Results of Proficiency Test
Fuel Oil
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Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Fuel Oil in accordance with the latest version of the specifications ISO8217 and ASTM D396 every year and twice per year since 2016. During the annual proficiency testing program 2020/2021 it was decided to continue the round robin for the analysis of Fuel Oil.

In this interlaboratory study registered for participation:
- 135 laboratories in 55 countries for Fuel Oil iis20F03
- 101 laboratories in 43 countries for Fuel Oil Metals iis20F03M
- 56 laboratories in 27 countries for Fuel Oil Bromine and p-Value iis20F03Br
- 58 laboratories in 30 countries for Fuel Oil Compatibility iis20F03C

In this interlaboratory study a total of 147 laboratories in 59 different countries registered for participation. See appendix 3 for the number of participants per country.
In this report the results of the Fuel Oil proficiency tests 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. In this proficiency test the participants received, depending on the registration, from one up to four different samples of Fuel Oil, see table below.

Samples	Purpose
#20250 1x 1L	Regular analyzes
#20251 1x 100mL	Metal analyzes
#20252 1x 1L	Bromine number & p-Value
#20253 2x 40mL	Compatibility rating

Table 1: Fuel Oil samples used in PT iis20F03

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). These 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 sending out 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

For the preparation of the sample for regular analyzes on Fuel Oil a batch of approximately 200 liters was obtained from a third party. After heating to 60°C and homogenization 200 amber glass bottles of 1 liter were filled and labelled #20250.
The homogeneity of the 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 #20250-1	1007.8
Sample #20250-2	1007.8
Sample #20250-3	1007.8
Sample #20250-4	1007.8
Sample #20250-5	1007.8
Sample #20250-6	1007.8
Sample #20250-7	1007.8
Sample #20250-8	1007.8

Table 2: homogeneity test results of subsamples #20250

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)	0.00
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 3: evaluation of the repeatability of subsamples #20250

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

For the preparation of the sample for the Metal analyzes in Fuel Oil a batch of approximately 40 liters of Fuel Oil which contains metals was obtained from a third party. After heating to 60°C and homogenization 151 PE bottles of 0.1 liters were filled and labelled #20251.
The homogeneity of the subsamples was checked by determination of Vanadium in accordance with IP501 on 8 stratified randomly selected subsamples.

	Vanadium in mg/kg
Sample #20251-1	90
Sample #20251-2	87
Sample #20251-3	93
Sample #20251-4	96
Sample #20251-5	92
Sample #20251-6	93
Sample #20251-7	93
Sample #20251-8	93

Table 4: homogeneity test results of subsamples #20251

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.

	Vanadium in mg/kg
r (observed)	7
reference test method	IP470:05
0.3 x R (reference test method)	9

Table 5: evaluation of the repeatability of subsamples #20251

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

For the preparation of the sample for the Bromine and p-Value in Fuel Oil Determination in Fuel Oil a batch of approximately 130 liters of Fuel Oil was obtained from a third party. After heating to 60°C and homogenization 80 amber glass bottles of 1 liter were filled and labelled #20252.
The homogeneity of the 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 #20252-1	1008.0
Sample #20252-2	1007.9
Sample #20252-3	1007.9
Sample #20252-4	1007.9
Sample #20252-5	1007.9
Sample #20252-6	1007.9
Sample #20252-7	1007.9
Sample #20252-8	1007.9

Table 6: homogeneity test results of subsamples #20252

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)	0.10
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 7: evaluation of the repeatability of subsamples #20252

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

For the preparation of the sample for the Compatibility Determination two different batches of Fuel Oil, which were not compatible, of approximately 3.5 liters each were obtained from a third party. After heating to 60°C and homogenization 80 amber glass vials of 40mL were filled and respectively labelled A and B. One subsample A and one subsample B were put together in a plastic bag and the bag was labelled #20253. The homogeneity of subsamples A or B were checked by determination of Density at 15°C in accordance with ISO12185 on respectively 8 stratified randomly selected subsamples.

	Sample A - Density at 15°C in kg/m^3	Sample B - Density at 15°C in kg/m^3
Sample #20253-1	981.8	893.1
Sample #20253-2	981.8	893.2
Sample #20253-3	981.7	893.2
Sample #20253-4	981.8	893.1
Sample #20253-5	981.7	893.1
Sample #20253-6	981.6	893.1
Sample #20253-7	981.7	893.1
Sample #20253-8	981.6	893.1

Table 8: homogeneity test results of subsamples #20253

From the above test results the repeatabilities were 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.

	Sample A - Density at 15°C in kg/m^3	Sample B - Density at 15°C in kg/m^3
r (observed)	0.23	0.13
reference test method	ISO12185:96	ISO12185:96
0.3 x R (reference test method)	0.45	0.45

Table 9: evaluation of the repeatabilities of subsamples #20253

The calculated repeatabilities are in agreement with 0.3 times the 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 November 25, 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 on sample #20250: 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 #20251 it was requested to determine Aluminum as Al, Silicon as Si, Sum of Aluminum and Silicon, Iron as Fe, Nickel as Ni, Sodium as Na, Vanadium as V, Calcium as Ca, Phosphorus as P and Zinc as Zn.
On sample #20252 Bromine Number and p-Value and on sample #20253 it was requested to report the Compatibility rating after blending of the two samples.

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 (when applicable) 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.

The assigned value is determined by consensus based on the test results of the group of participants after rejection of the statistical outliers and/or suspect data.

According to ISO13528 all (original received or corrected) results per determination were submitted to outlier tests. In the iis procedure for proficiency tests, outliers are detected prior to calculation of the mean, standard deviation and reproducibility. For small data sets, Dixon (up to 20 test results) or Grubbs (up to 40 test results) outlier tests can be used. For larger data sets (above 20 test results) Rosner’s outlier test can be used. 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 (dotted line) was projected over the Kernel Density Graph (smooth line) 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 on 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, like Horwitz or an estimated reproducibility based on former iis proficiency tests

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:

	|z|	< 1	good
1 <	|z|	< 2	satisfactory
2 <	|z|	< 3	questionable
3 <	|z|		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 two weeks.
For the PT on regular analyzes in Fuel Oil: four participants reported test results after the extended final reporting date and fifteen participants did not report any test results at all.
For the PT on Metals analyzes in Fuel Oil: two participants reported test results after the extended final reporting date and fifteen participants did not report any test results at all.
For the PT on Bromine Number and p-Value in Fuel Oil determination: one participant reported the test results after the extended final reporting date and fourteen participants did not report any test results at all.
For the PT Fuel Oil Compatibility rating: three participants reported the test results after the extended final reporting date and eleven participants did not report any test results at all.

Finally, over the four PTs 129 participants reported in total 2778 numerical test results. Observed were 81 statistically outlying test results, which is 2.9%.

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 were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original data. 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 #20250

Total Acid Number: This determination was very problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers was not at all-in agreement with the requirements of ASTM D664:18e2 procedure A. Therefore, no z-scores were calculated. Even when the test results of only IP or only BEP were evaluated separately the calculated reproducibilities after rejection of the statistical outlier were not in agreement with the corresponding requirements of ASTM D664:18e2 procedure A.
ASTM D664 was updated in 2018. One of the major changes is the buffer used for in the end point detection (pH11 is changed to pH10). The solubility of Fuel Oil in the 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 not problematic. Three statistical outliers were observed. 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 0.030%M/M. Four 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 not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of IP143:04. ASTM D6560:19 is equivalent to IP143.

Calculated Carbon Aromaticity Index: This determination was not problematic. Two statistical outliers were observed. 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. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ISO10370:14.

Conradson Carbon Residue: This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D189:06(2019).

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

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

Heat of Combustion (Gross): This determination was problematic for a number of participants. Four statistical outliers were observed. 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 problematic for a number of participants. Four statistical outliers were observed. 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. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3104:20.

Kinematic Viscosity at 100°C: 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 ISO3104:20.

Viscosity Stabinger at 50°C: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D7042:16e3.

Viscosity Stabinger at 100°C: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D7042:16e3.

Nitrogen: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D5762:18a.

Pour Point Lower: This determination was not problematic. Two statistical outliers were observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ISO3016:19.

Pour Point Upper: This determination was not problematic. Two statistical outliers were observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ISO3016:19.

Pour Point Automated: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ASTM D5950:14(2020).

Total Sediment by Extraction: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D473:07e1(2017).

Total Sediment Existent (TSE): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of IP375:11(2018).

Total Sediment Accelerated (TSA): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP390:11(2017). IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870:18.

Total Sediment Potential (TSP): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP390:11(2017). IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870:18.

Total Sulfur: This determination was problematic depending on the test method used. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO8754:03 but not with the stricter requirements of ASTM D4294:16e1.

Water by distillation: 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 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 not problematic for all parameters except for 10% recovered. In total eight statistical outliers were observed and four other test results were excluded. All calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ASTM D1160:18, except the calculated reproducibility for 10% recovered.

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

Sample #20251

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 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.

Sum Aluminum and Silicon: 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.

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. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier in agreement with the requirements of IP470:05 and IP501:05.

Sodium: This determination was problematic depending on the test method used. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier 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 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.

Phosphorus: This determination was not problematic. The reporting participants agreed on a value near or below the application range. Therefore, no z-scores are calculated.

Zinc: This determination was problematic depending on the test method used. Three 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.

Sample #20252

Bromine: 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 ASTM D1159:07 (2017).

p-Value: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of SMS1600.

Sample #20253

Compatibility: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4740-M:20). No effect was observed between the type of reference used for spot determination.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the 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, EN, ISO and IP test methods) are presented in the next tables.

Parameter	unit	n	average	2.8 * sd	R(lit)
Total Acid Number	mg KOH/g	60	0.11	0.10	(0.02)
API Gravity		68	8.8	0.2	0.5
Ash Content	%M/M	86	0.030	0.012	0.005
Asphaltenes	%M/M	61	8.18	1.68	1.64
Calc. Carbon Aromaticity Index		69	862.9	1.6	2.2
Carbon Residue micro method	%M/M	79	15.78	0.99	1.54

Parameter	unit	n	average	2.8 * sd	R(lit)
Conradson Carbon Residue	%M/M	29	15.94	1.40	2.51
Density at 15°C	kg/m^3	101	1008.1	1.3	1.5
Flash Point PMcc	°C	105	100.2	5.8	6
Heat of Combustion (Gross)	MJ/kg	53	41.91	0.40	0.40
Heat of Combustion (Net)	MJ/kg	42	39.66	0.35	0.40
Kinematic Viscosity at 50°C	mm^2/s	92	716.1	37.5	60.6
Kinematic Viscosity at 100°C	mm^2/s	75	48.34	2.50	5.83
Viscosity Stabinger at 50°C	mm^2/s	17	714.3	37.6	73.5
Viscosity Stabinger at 100°C	mm^2/s	16	47.92	0.79	3.44
Nitrogen	mg/kg	38	3782	1171	1006
Pour Point, Lower	°C	40	4.8	8.0	9
Pour Point, Upper	°C	71	6.9	8.3	9
Pour Point Automated, Δ3°C	°C	29	3.3	12.3	6.1
Total Sediment by Extraction	%M/M	67	0.017	0.023	0.037
Total Sediment Existent (TSE)	%M/M	65	0.015	0.018	0.036
Total Sediment Accel. (TSA)	%M/M	59	0.017	0.018	0.038
Total Sediment Potential (TSP)	%M/M	60	0.016	0.018	0.037
Total Sulfur	%M/M	104	3.39	0.25	0.29
Water by distillation	%V/V	73	0.05	0.06	0.2
Water and Sediment	%V/V	39	0.05	0.07	0.11
Initial Boiling Point	°C	30	192.8	31.9	49
5% recovered	°C	30	277.9	26.5	26.9
10% recovered	°C	31	326.7	24.8	21.7
20% recovered	°C	30	397.0	16.2	19.8
30% recovered	°C	30	453.0	13.8	17.7
40% recovered	°C	30	493.6	12.6	15.6
50% recovered	°C	20	523.3	8.2	14.5
Final Boiling Point	°C	30	524.1	21.4	27
Total Carbon	%M/M	24	85.4	1.8	2.4
Total Hydrogen	%M/M	22	10.2	0.6	0.7
Total Nitrogen	%M/M	18	0.43	0.19	0.10

