----		-----
323	D473	0.03		1.31	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275	IP53	0.008		-0.38
334		-----		-----	1300	D473	0.01		-0.23
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412	D473	0.014		0.08
342		-----		-----	1438		-----		-----
343		-----		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371	D473	0.008		-0.38	1510	D473	0.001		-0.92
391		-----		-----	1544	ISO3735	0.0152		0.17
398		-----		-----	1556	ISO3735	0		-1.00
399		-----		-----	1564		-----		-----
444		-----		-----	1569		-----		-----
463		-----		-----	1586	D473	0.01		-0.23
511		-----		-----	1613	D473	0.0041		-0.68
529		-----		-----	1631		-----		-----
541	D473	0.012		-0.07	1643	D473	0.0294		1.27
557	D473	0.02255		0.74	1720		-----		-----
562	D473	0.01		-0.23	1724		-----		-----
575	D473	0.013		0.00	1728	D473	0.014		0.08
603	D473	0.05	R(0.01)	2.86	1740	D473	0.016		0.23
604		-----		-----	1761		-----		-----
608	D473	0.0279		1.15	1776		-----		-----
631	D473	0.013		0.00	1788	D473	0.02		0.54
633		-----		-----	1807	D473	0.03		1.31
663	D473	0.022		0.70	1810		-----		-----
671	D473	0.0001		-0.99	1811		-----		-----
750	D473	0.0084		-0.35	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854		-----		-----
759	D473	0.01		-0.23	1857	D473	0.010		-0.23
781	D473	0.007		-0.46	1862		-----		-----
785	D473	0.009		-0.31	1906		-----		-----
823	D473	0.01		-0.23	1934	D473	0.014		0.08
825	D473	0.01		-0.23	1942		-----		-----
850	D473	<0.005		-----	1943		-----		-----
851		-----		-----	1950	D473	0.007		-0.46
855	D473	<0.005		-----	1956		-----		-----
858	D473	<0.01		-----	1964		-----		-----
859		-----		-----	1995		-----		-----
862	D473	<0.005		-----	6016		-----		-----
863	D473	0.008		-0.38	6026		-----		-----
864	D473	<0.01		-----	6028		-----		-----
865	GB/T6531	0.004		-0.69	6039		-----		-----
866	D473	0.011		-0.15	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D473	0.0152		0.17
6057		-----		-----	6220	D473	0.008		-0.38
6075		-----		-----	6226	D473	0.016		0.23
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308	D473	0.27	R(0.01)	19.83
6201	D473	0.006		-0.54	6335		-----		-----

normality	OK
n	61
outliers	3
mean (n)	0.0130
st.dev. (n)	0.00753
R(calc.)	0.0211
st.dev.(D473:07)	0.01297
R(D473:07)	0.0363



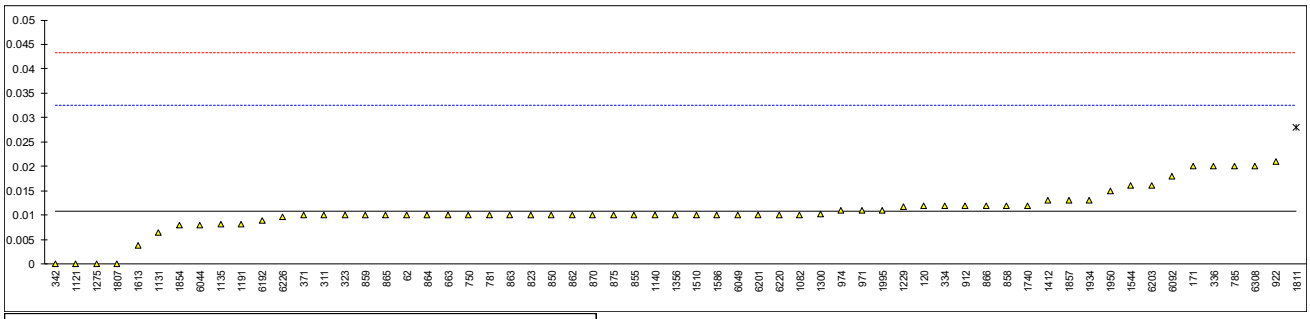


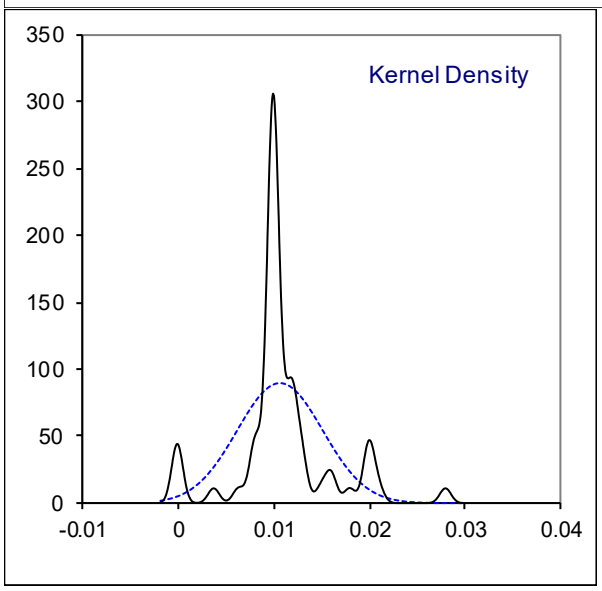
Determination of Total Sediment Existent (TSE) of sample #20095; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4870	0.01		-0.07	870	ISO10307-1	0.01		-0.07
90		-----		-----	875	IP375	0.01		-0.07
92		-----		-----	886		-----		-----
120	D4870	0.012		0.12	912	IP375	0.012		0.12
140		-----		-----	913		-----		-----
150		-----		-----	922	ISO10307-1	0.021		0.95
154	D4870	<0.01		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	IP375	0.011		0.03
168		-----		-----	974	IP375	0.011		0.03
169		-----		-----	982		-----		-----
171	IP375	0.02		0.85	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082	ISO10307-1	0.010067		-0.06
221		-----		-----	1099		-----		-----
224		-----		-----	1109		-----		-----
225		-----		-----	1121	IP375	0.000		-0.99
228		-----		-----	1126		-----		-----
237		-----		-----	1131	ISO10307-1	0.0064		-0.40
238		-----		-----	1135	ISO10307-1	0.0082		-0.23
253		-----		-----	1140	IP375	0.01		-0.07
254		-----		-----	1177		-----		-----
273		-----		-----	1191	ISO10307-1	0.00825		-0.23
309		-----		-----	1229	ISO10307-1	0.0117		0.09
311	ISO10307-1	0.01		-0.07	1233	ISO10307-1	<0.01		-----
313		-----		-----	1259		-----		-----
323	IP375	0.01		-0.07	1266		-----		-----
331		-----		-----	1269		-----		-----
333		-----		-----	1275	IP375	0.00		-0.99
334	IP375	0.012		0.12	1300	IP375	0.0102		-0.05
335		-----		-----	1356	ISO10307-1	0.01		-0.07
336	IP375	0.02		0.85	1367	IP375	<0.01		-----
339		-----		-----	1412	D4870	0.013		0.21
342	ISO10307-1	0.00		-0.99	1438		-----		-----
343	ISO10307-1	<0,01		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371	ISO10307-1	0.010		-0.07	1510	IP375	0.01		-0.07
391		-----		-----	1544	ISO10307-1	0.016		0.49
398		-----		-----	1556		-----		-----
399		-----		-----	1564		-----		-----
444		-----		-----	1569		-----		-----
463		-----		-----	1586	IP375	0.01		-0.07
511		-----		-----	1613	D4870	0.0038		-0.64
529		-----		-----	1631		-----		-----
541	D4870	<0.01		-----	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724		-----		-----
575		-----		-----	1728		-----		-----
603		-----		-----	1740	ISO10307-1	0.012		0.12
604		-----		-----	1761		-----		-----
608		-----		-----	1776		-----		-----
631		-----		-----	1788		-----		-----
633		-----		-----	1807	D4870	0		-0.99
663	IP375	0.010		-0.07	1810		-----		-----
671		-----		-----	1811	IP375	0.028	R(0.05)	1.59
750	IP375	0.01		-0.07	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	ISO10307-1	0.008		-0.25
759		-----		-----	1857	IP375	0.013		0.21
781	IP375	0.010		-0.07	1862		-----		-----
785	IP375	0.02		0.85	1906		-----		-----
823	ISO10307-1	0.01		-0.07	1934	ISO10307-1	0.013		0.21
825		-----		-----	1942		-----		-----
850	ISO10307-1	0.01		-0.07	1943		-----		-----
851	ISO10307-1	<0.01		-----	1950	IP375	0.015		0.39
855	D4870	0.01		-0.07	1956		-----		-----
858	D4870	0.012		0.12	1964		-----		-----
859	ISO10307-1	0.01		-0.07	1995	D4870	0.011		0.03
862	IP375	0.01		-0.07	6016		-----		-----
863	IP375	0.010		-0.07	6026		-----		-----
864	ISO10307-1	0.01		-0.07	6028		-----		-----
865	D4870	0.01		-0.07	6039		-----		-----
866	ISO10307-1	0.012		0.12	6044	ISO10307-1	0.008		-0.25

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO10307-1	0.010		-0.07	6203	ISO10307-1	0.0161		0.49
6057	ISO10307-1	<0,01		-----	6220	ISO10307-1	0.01		-0.07
6075		-----		-----	6226	IP375	0.0096		-0.10
6092	IP375	0.018		0.67	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192	ISO10307-1	0.0089		-0.17	6308	IP375	0.02		0.85
6201	IP375	0.01		-0.07	6335		-----		-----

	n	60
	outliers	1
	mean (n)	0.0107
	st.dev. (n)	0.00446
	R(calc.)	0.0125
	st.dev.(IP375:11)	0.01087
	R(IP375:11)	0.0304
Compare		
	R(ISO10307-2:09)	0.0304
	R(D4870:18)	0.0304



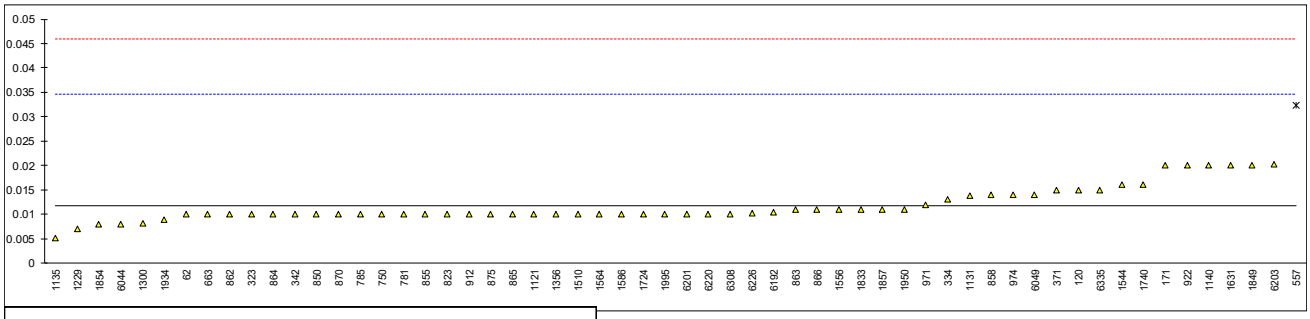


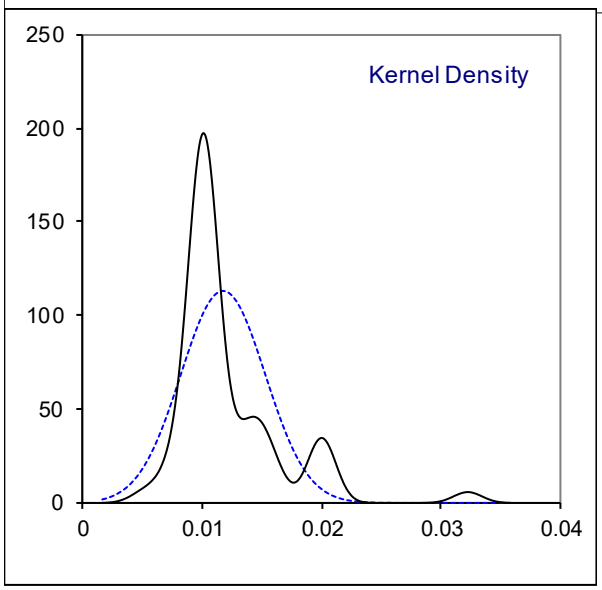
Determination of Total Sediment Accelerated (TSA) of sample #20095; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4870	0.01		-0.15	870	ISO10307-2	0.01		-0.15
90		-----		-----	875	IP390	0.01		-0.15
92		-----		-----	886		-----		-----
120	D4870	0.015		0.29	912	IP390	0.010		-0.15
140		-----		-----	913		-----		-----
150		-----		-----	922	ISO10307-2	0.020		0.72
154	D4870	<0.01		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	IP390	0.012		0.02
168		-----		-----	974	IP390	0.014		0.20
169		-----		-----	982		-----		-----
171	IP390	0.02		0.72	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109		-----		-----
225		-----		-----	1121	IP390	0.01		-0.15
228		-----		-----	1126		-----		-----
237		-----		-----	1131	ISO10307-2	0.0138		0.18
238		-----		-----	1135	ISO10307-2	0.0052		-0.58
253		-----		-----	1140	IP390	0.02		0.72
254		-----		-----	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229	ISO10307-2	0.007		-0.42
311		-----		-----	1233	ISO10307-2	<0.01		-----
313		-----		-----	1259		-----		-----
323	IP390	0.01		-0.15	1266		-----		-----
331	ISO10307-2	<0.01		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334	IP390	0.013		0.11	1300	IP390	0.0082		-0.31
335		-----		-----	1356	ISO10307-2	0.01		-0.15
336		-----		-----	1367		-----		-----
339		-----		-----	1412		-----		-----
342	ISO10307-2	0.01		-0.15	1438		-----		-----
343	ISO10307-2	<0,01		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371	ISO10307-2	0.015		0.29	1510	IP390	0.01		-0.15
391		-----		-----	1544	ISO10307-2	0.016		0.37
398		-----		-----	1556	ISO10307-2	0.011		-0.07
399		-----		-----	1564	ISO10307-2	0.01		-0.15
444		-----		-----	1569		-----		-----
463		-----		-----	1586	IP390	0.01		-0.15
511		-----		-----	1613		-----		-----
529		-----		-----	1631	ISO10307-2	0.02		0.72
541		-----		-----	1643		-----		-----
557	D4870	0.0322908	R(0.05)	1.80	1720		-----		-----
562		-----		-----	1724	IP390	0.01		-0.15
575		-----		-----	1728		-----		-----
603		-----		-----	1740	ISO10307-2	0.016		0.37
604		-----		-----	1761		-----		-----
608		-----		-----	1776		-----		-----
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663	IP390	0.010		-0.15	1810		-----		-----
671		-----		-----	1811		-----		-----
750	ISO10307-2	0.01		-0.15	1833	ISO10307-2	0.011		-0.07
751		-----		-----	1849	ISO10307-2	0.02		0.72
753		-----		-----	1854	ISO10307-2	0.008		-0.33
759		-----		-----	1857	IP390	0.011		-0.07
781	IP390	0.010		-0.15	1862		-----		-----
785	IP390	0.01		-0.15	1906		-----		-----
823	ISO10307-2	0.01		-0.15	1934	ISO10307-2	0.009		-0.24
825		-----		-----	1942		-----		-----
850	ISO10307-2	0.01		-0.15	1943		-----		-----
851		-----		-----	1950	IP390	0.011		-0.07
855	D4870	0.01		-0.15	1956		-----		-----
858	D4870	0.014		0.20	1964		-----		-----
859		-----		-----	1995	D4870	0.01		-0.15
862	IP390	0.01		-0.15	6016		-----		-----
863	D4870	0.011		-0.07	6026		-----		-----
864	ISO10307-2	0.01		-0.15	6028		-----		-----
865	D4870	0.01		-0.15	6039		-----		-----
866	ISO10307-2	0.011		-0.07	6044	ISO10307-2	0.008		-0.33

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO10307-2	0.014		0.20	6203	ISO10307-2	0.0202		0.74
6057	ISO10307-2	<0,01		-----	6220	ISO10307-2	0.01		-0.15
6075		-----		-----	6226	IP390	0.0102		-0.14
6092		-----		-----	6262		-----		-----
6143		-----		-----	6266		-----		-----
6192	ISO10307-2	0.0104		-0.12	6308	IP390	0.01		-0.15
6201	IP390	0.01		-0.15	6335	D4870	0.015		0.29

	normality	suspect
	n	57
	outliers	1
	mean (n)	0.0118
	st.dev. (n)	0.00354
	R(calc.)	0.0099
	st.dev.(IP390:11)	0.01138
	R(IP390:11)	0.0319
Compare		
	R(ISO10307-2:09)	0.0319
	R(D4870:18)	0.0319