Table 10: reproducibilities of tests on sample #20250

Element	unit	n	average	2.8 * sd	R(lit)
Aluminum as Al	mg/kg	75	5.1	3.0	2.3
Silicon as Si	mg/kg	69	6.4	5.3	4.8
Sum of Aluminum and Silicon	mg/kg	62	11.7	5.8	5.4
Iron as Fe	mg/kg	78	17.4	6.4	10.5
Nickel as Ni	mg/kg	81	34.3	12.3	16.3
Sodium as Na	mg/kg	79	11.5	5.8	5.7

Element	unit	n	average	2.8 * sd	R(lit)
Vanadium as V	mg/kg	85	95.6	22.8	31.9
Calcium as Ca	mg/kg	67	4.5	2.7	4.1
Phosphorus as P	mg/kg	63	<1	n.e.	n.e.
Zinc as Zn	mg/kg	54	0.99	0.60	0.58

Table 11: reproducibilities of tests on sample #20251

Parameter	unit	n	average	2.8 * sd	R(lit)
Bromine Number	g Br_2/100g	34	14.5	5.4	4.7
p-Value		30	1.30	0.24	0.6
Compatibility		45	3.7	2.2	1

Table 12: reproducibilities of tests on sample #20252 and #20253

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

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

	December 2020	June 2020	December 2019	June 2019	December 2018
Number of reporting laboratories	129	153	137	147	134
Number of test results	2778	2810	2945	2713	2948
Number of statistical outliers	81	89	115	86	92
Percentage of statistical outliers	2.9%	3.2%	3.9%	3.2%	3.1%

Table 13: comparison with previous proficiency tests

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

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

Parameter	December 2020	June 2020	December 2019	June 2019	December 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)	+/-	+/-	+	+	+

Parameter	December 2020	June 2020	December 2019	June 2019	December 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	-	-	+	+	+/-
Sum of Aluminum and Silicon	+/-	-	+/-	+/-	+/-
Iron as Fe	+	+	+	+	++
Nickel as Ni	+	+	++	++	++
Sodium as Na	+/-	+/-	+	+	+
Vanadium as V	+	+	+	+	+
Calcium as Ca	+	-	-	-	+/-
Phosphorus as P	n.e.	+	+	+/-	+
Zinc as Zn	+/-	-	+/-	+/-	+
Bromine Number	-	+	n.e.	+	n.e.
p-Value	++	--	n.e.	++	n.e.
Compatibility	--	-	n.e.	-	n.e.

Table 14: comparison determinations against the reference test methods
NB.No -z-scores were calculated for the evaluations between brackets

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

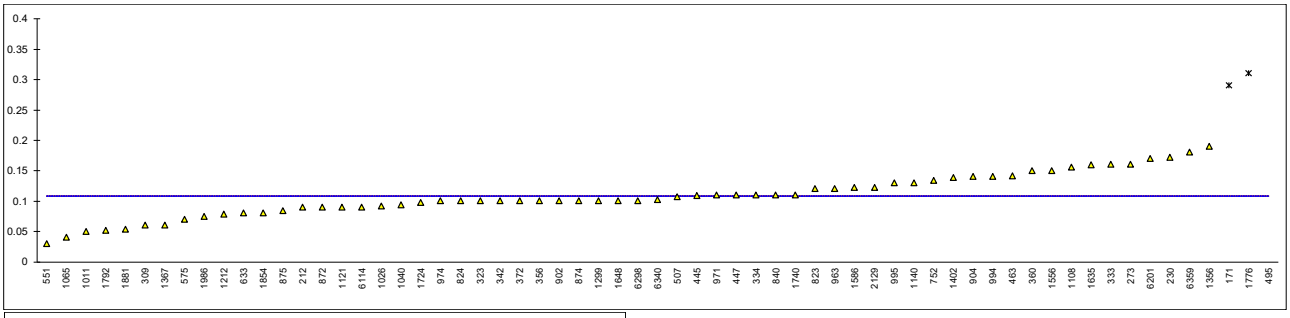
APPENDIX 1

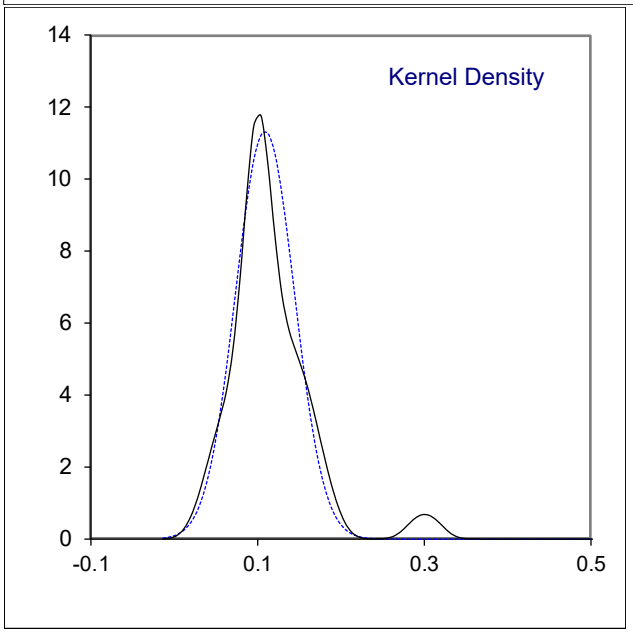
Determination of Total Acid Number on sample #20250; results in mg KOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664-A	<0.10		-----	904	D664-A	0.14		-----
120	D664-A	<0.1		-----	913		-----		-----
140		-----		-----	914		-----		-----
150	D664-B	<0.10		-----	962		-----		-----
154		-----		-----	963	D664-A	0.12		-----
159		-----		-----	971	D664-A	0.11		-----
168		-----		-----	974	D664-A	0.10		-----
169		-----		-----	994	D664-A	0.14		-----
170		-----		-----	995	D664-A	0.13		-----
171	D664-A	0.29	R(0.01)	-----	996		-----		-----
175		-----		-----	997		-----		-----
212	D664-A	0.09		-----	1011	D664-A	0.05		-----
225		-----		-----	1016		-----		-----
230	D664-A	0.1723		-----	1026	D664-A	0.0914		-----
237		-----		-----	1040	D664-A	0.0935		-----
238		-----		-----	1065	D664-A	0.0399		-----
253		-----		-----	1108	D664-A	0.156		-----
256		-----		-----	1109	D664-B	<0.01		-----
273	D664-A	0.16		-----	1121	D664-A	0.09		-----
309	D664-A	0.06		-----	1126		-----		-----
311	D664-A	<0.10		-----	1134		-----		-----
313		-----		-----	1140	IP177	0.13		-----
323	D664-A	0.10		-----	1167		-----		-----
333	D664-A	0.16		-----	1205		-----		-----
334	D664-A	0.11		-----	1212	D664-A	0.078		-----
336		-----		-----	1213	D664-A	<0.1		-----
339		-----		-----	1277		-----		-----
342	D664-A	0.10		-----	1299	D664-A	0.10		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356	D664-A	0.19		-----
356	D664-A	0.10		-----	1367	IP177	0.06		-----
360	D664-A	0.150	C	-----	1381		-----		-----
370		-----		-----	1397		-----		-----
372	D664-A	0.10		-----	1402	IP177	0.138		-----
381		-----		-----	1510		-----		-----
445	D664-A	0.109		-----	1556	D664-A	0.15		-----
447	D664-A	0.11		-----	1585		-----		-----
463	D664-A	0.141		-----	1586	D664-A	0.122		-----
495	D664-A	2.083	R(0.01)	-----	1631		-----		-----
507	D664-A	0.107		-----	1635	D664-A	0.159		-----
541		-----		-----	1648	D664-A	0.10		-----
551	D664-A	0.03		-----	1650		-----		-----
558		-----		-----	1681		-----		-----
575	D664-A	0.07		-----	1720		-----		-----
610		-----		-----	1724	D664-B	0.097		-----
621		-----		-----	1740	D664-A	0.11		-----
631		-----		-----	1776	D664-A	0.31	R(0.01)	-----
633	D664-A	0.08		-----	1792	D664-A	0.052		-----
634		-----		-----	1796		-----		-----
657	D664-A	<0.10		-----	1854	D664-A	0.08		-----
704	D664-A	< 0.1		-----	1857		-----		-----
732		-----		-----	1881	D664-A	0.054		-----
752	D664-A	0.1335		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	D664-A	0.075	C	-----
781	D664-A	<0.1		-----	2129	IP177	0.122		-----
785		-----		-----	6054		-----		-----
798		-----		-----	6075		-----		-----
823	D664-A	0.12		-----	6092		-----		-----
824	D664-A	0.1		-----	6112		-----		-----
825		-----		-----	6114	D664-A	0.090		-----
840	D664-A	0.11		-----	6201	D664-A	0.17		-----
872	D664-A	0.09		-----	6238		-----		-----
873	D664-A	less 0.1		-----	6262		-----		-----
874	D664-A	0.10		-----	6298	D664-A	0.10		-----
875	D664-A	0.084		-----	6340	D664-A	0.102		-----
887		-----		-----	6359	D664-A	0.180		-----
902	D664-A	0.10		-----					

		Only IP	Only BEP
normality	OK	OK	OK
n	60	36	9
outliers	3	1	0
mean (n)	0.1084	0.1099	0.1065
st.dev. (n)	0.03518	0.02830	0.03042
R(calc.)	0.0985	0.0792	0.0852
st.dev.(D664-A:18e2 IP 125 mL)	(0.00770)	(0.00781)	-----
R(D664-A:18e2 IP 125 mL)	(0.0216)	(0.0219)	-----
compare			
R(D664-A:18e2 IP 60 mL)	(0.0651)	(0.0658)	-----
R(D664-A:18e2 BEP 125 mL)	(0.0306)	-----	(0.0300)
R(D664-A:18e2 BEP 60 mL)	(0.0634)	-----	(0.0623)

Lab 360: first reported 0.205
Lab 1986: first reported 0.0075



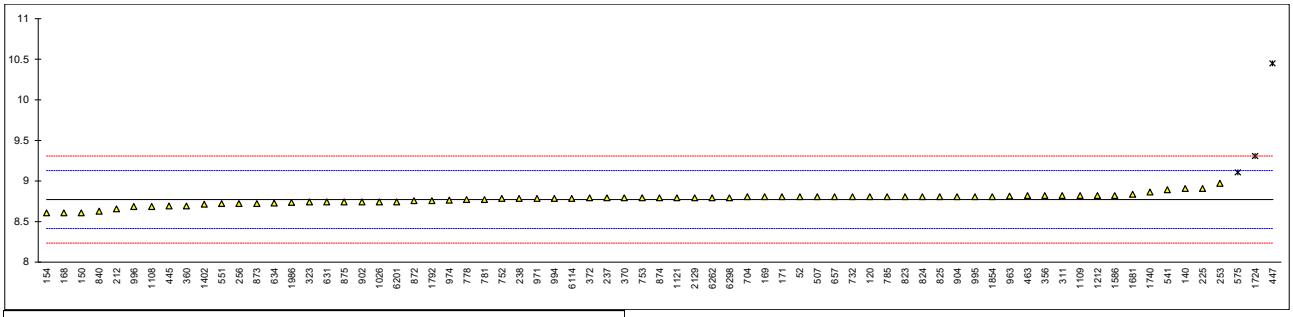


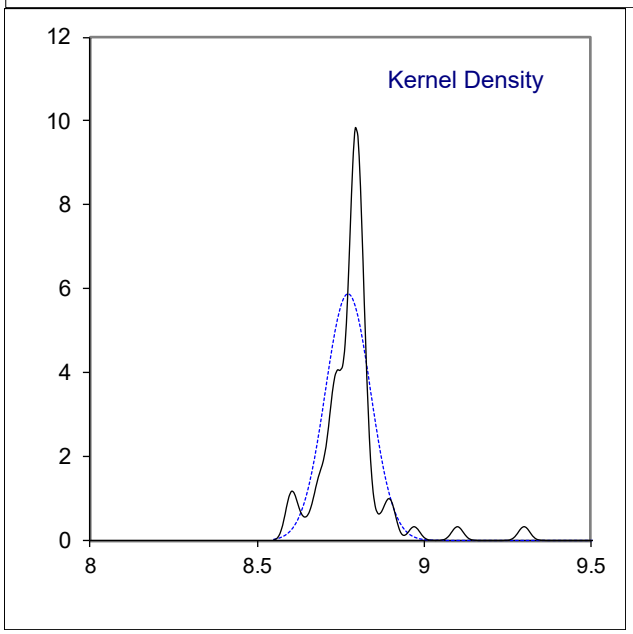
Determination of API Gravity on sample #20250

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	8.8		0.16	904	D1298	8.8		0.16
120	D4052	8.8		0.16	913		-----		-----
140	D4052	8.9		0.72	914		-----		-----
150	D287	8.6		-0.96	962		-----		-----
154	D4052	8.6		-0.96	963	D1298	8.81		0.22
159		-----		-----	971	D1298	8.78		0.05
168	D287	8.6		-0.96	974	D1298	8.76		-0.06
169	D1298	8.8		0.16	994	D1250	8.78		0.05
170		-----		-----	995	D1250	8.8	C	0.16
171	D4052	8.8		0.16	996	D1298	8.68		-0.51
175		-----		-----	997		-----		-----
212	ISO12185	8.65		-0.68	1011		-----		-----
225	D4052	8.9		0.72	1016		-----		-----
230		-----		-----	1026	D4052	8.74		-0.18
237	D4052	8.79		0.10	1040		-----		-----
238	D1298	8.78		0.05	1065		-----		-----
253	D4052	8.97		1.11	1108	ISO12185	8.68		-0.51
256	D1298	8.72		-0.29	1109	D287	8.82		0.27
273		-----		-----	1121	D4052	8.79		0.10
309		-----		-----	1126		-----		-----
311	D1298	8.82		0.27	1134		-----		-----
313		-----		-----	1140		-----		-----
323	D1298	8.74		-0.18	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212	ISO12185	8.82		0.27
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356	D4052	8.82		0.27	1367		-----		-----
360	D4052	8.69		-0.46	1381		-----		-----
370	ISO12185	8.79		0.10	1397		-----		-----
372	D1298	8.79		0.10	1402	D4052	8.71		-0.34
381		-----		-----	1510		-----		-----
445	IP365	8.69		-0.46	1556		-----		-----
447	D1250	10.45	R(0.01)	9.40	1585		-----		-----
463	D1298	8.82		0.27	1586	D1298	8.82		0.27
495		-----		-----	1631		-----		-----
507	D1298	8.80		0.16	1635		-----		-----
541	D4052	8.89		0.66	1648		-----		-----
551	D4052	8.72		-0.29	1650		-----		-----
558		-----		-----	1681	ISO12185	8.83		0.33
575	D1298	9.1	C,R(0.01)	1.84	1720		-----		-----
610		-----		-----	1724	D1298	9.3	R(0.01)	2.96
621		-----		-----	1740	D4052	8.863		0.51
631	D4052	8.74		-0.18	1776		-----		-----
633		-----		-----	1792	ISO12185	8.75		-0.12
634	D1298	8.7249		-0.26	1796		-----		-----
657	ISO12185	8.80		0.16	1854	D4052	8.8		0.16
704	D1298	8.80		0.16	1857		-----		-----
732	D1250	8.80		0.16	1881		-----		-----
752	D1250	8.78		0.05	1906		-----		-----
753	ISO12185	8.79		0.10	1949		-----		-----
778	D1298	8.77		-0.01	1986	D1298	8.73		-0.23
781	ISO12185	8.77		-0.01	2129	D1298	8.79		0.10
785	D1298	8.8		0.16	6054		-----		-----
798		-----		-----	6075		-----		-----
823	ISO12185	8.8		0.16	6092		-----		-----
824	ISO12185	8.8		0.16	6112		-----		-----
825	D1298	8.8		0.16	6114	D4052	8.78		0.05
840	ISO12185	8.62		-0.85	6201	D4052	8.74		-0.18
872	D1298	8.75		-0.12	6238		-----		-----
873	D1298	8.72		-0.29	6262	D4052	8.79		0.10
874	D1298	8.79		0.10	6298	D4052	8.79		0.10
875	D1250	8.74		-0.18	6340		-----		-----
887		-----		-----	6359		-----		-----
902	D1298	8.74		-0.18					

normality	suspect
n	68
outliers	3
mean (n)	8.772
st.dev. (n)	0.0678
R(calc.)	0.190
st.dev.(D1298:12b)	0.1786
R(D1298:12b)	0.5

Lab 575: first reported 9.6
Lab 995: first reported 8.1



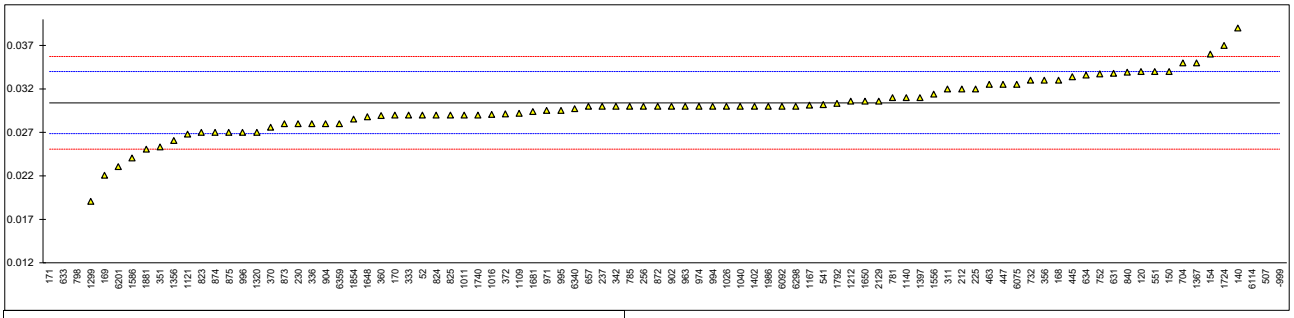


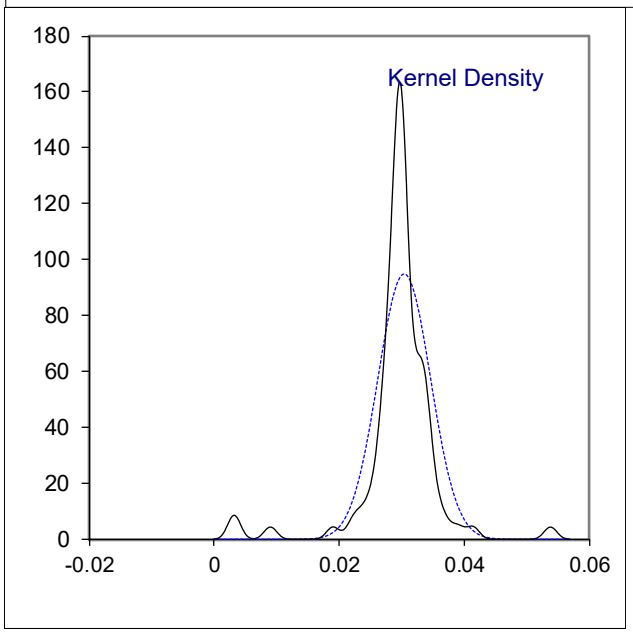
Determination of Ash Content on sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	0.029		-0.79	904	D482	0.028		-1.35
120	D482	0.034		2.01	913		-----		-----
140	D482	0.039	C	4.81	914		-----		-----
150	D482	0.034		2.01	962		-----		-----
154	D482	0.036		3.13	963	ISO6245	0.030		-0.23
159		-----		-----	971	ISO6245	0.0295		-0.51
168	D482	0.033		1.45	974	D482	0.030		-0.23
169	D482	0.022		-4.71	994	D482	0.030		-0.23
170	D482	0.02895		-0.82	995	ISO6245	0.0295		-0.51
171	ISO6245	0.003	R(0.01)	-15.35	996	D482	0.027		-1.91
175		-----		-----	997		-----		-----
212	ISO6245	0.032		0.89	1011	ISO6245	0.029		-0.79
225	D482	0.032		0.89	1016	D482	0.02906		-0.76
230	ISO6245	0.028		-1.35	1026	D482	0.030		-0.23
237	D482	0.03		-0.23	1040	ISO6245	0.03		-0.23
238		-----		-----	1065		-----		-----
253		-----		-----	1108		-----		-----
256	D482	0.03		-0.23	1109	D482	0.0292		-0.68
273		-----		-----	1121	ISO6245	0.0268		-2.02
309		-----		-----	1126		-----		-----
311	D482	0.032		0.89	1134		-----		-----
313		-----		-----	1140	IP4	0.031		0.33
323		-----		-----	1167	ISO6245	0.03011		-0.17
333	ISO6245	0.029		-0.79	1205		-----		-----
334		-----		-----	1212	ISO6245	0.0306		0.11
336	ISO6245	0.028		-1.35	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO6245	0.030		-0.23	1299	D482	0.019		-6.39
349		-----		-----	1320	ISO6245	0.027		-1.91
351	ISO6245	0.0253		-2.86	1356	ISO6245	0.026		-2.47
356	ISO6245	0.033		1.45	1367	IP4	0.035		2.57
360	ISO6245	0.0289		-0.85	1381		-----		-----
370	ISO6245	0.0276		-1.57	1397	ISO6245	0.031		0.33
372	ISO6245	0.0291		-0.73	1402	IP4	0.030		-0.23
381		-----		-----	1510	ISO6245	5.050	R(0.01)	2810.97
445	IP4	0.0334		1.67	1556	ISO6245	0.0314		0.55
447	IP4	0.0325		1.17	1585		-----		-----
463	ISO6245	0.0325		1.17	1586	ISO6245	0.024	C	-3.59
495		-----		-----	1631		-----		-----
507	ISO6245	0.0538		13.10	1635		-----		-----
541	D482	0.0302		-0.12	1648	ISO6245	0.0288		-0.90
551	D482	0.034		2.01	1650	D482	0.0306		0.11
558		-----		-----	1681	ISO6245	0.0294		-0.57
575		-----		-----	1720		-----		-----
610		-----		-----	1724	D482	0.037		3.69
621		-----		-----	1740	D482	0.029		-0.79
631	D482	0.0338		1.90	1776		-----		-----
633	D482	0.0034	R(0.01)	-15.13	1792	ISO6245	0.0303		-0.06
634	D482	0.03359		1.78	1796		-----		-----
657	D482	0.030		-0.23	1854	ISO6245	0.0285		-1.07
704	ISO6245	0.035		2.57	1857		-----		-----
732	D482	0.033		1.45	1881	D482	0.025		-3.03
752	D482	0.0337		1.84	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	ISO6245	0.030		-0.23
781	ISO6245	0.031		0.33	2129	IP4	0.0306		0.11
785	ISO6245	0.03		-0.23	6054		-----		-----
798	D482	0.009	R(0.01)	-11.99	6075	ISO6245	0.0325		1.17
823	ISO6245	0.027		-1.91	6092	ISO6245	0.03		-0.23
824	ISO6245	0.029		-0.79	6112		-----		-----
825	D482	0.029		-0.79	6114	D482	0.0414		6.15
840	D482	0.0339		1.95	6201	ISO6245	0.023		-4.15
872	ISO6245	0.030		-0.23	6238		-----		-----
873	D482	0.028		-1.35	6262		-----		-----
874	ISO6245	0.027		-1.91	6298	D482	0.030		-0.23
875	D482	0.027		-1.91	6340	D482	0.0297		-0.40
887		-----		-----	6359	D482	0.028		-1.35
902	D482	0.030		-0.23					

normality	not OK
n	86
outliers	4
mean (n)	0.0304
st.dev. (n)	0.00421
R(calc.)	0.0118
st.dev.(ISO6245:01)	0.00179
R(ISO6245:01)	0.005
Compare	
R(D482:19)	0.005