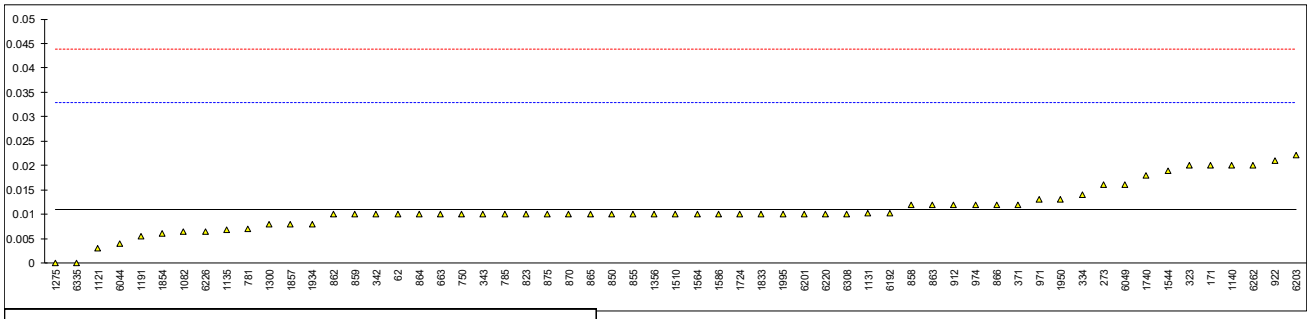


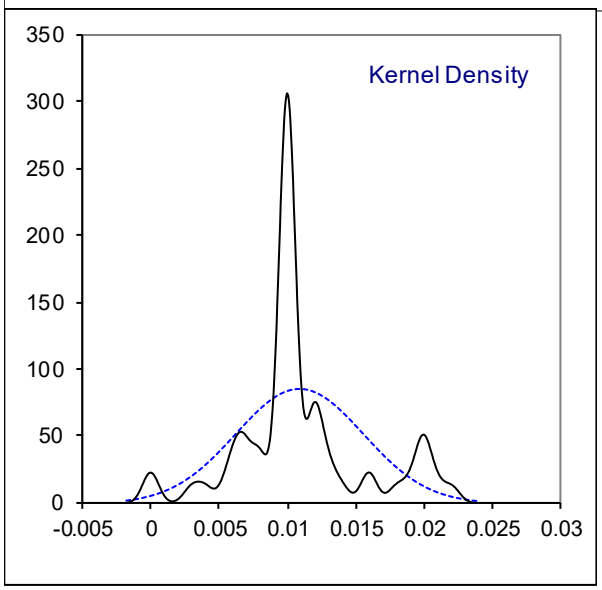
Determination of Total Sediment Potential (TSP) of sample #20095; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4870	0.01		-0.08	870	ISO10307-2	0.01		-0.08
90		-----		-----	875	IP390	0.01		-0.08
92		-----		-----	886		-----		-----
120		-----		-----	912	IP390	0.012		0.10
140		-----		-----	913		-----		-----
150		-----		-----	922	ISO10307-2	0.021		0.92
154	D4870	<0.01		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	IP390	0.013		0.19
168		-----		-----	974	IP390	0.012		0.10
169		-----		-----	982		-----		-----
171	IP390	0.02		0.83	1019		-----		-----
175		-----		-----	1059		-----		-----
194		-----		-----	1082	ISO10307-2	0.006493		-0.40
221		-----		-----	1099		-----		-----
224		-----		-----	1109		-----		-----
225		-----		-----	1121	IP390	0.003		-0.72
228		-----		-----	1126		-----		-----
237		-----		-----	1131	ISO10307-2	0.0102		-0.07
238		-----		-----	1135	ISO10307-2	0.0069		-0.37
253		-----		-----	1140	IP390	0.02		0.83
254		-----		-----	1177		-----		-----
273	IP390	0.016		0.46	1191	ISO10307-2	0.00559		-0.49
309		-----		-----	1229		-----		-----
311		-----		-----	1233	ISO10307-2	<0.01		-----
313		-----		-----	1259		-----		-----
323	IP390	0.02		0.83	1266		-----		-----
331	ISO10307-2	<0.01		-----	1269		-----		-----
333		-----		-----	1275	IP390	0.00		-1.00
334	IP390	0.014		0.28	1300	IP390	0.008		-0.27
335		-----		-----	1356	ISO10307-2	0.01		-0.08
336		-----		-----	1367	IP390	<0.01		-----
339		-----		-----	1412		-----		-----
342	ISO10307-2	0.01		-0.08	1438		-----		-----
343	ISO10307-2	0.01		-0.08	1459		-----		-----
349		-----		-----	1498		-----		-----
371	ISO10307-2	0.012		0.10	1510	IP390	0.01		-0.08
391		-----		-----	1544	ISO10307-2	0.019		0.74
398		-----		-----	1556		-----		-----
399		-----		-----	1564	ISO10307-2	0.01		-0.08
444		-----		-----	1569		-----		-----
463		-----		-----	1586	IP390	0.01		-0.08
511		-----		-----	1613		-----		-----
529		-----		-----	1631		-----		-----
541		-----		-----	1643		-----		-----
557		-----		-----	1720		-----		-----
562		-----		-----	1724	IP390	0.01		-0.08
575		-----		-----	1728		-----		-----
603		-----		-----	1740	ISO10307-2	0.018		0.65
604		-----		-----	1761		-----		-----
608		-----		-----	1776		-----		-----
631		-----		-----	1788		-----		-----
633		-----		-----	1807		-----		-----
663	IP390	0.010		-0.08	1810		-----		-----
671		-----		-----	1811		-----		-----
750	ISO10307-2	0.01		-0.08	1833	ISO10307-2	0.010		-0.08
751		-----		-----	1849		-----		-----
753		-----		-----	1854	ISO10307-2	0.006		-0.45
759		-----		-----	1857	IP390	0.008		-0.27
781	IP390	0.007		-0.36	1862		-----		-----
785	IP390	0.01		-0.08	1906		-----		-----
823	ISO10307-2	0.01		-0.08	1934	ISO10307-2	0.008		-0.27
825		-----		-----	1942		-----		-----
850	ISO10307-2	0.01		-0.08	1943		-----		-----
851		-----		-----	1950	IP390	0.013		0.19
855	D4870	0.01		-0.08	1956		-----		-----
858	D4870	0.012		0.10	1964		-----		-----
859	ISO10307-2	0.01		-0.08	1995	D4870	0.01		-0.08
862	IP390	0.01		-0.08	6016		-----		-----
863	ISO10307-2	0.012		0.10	6026		-----		-----
864	ISO10307-2	0.01		-0.08	6028		-----		-----
865	D4870	0.01		-0.08	6039		-----		-----
866	ISO10307-2	0.012		0.10	6044	ISO10307-2	0.004		-0.63

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO10307-2	0.016		0.46	6203	ISO10307-2	0.0221		1.02
6057	ISO10307-2	<0,01		-----	6220	ISO10307-2	0.01	C	-0.08
6075		-----		-----	6226	IP390	0.0065		-0.40
6092		-----		-----	6262	IP390	0.02		0.83
6143		-----		-----	6266		-----		-----
6192	ISO10307-2	0.0103		-0.06	6308	IP390	0.01		-0.08
6201	IP390	0.01		-0.08	6335	D4870	0		-1.00

	normality	OK
	n	59
	outliers	0
	mean (n)	0.0109
	st.dev. (n)	0.00468
	R(calc.)	0.0131
	st.dev.(IP390:11)	0.01097
	R(IP390:11)	0.0307
Compare		
	R(ISO10307-2:09)	0.0307
	R(D4870:18)	0.0307





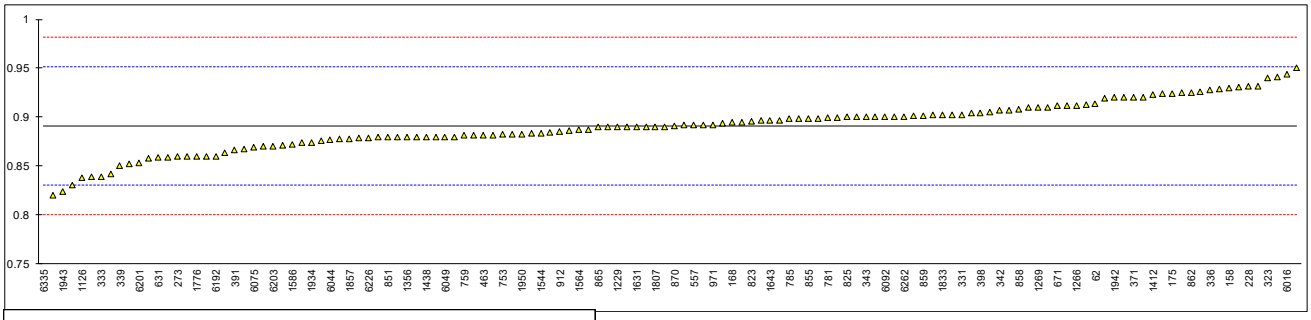
Determination of Total Sulfur on sample #20095; results in %M/M

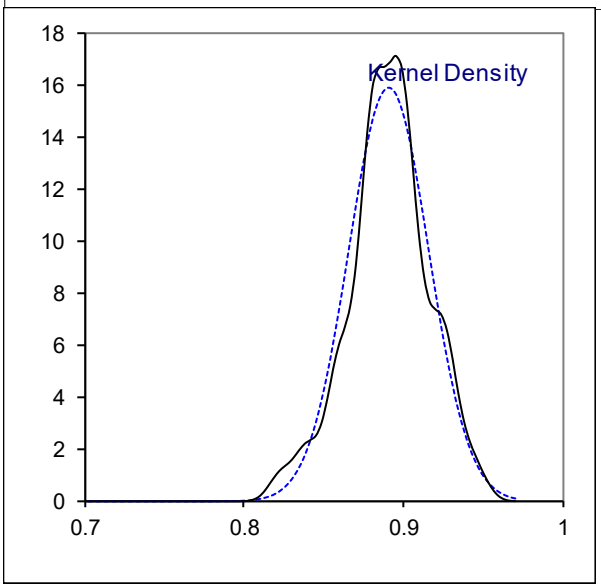
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4294	0.914		0.77	870	D4294	0.891		0.01
90	D4294	0.9318		1.36	875	ISO8754	0.881		-0.32
92	D4294	0.9239		1.10	886		-----		-----
120	D4294	0.90211		0.38	912	ISO8754	0.885		-0.19
140	D4294	0.901		0.34	913		-----		-----
150	D4294	0.926		1.17	922	D4294	0.883		-0.26
154	D4294	0.899		0.27	962		-----		-----
158	D4294	0.930		1.30	963		-----		-----
159		-----		-----	971	ISO8754	0.892		0.04
168	D4294	0.895		0.14	974	D4294	0.912		0.70
169	D4294	0.92479		1.13	982		-----		-----
171	D4294	0.919		0.94	1019	D1552	0.884		-0.22
175	D4294	0.924		1.10	1059	ISO14596	0.82		-2.34
194		-----		-----	1082	ISO8754	0.8675		-0.77
221	D4294	0.886		-0.16	1099	ISO8754	0.8915		0.02
224	D4294	0.839		-1.72	1109	D4294	0.858		-1.09
225		-----		-----	1121	IP336	0.931		1.33
228	D4294	0.9311		1.34	1126	In house	0.838		-1.75
237		-----		-----	1131	ISO8754	0.86		-1.02
238	D4294	0.842		-1.62	1135	ISO8754	0.86344		-0.91
253	D4294	0.90		0.31	1140	IP336	0.91		0.64
254		-----		-----	1177	DIN10304-1	0.898		0.24
273	D4294	0.86		-1.02	1191	ISO8754	0.882		-0.29
309		-----		-----	1229	ISO8754	0.89		-0.03
311	ISO8754	0.88		-0.36	1233	ISO8754	0.89		-0.03
313	ISO8754	0.89		-0.03	1259	ISO8754	0.88		-0.36
323	ISO8754	0.94		1.63	1266	ISO8754	0.912		0.70
331	ISO8754	0.9022		0.38	1269	In house	0.91		0.64
333	ISO8754	0.839		-1.72	1275	IP336	0.852		-1.28
334	ISO8754	0.874		-0.56	1300	ISO8754	0.8787		-0.40
335	ISO8754	0.898		0.24	1356	ISO8754	0.88		-0.36
336	D4294	0.928		1.23	1367	IP336	0.88		-0.36
339	INH-050	0.85		-1.35	1412	D4294	0.923		1.07
342	ISO8754	0.907		0.54	1438	D4294	0.88		-0.36
343	IP336	0.90		0.31	1459	ISO8754	0.941		1.66
349		-----		-----	1498		-----		-----
371	D4294	0.9205		0.99	1510	ISO8754	0.881		-0.32
391	ISO8754	0.866		-0.82	1544	ISO8754	0.883		-0.26
398	ISO8754	0.904		0.44	1556	ISO8754	0.929	C	1.27
399	ISO8754	0.83		-2.01	1564	D4294	0.887		-0.12
444	D2622	0.904		0.44	1569	ISO8754	0.905		0.47
463	D4294	0.881		-0.32	1586	D4294	0.872		-0.62
511		-----		-----	1613	D4294	0.8757		-0.50
529	D4294	0.9206		0.99	1631	ISO8754	0.89		-0.03
541		-----		-----	1643	D1552	0.897		0.21
557	D4294	0.89194		0.04	1720		-----		-----
562		-----		-----	1724	ISO8754	0.870		-0.69
575	D4294	0.91257		0.72	1728	D4294	0.871		-0.65
603		-----		-----	1740	ISO8754	0.89		-0.03
604	D4294	0.878		-0.42	1761	ISO8754	0.897		0.21
608	D4294	0.8934		0.09	1776	ISO8754	0.860		-1.02
631	D4294	0.859		-1.05	1788		-----		-----
633		-----		-----	1807	ISO8754	0.89		-0.03
663		-----		-----	1810	D4294	0.89		-0.03
671	D4294	0.91146		0.69	1811	ISO8754	0.88		-0.36
750	D4294	0.892		0.04	1833	ISO8754	0.902		0.37
751		-----		-----	1849	ISO8754	0.86		-1.02
753	D4294	0.882		-0.29	1854	ISO8754	0.91		0.64
759	ISO8754	0.881		-0.32	1857	ISO8754	0.878		-0.42
781	ISO8754	0.899		0.27	1862		-----		-----
785	ISO8754	0.898		0.24	1906	D5623	0.859		-1.05
823	ISO8754	0.896		0.17	1934	ISO8754	0.8743		-0.55
825	ISO8754	0.90		0.31	1942	D4294	0.92		0.97
850	D4294	0.897		0.21	1943		0.824		-2.21
851	ISO8754	0.880		-0.36	1950	ISO8754	0.882		-0.29
855	D4294	0.898		0.24	1956	ISO8754	0.92		0.97
858	D4294	0.908		0.57	1964		-----		-----
859	D4294	0.901		0.34	1995		-----		-----
862	ISO8754	0.925		1.13	6016	D4294	0.94347		1.75
863	D4294	0.907		0.54	6026		-----		-----
864	ISO8754	0.902		0.37	6028	ISO8754	0.95	C	1.96
865	GB/T17040	0.890		-0.03	6039	ISO8754	0.90		0.31
866	D4294	0.895		0.14	6044	ISO8754	0.877		-0.46

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO8754	0.88		-0.36	6203	ISO8754	0.8703		-0.68
6057	ISO8754	0.88		-0.36	6220	D4294	0.9		0.31
6075	ISO8754	0.869		-0.72	6226	ISO8754	0.879		-0.39
6092	D4294	0.9		0.31	6262	ISO8754	0.90		0.31
6143		-----		-----	6266		-----		-----
6192	ISO8754	0.86		-1.02	6308	IP336	0.887		-0.12
6201	ISO8754	0.853		-1.25	6335		0.08	R(0.01)	-26.86

	normality	OK
	n	131
	outliers	1
	mean (n)	0.8908
	st.dev. (n)	0.02510
	R(calc.)	0.0703
	st.dev.(ISO8754:03)	0.03018
	R(ISO8754:03)	0.0845
Compare		
	R(4294:16e1)	0.0674

Lab 1556: first reported 0.0929
Lab 6028: first reported 1.06



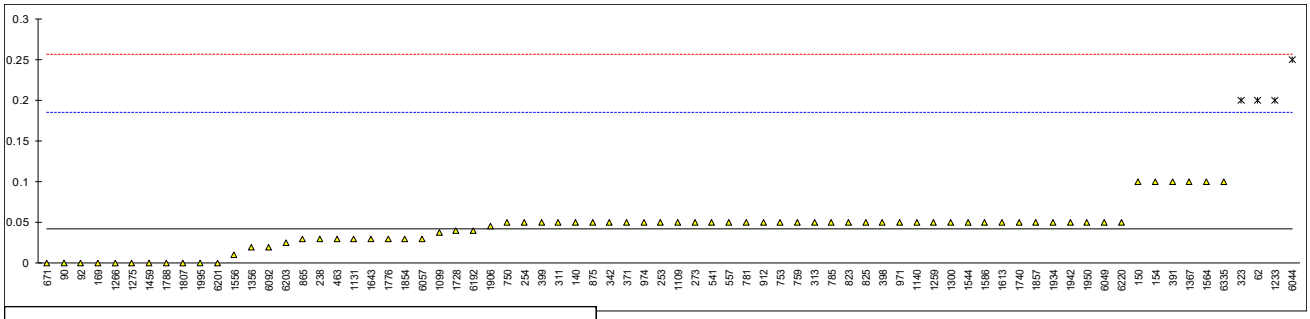


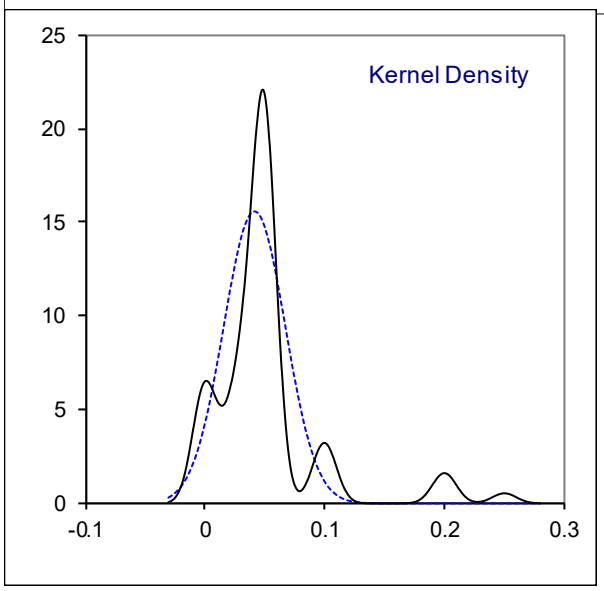
Determination of Water by distillation on sample #20095; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D95	0.2	R(0.01)	2.21	870	D95	<0.05		-----
90	D95	0		-0.59	875	ISO3733	0.05		0.11
92	D95	0		-0.59	886		-----		-----
120	D95	<0.05		-----	912	ISO3733	0.05		0.11
140	D95	0.05		0.11	913		-----		-----
150	D95	0.10		0.81	922	D95	<0.05		-----
154	D95	0.10		0.81	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971	ISO3733	0.05		0.11
168		-----		-----	974	D95	0.05		0.11
169	D95	0.0		-0.59	982		-----		-----
171		-----		-----	1019	ISO3733	<0.1		-----
175		-----		-----	1059	ISO3733	<0,05		-----
194		-----		-----	1082		-----		-----
221	D95	<0.02		-----	1099	ISO3733	0.0375		-0.06
224		-----		-----	1109	D95	0.05		0.11
225		-----		-----	1121	ISO3733	<0.05		-----
228	D95	<0.05		-----	1126		-----		-----
237	D95	<0.05		-----	1131	ISO3733	0.03		-0.17
238	D95	0.03		-0.17	1135	ISO3733	<0.05		-----
253	D95	0.05		0.11	1140	IP74	0.050		0.11
254	D95	0.05		0.11	1177		-----		-----
273	D95	0.05		0.11	1191		-----		-----
309		-----		-----	1229		-----		-----
311	D95	0.05		0.11	1233	ISO3733	0.2	R(0.01)	2.21
313	D95	0.05		0.11	1259	ISO3733	0.05		0.11
323	ISO3733	0.20	R(0.01)	2.21	1266	D95	0.0		-0.59
331	ISO3733	<0.05		-----	1269		-----		-----
333	ISO3733	<0.05		-----	1275	IP74	0.00		-0.59
334	D95	<0.1		-----	1300	ISO3733	0.05		0.11
335		-----		-----	1356	D6304-A	0.02		-0.31
336		-----		-----	1367	D95	0.1		0.81
339		-----		-----	1412		-----		-----
342	ISO3733	0.05		0.11	1438		-----		-----
343	D95	<0,1		-----	1459	ISO3733	0		-0.59
349	D95	<0,1		-----	1498		-----		-----
371	ISO3733	0.05		0.11	1510	ISO3733	<0.05		-----
391	ISO3733	0.10		0.81	1544	ISO3733	0.050		0.11
398	ISO3733	0.05		0.11	1556	D6304-C	0.01		-0.45
399	ISO3733	0.05		0.11	1564	D95	0.1		0.81
444		-----		-----	1569	D95	<0.10		-----
463	D95	0.03		-0.17	1586	D95	0.05		0.11
511		-----		-----	1613	D95	0.05		0.11
529		-----		-----	1631	D95	<0.1		-----
541	D95	0.05		0.11	1643	D95	0.03		-0.17
557	D95	0.05		0.11	1720		-----		-----
562		-----		-----	1724	D95	<0,1		-----
575	D95	<0.05		-----	1728	D95	0.04		-0.03
603		-----		-----	1740	ISO3733	0.05		0.11
604		-----		-----	1761		-----		-----
608	D95	<0.15		-----	1776	D6304-A	0.03		-0.17
631	D95	<0.05		-----	1788	D95	0.00		-0.59
633		-----		-----	1807	ISO3733	0		-0.59
663	D95	<0.1		-----	1810		-----		-----
671	D95	0		-0.59	1811		-----		-----
750	D95	0.05		0.11	1833	EN1428	<0.1		-----
751		-----		-----	1849	EN1428	<0,1		-----
753	ISO3733	0.05		0.11	1854	ISO3733	0.03		-0.17
759	ISO3733	0.05		0.11	1857	ISO3733	0.050		0.11
781	ISO3733	0.05		0.11	1862		-----		-----
785	ISO3733	0.05		0.11	1906	D6304-C	0.045		0.04
823	ISO3733	0.05		0.11	1934	ISO3733	0.05		0.11
825	ISO3733	0.05		0.11	1942	D95	0.05		0.11
850	ISO3733	<0.05		-----	1943		-----		-----
851	ISO3733	<0.1		-----	1950	ISO3733	0.05		0.11
855	D95	<0.05		-----	1956		-----		-----
858	D95	<0.05		-----	1964		-----		-----
859	D95	<0.05		-----	1995	D95	0		-0.59
862	ISO3733	<0.05		-----	6016		-----		-----
863	D95	<0.05		-----	6026		-----		-----
864	ISO3733	<0.05		-----	6028		-----		-----
865	GB/T260	0.03		-0.17	6039		-----		-----
866	ISO3733	<0.05		-----	6044	D6304-C	0.25	R(0.01)	2.91