Lab 140 first reported 0.016
Lab 1586 first reported 0.014



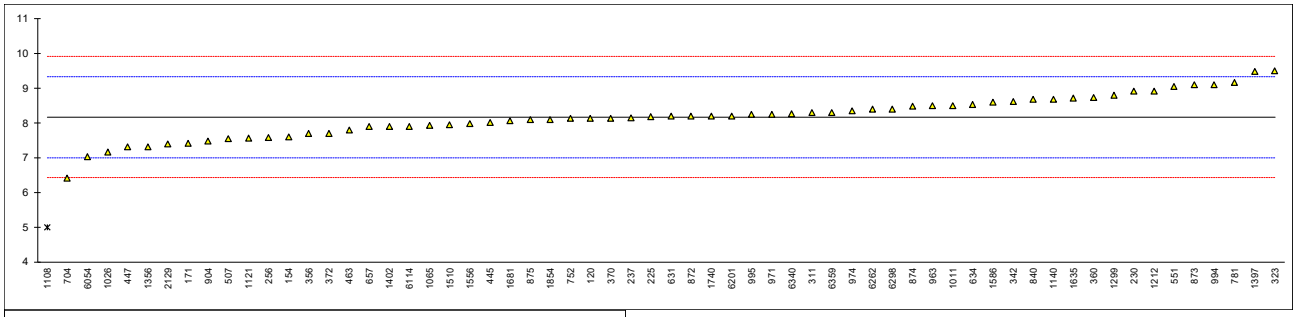


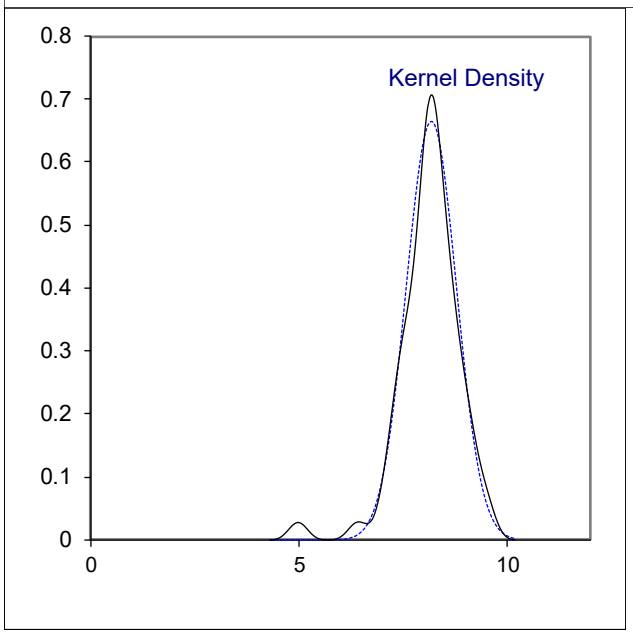
Determination of Asphaltenes on sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904	IP143	7.48		-1.19
120	D6560	8.127		-0.08	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154	D6560	7.6		-0.99	963	IP143	8.5		0.56
159		-----		-----	971	IP143	8.24		0.11
168		-----		-----	974	IP143	8.34		0.28
169		-----		-----	994	D6560	9.1		1.58
170		-----		-----	995	IP143	8.235		0.10
171	IP143	7.4		-1.33	996		-----		-----
175		-----		-----	997		-----		-----
212		-----		-----	1011	IP143Mod.	8.5		0.56
225	D6560	8.17		-0.01	1016		-----		-----
230	IP143	8.906		1.25	1026	IP143	7.15		-1.76
237	D6560	8.14		-0.06	1040		-----		-----
238		-----		-----	1065	D6560	7.92		-0.44
253		-----		-----	1108	D6560	4.98	R(0.01)	-5.47
256	IP143	7.58		-1.02	1109		-----		-----
273		-----		-----	1121	IP143	7.563		-1.05
309		-----		-----	1126		-----		-----
311	IP143	8.3		0.21	1134		-----		-----
313		-----		-----	1140	IP143	8.68		0.86
323	IP143	9.5		2.27	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212	IP143	8.91		1.26
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342	IP143	8.615		0.75	1299	IP143	8.8		1.07
349		-----		-----	1320		-----		-----
351		-----		-----	1356	D6560	7.3		-1.50
356	IP143	7.7		-0.81	1367		-----		-----
360	IP143	8.73		0.95	1381		-----		-----
370	IP143	8.13		-0.08	1397	D6560	9.47		2.22
372	IP143	7.7		-0.81	1402	IP143	7.9		-0.47
381		-----		-----	1510	IP143	7.95		-0.39
445	IP143	8.01		-0.28	1556	IP143	7.97		-0.35
447	IP143	7.3		-1.50	1585		-----		-----
463	IP143	7.79		-0.66	1586	IP143	8.6		0.73
495		-----		-----	1631		-----		-----
507	IP143	7.55		-1.07	1635	D6560	8.71		0.92
541		-----		-----	1648		-----		-----
551	IP143	9.05		1.50	1650		-----		-----
558		-----		-----	1681	IP143	8.06		-0.20
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D6560	8.2		0.04
631	D6560	8.19		0.03	1776		-----		-----
633		-----		-----	1792		-----		-----
634	D6560	8.52	C	0.59	1796		-----		-----
657	IP143	7.90		-0.47	1854	IP143	8.1		-0.13
704	IP143	6.41		-3.02	1857		-----		-----
732		-----		-----	1881		-----		-----
752	INH-642	8.1179		-0.10	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986		-----		-----
781	IP143	9.16		1.69	2129	IP143	7.392		-1.34
785		-----		-----	6054	D6560	7.0311		-1.96
798		-----		-----	6075		-----		-----
823		-----		-----	6092		-----		-----
824		-----		-----	6112		-----		-----
825		-----		-----	6114	IP143	7.90		-0.47
840	D6560	8.67		0.85	6201	IP143	8.2		0.04
872	IP143	8.2		0.04	6238		-----		-----
873	IP143	9.1		1.58	6262	IP143	8.39		0.37
874	IP143	8.48		0.52	6298	IP143	8.40		0.38
875	IP143	8.1		-0.13	6340	IP143	8.26		0.14
887		-----		-----	6359	IP143	8.3		0.21
902		-----		-----					

normality	OK
n	61
outliers	1
mean (n)	8.175
st.dev. (n)	0.6001
R(calc.)	1.680
st.dev.(IP143:04)	0.5840
R(IP143:04)	1.635

Lab 634 first reported 10.32



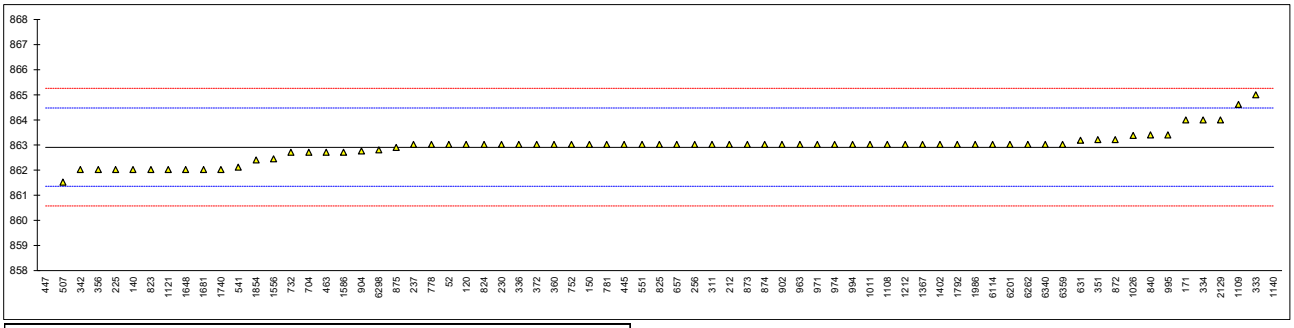


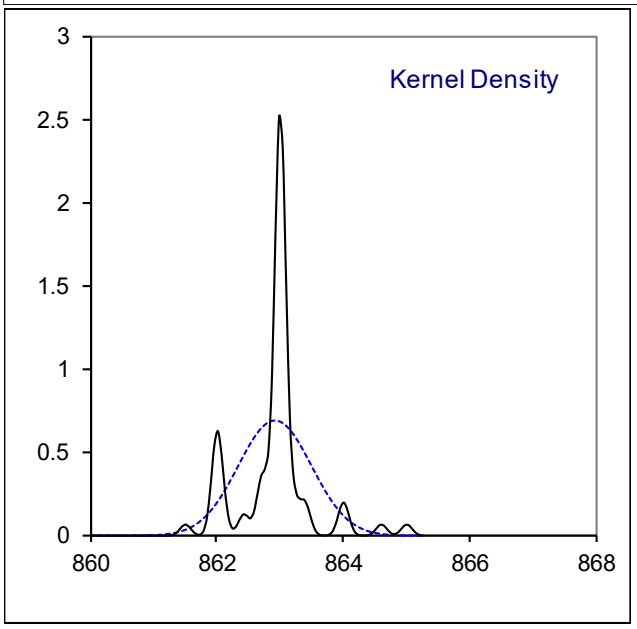
Determination of Calculated Carbon Aromaticity Index on sample #20250