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049	ISO3733	0.05		0.11	6203	D95	0.025		-0.24
6057	ISO3733	0.03		-0.17	6220	D95	0.05		0.11
6075	ISO3733	<0.05		-----	6226	ISO3733	<0.1		-----
6092	D95	0.02		-0.31	6262	ISO3733	<0.05		-----
6143		-----		-----	6266		-----		-----
6192	ISO3733	0.04		-0.03	6308	D95	<0.1		-----
6201	ISO3733	0.00		-0.59	6335	D95	0.1		0.81

	normality	OK
	n	70
	outliers	4
	mean (n)	0.0418
	st.dev. (n)	0.02566
	R(calc.)	0.0718
	st.dev.(ISO3733:99)	0.07143
	R(ISO3733:99)	0.2
Compare		
	R(D95:13)	0.2



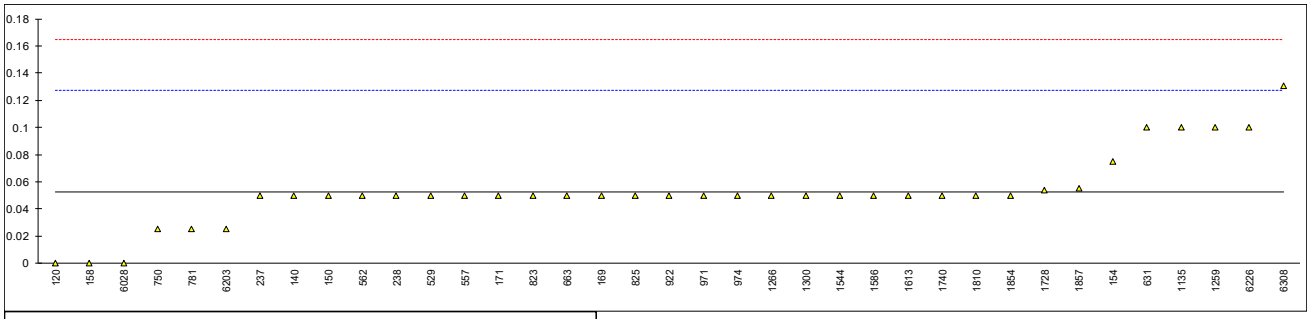


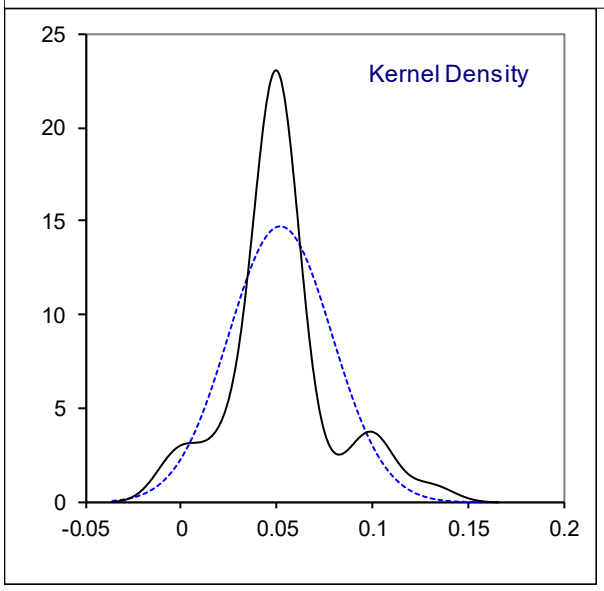
Determination of Water and Sediment on sample #20095; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	870		-----		-----
90		-----		-----	875		-----		-----
92		-----		-----	886		-----		-----
120	D1796	0.00		-1.40	912		-----		-----
140	D1796	0.05		-0.06	913		-----		-----
150	D1796	0.05		-0.06	922	D1796	0.05		-0.06
154	D1796	0.075		0.60	962		-----		-----
158	D1796	0		-1.40	963		-----		-----
159		-----		-----	971	D1796	0.05		-0.06
168		-----		-----	974	D1796	0.05		-0.06
169	ISO3734	0.050		-0.06	982		-----		-----
171	D1796	0.05		-0.06	1019		-----		-----
175		-----		-----	1059	ISO3734	<0,05		-----
194		-----		-----	1082		-----		-----
221		-----		-----	1099		-----		-----
224		-----		-----	1109	D1796	<0.025		-----
225		-----		-----	1121		-----		-----
228		-----		-----	1126		-----		-----
237	D1796	0.05		-0.06	1131		-----		-----
238	D1796	0.05		-0.06	1135	D1796	0.10		1.27
253		-----		-----	1140		-----		-----
254		-----		-----	1177		-----		-----
273		-----		-----	1191		-----		-----
309		-----		-----	1229		-----		-----
311		-----		-----	1233		-----		-----
313		-----		-----	1259	ISO3734	0.10		1.27
323		-----		-----	1266		0.05		-0.06
331		-----		-----	1269		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1300	D1796	0.05		-0.06
335		-----		-----	1356		-----		-----
336		-----		-----	1367		-----		-----
339		-----		-----	1412		-----		-----
342		-----		-----	1438		-----		-----
343	D1796	<0,05		-----	1459		-----		-----
349		-----		-----	1498		-----		-----
371		-----		-----	1510		-----		-----
391		-----		-----	1544	ISO3734	0.050		-0.06
398		-----		-----	1556		-----		-----
399		-----		-----	1564		-----		-----
444		-----		-----	1569		-----		-----
463		-----		-----	1586	D1796	0.05		-0.06
511		-----		-----	1613	D1796	0.05		-0.06
529	D5007	0.05		-0.06	1631		-----		-----
541	D1796	<0.1		-----	1643		-----		-----
557	D1796	0.05		-0.06	1720		-----		-----
562	D1796	0.05		-0.06	1724		-----		-----
575		-----		-----	1728	D1796	0.054		0.04
603		-----		-----	1740	D1796	0.05		-0.06
604		-----		-----	1761		-----		-----
608		-----		-----	1776		-----		-----
631	D1796	0.10		1.27	1788		-----		-----
633		-----		-----	1807		-----		-----
663	D1796	0.050		-0.06	1810	ISO790	0.05		-0.06
671		-----		-----	1811		-----		-----
750	D1796	0.025		-0.73	1833		-----		-----
751		-----		-----	1849		-----		-----
753		-----		-----	1854	D1796	0.05		-0.06
759		-----		-----	1857	Calculated	0.055		0.07
781	D1796	0.025		-0.73	1862		-----		-----
785		-----		-----	1906		-----		-----
823	ISO3734	0.05		-0.06	1934		-----		-----
825	D1796	0.05		-0.06	1942		-----		-----
850		-----		-----	1943		-----		-----
851		-----		-----	1950		-----		-----
855		-----		-----	1956		-----		-----
858		-----		-----	1964		-----		-----
859		-----		-----	1995		-----		-----
862		-----		-----	6016		-----		-----
863		-----		-----	6026		-----		-----
864		-----		-----	6028	D4007	0		-1.40
865		-----		-----	6039		-----		-----
866		-----		-----	6044		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6049		-----		-----	6203	D1796	0.025		-0.73
6057		-----		-----	6220		-----		-----
6075		-----		-----	6226	D1796	0.10		1.27
6092		-----		-----	6262	D1796	<0.05		-----
6143		-----		-----	6266		-----		-----
6192		-----		-----	6308	D1796	0.131		2.10
6201		-----		-----	6335		-----		-----

normality	suspect
n	37
outliers	0
mean (n)	0.0524
st.dev. (n)	0.02707
R(calc.)	0.0758
st.dev.(D1796:11)	0.03750
R(D1796:11)	0.1050





Vacuum Distillation at 10 mmHg but reported as AET on sample #20095, results in °C

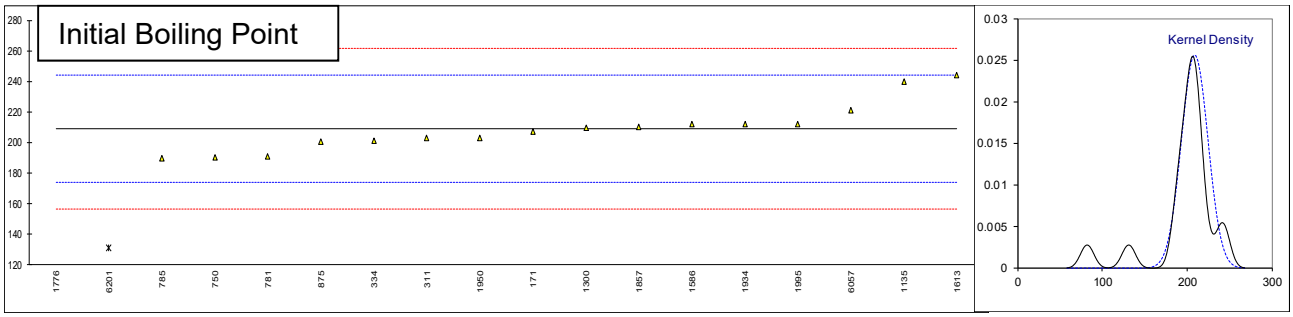
lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
62		-----	-----	-----	-----	-----	-----	-----	-----
90		-----	-----	-----	-----	-----	-----	-----	-----
92		-----	-----	-----	-----	-----	-----	-----	-----
120		-----	-----	-----	-----	-----	-----	-----	-----
140		-----	-----	-----	-----	-----	-----	-----	-----
150		-----	-----	-----	-----	-----	-----	-----	-----
154		-----	-----	-----	-----	-----	-----	-----	-----
158		-----	-----	-----	-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----	-----	-----	-----
168		-----	-----	-----	-----	-----	-----	-----	-----
169		-----	-----	-----	-----	-----	-----	-----	-----
171	D1160	207	318	374	413	434	472	-----	483
175		-----	-----	-----	-----	-----	-----	-----	-----
194		-----	-----	-----	-----	-----	-----	-----	-----
221		-----	-----	-----	-----	-----	-----	-----	-----
224		-----	-----	-----	-----	-----	-----	-----	-----
225		-----	-----	-----	-----	-----	-----	-----	-----
228		-----	-----	-----	-----	-----	-----	-----	-----
237		-----	-----	-----	-----	-----	-----	-----	-----
238		-----	-----	-----	-----	-----	-----	-----	-----
253		-----	-----	-----	-----	-----	-----	-----	-----
254		-----	-----	-----	-----	-----	-----	-----	-----
273		-----	-----	-----	-----	-----	-----	-----	-----
309		-----	-----	-----	-----	-----	-----	-----	-----
311	D1160	203	295	359	413	435	471	-----	534
313		-----	-----	-----	-----	-----	-----	-----	-----
323		-----	-----	-----	-----	-----	-----	-----	-----
331		-----	-----	-----	-----	-----	-----	-----	-----
333		-----	-----	-----	-----	-----	-----	-----	-----
334	D1160	201	289	361	412	432	465	-----	475
335		-----	-----	-----	-----	-----	-----	-----	-----
336		-----	-----	-----	-----	-----	-----	-----	-----
339		-----	-----	-----	-----	-----	-----	-----	-----
342		-----	-----	-----	-----	-----	-----	-----	-----
343		-----	-----	-----	-----	-----	-----	-----	-----
349		-----	-----	-----	-----	-----	-----	-----	-----
371		-----	-----	-----	-----	-----	-----	-----	-----
391		-----	-----	-----	-----	-----	-----	-----	-----
398		-----	-----	-----	-----	-----	-----	-----	-----
399		-----	-----	-----	-----	-----	-----	-----	-----
444		-----	-----	-----	-----	-----	-----	-----	-----
463		-----	-----	-----	-----	-----	-----	-----	-----
511		-----	-----	-----	-----	-----	-----	-----	-----
529		-----	-----	-----	-----	-----	-----	-----	-----
541		-----	-----	-----	-----	-----	-----	-----	-----
557		-----	-----	-----	-----	-----	-----	-----	-----
562		-----	-----	-----	-----	-----	-----	-----	-----
575		-----	-----	-----	-----	-----	-----	-----	-----
603		-----	-----	-----	-----	-----	-----	-----	-----
604		-----	-----	-----	-----	-----	-----	-----	-----
608		-----	-----	-----	-----	-----	-----	-----	-----
631		-----	-----	-----	-----	-----	-----	-----	-----
633		-----	-----	-----	-----	-----	-----	-----	-----
663		-----	-----	-----	-----	-----	-----	-----	-----
671		-----	-----	-----	-----	-----	-----	-----	-----
750	D1160	190	270	337	406	429	458	-----	490
751		-----	-----	-----	-----	-----	-----	-----	-----
753		-----	-----	-----	-----	-----	-----	-----	-----
759		-----	-----	-----	-----	-----	-----	-----	-----
781	D1160	191	267	334	407	428	458	-----	489
785	D1160	189.6	281.4	342.4	407.2	433.2	460.8	-----	488.1
823		-----	-----	-----	-----	-----	-----	-----	-----
825		-----	-----	-----	-----	-----	-----	-----	-----
850		-----	-----	-----	-----	-----	-----	-----	-----
851		-----	-----	-----	-----	-----	-----	-----	-----
855		-----	-----	-----	-----	-----	-----	-----	-----
858		-----	-----	-----	-----	-----	-----	-----	-----
859		-----	-----	-----	-----	-----	-----	-----	-----
862		-----	-----	-----	-----	-----	-----	-----	-----
863		-----	-----	-----	-----	-----	-----	-----	-----
864		-----	-----	-----	-----	-----	-----	-----	-----
865		-----	-----	-----	-----	-----	-----	-----	-----
866		-----	-----	-----	-----	-----	-----	-----	-----
870		-----	-----	-----	-----	-----	-----	-----	-----
875	D1160	200.6	271.7	334.6	402.7	426.7	457.1	-----	488