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	ISO8217	863		0.11	904	ISO8217	862.76		-0.20
120	ISO8217	863		0.11	913		-----		-----
140	ISO8217	862	C	-1.16	914		-----		-----
150	ISO8217	863		0.11	962		-----		-----
154		-----		-----	963	ISO8217	863		0.11
159		-----		-----	971	ISO8217	863		0.11
168		-----		-----	974	ISO8217	863		0.11
169		-----		-----	994	ISO8217	863		0.11
170		-----		-----	995	ISO8217	863.4		0.62
171	ISO8217	864		1.38	996		-----		-----
175		-----		-----	997		-----		-----
212	ISO8217	863		0.11	1011	ISO8217	863		0.11
225	ISO8217	862		-1.16	1016		-----		-----
230	ISO8217	863		0.11	1026	ISO8217	863.36		0.57
237	ISO8217	863		0.11	1040		-----		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108	ISO8217	863		0.11
256	ISO8217	863		0.11	1109	ISO8217	864.6		2.15
273		-----		-----	1121	ISO8217	862		-1.16
309		-----		-----	1126		-----		-----
311	ISO8217	863		0.11	1134		-----		-----
313		-----		-----	1140	ISO8217	943	R(0.01)	101.93
323		-----		-----	1167		-----		-----
333	ISO8217	865		2.66	1205		-----		-----
334	ISO8217	864		1.38	1212	ISO8217	863		0.11
336	ISO8217	863		0.11	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO8217	862		-1.16	1299		-----		-----
349		-----		-----	1320		-----		-----
351	ISO8217	863.20		0.36	1356		-----		-----
356	ISO8217	862		-1.16	1367	ISO8217	863		0.11
360	ISO8217	863		0.11	1381		-----		-----
370		-----		-----	1397		-----		-----
372	ISO8217	863		0.11	1402	ISO8217	863		0.11
381		-----		-----	1510		-----		-----
445	ISO8217	863		0.11	1556	ISO8217	862.45		-0.59
447	ISO8217	851	R(0.01)	-15.16	1585		-----		-----
463	ISO8217	862.7		-0.27	1586	ISO8217	862.7		-0.27
495		-----		-----	1631		-----		-----
507	ISO8217	861.5		-1.80	1635		-----		-----
541	ISO8217	862.1		-1.04	1648	ISO8217	862		-1.16
551	ISO8217	863		0.11	1650		-----		-----
558		-----		-----	1681	ISO8217	862.0		-1.16
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	ISO8217	862		-1.16
631	ISO8217	863.19		0.35	1776		-----		-----
633		-----		-----	1792	ISO8217	863		0.11
634		-----		-----	1796		-----		-----
657	ISO8217	863		0.11	1854	ISO8217	862.4		-0.65
704	ISO8217	862.7		-0.27	1857		-----		-----
732	ISO8217	862.7		-0.27	1881		-----		-----
752	ISO8217	863		0.11	1906		-----		-----
753		-----		-----	1949		-----		-----
778	ISO8217	863		0.11	1986	ISO8217	863		0.11
781	ISO8217	863		0.11	2129	ISO8217	864		1.38
785		-----		-----	6054		-----		-----
798		-----		-----	6075		-----		-----
823	ISO8217	862		-1.16	6092		-----		-----
824	ISO8217	863		0.11	6112		-----		-----
825	ISO8217	863		0.11	6114	ISO8217	863		0.11
840	ISO8217	863.4		0.62	6201	ISO8217	863		0.11
872	ISO8217	863.2		0.36	6238		-----		-----
873	ISO8217	863		0.11	6262	ISO8217	863		0.11
874	ISO8217	863		0.11	6298	ISO8217	862.8		-0.14
875	ISO8217	862.9		-0.02	6340	ISO8217	863		0.11
887		-----		-----	6359	ISO8217	863		0.11
902	ISO8217	863		0.11					

normality	not OK
n	69
outliers	2
mean (n)	862.914
st.dev. (n)	0.5791
R(calc.)	1.621
st.dev.(ISO8217:17)	0.7857
R(ISO8217:17)	2.2

Lab 140 first reported 856



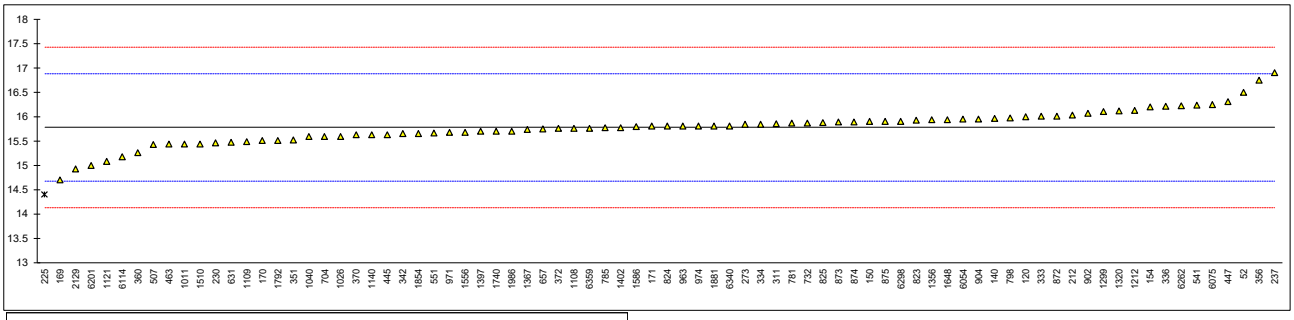


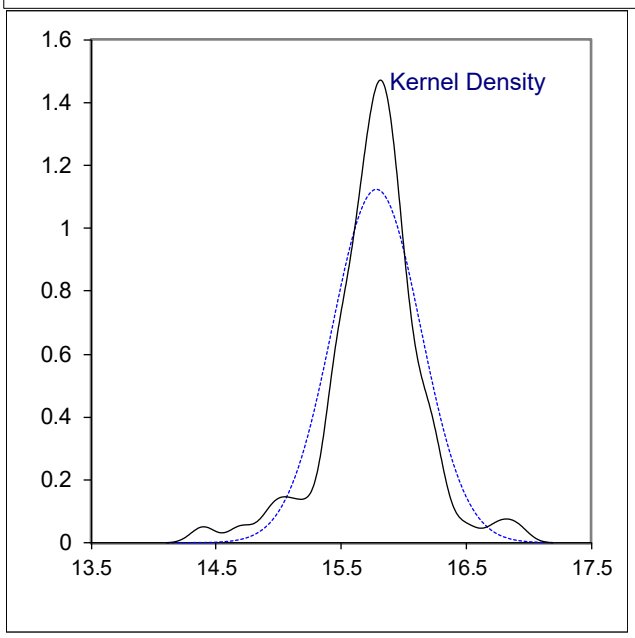
Determination of Carbon Residue micro method on sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	16.5		1.30	904	ISO10370	15.95		0.30
120	D4530	16.00		0.39	913		-----		-----
140	ISO10370	15.96		0.32	914		-----		-----
150	D4530	15.9		0.21	962		-----		-----
154	D4530	16.2		0.76	963	ISO10370	15.80		0.03
159		-----		-----	971	ISO10370	15.67		-0.21
168		-----		-----	974	D4530	15.8		0.03
169	D4530	14.7		-1.97	994		-----		-----
170	D4530	15.5		-0.52	995		-----		-----
171	ISO10370	15.80		0.03	996		-----		-----
175		-----		-----	997		-----		-----
212	ISO10370	16.03		0.45	1011	ISO10370	15.43		-0.64
225	D4530	14.4	R(0.05)	-2.51	1016		-----		-----
230	ISO10370	15.46		-0.59	1026	D4530	15.59	C	-0.35
237	D4530	16.90		2.03	1040	ISO10370	15.585		-0.36
238		-----		-----	1065		-----		-----
253		-----		-----	1108	ISO10370	15.76		-0.04
256		-----		-----	1109	D4530	15.486		-0.54
273	D4530	15.84		0.10	1121	ISO10370	15.072		-1.29
309		-----		-----	1126		-----		-----
311	D4530	15.85		0.12	1134		-----		-----
313		-----		-----	1140	IP398	15.62		-0.30
323		-----		-----	1167		-----		-----
333	ISO10370	16.01		0.41	1205		-----		-----
334	ISO10370	15.84		0.10	1212	ISO10370	16.130		0.63
336	ISO10370	16.21		0.77	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO10370	15.65		-0.24	1299		16.10		0.57
349		-----		-----	1320	ISO10370	16.11		0.59
351	ISO10370	15.522		-0.48	1356	ISO10370	15.93		0.26
356	ISO10370	16.75		1.75	1367	IP398	15.73		-0.10
360	ISO10370	15.25		-0.97	1381		-----		-----
370	ISO10370	15.62		-0.30	1397	ISO10370	15.7		-0.15
372	ISO10370	15.76		-0.04	1402	IP398	15.77		-0.03
381		-----		-----	1510	ISO10370	15.44		-0.62
445	IP398	15.63		-0.28	1556	ISO10370	15.67		-0.21
447	IP398	16.304		0.94	1585		-----		-----
463	ISO10370	15.429		-0.64	1586	D4530	15.79		0.01
495		-----		-----	1631		-----		-----
507	ISO10370	15.425		-0.65	1635		-----		-----
541	D4530	16.23		0.81	1648	ISO10370	15.93		0.26
551	D4530	15.66		-0.23	1650		-----		-----
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----	W	-----
621		-----		-----	1740	D4530	15.70		-0.15
631	D4530	15.47		-0.57	1776		-----		-----
633		-----		-----	1792	ISO10370	15.50		-0.52
634		-----		-----	1796		-----		-----
657	ISO10370	15.75		-0.06	1854	ISO10370	15.65		-0.24
704	ISO10370	15.59		-0.35	1857		-----		-----
732	D4530	15.86		0.14	1881	ISO10370	15.8		0.03
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	ISO10370	15.7		-0.15
781	ISO10370	15.86		0.14	2129	IP398	14.926		-1.56
785	ISO10370	15.77		-0.03	6054	D4530	15.9496		0.30
798	D4530	15.9765		0.35	6075	ISO10370	16.245		0.84
823	ISO10370	15.92		0.25	6092		-----		-----
824	ISO10370	15.8		0.03	6112		-----		-----
825	ISO10370	15.88		0.17	6114	D4530	15.17		-1.11
840		-----		-----	6201	D4530	14.995		-1.43
872	ISO10370	16.01		0.41	6238		-----		-----
873	ISO10370	15.89		0.19	6262	D4530	16.22		0.79
874	D4530	15.89		0.19	6298	D4530	15.90		0.21
875	D4530	15.90		0.21	6340	D4530	15.80		0.03
887		-----		-----	6359	D4530	15.76		-0.04
902	ISO10370	16.07		0.52					

	normality	not OK
	n	79
	outliers	1
	mean (n)	15.7841
	st.dev. (n)	0.35510
	R(calc.)	0.9943
	st.dev.(ISO10370:14)	0.55081
	R(ISO10370:14)	1.5423
compare		
	R(D4530:15)	0.8793

Lab 1026 first reported 17.86
Lab 1724 test result withdrawn, reported 17.63



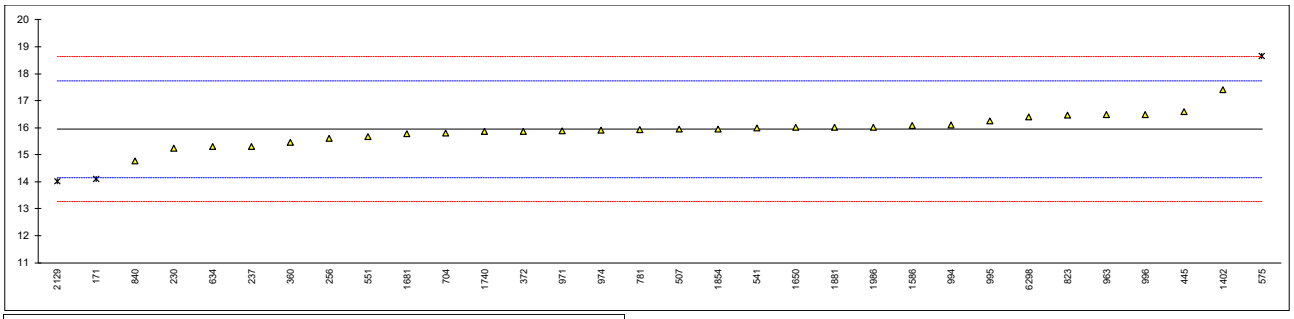


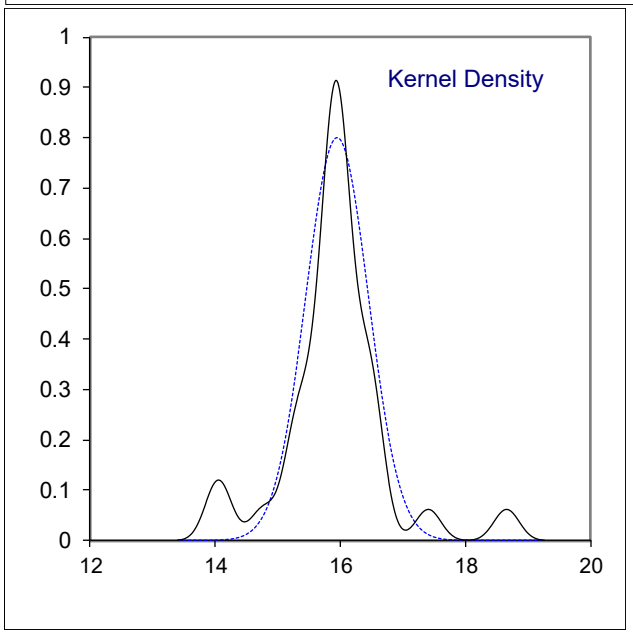
Determination of Conradson Carbon Residue on sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904		-----		-----
120		-----		-----	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154		-----		-----	963	D189	16.48		0.60
159		-----		-----	971	D189	15.87		-0.08
168		-----		-----	974	D189	15.9		-0.05
169		-----		-----	994	D189	16.1		0.17
170		-----		-----	995	D189	16.251		0.34
171	D189	14.1	R(0.05)	-2.06	996	D189	16.48		0.60
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225		-----		-----	1016		-----		-----
230	D189	15.24	C	-0.79	1026		-----		-----
237	D189	15.3		-0.72	1040		-----		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108		-----		-----
256	D189	15.6		-0.38	1109		-----		-----
273		-----		-----	1121		-----		-----
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323		-----		-----	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212		-----		-----
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356		-----		-----	1367		-----		-----
360	D189	15.45		-0.55	1381		-----		-----
370		-----		-----	1397		-----		-----
372	D189	15.86		-0.09	1402	IP13	17.4		1.63
381		-----		-----	1510		-----		-----
445	IP13	16.58		0.71	1556		-----		-----
447		-----		-----	1585		-----		-----
463		-----		-----	1586	D189	16.07		0.14
495		-----		-----	1631		-----		-----
507	D189	15.94		0.00	1635		-----		-----
541	D189	15.99		0.05	1648		-----		-----
551	D189	15.66		-0.32	1650	D189	16.0	C	0.06
558		-----		-----	1681	D189	15.77		-0.19
575	D189	18.65	C,R(0.01)	3.02	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D189	15.85		-0.10
631		-----		-----	1776		-----		-----
633		-----		-----	1792		-----		-----
634	D189	15.289		-0.73	1796		-----		-----
657		-----		-----	1854	D4530	15.95		0.01
704	D189	15.79		-0.17	1857		-----		-----
732		-----		-----	1881	D189	16.0		0.06
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	D189	16.0		0.06
781	D189	15.92		-0.03	2129	D189	14.0	R(0.05)	-2.17
785		-----		-----	6054		-----		-----
798		-----		-----	6075		-----		-----
823	D189	16.46		0.58	6092		-----		-----
824		-----		-----	6112		-----		-----
825		-----		-----	6114		-----		-----
840	D189	14.76		-1.32	6201		-----		-----
872		-----		-----	6238		-----		-----
873		-----		-----	6262		-----		-----
874		-----		-----	6298	D189	16.40		0.51
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902		-----		-----					

normality	not OK
n	29
outliers	3
mean (n)	15.9434
st.dev. (n)	0.49933
R(calc.)	1.3981
st.dev.(D189:06)	0.89546
R(D189:06)	2.5073

Lab 230 first reported 21.817
Lab 575 first reported 20.08
Lab 1650 first reported 21.25



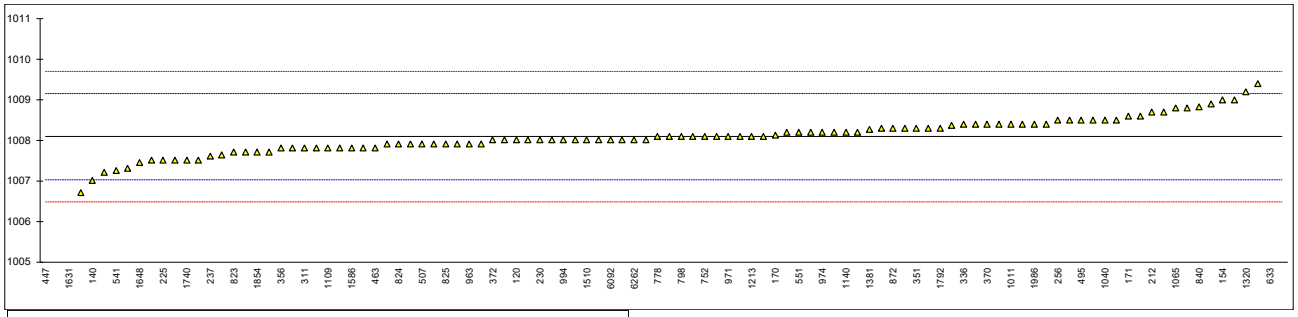


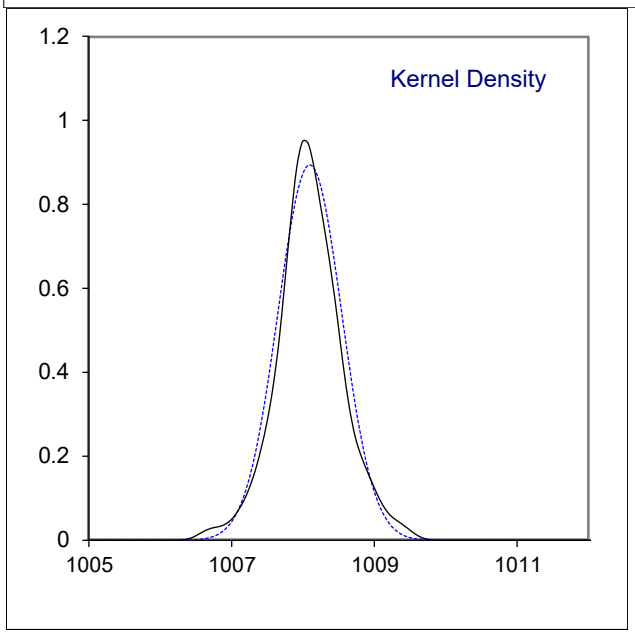
Determination of Density at 15°C on sample #20250; results in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	1008		-0.17	904	ISO12185	1008.0		-0.17
120	D4052	1008.0		-0.17	913		-----		-----
140	D4052	1007		-2.04	914		-----		-----
150	D1298	1009.4		2.44	962		-----		-----
154	D4052	1009		1.69	963	ISO12185	1007.9		-0.36
159		-----		-----	971	ISO12185	1008.1		0.01
168		-----		-----	974	D1298	1008.2		0.20
169	D1298	1007.9		-0.36	994	ISO12185	1008.0		-0.17
170	D4052	1008.12		0.05	995	ISO12185	1008.1		0.01
171	ISO12185	1008.6		0.95	996	D1298	1009		1.69
175		-----		-----	997	ISO12185	1008.2		0.20
212	ISO12185	1008.7		1.13	1011	ISO12185	1008.4		0.57
225	D4052	1007.5		-1.11	1016		-----		-----
230	ISO12185	1008.0		-0.17	1026	D4052	1008.4		0.57
237	D4052	1007.6		-0.92	1040	ISO12185	1008.5		0.76
238	D1298	1008.2		0.20	1065	D4052	1008.8		1.32
253	D4052	1006.7		-2.60	1108	ISO12185	1008.8		1.32
256	D1298	1008.5		0.76	1109	D4052	1007.8		-0.55
273	D1298	1007.5		-1.11	1121	ISO12185	1007.7		-0.73
309		-----		-----	1126		-----		-----
311	D4052	1007.8		-0.55	1134		-----		-----
313	ISO12185	1007.8		-0.55	1140	IP365	1008.2		0.20
323	ISO12185	1008.4		0.57	1167	ISO12185	1008.0		-0.17
333	ISO12185	1008.3		0.39	1205		-----		-----
334	ISO12185	1008.3		0.39	1212	ISO12185	1007.8		-0.55
336	ISO12185	1008.4		0.57	1213	D4052	1008.1		0.01
339		-----		-----	1277	D1298	1016.1	R(0.01)	14.95
342	D4052	1007.8		-0.55	1299	D4052	1000.8	R(0.01)	-13.61
349		-----		-----	1320	ISO12185	1009.2		2.07
351	ISO3675	1008.30		0.39	1356	ISO12185	1007.9		-0.36
356	ISO12185	1007.8		-0.55	1367	IP365	1007.5		-1.11
360	ISO12185	1008.4		0.57	1381	ISO12185	1008.26		0.31
370	ISO12185	1008.4		0.57	1397	ISO12185	1008.9		1.51
372	ISO12185	1008.0		-0.17	1402	IP365	1008.6		0.95
381	ISO12185	1007.2	C	-1.67	1510	ISO12185	1008.0		-0.17
445	IP365	1008.7		1.13	1556	ISO12185	1007.3		-1.48
447	IP365	996.2	R(0.01)	-22.20	1585		-----		-----
463	ISO12185	1007.81		-0.53	1586	ISO12185	1007.8		-0.55
495	ISO12185	1008.50		0.76	1631	ISO12185	1004.25	R(0.01)	-7.17
507	ISO12185	1007.9		-0.36	1635		-----		-----
541	ISO12185	1007.25		-1.57	1648	ISO12185	1007.45		-1.20
551	D4052	1008.2		0.20	1650	D4052	1007.8		-0.55
558		-----		-----	1681	ISO12185	1007.71		-0.72
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----	W	-----
621		-----		-----	1740	D4052	1007.5		-1.11
631	D4052	1008.36		0.50	1776	ISO12185	1007.64		-0.85
633	D1298	1014.9	R(0.01)	12.71	1792	ISO12185	1008.3		0.39
634	D1298	1008.1		0.01	1796		-----		-----
657	ISO12185	1007.9		-0.36	1854	ISO12185	1007.7		-0.73
704	ISO12185	1007.9		-0.36	1857		-----		-----
732	ISO12185	1007.90		-0.36	1881	ISO12185	1008.5		0.76
752	ISO3675	1008.1		0.01	1906		-----		-----
753	ISO12185	1008.0		-0.17	1949		-----		-----
778	ISO12185	1008.1		0.01	1986	D1298	1008.4		0.57
781	ISO12185	1008.1		0.01	2129	D4052	1008.0		-0.17
785	ISO12185	1008.5		0.76	6054		-----		-----
798	D1298	1008.1	C	0.01	6075		-----		-----
823	ISO12185	1007.7		-0.73	6092	ISO12185	1008.0		-0.17
824	ISO12185	1007.9		-0.36	6112	ISO12185	1007.50		-1.11
825	ISO12185	1007.9		-0.36	6114	ISO12185	1008.1		0.01
840	ISO12185	1008.82		1.36	6201	D4052	1008.0	C	-0.17
872	ISO12185	1008.3		0.39	6238		-----		-----
873	ISO12185	1008.5		0.76	6262	D4052	1008.0		-0.17
874	ISO12185	1008.2		0.20	6298	D4052	1008.0		-0.17
875	ISO12185	1008.3		0.39	6340	IP365	1008.2		0.20
887		-----		-----	6359	D4052	1008.4	C	0.57
902	D1298	1008.1		0.01					

normality	suspect
n	101
outliers	5
mean (n)	1008.093
st.dev. (n)	0.4463
R(calc.)	1.250
st.dev.(ISO12185:96)	0.5357
R(ISO12185:96)	1.5