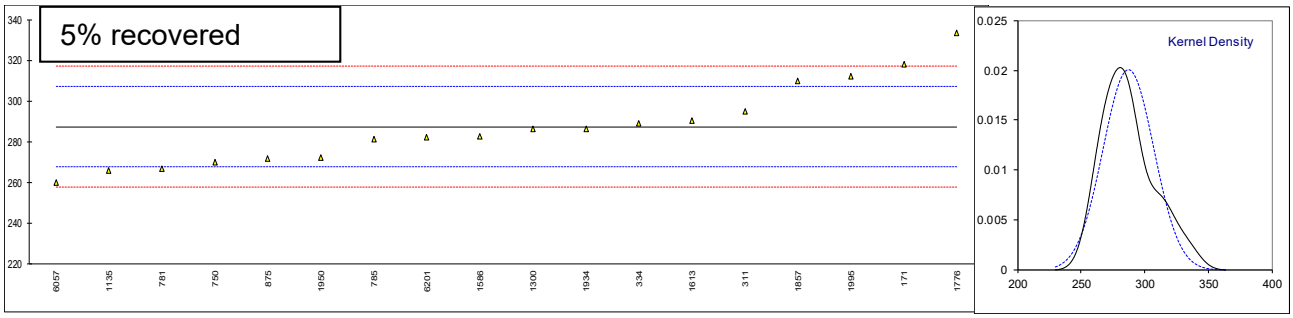
lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
886		-----	-----	-----	-----	-----	-----	-----	-----
912		-----	-----	-----	-----	-----	-----	-----	-----
913		-----	-----	-----	-----	-----	-----	-----	-----
922		-----	-----	-----	-----	-----	-----	-----	-----
962		-----	-----	-----	-----	-----	-----	-----	-----
963		-----	-----	-----	-----	-----	-----	-----	-----
971		-----	-----	-----	-----	-----	-----	-----	-----
974		-----	-----	-----	-----	-----	-----	-----	-----
982		-----	-----	-----	-----	-----	-----	-----	-----
1019		-----	-----	-----	-----	-----	-----	-----	-----
1059		-----	-----	-----	-----	-----	-----	-----	-----
1082		-----	-----	-----	-----	-----	-----	-----	-----
1099		-----	-----	-----	-----	-----	-----	-----	-----
1109		-----	-----	-----	-----	-----	-----	-----	-----
1121		-----	-----	-----	-----	-----	-----	-----	-----
1126		-----	-----	-----	-----	-----	-----	-----	-----
1131		-----	-----	-----	-----	-----	-----	-----	-----
1135	D1160	240	266	327	402	424	451	518	559
1140		-----	-----	-----	-----	-----	-----	-----	-----
1177		-----	-----	-----	-----	-----	-----	-----	-----
1191		-----	-----	-----	-----	-----	-----	-----	-----
1229		-----	-----	-----	-----	-----	-----	-----	-----
1233		-----	-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----	-----
1266		-----	-----	-----	-----	-----	-----	-----	-----
1269		-----	-----	-----	-----	-----	-----	-----	-----
1275		-----	-----	-----	-----	-----	-----	-----	-----
1300	D1160	209.6	286.1	345.3	412.2	437.1	447.4	510.4	517.1
1356		-----	-----	-----	-----	-----	-----	-----	-----
1367		-----	-----	-----	-----	-----	-----	-----	-----
1412		-----	-----	-----	-----	-----	-----	-----	-----
1438		-----	-----	-----	-----	-----	-----	-----	-----
1459		-----	-----	-----	-----	-----	-----	-----	-----
1498		-----	-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----	-----
1544		-----	-----	-----	-----	-----	-----	-----	-----
1556		-----	-----	-----	-----	-----	-----	-----	-----
1564		-----	-----	-----	-----	-----	-----	-----	-----
1569		-----	-----	-----	-----	-----	-----	-----	-----
1586	D1160	211.8	282.5	343.0	406.4	427.7	461.0	-----	550.5
1613	D1160	244.3	290.4	364.5	415.0	432.4	463.7	-----	506.8
1631		-----	-----	-----	-----	-----	-----	-----	-----
1643		-----	-----	-----	-----	-----	-----	-----	-----
1720		-----	-----	-----	-----	-----	-----	-----	-----
1724		-----	-----	-----	-----	-----	-----	-----	-----
1728		-----	-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----	-----
1761		-----	-----	-----	-----	-----	-----	-----	-----
1776	EN15199-2	**81.95**	333.49	396.01	**430.02**	446.86	484.68	573.09	**762.12**
1788		-----	-----	-----	-----	-----	-----	-----	-----
1807		-----	-----	-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----	-----	-----
1811		-----	-----	-----	-----	-----	-----	-----	-----
1833		----- W	----- W	----- W	----- W	----- W	----- W	----- W	----- W
1849		-----	-----	-----	-----	-----	-----	-----	-----
1854		-----	-----	-----	-----	-----	-----	-----	-----
1857	D1160	210	310	369	415	441	473	-----	531
1862		-----	-----	-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----	-----	-----
1934	D1160	211.8	286.5	353.0	409.3	427.9	461.4	-----	519.2
1942		-----	-----	-----	-----	-----	-----	-----	-----
1943		-----	-----	-----	-----	-----	-----	-----	-----
1950	D1160	203	272	330	406	430	456	-----	503
1956		-----	-----	-----	-----	-----	-----	-----	-----
1964		-----	-----	-----	-----	-----	-----	-----	-----
1995	D1160	212.2	311.9	370.8	416.0	438.4	476.5	-----	513.4
6016		-----	-----	-----	-----	-----	-----	-----	-----
6026		-----	-----	-----	-----	-----	-----	-----	-----
6028		-----	-----	-----	-----	-----	-----	-----	-----
6039		-----	-----	-----	-----	-----	-----	-----	-----
6044		-----	-----	-----	-----	-----	-----	-----	-----
6049		-----	-----	-----	-----	-----	-----	-----	-----
6057	D1160	221.0	260.0	375.9	418.2	439.3	487.5	577.9	599.1
6075		-----	-----	-----	-----	-----	-----	-----	-----
6092		-----	-----	-----	-----	-----	-----	-----	-----
6143		-----	-----	-----	-----	-----	-----	-----	-----
6192		-----	-----	-----	-----	-----	-----	-----	-----
6201	D1160	**131.1**	282.3	343.1	405.8	428.0	467.6	ND	510.3

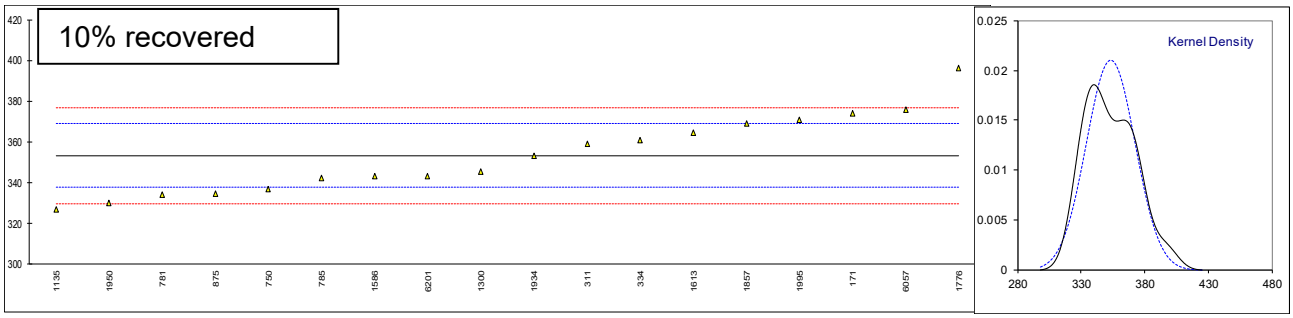
lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
6203		-----	-----	-----	-----	-----	-----	-----	-----
6220		-----	-----	-----	-----	-----	-----	-----	-----
6226		-----	-----	-----	-----	-----	-----	-----	-----
6262		-----	-----	-----	-----	-----	-----	-----	-----
6266		-----	-----	-----	-----	-----	-----	-----	-----
6308		-----	-----	-----	-----	-----	-----	-----	-----
6335		-----	-----	-----	-----	-----	-----	-----	-----
	normality	not OK	OK	OK	OK	OK	OK	unknown	not OK
	n	16	18	18	17	18	18	4	17
	outliers	2	0	0	1	0	0	0	1
	mean (n)	209.12	287.41	353.31	409.81	432.81	465.09	544.85	515.09
	st.dev. (n)	15.599	19.913	19.018	4.852	5.927	10.784	(35.579)	32.134
	R(calc.)	43.68	55.76	53.25	13.59	16.60	30.19	(99.62)	89.98
	st.dev.(D1160:18)	17.500	9.901	7.873	5.845	5.0379	6.725	(7.771)	9.649
	R(D1160:18)	49	27.72	22.05	16.37	14.11	18.83	(21.76)	27

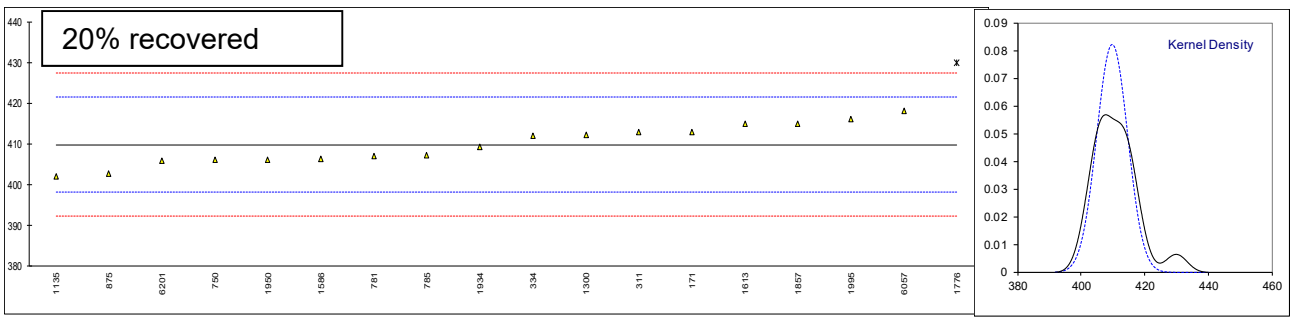
Lab 1833: test results withdrawn, reported 200.7, 274.3, 334, 393.5, 419.3, 447.9, 509.9, 716.6

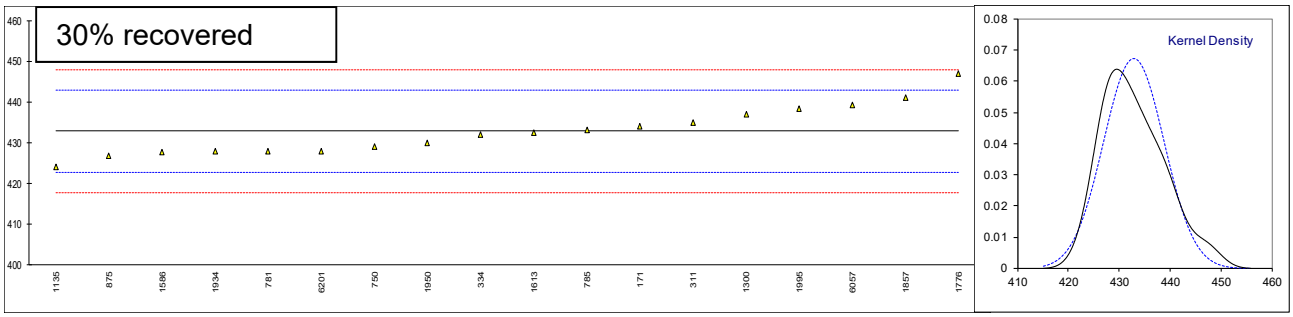
The reported test results underlined and bold are statistical outliers

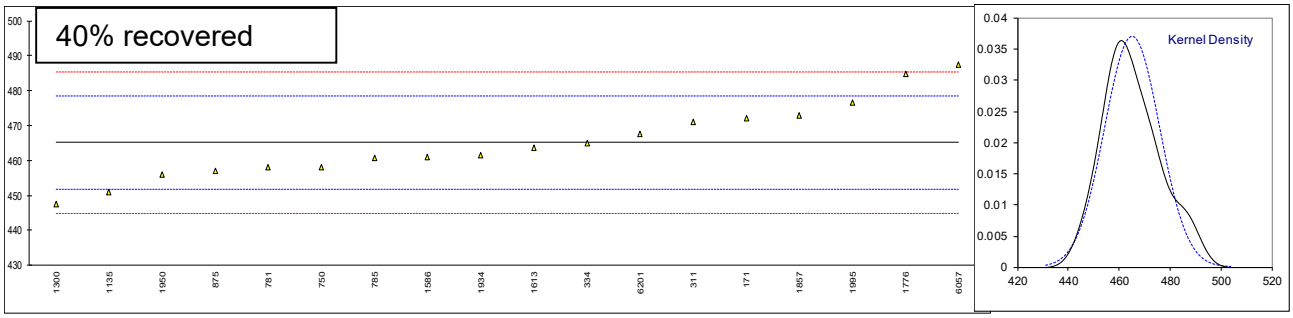


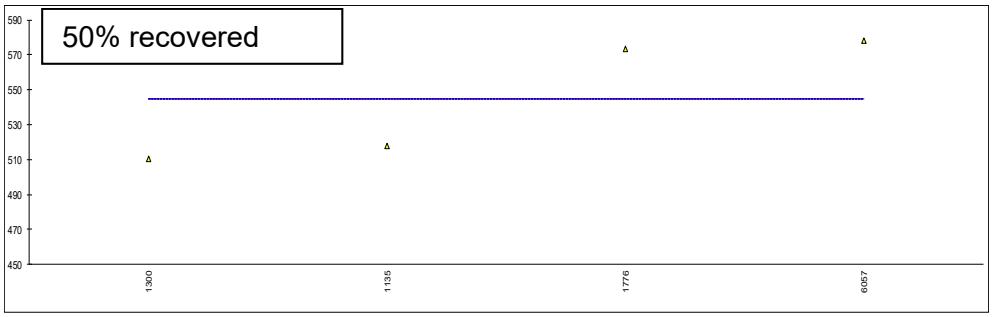


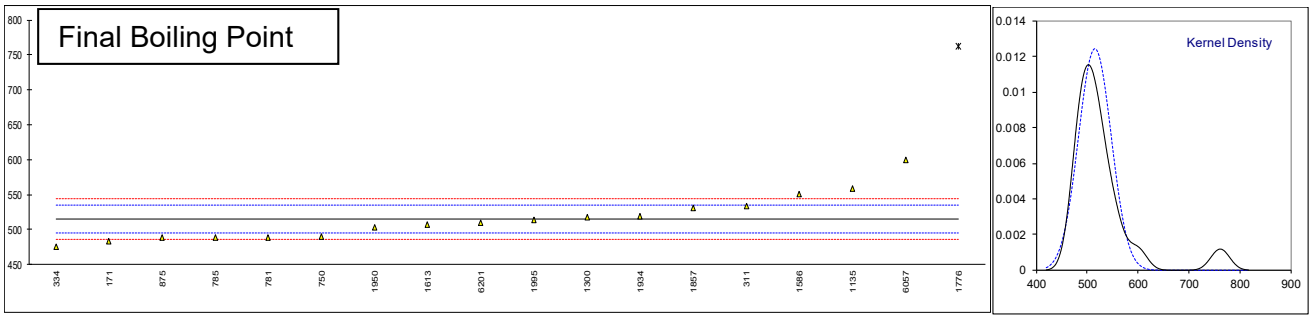





30% recovered
Kernel Density


40% recovered
Kernel Density


50% recovered


Final Boiling Point
Kernel Density

z-scores of Vacuum Distillation at 10 mmHg but reported as AET on sample #20095

lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
62		-----	-----	-----	-----	-----	-----	-----	-----
90		-----	-----	-----	-----	-----	-----	-----	-----
92		-----	-----	-----	-----	-----	-----	-----	-----
120		-----	-----	-----	-----	-----	-----	-----	-----
140		-----	-----	-----	-----	-----	-----	-----	-----
150		-----	-----	-----	-----	-----	-----	-----	-----
154		-----	-----	-----	-----	-----	-----	-----	-----
158		-----	-----	-----	-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----	-----	-----	-----
168		-----	-----	-----	-----	-----	-----	-----	-----
169		-----	-----	-----	-----	-----	-----	-----	-----
171		-0.12	3.09	2.63	0.55	0.24	1.03	-----	-3.33
175		-----	-----	-----	-----	-----	-----	-----	-----
194		-----	-----	-----	-----	-----	-----	-----	-----
221		-----	-----	-----	-----	-----	-----	-----	-----
224		-----	-----	-----	-----	-----	-----	-----	-----
225		-----	-----	-----	-----	-----	-----	-----	-----
228		-----	-----	-----	-----	-----	-----	-----	-----
237		-----	-----	-----	-----	-----	-----	-----	-----
238		-----	-----	-----	-----	-----	-----	-----	-----
253		-----	-----	-----	-----	-----	-----	-----	-----
254		-----	-----	-----	-----	-----	-----	-----	-----
273		-----	-----	-----	-----	-----	-----	-----	-----
309		-----	-----	-----	-----	-----	-----	-----	-----
311		-0.35	0.77	0.72	0.55	0.43	0.88	-----	1.96
313		-----	-----	-----	-----	-----	-----	-----	-----
323		-----	-----	-----	-----	-----	-----	-----	-----
331		-----	-----	-----	-----	-----	-----	-----	-----
333		-----	-----	-----	-----	-----	-----	-----	-----
334		-0.46	0.16	0.98	0.37	-0.16	-0.01	-----	-4.16
335		-----	-----	-----	-----	-----	-----	-----	-----
336		-----	-----	-----	-----	-----	-----	-----	-----
339		-----	-----	-----	-----	-----	-----	-----	-----
342		-----	-----	-----	-----	-----	-----	-----	-----
343		-----	-----	-----	-----	-----	-----	-----	-----
349		-----	-----	-----	-----	-----	-----	-----	-----
371		-----	-----	-----	-----	-----	-----	-----	-----
391		-----	-----	-----	-----	-----	-----	-----	-----
398		-----	-----	-----	-----	-----	-----	-----	-----
399		-----	-----	-----	-----	-----	-----	-----	-----
444		-----	-----	-----	-----	-----	-----	-----	-----
463		-----	-----	-----	-----	-----	-----	-----	-----
511		-----	-----	-----	-----	-----	-----	-----	-----
529		-----	-----	-----	-----	-----	-----	-----	-----
541		-----	-----	-----	-----	-----	-----	-----	-----
557		-----	-----	-----	-----	-----	-----	-----	-----
562		-----	-----	-----	-----	-----	-----	-----	-----
575		-----	-----	-----	-----	-----	-----	-----	-----
603		-----	-----	-----	-----	-----	-----	-----	-----
604		-----	-----	-----	-----	-----	-----	-----	-----
608		-----	-----	-----	-----	-----	-----	-----	-----
631		-----	-----	-----	-----	-----	-----	-----	-----
633		-----	-----	-----	-----	-----	-----	-----	-----
663		-----	-----	-----	-----	-----	-----	-----	-----
671		-----	-----	-----	-----	-----	-----	-----	-----
750		-1.09	-1.76	-2.07	-0.65	-0.76	-1.05	-----	-2.60
751		-----	-----	-----	-----	-----	-----	-----	-----
753		-----	-----	-----	-----	-----	-----	-----	-----
759		-----	-----	-----	-----	-----	-----	-----	-----
781		-1.04	-2.06	-2.45	-0.48	-0.95	-1.05	-----	-2.71
785		-1.12	-0.61	-1.39	-0.45	0.08	-0.64	-----	-2.80
823		-----	-----	-----	-----	-----	-----	-----	-----
825		-----	-----	-----	-----	-----	-----	-----	-----
850		-----	-----	-----	-----	-----	-----	-----	-----
851		-----	-----	-----	-----	-----	-----	-----	-----
855		-----	-----	-----	-----	-----	-----	-----	-----
858		-----	-----	-----	-----	-----	-----	-----	-----
859		-----	-----	-----	-----	-----	-----	-----	-----
862		-----	-----	-----	-----	-----	-----	-----	-----
863		-----	-----	-----	-----	-----	-----	-----	-----
864		-----	-----	-----	-----	-----	-----	-----	-----
865		-----	-----	-----	-----	-----	-----	-----	-----
866		-----	-----	-----	-----	-----	-----	-----	-----
870		-----	-----	-----	-----	-----	-----	-----	-----
875		-0.49	-1.59	-2.38	-1.22	-1.21	-1.19	-----	-2.81
886		-----	-----	-----	-----	-----	-----	-----	-----

lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
912		-----	-----	-----	-----	-----	-----	-----	-----
913		-----	-----	-----	-----	-----	-----	-----	-----
922		-----	-----	-----	-----	-----	-----	-----	-----
962		-----	-----	-----	-----	-----	-----	-----	-----
963		-----	-----	-----	-----	-----	-----	-----	-----
971		-----	-----	-----	-----	-----	-----	-----	-----
974		-----	-----	-----	-----	-----	-----	-----	-----
982		-----	-----	-----	-----	-----	-----	-----	-----
1019		-----	-----	-----	-----	-----	-----	-----	-----
1059		-----	-----	-----	-----	-----	-----	-----	-----
1082		-----	-----	-----	-----	-----	-----	-----	-----
1099		-----	-----	-----	-----	-----	-----	-----	-----
1109		-----	-----	-----	-----	-----	-----	-----	-----
1121		-----	-----	-----	-----	-----	-----	-----	-----
1126		-----	-----	-----	-----	-----	-----	-----	-----
1131		-----	-----	-----	-----	-----	-----	-----	-----
1135		1.76	-2.16	-3.34	-1.34	-1.75	-2.10	-----	4.55
1140		-----	-----	-----	-----	-----	-----	-----	-----
1177		-----	-----	-----	-----	-----	-----	-----	-----
1191		-----	-----	-----	-----	-----	-----	-----	-----
1229		-----	-----	-----	-----	-----	-----	-----	-----
1233		-----	-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----	-----
1266		-----	-----	-----	-----	-----	-----	-----	-----
1269		-----	-----	-----	-----	-----	-----	-----	-----
1275		-----	-----	-----	-----	-----	-----	-----	-----
1300		0.03	-0.13	-1.02	0.41	0.85	-2.63	-----	0.21
1356		-----	-----	-----	-----	-----	-----	-----	-----
1367		-----	-----	-----	-----	-----	-----	-----	-----
1412		-----	-----	-----	-----	-----	-----	-----	-----
1438		-----	-----	-----	-----	-----	-----	-----	-----
1459		-----	-----	-----	-----	-----	-----	-----	-----
1498		-----	-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----	-----
1544		-----	-----	-----	-----	-----	-----	-----	-----
1556		-----	-----	-----	-----	-----	-----	-----	-----
1564		-----	-----	-----	-----	-----	-----	-----	-----
1569		-----	-----	-----	-----	-----	-----	-----	-----
1586		0.15	-0.50	-1.31	-0.58	-1.01	-0.61	-----	3.67
1613		2.01	0.30	1.42	0.89	-0.08	-0.21	-----	-0.86
1631		-----	-----	-----	-----	-----	-----	-----	-----
1643		-----	-----	-----	-----	-----	-----	-----	-----
1720		-----	-----	-----	-----	-----	-----	-----	-----
1724		-----	-----	-----	-----	-----	-----	-----	-----
1728		-----	-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----	-----
1761		-----	-----	-----	-----	-----	-----	-----	-----
1776		-7.27	4.65	5.42	3.46	2.79	2.91	-----	25.62
1788		-----	-----	-----	-----	-----	-----	-----	-----
1807		-----	-----	-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----	-----	-----
1811		-----	-----	-----	-----	-----	-----	-----	-----
1833		-----	-----	-----	-----	-----	-----	-----	-----
1849		-----	-----	-----	-----	-----	-----	-----	-----
1854		-----	-----	-----	-----	-----	-----	-----	-----
1857		0.05	2.28	1.99	0.89	1.63	1.18	-----	1.65
1862		-----	-----	-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----	-----	-----
1934		0.15	-0.09	-0.04	-0.09	-0.97	-0.55	-----	0.43
1942		-----	-----	-----	-----	-----	-----	-----	-----
1943		-----	-----	-----	-----	-----	-----	-----	-----
1950		-0.35	-1.56	-2.96	-0.65	-0.56	-1.35	-----	-1.25
1956		-----	-----	-----	-----	-----	-----	-----	-----
1964		-----	-----	-----	-----	-----	-----	-----	-----
1995		0.18	2.47	2.22	1.06	1.11	1.70	-----	-0.18
6016		-----	-----	-----	-----	-----	-----	-----	-----
6026		-----	-----	-----	-----	-----	-----	-----	-----
6028		-----	-----	-----	-----	-----	-----	-----	-----
6039		-----	-----	-----	-----	-----	-----	-----	-----
6044		-----	-----	-----	-----	-----	-----	-----	-----
6049		-----	-----	-----	-----	-----	-----	-----	-----
6057		0.68	-2.77	2.87	1.44	1.29	3.33	-----	8.71
6075		-----	-----	-----	-----	-----	-----	-----	-----
6092		-----	-----	-----	-----	-----	-----	-----	-----
6143		-----	-----	-----	-----	-----	-----	-----	-----
6192		-----	-----	-----	-----	-----	-----	-----	-----
6201		-4.46	-0.52	-1.30	-0.69	-0.95	0.37	-----	-0.50
6203		-----	-----	-----	-----	-----	-----	-----	-----

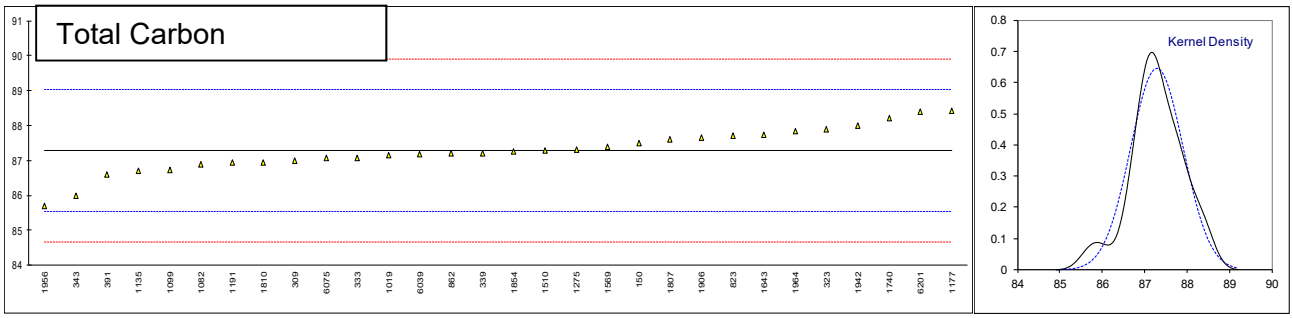
lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
6220		-----	-----	-----	-----	-----	-----	-----	-----
6226		-----	-----	-----	-----	-----	-----	-----	-----
6262		-----	-----	-----	-----	-----	-----	-----	-----
6266		-----	-----	-----	-----	-----	-----	-----	-----
6308		-----	-----	-----	-----	-----	-----	-----	-----
6335		-----	-----	-----	-----	-----	-----	-----	-----

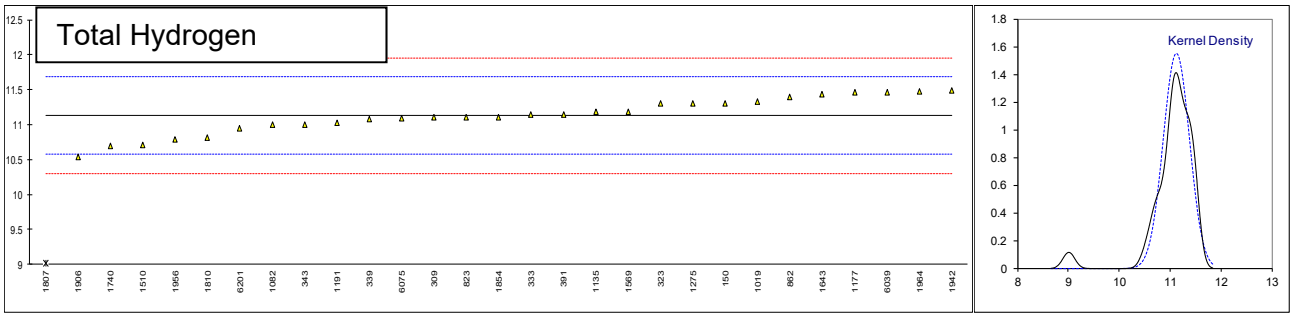
Determination of Total Carbon, Hydrogen and Nitrogen on sample #20095; results in %M/M

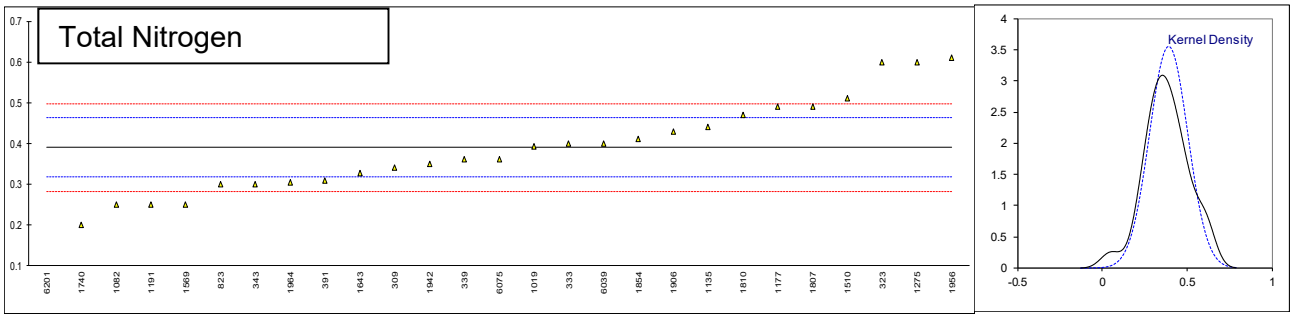
lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
62		-----		-----	-----		-----	-----		-----
90		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
120		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D5291-C	87.5		0.25	11.3		0.62	-----		-----
154		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
168		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
171		-----		-----	-----		-----	-----		-----
175		-----		-----	-----		-----	-----		-----
194		-----		-----	-----		-----	-----		-----
221		-----		-----	-----		-----	-----		-----
224		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
228		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
253		-----		-----	-----		-----	-----		-----
254		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
309	D5291-D	87.0		-0.33	11.1		-0.11	0.34		-1.40
311		-----		-----	-----		-----	-----		-----
313		-----		-----	-----		-----	-----		-----
323	D5291-A	87.9		0.71	11.3		0.62	0.6		5.84
331		-----		-----	-----		-----	-----		-----
333	D5291-A	87.07		-0.25	11.14		0.04	0.40		0.27
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
336		-----		-----	-----		-----	-----		-----
339		87.2		-0.10	11.08		-0.18	0.36		-0.84
342		-----		-----	-----		-----	-----		-----
343	D5291-A	86		-1.47	11		-0.47	0.3		-2.51
349		-----		-----	-----		-----	-----		-----
371		-----		-----	-----		-----	-----		-----
391	D5291-A	86.59		-0.80	11.15		0.07	0.31		-2.23
398		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
463		-----		-----	-----		-----	-----		-----
511		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
562		-----		-----	-----		-----	-----		-----
575		-----		-----	-----		-----	-----		-----
603		-----		-----	-----		-----	-----		-----
604		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
631		-----		-----	-----		-----	-----		-----
633		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
671		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
751		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
759		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
785		-----		-----	-----		-----	-----		-----
823	D5291-D	87.7		0.48	11.1		-0.11	0.3		-2.51
825		-----		-----	-----		-----	-----		-----
850		-----		-----	-----		-----	-----		-----
851		-----		-----	-----		-----	-----		-----
855		-----		-----	-----		-----	-----		-----
858		-----		-----	-----		-----	-----		-----
859		-----		-----	-----		-----	-----		-----
862	D5291-D	87.2		-0.10	11.4		0.98	<0.5		-----
863		-----		-----	-----		-----	-----		-----
864		-----		-----	-----		-----	-----		-----
865		-----		-----	-----		-----	-----		-----
866		-----		-----	-----		-----	-----		-----
870		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----

lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
886		-----		-----	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
913		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
971		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----
982		-----		-----	-----		-----	-----		-----
1019	D5291-A	87.15		-0.15	11.33		0.73	0.393		0.08
1059		-----		-----	-----		-----	-----		-----
1082	D5291-C	86.9		-0.44	11.0		-0.47	0.25		-3.90
1099		86.73		-0.63	-----		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1121		-----		-----	-----		-----	-----		-----
1126		-----		-----	-----		-----	-----		-----
1131		-----		-----	-----		-----	-----		-----
1135	D5291-A	86.7		-0.67	11.19		0.22	0.44		1.38
1140		-----		-----	-----		-----	-----		-----
1177	D5291-D	88.41		1.29	11.46		1.20	0.49		2.78
1191	D5291-C	86.93		-0.41	11.03		-0.36	0.25		-3.90
1229		-----		-----	-----		-----	-----		-----
1233		-----		-----	-----		-----	-----		-----
1259		-----		-----	-----		-----	-----		-----
1266		-----		-----	-----		-----	-----		-----
1269		-----		-----	-----		-----	-----		-----
1275	D5291-D	87.30		0.02	11.30		0.62	0.6		5.84
1300		-----		-----	-----		-----	-----		-----
1356		-----		-----	-----		-----	-----		-----
1367		-----		-----	-----		-----	-----		-----
1412		-----		-----	-----		-----	-----		-----
1438		-----		-----	-----		-----	-----		-----
1459		-----		-----	-----		-----	-----		-----
1498		-----		-----	-----		-----	-----		-----
1510	D5291-B	87.28		0.00	10.71		-1.52	0.51		3.33
1544		-----		-----	-----		-----	-----		-----
1556		-----		-----	-----		-----	-----		-----
1564		-----		-----	-----		-----	-----		-----
1569	D5291-A	87.40		0.13	11.19		0.22	0.25		-3.90
1586		-----		-----	-----		-----	-----		-----
1613		-----		-----	-----		-----	-----		-----
1631		-----		-----	-----		-----	-----		-----
1643	D5291-A	87.737		0.52	11.440		1.13	0.32711		-1.76
1720		-----		-----	-----		-----	-----		-----
1724		-----		-----	-----		-----	-----		-----
1728		-----		-----	-----		-----	-----		-----
1740	D5291-A	88.2		1.05	10.7		-1.56	0.20		-5.30
1761		-----		-----	-----		-----	-----		-----
1776		-----		-----	-----		-----	-----		-----
1788		-----		-----	-----		-----	-----		-----
1807		87.6		0.36	9.01	R(0.01)	-7.69	0.49		2.78
1810	D5291-A	86.94		-0.39	10.82		-1.12	0.47		2.22
1811		-----		-----	-----		-----	-----		-----
1833		-----		-----	-----		-----	-----		-----
1849		-----		-----	-----		-----	-----		-----
1854		87.25		-0.04	11.1		-0.11	0.41		0.55
1857		-----		-----	-----		-----	-----		-----
1862		-----		-----	-----		-----	-----		-----
1906		87.66		0.43	10.54		-2.14	0.43		1.11
1934		-----		-----	-----		-----	-----		-----
1942		88.00		0.82	11.49		1.31	0.35		-1.12
1943		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1956	D5291-C	85.7		-1.82	10.79		-1.23	0.61		6.12
1964		87.83		0.63	11.476		1.26	0.3053		-2.36
1995		-----		-----	-----		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6026		-----		-----	-----		-----	-----		-----
6028		-----		-----	-----		-----	-----		-----
6039	D5291-C	87.18		-0.12	11.46		1.20	0.40		0.27
6044		-----		-----	-----		-----	-----		-----
6049		-----		-----	-----		-----	-----		-----
6057		-----		-----	-----		-----	-----		-----
6075	D5291-D	87.069		-0.25	11.094		-0.13	0.361		-0.81
6092		-----		-----	-----		-----	-----		-----
6143		-----		-----	-----		-----	-----		-----
6192		-----		-----	-----		-----	-----		-----
6201		88.4		1.28	10.94		-0.69	0.05	R(0.01)	-9.47

lab method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
6203	-----		-----	-----		-----	-----		-----
6220	-----		-----	-----		-----	-----		-----
6226	-----		-----	-----		-----	-----		-----
6262	-----		-----	-----		-----	-----		-----
6266	-----		-----	-----		-----	-----		-----
6308	-----		-----	-----		-----	-----		-----
6335	-----		-----	-----		-----	-----		-----
normality	OK			OK			OK		
n	30			28			26		
outliers	0			1			1		
mean (n)	87.2842			11.1296			0.3903		
st.dev. (n)	0.61917			0.25662			0.11253		
R(calc.)	1.7337			0.7185			0.3151		
st.dev.(D5291-ABC:16)	0.87277			0.27571			0.03593		
R(D5291-ABC:16)	2.4438			0.7720			0.1006		







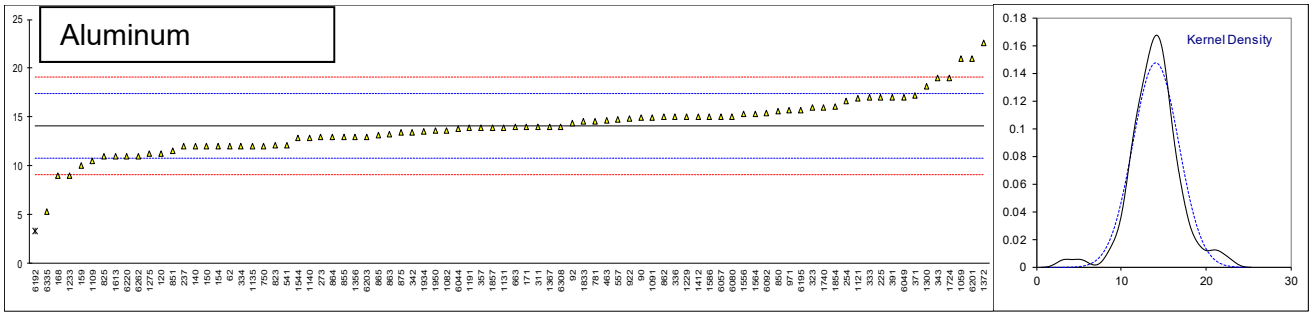
Determination of Aluminum as Al, Silicon as Si and total Al+Si on sample #20096; results in mg/kg