Lab 381 first reported 958.3
Lab 798 first reported 1.0081 kg/m3
Lab 1724 test result withdrawn, reported 1.0044 kg/L
Lab 6201 first reported 1.008 kg/m3
Lab 6359 first reported 1.0084 kg/m3



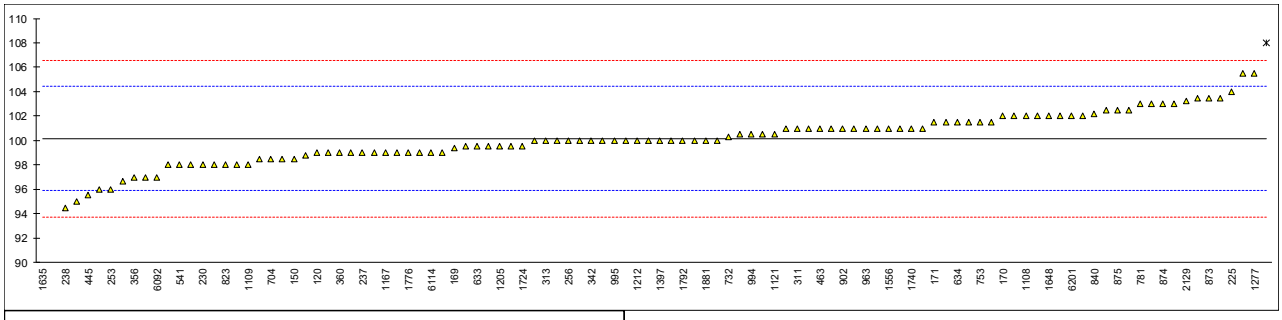


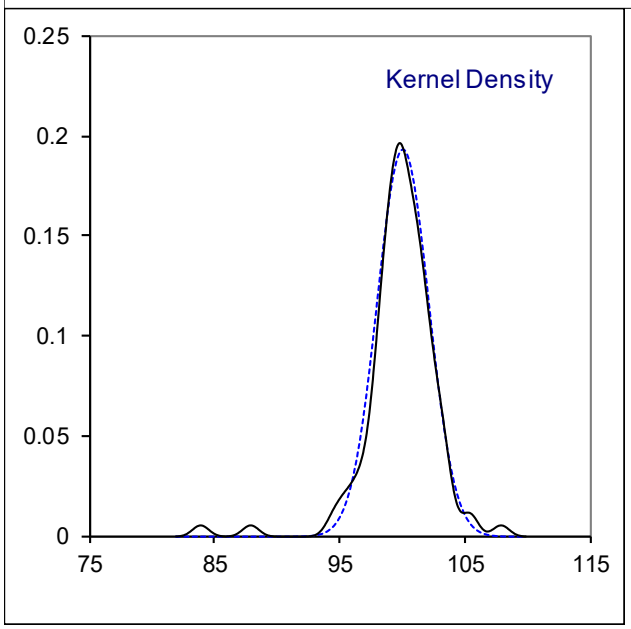
Determination of Flash Point PMcc on sample #20250; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-B	98.0		-1.01	904	ISO2719-B	101		0.39
120	D93-A	99.0		-0.54	913		-----		-----
140	D93-B	101.5		0.63	914		-----		-----
150	D93-B	98.5		-0.77	962		-----		-----
154	D93-B	99.0		-0.54	963	ISO2719-B	101.0		0.39
159		-----		-----	971	ISO2719-B	101.0		0.39
168	D93-B	101.5		0.63	974	D93-B	100.0		-0.07
169	D93-B	99.4		-0.35	994	D93-B	100.5		0.16
170	D93-B	102.0		0.86	995	ISO2719-B	100.0		-0.07
171	ISO2719-A	101.5		0.63	996	D93-B	99.0		-0.54
175	D93-B	99		-0.54	997	ISO2719-B	100.0		-0.07
212	ISO2719-B	96.7		-1.61	1011	ISO2719-B	100.5		0.16
225	D93-B	104.0		1.79	1016		-----		-----
230	ISO2719-B	98.0		-1.01	1026	ISO2719-B	103.5		1.56
237	D93-B	99.0		-0.54	1040	ISO2719-A	98.0		-1.01
238	D93-B	94.5		-2.64	1065		-----		-----
253	D93-B	96		-1.94	1108	ISO2719-B	102.0		0.86
256	D93-B	100.0		-0.07	1109	D93-A	98.0		-1.01
273		-----		-----	1121	ISO2719-B	100.53		0.17
309		-----		-----	1126		-----		-----
311	D93-B	101.0		0.39	1134		-----		-----
313	D93-B	100.0		-0.07	1140	IP34-B	99.5		-0.31
323	ISO2719-A	98.5		-0.77	1167	ISO2719-B	99.0		-0.54
333	ISO2719-B	100.5		0.16	1205	D93-B	99.5		-0.31
334	ISO2719-B	99.5		-0.31	1212	ISO2719-B	100.0		-0.07
336	ISO2719-B	100.0		-0.07	1213	D93-B	103		1.33
339		-----		-----	1277	D93-A	105.5		2.49
342	ISO2719-B	100.0		-0.07	1299	D93-B	100.0		-0.07
349		-----		-----	1320		-----		-----
351	ISO2719-B	101.00		0.39	1356	ISO2719-B	102.5		1.09
356	ISO2719-B	97.0		-1.47	1367	D93-B	99.5		-0.31
360	ISO2719-B	99.0		-0.54	1381		-----		-----
370	D93-B	100.0		-0.07	1397	D93-B	100.0		-0.07
372	ISO2719-B	101.0		0.39	1402	IP34-B	102.0		0.86
381		-----		-----	1510	ISO2719-B	101.5		0.63
445	D93-B	95.5		-2.17	1556	ISO2719-B	101.0		0.39
447	D93-B	95.0		-2.41	1585		-----		-----
463	ISO2719-B	101.0		0.39	1586	D93-B	99.0		-0.54
495	ISO2719-B	98.5		-0.77	1631	D93-B	98.8		-0.63
507	ISO2719-B	88.00	R(0.01)	-5.67	1635	ISO2719-A	84	R(0.01)	-7.54
541	D93-B	98.00		-1.01	1648	ISO2719-B	102.0		0.86
551	D93-B	103.0	C	1.33	1650	D93-B	101.0		0.39
558		-----		-----	1681	ISO2719-B	100.0		-0.07
575	D93-B	101	C	0.39	1720		-----		-----
610		-----		-----	1724	D93-B	99.5		-0.31
621		-----		-----	1740	D93-B	101.0		0.39
631	D93-B	96.0		-1.94	1776	ISO2719-B	99.0		-0.54
633	D93-B	99.50		-0.31	1792	ISO2719-C	100.0		-0.07
634	D93-B	101.5		0.63	1796		-----		-----
657	D93-B	100		-0.07	1854	ISO2719-B	100		-0.07
704	D93-B	98.5		-0.77	1857		-----		-----
732	D93-B	100.3		0.07	1881	ISO2719-B	100.0		-0.07
752	D93-B	105.5		2.49	1906		-----		-----
753	ISO2719-B	101.5		0.63	1949		-----		-----
778	ISO2719-B	103.5		1.56	1986	ISO2719-B	99.0		-0.54
781	ISO2719-B	103.0		1.33	2129	IP34-B	103.26		1.45
785	ISO2719-B	102.0		0.86	6054	D93-B	97.0		-1.47
798	D93-B	108.0	R(0.05)	3.66	6075	ISO2719-B	102.0		0.86
823	ISO2719-B	98.0		-1.01	6092	D93-B	97	C	-1.47
824	ISO2719-B	98.0		-1.01	6112		-----		-----
825	ISO2719-B	98.0		-1.01	6114	D93-B	99.0		-0.54
840	D93-B	102.2		0.95	6201	D93-B	102		0.86
872	ISO2719-B	102.5		1.09	6238		-----		-----
873	D93-B	103.5		1.56	6262	D93-B	99.0		-0.54
874	D93-B	103.0		1.33	6298	D93-B	102.0		0.86
875	D93-B	102.5		1.09	6340	D93-B	101.0		0.39
887		-----		-----	6359	D93-B	100		-0.07
902	ISO2719-B	101.0		0.39					

normality	OK
n	105
outliers	3
mean (n)	100.159
st.dev. (n)	2.0618
R(calc.)	5.773
st.dev.(ISO2719-B:16)	2.1429
R(ISO2719-B:16)	6