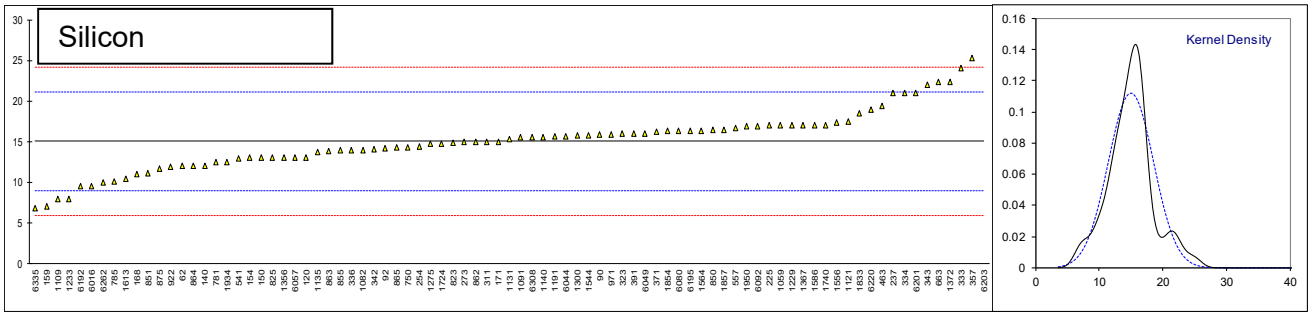
lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Sum Al+Si	mark	z(targ)
62	IP470	12		-1.26	12		-1.00	24		-1.45
90	D5184	14.9		0.49	15.9		0.28	30.8		0.51
92	D5184	14.36		0.16	14.17		-0.29	28.53		-0.15
120	IP501	11.28		-1.69	13.07		-0.65	24.35		-1.35
140	IP501	12		-1.26	12		-1.00	24		-1.45
150	IP501	12		-1.26	13		-0.67	25		-1.16
154	IP501	12		-1.26	13		-0.67	25		-1.16
159	IP501	10	C	-2.47	7	C	-2.64	17	C	-3.47
168	D5184	9		-3.07	11		-1.33	20		-2.60
171	IP501	14		-0.05	15		-0.02	29		-0.01
175		-----		-----	-----		-----	-----		-----
194		-----		-----	-----		-----	-----		-----
221		-----		-----	-----		-----	-----		-----
225	IP501	17		1.76	17		0.64	34		1.43
237	IP501	12	C	-1.26	21		1.95	33	C	1.14
254	IP501	16.595		1.51	14.415		-0.21	31.01		0.57
273	D5184	13		-0.66	15		-0.02	28		-0.30
311	IP501	14		-0.05	15		-0.02	29		-0.01
323	IP501	16		1.15	16		0.31	32		0.85
331		-----		-----	-----		-----	-----		-----
333	IP501	17		1.76	24		2.93	41		3.44
334	IP501	12		-1.26	21		1.95	33		1.14
336	IP501	15		0.55	14		-0.35	29		-0.01
342	IP501	13.4760		-0.37	14.027		-0.34	27.503		-0.44
343	IP501	19		2.96	22		2.28	41		3.44
357	IP501	13.9		-0.11	25.3		3.36	39.2		2.93
371	IP470	17.21		1.88	16.22		0.38	33.43		1.26
391	IP501	17		1.76	16		0.31	33		1.14
398		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
463	IP470	14.7		0.37	19.4		1.43	34.1		1.46
511		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541	IP501	12.1		-1.20	12.9		-0.71	25.1		-1.14
557	IP501	14.725		0.38	16.682		0.53	31.407		0.68
608		-----		-----	-----		-----	-----		-----
631		-----		-----	-----		-----	-----		-----
663	IP501	14.0		-0.05	22.3		2.38	36.3		2.09
750	IP501	12.05		-1.23	14.31		-0.24	26.36		-0.77
781	IP501	14.6		0.31	12.5		-0.84	27.1		-0.56
785		-----		-----	10.15		-1.61	-----		-----
823	IP501	12.1		-1.20	14.9		-0.05	27		-0.59
825	IP501	11		-1.86	13		-0.67	24		-1.45
850	IP501	15.6		0.91	16.4		0.44	32.0		0.85
851	IP501	11.52		-1.55	11.12		-1.29	22.64		-1.84
855	IP501	13		-0.66	14		-0.35	27		-0.59
862	IP501	15		0.55	15		-0.02	30		0.28
863	IP501	13.2		-0.54	13.8		-0.41	27		-0.59
864	IP501	13		-0.66	12		-1.00	25		-1.16
865	IP501	13.1		-0.60	14.3		-0.25	27.4		-0.47
875	IP501	13.4		-0.41	11.7		-1.10	25.1		-1.14
912		-----		-----	-----		-----	-----		-----
913		-----		-----	-----		-----	-----		-----
922	IP501	14.8		0.43	11.9		-1.03	26.7		-0.67
963		-----		-----	-----		-----	-----		-----
971	IP501	15.7		0.97	15.9		0.28	31.6		0.74
974		-----		-----	-----		-----	-----		-----
1059	In house	21		4.17	17		0.64	-----		-----
1082	ISO10478	13.62		-0.28	14.01		-0.34	27.63		-0.41
1091	IP501	14.9		0.49	15.5		0.15	30.4		0.39
1109	IP470	10.5		-2.16	8.0		-2.31	18.5		-3.04
1121	IP501	16.96		1.73	17.43		0.78	34.12	E	1.46
1131	IP470	13.91		-0.11	15.31		0.08	29.22		0.05
1135	IP501	12.005		-1.26	13.761		-0.42	26		-0.88
1140	IP501	12.91		-0.71	15.60		0.18	28.51		-0.15
1191	ISO10478	13.89		-0.12	15.665		0.20	29.26	E	0.06
1229	ISO10478	15		0.55	17		0.64	32		0.85
1233	IP501	9		-3.07	8		-2.31	17		-3.47
1259		-----		-----	-----		-----	-----		-----
1275	IP501	11.22		-1.73	14.77		-0.09	25.99		-0.88
1300	IP470	18.13		2.44	15.73		0.22	33.86		1.39
1356	ISO10478	13		-0.66	13		-0.67	26		-0.88
1367	IP501	14		-0.05	17		0.64	31		0.56

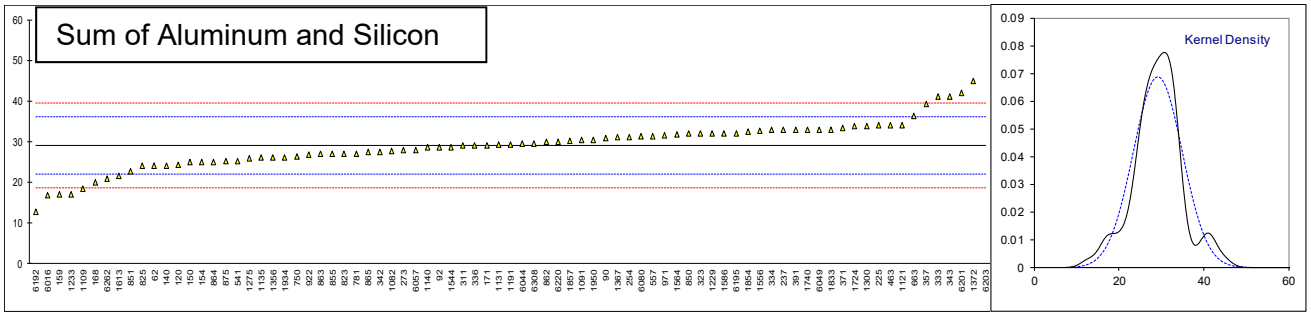
lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Sum Al+Si	mark	z(targ)
1372	IP501	22.55		5.10	22.30		2.38	44.85		4.55
1412	IP501	15		0.55	-----		-----	-----		-----
1510		-----		-----	-----		-----	-----		-----
1544	IP470	12.9		-0.72	15.8		0.24	28.7		-0.10
1556	IP501	15.3		0.73	17.4		0.77	32.7		1.05
1564	IP501	15.32		0.74	16.38		0.43	31.70		0.77
1586	IP501	15		0.55	17		0.64	32		0.85
1613	IP470	11.0		-1.86	10.5		-1.49	21.5		-2.17
1643		-----		-----	-----		-----	-----		-----
1720		-----		-----	-----		-----	-----		-----
1724	IP501	19.0		2.96	14.8		-0.08	33.8		1.37
1740	IP501	16		1.15	17		0.64	33		1.14
1807		-----		-----	-----		-----	-----		-----
1810		-----		-----	-----		-----	-----		-----
1833	IP501	14.56		0.28	18.45		1.11	33.01		1.14
1854	IP501	16.1		1.21	16.3		0.41	32.4		0.97
1857	IP501	13.9		-0.11	16.4		0.44	30.3		0.36
1862		-----		-----	-----		-----	-----		-----
1934	IP501	13.5		-0.35	12.5		-0.84	26.0		-0.88
1950	IP470	13.6		-0.29	16.9		0.61	30.5		0.42
1995		-----		-----	-----		-----	-----		-----
6016		-----	W	-----	9.595		-1.79	16.752		-3.54
6026		-----		-----	-----		-----	-----		-----
6044	IP501	13.8		-0.17	15.7		0.21	29.5		0.13
6049	IP501	17		1.76	16		0.31	33		1.14
6057	IP501	15		0.55	13		-0.67	28		-0.30
6075		-----		-----	-----		-----	-----		-----
6080	IP501	15		0.55	16.3		0.41	31.3		0.65
6092	IP501	15.4		0.79	16.9		0.61	-----		-----
6143		-----		-----	-----		-----	-----		-----
6192	IP501	3.3	R(0.05)	-6.51	9.5		-1.82	12.8		-4.68
6195	IP501	15.7		0.97	16.3		0.41	32.0		0.85
6201	IP501	21		4.17	21		1.95	42		3.73
6203	IP501	13		-0.66	64	R(0.01)	16.05	77	R(0.01)	13.82
6220	IP501	11		-1.86	19		1.29	30		0.28
6262	IP501	11		-1.86	10		-1.66	21		-2.32
6308	IP501	14.0		-0.05	15.5		0.15	29.5		0.13
6335		5.28		-5.31	6.87		-2.68	-----		-----

normality	suspect	OK	OK
n	83	84	80
outliers	1	1	1
mean (n)	14.088	15.054	29.043
st.dev. (n)	2.6988	3.5534	5.6488
R(calc.)	7.557	9.949	15.817
st.dev.(IP470:05)	1.6582	3.0497	3.4714
R(IP470:05)	4.643	8.539	9.720
Compare			
R(IP501:05)	4.748	4.998	6.893

Lab 159: first reported 44.1, 28.15, 72.25
Lab 237: first reported 20, reported 41 before correction of Aluminum. iis recalculated sum Al + Si after correction Aluminum.
Lab 6016: test result withdrawn, reported 7.157
Lab 1121: Possibly a calculation error? iis calculated 34.39
Lab 1191: possibly a calculation error? iis calculated 29.56


Aluminum
Kernel Density


Silicon
Kernel Density


Sum of Aluminum and Silicon
Kernel Density

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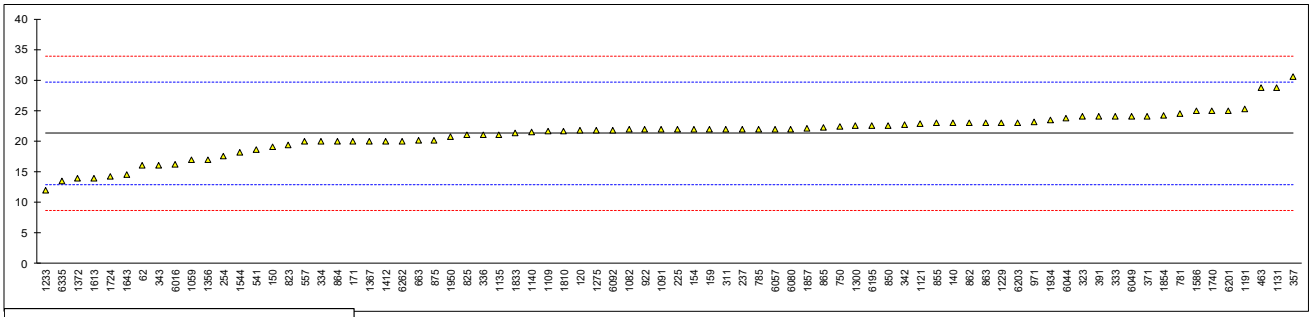
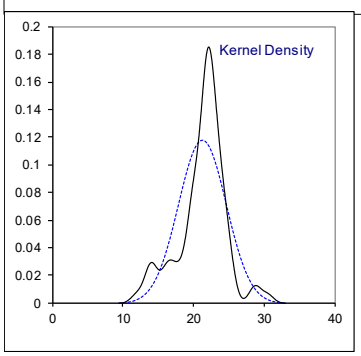
Determination of Iron as Fe on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	16		-1.25	
90		-----		-----	
92		-----		-----	
120	IP501	21.72		0.11	
140	IP501	23		0.41	
150	IP501	19		-0.54	
154	IP501	22		0.17	
159	IP501	22	C	0.17	First reported 44.6
168		-----		-----	
171	IP501	20		-0.30	
175		-----		-----	
194		-----		-----	
221		-----		-----	
225	IP501	22		0.17	
237	IP501	22		0.17	
254	IP501	17.550		-0.88	
273		-----		-----	
311	IP501	22		0.17	
323	IP501	24		0.65	
331		-----		-----	
333	IP501	24		0.65	
334	IP501	20		-0.30	
336	IP501	21		-0.06	
342	IP501	22.6800		0.33	
343	D5708	16.0		-1.25	
357	IP501	30.5		2.19	
371	IP470	24.10		0.67	
391	IP501	24		0.65	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP470	28.7		1.76	
511		-----		-----	
529		-----		-----	
541	IP501	18.6		-0.63	
557	IP501	19.902		-0.32	
608		-----		-----	
631		-----		-----	
663	IP501	20.1		-0.28	
750	IP501	22.47		0.28	
781	IP501	24.5		0.76	
785	IP470	22		0.17	
823	IP501	19.3		-0.47	
825	IP501	21		-0.06	
850	IP501	22.6		0.31	
851		-----		-----	
855	IP501	23		0.41	
862	IP501	23		0.41	
863	IP501	23.0		0.41	
864	IP501	20		-0.30	
865	IP501	22.2		0.22	
875	IP501	20.2		-0.25	
912		-----		-----	
913		-----		-----	
922	IP501	21.9		0.15	
963		-----		-----	
971	IP501	23.1		0.43	
974		-----		-----	
1059	In house	17		-1.01	
1082		21.87		0.14	
1091	IP501	21.9		0.15	
1109	IP470	21.6		0.08	
1121	IP501	22.92		0.39	
1131	IP470	28.72		1.77	
1135	IP501	21.028		-0.06	
1140	IP501	21.47		0.05	
1191	ISO10478M	25.305		0.96	
1229		23		0.41	
1233	IP501	12		-2.20	
1259		-----		-----	
1275	IP501	21.79		0.12	
1300	IP470	22.49		0.29	
1356	IP501	17		-1.01	
1367	IP501	20		-0.30	

lab	method	value	mark	z(targ)	remarks
1372	D5708	13.90		-1.75	
1412	IP501	20		-0.30	
1510		-----		-----	
1544	IP470	18.2		-0.73	
1556		-----		-----	
1564		-----		-----	
1586	IP501	25		0.88	
1613	IP470	14		-1.72	
1643	D5185	14.52		-1.60	
1720		-----		-----	
1724	IP501	14.2		-1.68	
1740	IP501	25		0.88	
1807		-----		-----	
1810	D8252	21.6		0.08	
1833	IP501	21.39		0.03	
1854	IP501	24.2		0.69	
1857	IP501	22.1		0.20	
1862		-----		-----	
1934	IP501	23.4		0.50	
1950	IP470	20.7		-0.14	
1995		-----		-----	
6016	D5708	16.270		-1.19	
6026		-----		-----	
6044	IP501	23.7		0.58	
6049	IP501	24		0.65	
6057	IP501	22		0.17	
6075		-----		-----	
6080	IP501	22		0.17	
6092	IP501	21.8		0.13	
6143		-----		-----	
6192		-----		-----	
6195	IP501	22.5		0.29	
6201	IP501	25		0.88	
6203	IP501	23		0.41	
6220		-----		-----	
6262	IP501	20		-0.30	
6308		-----		-----	
6335	D5185	13.51		-1.84	

	normality	suspect
	n	78
	outliers	0
	mean (n)	21.272
	st.dev. (n)	3.3832
	R(calc.)	9.473
	st.dev.(IP470:05)	4.2199
	R(IP470:05)	11.816
Compare		
	R(IP501:05)	5.039



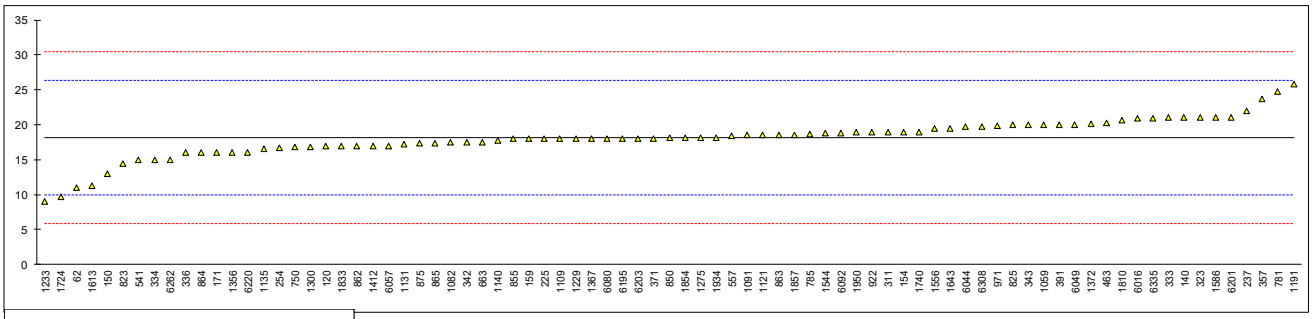


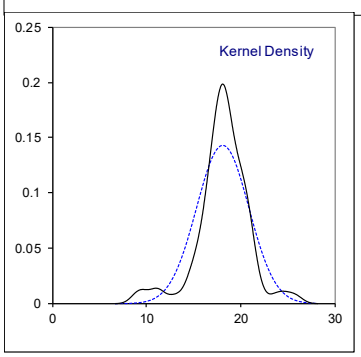
Determination of Nickel as Ni on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	11		-1.73	
90		-----		-----	
92		-----		-----	
120	IP501	16.94		-0.28	
140	IP501	21		0.71	
150	IP501	13		-1.24	
154	IP501	19		0.22	
159	IP501	18	C	-0.02	First reported 32.13
168		-----		-----	
171	IP501	16		-0.51	
175		-----		-----	
194		-----		-----	
221		-----		-----	
225	IP501	18		-0.02	
237	IP501	22		0.95	
254	IP501	16.650		-0.35	
273		-----		-----	
311	IP501	19		0.22	
323	IP501	21		0.71	
331		-----		-----	
333	IP501	21		0.71	
334	IP501	15		-0.76	
336	IP501	16		-0.51	
342	IP501	17.4565		-0.16	
343	D5708	20.0		0.46	
357	IP501	23.7		1.37	
371	IP470	18.01		-0.02	
391	IP501	20		0.46	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP470	20.3		0.54	
511		-----		-----	
529		-----		-----	
541	IP501	15.0		-0.76	
557	IP501	18.411		0.08	
608		-----		-----	
631		-----		-----	
663	IP501	17.5		-0.15	
750	IP501	16.79		-0.32	
781	IP501	24.7		1.61	
785	IP470	18.7		0.15	
823	IP501	14.5		-0.88	
825	IP501	20		0.46	
850	IP501	18.1		0.00	
851		-----		-----	
855	IP501	18		-0.02	
862	IP501	17		-0.27	
863	IP501	18.6		0.12	
864	IP501	16		-0.51	
865	IP501	17.3		-0.19	
875	IP501	17.3		-0.19	
912		-----		-----	
913		-----		-----	
922	IP501	19.0		0.22	
963		-----		-----	
971	IP501	19.8		0.42	
974		-----		-----	
1059	In house	20		0.46	
1082		17.44		-0.16	
1091	IP501	18.5		0.10	
1109	IP470	18.0		-0.02	
1121	IP501	18.53		0.11	
1131	IP470	17.20		-0.22	
1135	IP501	16.511		-0.39	
1140	IP501	17.77		-0.08	
1191	ISO10478M	25.86		1.90	
1229		18		-0.02	
1233	IP501	9		-2.22	
1259		-----		-----	
1275	IP501	18.13		0.01	
1300	IP470	16.79		-0.32	
1356	IP501	16		-0.51	
1367	IP501	18		-0.02	

lab	method	value	mark	z(targ)	remarks
1372	D5708	20.14		0.50	
1412	IP501	17		-0.27	
1510		-----		-----	
1544	IP470	18.8		0.17	
1556	IP501	19.5		0.34	
1564		-----		-----	
1586	IP501	21		0.71	
1613	IP470	11.3		-1.66	
1643	D5185	19.52		0.35	
1720		-----		-----	
1724	IP501	9.62		-2.07	
1740	IP501	19		0.22	
1807		-----		-----	
1810	D8252	20.6		0.61	
1833	IP501	16.95		-0.28	
1854	IP501	18.1		0.00	
1857	IP501	18.6		0.12	
1862		-----		-----	
1934	IP501	18.2		0.03	
1950	IP470	18.9		0.20	
1995		-----		-----	
6016	D5708	20.940		0.69	
6026		-----		-----	
6044	IP501	19.7		0.39	
6049	IP501	20		0.46	
6057	IP501	17		-0.27	
6075		-----		-----	
6080	IP501	18		-0.02	
6092	IP501	18.8		0.17	
6143		-----		-----	
6192		-----		-----	
6195	IP501	18.0		-0.02	
6201	IP501	21		0.71	
6203	IP501	18		-0.02	
6220	IP501	16		-0.51	
6262	IP501	15		-0.76	
6308	IP501	19.7		0.39	
6335	D5185	20.94		0.69	

	normality	not OK
	n	81
	outliers	0
	mean (n)	18.096
	st.dev. (n)	2.7818
	R(calc.)	7.789
	st.dev.(IP470:05)	4.0967
	R(IP470:05)	11.471
Compare		
	R(IP501:05)	8.267



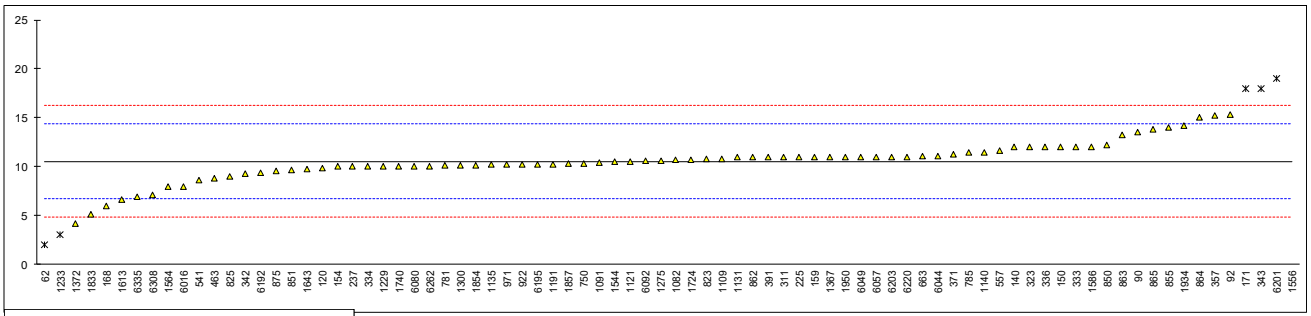


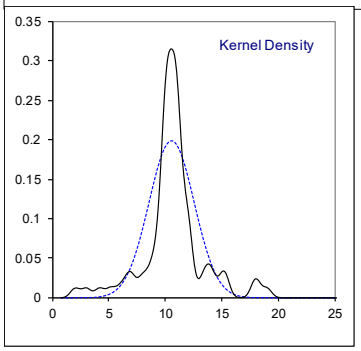
Determination of Sodium as Na on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	2	R(0.05)	-4.47	
90	D5863-B	13.5		1.54	
92	D5863-B	15.36		2.52	
120	IP501	9.829		-0.38	
140	IP470	12		0.76	
150	IP501	12		0.76	
154	IP501	10		-0.29	
159	IP501	11	C	0.24	First reported 51.57
168	D5863-B	6		-2.38	
171	IP501	18	R(0.05)	3.90	
175		-----		-----	
194		-----		-----	
221		-----		-----	
225	IP501	11		0.24	
237	IP501	10		-0.29	
254		-----		-----	
273		-----		-----	
311	IP501	11		0.24	
323	IP501	12		0.76	
331		-----		-----	
333	IP501	12		0.76	
334	IP501	10		-0.29	
336	IP501	12		0.76	
342	IP501	9.2316		-0.69	
343	IP501	18	R(0.05)	3.90	
357	IP501	15.2		2.43	
371	IP470	11.30		0.39	
391	IP501	11		0.24	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP470	8.8		-0.91	
511		-----		-----	
529		-----		-----	
541	IP501	8.6		-1.02	
557	IP501	11.631		0.57	
608		-----		-----	
631		-----		-----	
663	IP501	11.1		0.29	
750	IP501	10.35		-0.10	
781	IP501	10.1		-0.23	
785	IP470	11.45		0.47	
823	IP501	10.8		0.13	
825	IP501	9		-0.81	
850	IP501	12.2		0.86	
851	IP501	9.68		-0.45	
855	IP501	14		1.80	
862	IP501	11		0.24	
863	IP501	13.2		1.39	
864	IP501	15		2.33	
865	IP501	13.8		1.70	
875	IP501	9.6		-0.50	
912		-----		-----	
913		-----		-----	
922	IP501	10.2		-0.18	
963		-----		-----	
971	IP501	10.2		-0.18	
974		-----		-----	
1059		-----		-----	
1082		10.645		0.05	
1091	IP501	10.4		-0.08	
1109	IP470	10.8		0.13	
1121	IP501	10.52		-0.01	
1131	IP470	10.93		0.20	
1135	IP501	10.192		-0.19	
1140	IP501	11.45		0.47	
1191	ISO10478M	10.205		-0.18	
1229		10		-0.29	
1233	IP501	3	R(0.05)	-3.95	
1259		-----		-----	
1275	IP501	10.62		0.04	
1300	IP470	10.10		-0.23	
1356		-----		-----	
1367	IP501	11		0.24	

lab	method	value	mark	z(targ)	remarks
1372	IP501	4.16		-3.34	
1412		-----		-----	
1510		-----		-----	
1544	IP470	10.5		-0.02	
1556	IP501	39.4	R(0.01)	15.08	
1564	D5863-B	7.93		-1.37	
1586	IP501	12		0.76	
1613	IP470	6.6		-2.06	
1643	D5185	9.717		-0.43	
1720		-----		-----	
1724	IP501	10.7		0.08	
1740	IP501	10		-0.29	
1807		-----		-----	
1810		-----		-----	
1833	IP501	5.148		-2.82	
1854	IP501	10.1		-0.23	
1857	IP501	10.3		-0.13	
1862		-----		-----	
1934	IP501	14.2		1.91	
1950	IP470	11.0		0.24	
1995		-----		-----	
6016	D5708	7.984		-1.34	
6026		-----		-----	
6044	IP501	11.1		0.29	
6049	IP501	11		0.24	
6057	IP501	11		0.24	
6075		-----		-----	
6080	IP501	10		-0.29	
6092	IP501	10.6		0.03	
6143		-----		-----	
6192	IP501	9.4		-0.60	
6195	IP501	10.2		-0.18	
6201	IP501	19	R(0.05)	4.42	
6203	IP501	11		0.24	
6220	IP501	11		0.24	
6262	IP501	10		-0.29	
6308	IP501	7.1		-1.80	
6335	D5185	6.89		-1.91	

	normality	suspect
	n	76
	outliers	6
	mean (n)	10.548
	st.dev. (n)	2.0055
	R(calc.)	5.615
	st.dev.(IP470:05)	1.9128
	R(IP470:05)	5.356
Compare		
	R(IP501:05)	3.897



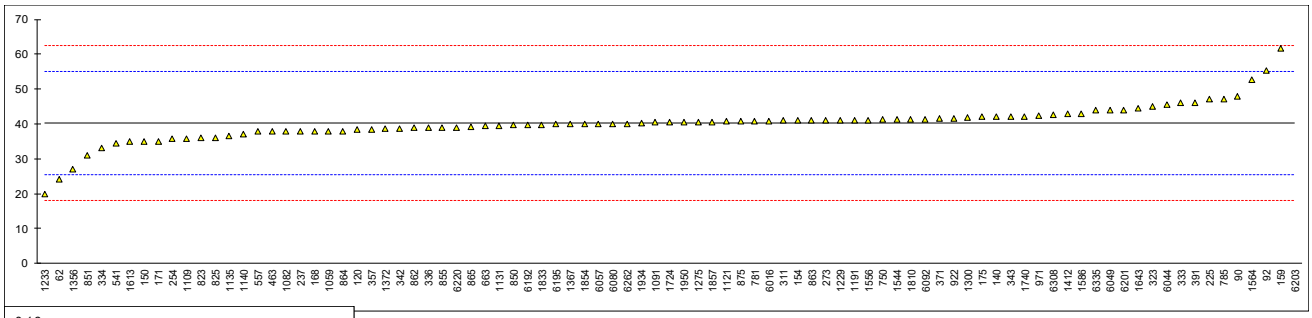


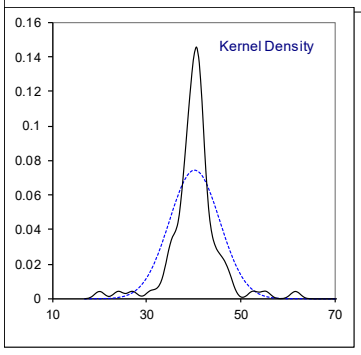
Determination of Vanadium as V on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	24		-2.19	
90	D5863-B	48.0		1.06	
92	D5863-B	55.23		2.04	
120	IP501	38.33		-0.25	
140	IP501	42		0.24	
150	IP501	35		-0.70	
154	IP501	41		0.11	
159	IP501	61.60		2.90	
168	D5863-B	38		-0.30	
171	IP501	35		-0.70	
175	D5863-B	42		0.24	
194		-----		-----	
221		-----		-----	
225	IP501	47		0.92	
237	IP501	38		-0.30	
254	IP501	35.631		-0.62	
273	IP470	41		0.11	
311	IP501	41		0.11	
323	IP501	45		0.65	
331		-----		-----	
333	IP501	46		0.79	
334	IP501	33		-0.97	
336	IP501	39		-0.16	
342	IP501	38.7170		-0.20	
343	D5708	42.0		0.24	
357	IP501	38.5		-0.23	
371	IP470	41.62		0.19	
391	IP501	46		0.79	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP470	37.9		-0.31	
511		-----		-----	
529		-----		-----	
541	IP501	34.3		-0.80	
557	IP501	37.866		-0.32	
608		-----		-----	
631		-----		-----	
663	IP501	39.45		-0.10	
750	IP501	41.25		0.14	
781	IP501	40.9		0.10	
785	IP470	47.2		0.95	
823	IP501	36.0		-0.57	
825	IP501	36		-0.57	
850	IP501	39.6		-0.08	
851	IP501	30.89		-1.26	
855	IP501	39		-0.16	
862	IP501	39		-0.16	
863	IP501	41.0		0.11	
864	IP501	38		-0.30	
865	IP501	39.2		-0.13	
875	IP501	40.7		0.07	
912		-----		-----	
913		-----		-----	
922	IP501	41.7		0.20	
963		-----		-----	
971	IP501	42.4		0.30	
974		-----		-----	
1059	In house	38		-0.30	
1082		37.91		-0.31	
1091	IP501	40.4		0.03	
1109	IP470	35.7		-0.61	
1121	IP501	40.68		0.07	
1131	IP470	39.53		-0.09	
1135	IP501	36.663		-0.48	
1140	IP501	37.08		-0.42	
1191	ISO10478M	41.085		0.12	
1229		41		0.11	
1233	IP501	20		-2.74	
1259		-----		-----	
1275	IP501	40.60		0.05	
1300	IP470	41.86		0.23	
1356	IP501	27		-1.79	
1367	IP501	40		-0.03	
1372	D5708	38.68		-0.21	

lab	method	value	mark	z(targ)	remarks
1412	IP501	43		0.38	
1510		-----		-----	
1544	IP470	41.3		0.15	
1556	IP501	41.1		0.12	
1564	D5863-B	52.58		1.68	
1586	IP501	43		0.38	
1613	D5863-A	34.9		-0.72	
1643	D5185	44.42		0.57	
1720		-----		-----	
1724	IP501	40.4		0.03	
1740	IP470	42		0.24	
1807		-----		-----	
1810	D8252	41.3		0.15	
1833	IP501	39.77		-0.06	
1854	IP501	40.0		-0.03	
1857	IP501	40.6		0.05	
1862		-----		-----	
1934	IP501	40.3		0.01	
1950	IP470	40.4		0.03	
1995		-----		-----	
6016	D5708	40.910		0.10	
6026		-----		-----	
6044	IP501	45.6		0.73	
6049	IP501	44		0.52	
6057	IP501	40		-0.03	
6075		-----		-----	
6080	IP501	40		-0.03	
6092	IP501	41.4		0.16	
6143		-----		-----	
6192	IP501	39.7		-0.07	
6195	IP501	39.9		-0.04	
6201	IP501	44		0.52	
6203	IP501	158	R(0.01)	15.96	
6220	IP501	39		-0.16	
6262	IP501	40		-0.03	
6308	IP501	42.5		0.31	
6335	D5185	43.83		0.49	

	normality	not OK
	n	88
	outliers	1
	mean (n)	40.194
	st.dev. (n)	5.3434
	R(calc.)	14.961
	st.dev.(IP470:05)	7.3814
	R(IP470:05)	20.668
Compare		
	R(IP501:05)	15.409



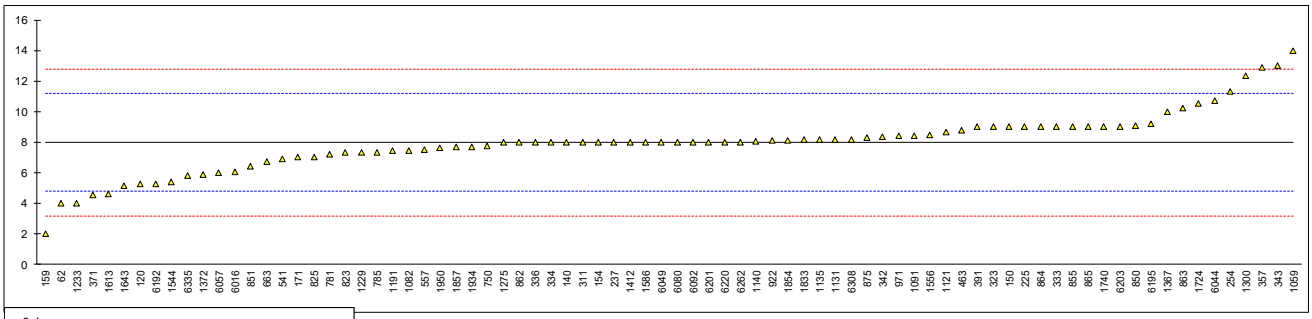


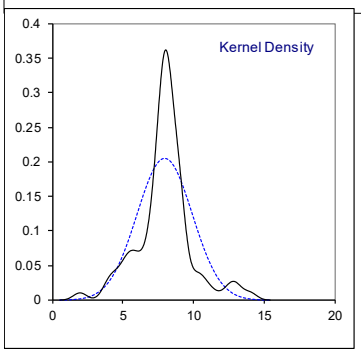
Determination of Calcium as Ca on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	4	C	-2.48	First reported <3
90		-----		-----	
92		-----		-----	
120	IP501	5.294		-1.67	
140	IP501	8		0.02	
150	IP501	9		0.64	
154	IP501	8		0.02	
159	IP501	2	C	-3.72	First reported 17.28
168		-----		-----	
171	IP501	7		-0.61	
175		-----		-----	
194		-----		-----	
221		-----		-----	
225	IP501	9		0.64	
237	IP501	8		0.02	
254	IP501	11.312		2.08	
273		-----		-----	
311	IP501	8		0.02	
323	IP501	9		0.64	
331		-----		-----	
333	IP501	9		0.64	
334	IP501	8		0.02	
336	IP501	8		0.02	
342	IP501	8.3791		0.25	
343	IP501	13		3.13	
357	IP501	12.9		3.07	
371	IP470	4.53		-2.15	
391	IP501	9		0.64	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP470	8.8		0.51	
511		-----		-----	
529		-----		-----	
541	IP501	6.9		-0.67	
557	IP501	7.508		-0.29	
608		-----		-----	
631		-----		-----	
663	IP501	6.7		-0.79	
750	IP501	7.74		-0.15	
781	IP501	7.2		-0.48	
785	IP470	7.35		-0.39	
823	IP501	7.3		-0.42	
825	IP501	7		-0.61	
850	IP501	9.1		0.70	
851	IP501	6.40		-0.98	
855	IP501	9		0.64	
862	IP501	8		0.02	
863	IP501	10.2		1.38	
864	IP501	9		0.64	
865	IP501	9.0		0.64	
875	IP501	8.3		0.20	
912		-----		-----	
913		-----		-----	
922	IP501	8.1		0.08	
963		-----		-----	
971	IP501	8.4		0.26	
974		-----		-----	
1059	In house	14		3.75	
1082		7.4655		-0.32	
1091	IP501	8.4		0.26	
1109		-----		-----	
1121	IP501	8.68		0.44	
1131	IP470	8.20		0.14	
1135	IP501	8.178		0.13	
1140	IP501	8.05		0.05	
1191	IP501	7.45		-0.33	
1229		7.3		-0.42	
1233	IP501	4		-2.48	
1259		-----		-----	
1275	IP501	7.970		0.00	
1300	IP470	12.36	C	2.73	First reported 16.31
1356		-----		-----	
1367	IP501	10		1.26	
1372	IP501	5.87		-1.31	

lab	method	value	mark	z(targ)	remarks
1412	IP501	8		0.02	
1510		-----		-----	
1544	IP470	5.4	C	-1.60	First reported 15.4
1556	IP501	8.5		0.33	
1564		-----		-----	
1586	IP501	8		0.02	
1613	IP470	4.6		-2.10	
1643	D5185	5.173		-1.75	
1720		-----		-----	
1724	IP501	10.5		1.57	
1740	IP501	9		0.64	
1807		-----		-----	
1810		-----		-----	
1833	IP501	8.163		0.12	
1854	IP501	8.1		0.08	
1857	IP501	7.7		-0.17	
1862		-----		-----	
1934	IP501	7.7		-0.17	
1950	IP470	7.6		-0.23	
1995		-----		-----	
6016	D5708	6.086		-1.18	
6026		-----		-----	
6044	IP501	10.7		1.70	
6049	IP501	8		0.02	
6057	IP501	6		-1.23	
6075		-----		-----	
6080	IP501	8		0.02	
6092	IP501	8.0		0.02	
6143		-----		-----	
6192	IP501	5.3		-1.67	
6195	IP501	9.2		0.76	
6201	IP501	8		0.02	
6203	IP501	9		0.64	
6220	IP501	8		0.02	
6262	IP501	8		0.02	
6308	IP501	8.2		0.14	
6335	D5185	5.81		-1.35	

	normality	not OK
	n	80
	outliers	0
	mean (n)	7.976
	st.dev. (n)	1.9511
	R(calc.)	5.463
	st.dev.(IP470:05)	1.6061
	R(IP470:05)	4.497
Compare		
	R(IP501:05)	2.483



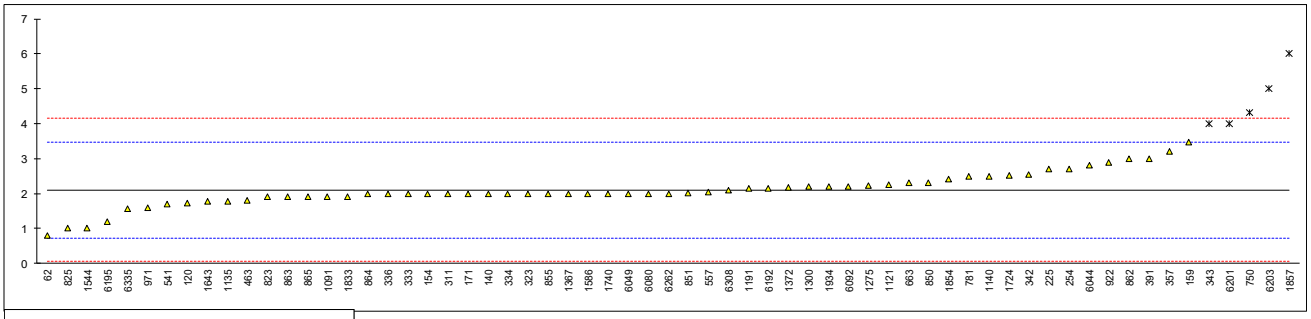


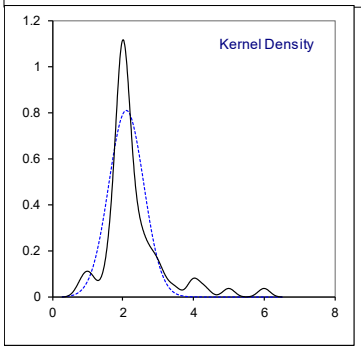
Determination of Phosphorus as P on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP501	0.8		-1.90	
90		-----		-----	
92		-----		-----	
120	IP501	1.729		-0.55	
140	IP501	2		-0.15	
150	IP501	<1		-----	
154	IP501	2		-0.15	
159	IP501	3.47		1.99	
168		-----		-----	
171	IP501	2		-0.15	
175		-----		-----	
194		-----		-----	
221		-----		-----	
225	IP501	2.7		0.87	
237	IP501	<1		-----	
254	IP501	2.71		0.88	
273		-----		-----	
311	IP501	2		-0.15	
323	IP501	2		-0.15	
331		-----		-----	
333	IP501	2		-0.15	
334	IP501	2		-0.15	
336	IP501	2		-0.15	
342	IP501	2.5445		0.64	
343	IP501	4	R(0.05)	2.76	
357	IP501	3.2		1.60	
371		-----		-----	
391	IP501	3		1.30	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP500	1.81		-0.43	
511		-----		-----	
529		-----		-----	
541	IP501	1.7		-0.59	
557	IP501	2.040		-0.09	
608		-----		-----	
631		-----		-----	
663	IP501	2.3		0.29	
750	IP501	4.32	R(0.05)	3.23	
781	IP501	2.5		0.58	
785		-----		-----	
823	IP501	1.9		-0.30	
825	IP501	1		-1.61	
850	IP501	2.3		0.29	
851	IP501	2.02		-0.12	
855	IP501	2		-0.15	
862	IP501	3		1.30	
863	IP501	1.9		-0.30	
864	IP501	2		-0.15	
865	IP501	1.9		-0.30	
875		-----		-----	
912		-----		-----	
913		-----		-----	
922	IP501	2.9		1.16	
963		-----		-----	
971	IP501	1.6		-0.73	
974		-----		-----	
1059	In house	<6		-----	
1082		-----		-----	
1091	IP501	1.9		-0.30	
1109		-----		-----	
1121	IP501	2.25		0.21	
1131		-----		-----	
1135	IP501	1.788		-0.46	
1140	IP501	2.50		0.58	
1191	IP501	2.135		0.04	
1229		-----		-----	
1233	IP501	<1		-----	
1259		-----		-----	
1275	IP501	2.232		0.19	
1300	IP501	2.20		0.14	
1356		-----		-----	
1367	IP501	2		-0.15	
1372	IP501	2.17		0.10	

lab	method	value	mark	z(targ)	remarks
1412		-----		-----	
1510		-----		-----	
1544	IP501	1.0	C	-1.61	First reported 16.6
1556		-----		-----	
1564		-----		-----	
1586	IP501	2		-0.15	
1613		-----		-----	
1643	D5185	1.782		-0.47	
1720		-----		-----	
1724	IP501	2.528		0.62	
1740	IP501	2		-0.15	
1807		-----		-----	
1810		-----		-----	
1833	IP501	1.921		-0.27	
1854	IP501	2.4		0.43	
1857	IP501	6.0	R(0.01)	5.68	
1862		-----		-----	
1934	IP501	2.2		0.14	
1950		-----		-----	
1995		-----		-----	
6016		-----		-----	
6026		-----		-----	
6044	IP501	2.8		1.01	
6049	IP501	2		-0.15	
6057	IP501	<1		-----	
6075		-----		-----	
6080	IP501	2		-0.15	
6092	IP501	2.2		0.14	
6143		-----		-----	
6192	IP501	2.15		0.07	
6195	IP501	1.2		-1.32	
6201	IP501	4	R(0.05)	2.76	
6203	IP501	5	R(0.01)	4.22	
6220		-----		-----	
6262	IP501	2		-0.15	
6308	IP501	2.1		-0.01	
6335	D5185	1.57		-0.78	

normality	suspect
n	58
outliers	5
mean (n)	2.104
st.dev. (n)	0.4940
R(calc.)	1.383
st.dev.(IP501:05)	0.6864
R(IP501:05)	1.922



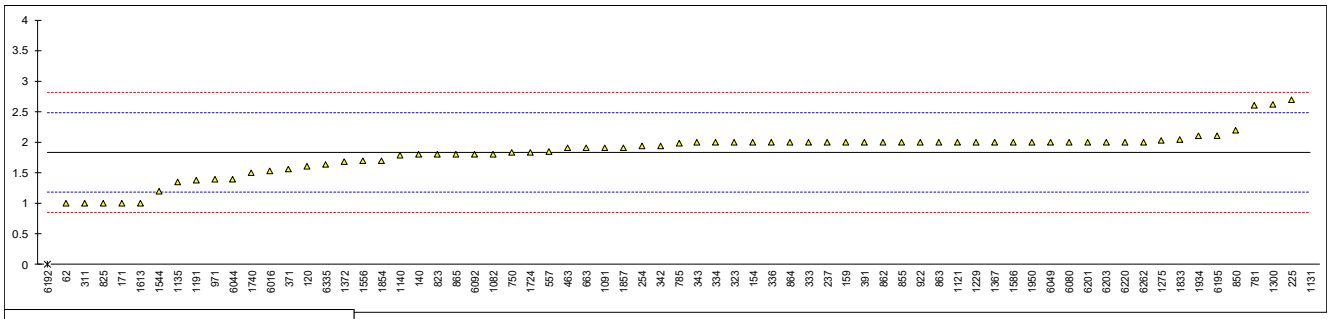


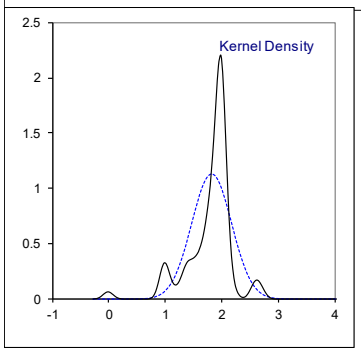
Determination of Zinc as Zn on sample #20096; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	1		-2.55	
90		-----		-----	
92		-----		-----	
120	IP501	1.598		-0.72	
140	IP501	1.8	C	-0.10	First reported 6
150	IP501	<1		-----	
154	IP501	2		0.51	
159	IP500	2	C	0.51	First reported 5.75
168		-----		-----	
171	IP501	1		-2.55	
175		-----		-----	
194		-----		-----	
221		-----		-----	
225	IP501	2.7		2.66	
237	IP501	2		0.51	
254	IP501	1.935		0.31	
273		-----		-----	
311	IP501	1		-2.55	
323	IP501	2		0.51	
331		-----		-----	
333	IP501	2		0.51	
334	IP501	2	C	0.51	First reported 0
336	IP501	2		0.51	
342	IP501	1.9371		0.32	
343	IP501	2		0.51	
357		-----		-----	
371	IP470	1.56		-0.84	
391	IP501	2		0.51	
398		-----		-----	
399		-----		-----	
444		-----		-----	
463	IP470	1.9	C	0.21	First reported 4.5
511		-----		-----	
529		-----		-----	
541	IP501	<1		-----	
557	IP501	1.853		0.06	
608		-----		-----	
631		-----		-----	
663	IP501	1.9		0.21	
750	IP501	1.83		-0.01	
781	IP501	2.6		2.35	
785	IP470	1.99		0.48	
823	IP501	1.8		-0.10	
825	IP501	1		-2.55	
850	IP501	2.2		1.13	
851	IP501	<1		-----	
855	IP501	2		0.51	
862	IP501	2		0.51	
863	IP501	2.0		0.51	
864	IP501	2		0.51	
865	IP501	1.8		-0.10	
875		-----		-----	
912		-----		-----	
913		-----		-----	
922	IP501	2.0		0.51	
963		-----		-----	
971	IP501	1.4		-1.33	
974		-----		-----	
1059	In house	<3		-----	
1082		1.803		-0.09	
1091	IP501	1.9		0.21	
1109		-----		-----	
1121	IP501	2.00		0.51	
1131	IP470	10.15	C,R(0.01)	25.49	First reported 11.6
1135	IP501	1.345		-1.49	
1140	IP501	1.78		-0.16	
1191	IP501	1.385		-1.37	
1229		2.0		0.51	
1233	IP501	<1		-----	
1259		-----		-----	
1275	IP501	2.032		0.61	
1300	IP470	2.61		2.38	
1356		-----		-----	
1367	IP501	2		0.51	
1372	IP501	1.68		-0.47	

lab	method	value	mark	z(targ)	remarks
1412		-----		-----	
1510		-----		-----	
1544	IP470	1.2		-1.94	
1556	IP501	1.7		-0.41	
1564		-----		-----	
1586	IP501	2		0.51	
1613	IP470	1.0		-2.55	
1643		-----		-----	
1720		-----		-----	
1724	IP501	1.83		-0.01	
1740	IP501	1.5		-1.02	
1807		-----		-----	
1810		-----		-----	
1833	IP501	2.040		0.64	
1854	IP501	1.7		-0.41	
1857	IP501	1.91		0.24	
1862		-----		-----	
1934	IP501	2.1		0.82	
1950	IP470	2.0		0.51	
1995		-----		-----	
6016	D5708A	1.524		-0.95	
6026		-----		-----	
6044	IP501	1.4		-1.33	
6049	IP501	2		0.51	
6057	IP501	<1		-----	
6075		-----		-----	
6080	IP501	2		0.51	
6092	IP501	1.8		-0.10	
6143		-----		-----	
6192	IP501	0	R(0.01)	-5.62	
6195	IP501	2.1		0.82	
6201	IP501	2		0.51	
6203	IP500	2		0.51	
6220	IP470	2		0.51	
6262	IP501	2		0.51	
6308	IP501	<0.1		<-5.31	Possibly a false negative test result?
6335	D5185	1.64		-0.59	

	normality	suspect
	n	67
	outliers	2
	mean (n)	1.833
	st.dev. (n)	0.3523
	R(calc.)	0.986
	st.dev.(IP470:05)	0.3263
	R(IP470:05)	0.914
Compare		
	R(IP501:05)	0.777





APPENDIX 2 Analytical details of the determination: Total Acid Number

lab	End point determination	Volume solvent	lab	End point determination	Volume solvent	lab	End point determination	Volume solvent
62	---	---	865	---	---	6026	BEP (pH 10)	125 mL
90	---	---	866	Inflection Point	125 mL	6028	---	---
92	---	---	870	---	---	6039	---	---
120	---	---	875	---	---	6044	Inflection Point	60 mL
140	---	---	886	---	---	6049	Inflection Point	125 mL
150	---	---	912	---	---	6057	---	---
154	---	---	913	---	---	6075	---	---
158	Inflection Point	60 mL	922	Inflection Point	125 mL	6092	---	---
159	---	---	962	---	---	6143	---	---
168	---	---	963	---	---	6192	---	---
169	---	---	971	Inflection Point	125 mL	6201	---	---
171	---	---	974	Inflection Point	125 mL	6203	Inflection Point	125 mL
175	---	---	982	---	---	6220	Inflection Point	125 mL
194	---	---	1019	---	---	6226	Inflection Point	125 mL
221	---	---	1059	BEP (pH 11)	60 mL	6262	Inflection Point	125 mL
224	---	---	1082	---	---	6266	---	---
225	---	---	1099	---	---	6308	---	---
228	---	---	1109	Inflection Point	125 mL	6335	Inflection Point	---
237	---	---	1121	BEP (pH 11)	125 mL			
238	---	---	1126	---	---			
253	---	---	1131	---	---			
254	---	---	1135	---	---			
273	Inflection Point	60 mL	1140	Inflection Point	125 mL			
309	---	---	1177	---	---			
311	---	---	1191	---	---			
313	---	---	1229	---	---			
323	Inflection Point	125 mL	1233	Inflection Point	60 mL			
331	---	---	1259	Inflection Point	60 mL			
333	---	---	1266	---	---			
334	---	---	1269	---	---			
335	---	---	1275	Inflection Point	125 mL			
336	---	---	1300	---	---			
339	---	---	1356	Inflection Point	60 mL			
342	BEP (pH 11)	125 mL	1367	Inflection Point	---			
343	---	---	1412	---	---			
349	---	---	1438	---	---			
371	---	---	1459	---	---			
391	---	---	1498	---	---			
398	---	---	1510	---	---			
399	---	---	1544	---	---			
444	---	---	1556	BEP (pH 10)	125 mL			
463	BEP (pH 11)	125 mL	1564	Inflection Point	60 mL			
511	---	---	1569	Inflection Point	125 mL			
529	Inflection Point	60 mL	1586	---	---			
541	---	---	1613	Inflection Point	60 mL			
557	---	---	1631	---	---			
562	---	---	1643	BEP (pH 10)	60 mL			
575	BEP (pH 10)	60 mL	1720	---	---			
603	---	---	1724	Inflection Point	125 mL			
604	---	---	1728	---	---			
608	Inflection Point	125 mL	1740	Inflection Point	60 mL			
631	---	---	1761	---	---			
633	---	---	1776	BEP (pH 10)	125 mL			
663	---	---	1788	---	---			
671	---	---	1807	---	---			
750	BEP (pH 10)	60 mL	1810	---	---			
751	---	---	1811	---	---			
753	---	---	1833	Inflection Point	125 mL			
759	---	---	1849	---	---			
781	Inflection Point	125 mL	1854	Inflection Point	125 mL			
785	---	---	1857	Inflection Point	125 mL			
823	Inflection Point	125 mL	1862	---	---			
825	---	---	1906	---	---			
850	Inflection Point	125 mL	1934	BEP (pH 10)	125 mL			
851	BEP (pH 10)	125 mL	1942	---	---			
855	Inflection Point	125 mL	1943	---	---			
858	Inflection Point	125 mL	1950	Inflection Point	60 mL			
859	Inflection Point	125 mL	1956	---	---			
862	---	---	1964	---	---			
863	Inflection Point	125 mL	1995	Inflection Point	---			
864	Inflection Point	125 mL	6016	---	---			

APPENDIX 3

Number of participants per country

1	ARGENTINA	3	LATVIA
1	AUSTRALIA	1	LITHUANIA
1	AZERBAIJAN	3	MALAYSIA
6	BELGIUM	1	MALTA
1	BRAZIL	1	MARTINIQUE
1	BULGARIA	1	MEXICO
3	CANADA	5	NETHERLANDS
2	CHILE	2	NIGERIA
10	CHINA, People's Republic	1	PAKISTAN
1	COLOMBIA	1	PERU
1	COTE D'IVOIRE	2	PHILIPPINES
1	CROATIA	1	POLAND
1	CYPRUS	1	PORTUGAL
2	CZECH REPUBLIC	2	ROMANIA
1	DJIBOUTI	11	RUSSIAN FEDERATION
3	EGYPT	2	SAUDI ARABIA
1	ESTONIA	1	SENEGAL
4	FINLAND	2	SLOVENIA
8	FRANCE	1	SOUTH AFRICA
2	GERMANY	3	SOUTH KOREA
6	GREECE	10	SPAIN
1	GUAM	1	SUDAN
1	GUINEA REPUBLIC	5	SWEDEN
1	HONG KONG	1	TAIWAN
2	INDIA	1	TANZANIA
1	IRAN, Islamic Republic of	1	THAILAND
1	IRAQ	1	TOGO
1	ISRAEL	1	TUNISIA
3	ITALY	4	TURKEY
1	JORDAN	4	UNITED ARAB EMIRATES
1	KAZAKHSTAN	9	UNITED KINGDOM
1	KENYA	11	UNITED STATES OF AMERICA

APPENDIX 4

Abbreviations

C	= final test result after checking of first reported suspect test result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
R(0.01)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
E	= possibly an error in calculations
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

Literature

1. iis Interlaboratory Studies: Protocol for the Organisation, Statistics & Evaluation, June 2018
2. ASTM E178:08
3. ASTM E1301:03
4. ISO5725:86
5. ISO5725, parts 1-6, 1994
6. ISO13528:05
7. M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
8. W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
9. IP367:84
10. DIN38402 T41/42
11. P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
12. J.N. Miller, Analyst, 118, 455, (1993)
13. Analytical Methods Committee Technical Brief, No. 4, January 2001.
14. P.J. Lowthian and M.Thompson, The Royal Society of Chemistry, Analyst, 127, 1359-1364, (2002)
15. H. Verplaetse and M. Lacourt, Accred Qual Assur 11, 521-522, 2006
16. Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)