Lab 551 first reported 90
Lab 575 first reported 108
Lab 6092 first reported 92



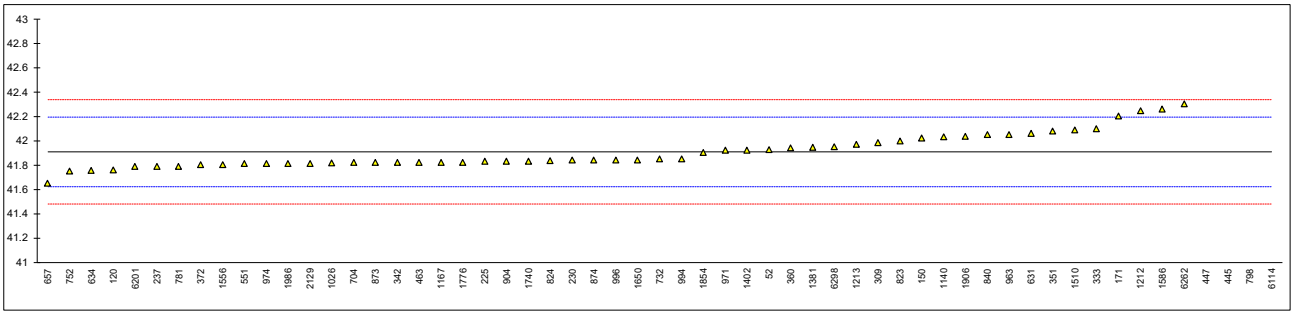


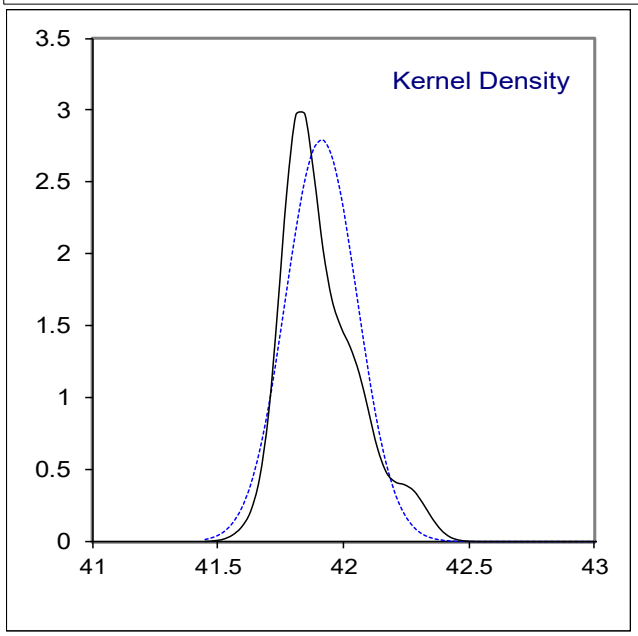
Determination of Heat of Combustion (Gross) on sample #20250; results in MJ/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D240	41.925	C	0.11	904	D4868	41.83		-0.56
120	D4868	41.76	C	-1.05	913		-----		-----
140		-----		-----	914		-----		-----
150	D240	42.022		0.78	962		-----		-----
154		-----		-----	963	D240	42.05		0.98
159		-----		-----	971	D240	41.92		0.07
168		-----		-----	974	D4868	41.81		-0.70
169		-----		-----	994	D4868	41.85		-0.42
170		-----		-----	995		-----		-----
171	D240	42.205		2.07	996	D4868	41.84		-0.49
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225	D4868	41.83		-0.56	1016		-----		-----
230	D4868	41.84		-0.49	1026	D4868	41.816		-0.66
237	D4868	41.790		-0.84	1040		-----		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108		-----		-----
256		-----		-----	1109		-----		-----
273		-----		-----	1121		-----		-----
309	D240	41.985		0.53	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140	ISO8217	42.03		0.84
323		-----		-----	1167	DIN51900-2	41.820		-0.63
333	D240	42.100		1.33	1205		-----		-----
334		-----		-----	1212		42.245		2.35
336		-----		-----	1213		41.97		0.42
339		-----		-----	1277		-----		-----
342	D4868	41.82		-0.63	1299		-----		-----
349		-----		-----	1320		-----		-----
351	D4868	42.080		1.19	1356		-----		-----
356		-----		-----	1367		-----		-----
360	D240	41.938		0.20	1381		41.946		0.25
370		-----		-----	1397		-----		-----
372	D4868	41.80		-0.77	1402	IP2	41.92		0.07
381		-----		-----	1510		42.09		1.26
445	D240	46.064	R(0.01)	29.08	1556	D4868	41.80		-0.77
447	D240	43.9374	R(0.01)	14.19	1585		-----		-----
463	D4868	41.82		-0.63	1586	D240	42.258		2.44
495		-----		-----	1631		-----		-----
507		-----		-----	1635		-----		-----
541		-----		-----	1648		-----		-----
551	D4868	41.81	C	-0.70	1650	D4868	41.84		-0.49
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D240	41.830		-0.56
631		42.0599		1.05	1776	D4868	41.82		-0.63
633		-----		-----	1792		-----		-----
634	D240	41.755		-1.08	1796		-----		-----
657	DIN51900-1	41.650		-1.82	1854	D240	41.90		-0.07
704	D4868	41.82		-0.63	1857		-----		-----
732	D4868	41.849		-0.43	1881		-----		-----
752	D4868	41.75		-1.12	1906	D4809	42.038	C	0.90
753		-----		-----	1949		-----		-----
778		-----		-----	1986	D4868	41.810		-0.70
781	D4868	41.79		-0.84	2129	D240	41.810		-0.70
785		-----		-----	6054		-----		-----
798		50.42	R(0.01)	59.57	6075		-----		-----
823	KS M2057	41.999		0.62	6092		-----		-----
824	KS M2057	41.836		-0.52	6112		-----		-----
825		-----		-----	6114	D4868	50.45	R(0.01)	59.78
840	D240	42.050		0.98	6201	D240	41.786		-0.87
872		-----		-----	6238		-----		-----
873	D4868	41.82		-0.63	6262	D240	42.3046		2.76
874	D4868	41.84		-0.49	6298	D240	41.950		0.28
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902		-----		-----					

normality	suspect
n	53
outliers	4
mean (n)	41.9100
st.dev. (n)	0.14257
R(calc.)	0.3992
st.dev.(D240:19)	0.14286
R(D240:19)	0.40

Lab 52 first reported 41.355
Lab 120 first reported 40.72
Lab 551 first reported 50.31
Lab 1906 first reported 42.148



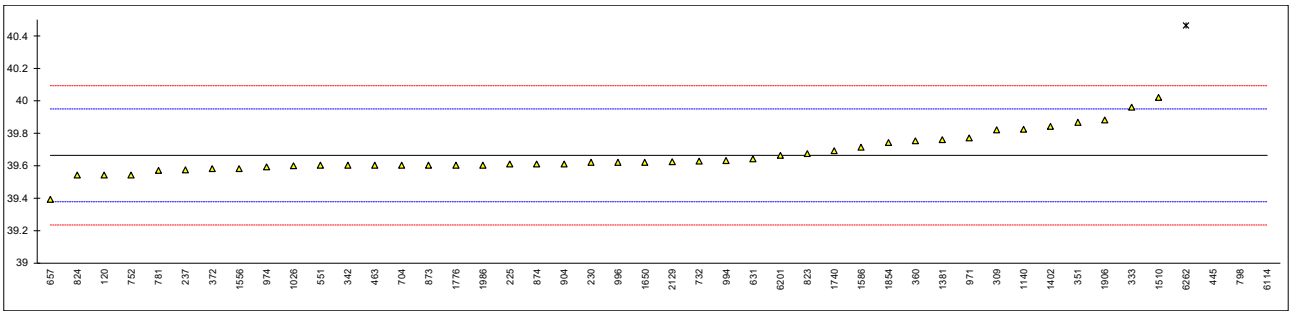


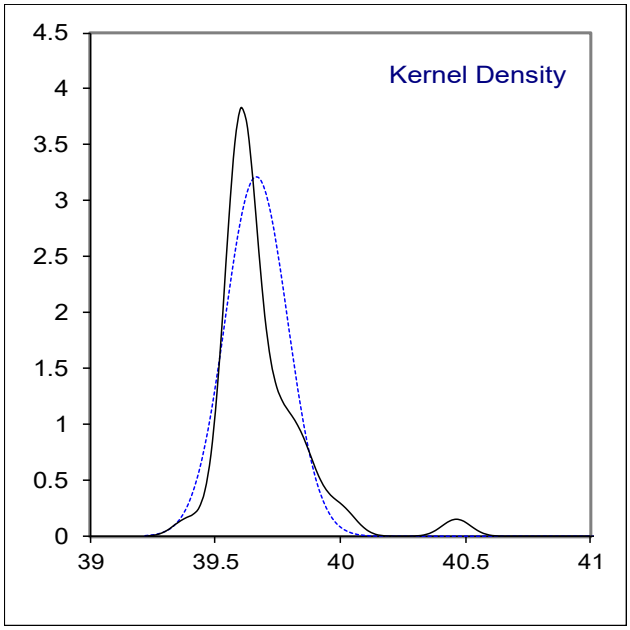
Determination of Heat of Combustion (Net) on sample #20250; results in MJ/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904	D4868	39.61		-0.38
120	D4868	39.54	C	-0.87	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971	D240	39.77		0.74
168		-----		-----	974	D4868	39.59		-0.52
169		-----		-----	994	D4868	39.63		-0.24
170		-----		-----	995		-----		-----
171		-----		-----	996	D4868	39.62		-0.31
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225	D4868	39.61		-0.38	1016		-----		-----
230	D4868	39.62		-0.31	1026	D4868	39.599		-0.45
237	D4868	39.573		-0.64	1040		-----		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108		-----		-----
256		-----		-----	1109		-----		-----
273		-----		-----	1121		-----		-----
309	D240	39.820		1.09	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140	ISO8217	39.8217154		1.11
323		-----		-----	1167		-----		-----
333	D240	39.960		2.07	1205		-----		-----
334		-----		-----	1212		-----		-----
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342	D4868	39.60		-0.45	1299		-----		-----
349		-----		-----	1320		-----		-----
351	D4868	39.866		1.42	1356		-----		-----
356		-----		-----	1367		-----		-----
360	D240	39.753		0.62	1381		39.759		0.67
370		-----		-----	1397		-----		-----
372	D4868	39.58		-0.59	1402	IP2	39.84		1.23
381		-----		-----	1510		40.02		2.49
445	D240	43.963	R(0.01)	30.09	1556	D4868	39.58		-0.59
447		-----		-----	1585		-----		-----
463	D4868	39.60		-0.45	1586	D240	39.712		0.34
495		-----		-----	1631		-----		-----
507		-----		-----	1635		-----		-----
541		-----		-----	1648		-----		-----
551	D4868	39.60	C	-0.45	1650	D4868	39.62		-0.31
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D240	39.690		0.18
631		39.6424		-0.15	1776	D4868	39.60		-0.45
633		-----		-----	1792		-----		-----
634		-----		-----	1796		-----		-----
657	DIN51900-1	39.390		-1.92	1854	D240	39.74		0.53
704	D4868	39.60		-0.45	1857		-----		-----
732	D4868	39.625		-0.27	1881		-----		-----
752	D4868	39.54		-0.87	1906	D4809	39.880	C	1.51
753		-----		-----	1949		-----		-----
778		-----		-----	1986	D4868	39.600		-0.45
781	D4868	39.57		-0.66	2129	D240	39.624		-0.28
785		-----		-----	6054		-----		-----
798		45.12	R(0.01)	38.19	6075		-----		-----
823	KS M2057	39.672		0.06	6092		-----		-----
824	KS M2057	39.539		-0.87	6112		-----		-----
825		-----		-----	6114	D4868	45.15	R(0.01)	38.40
840		-----		-----	6201	D240	39.664		0.00
872		-----		-----	6238		-----		-----
873	D4868	39.60		-0.45	6262	D240	40.4632	R(0.01)	5.60
874	D4868	39.61		-0.38	6298		-----		-----
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902		-----		-----					

normality	suspect
n	42
outliers	4
mean (n)	39.6638
st.dev. (n)	0.12390
R(calc.)	0.3469
st.dev.(D189:06)	0.14286
R(D189:06)	0.40

Lab 120 first reported 38.68
Lab 551 first reported 45.32
Lab 1906 first reported 39.816



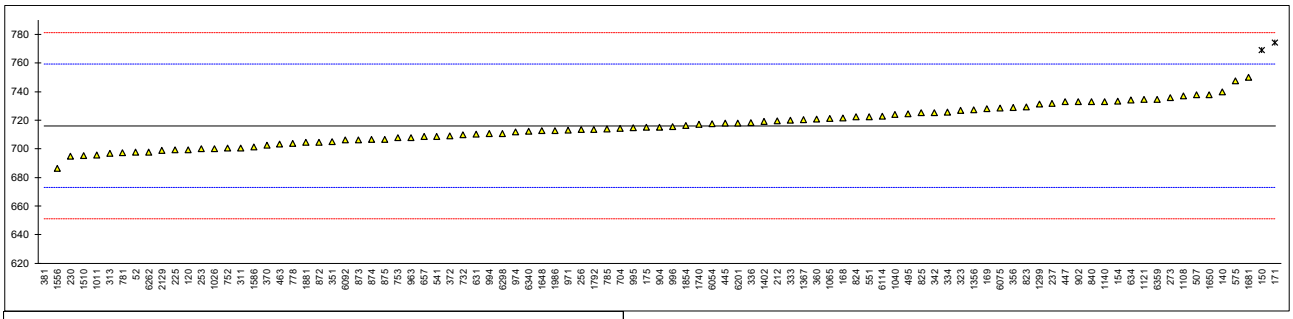


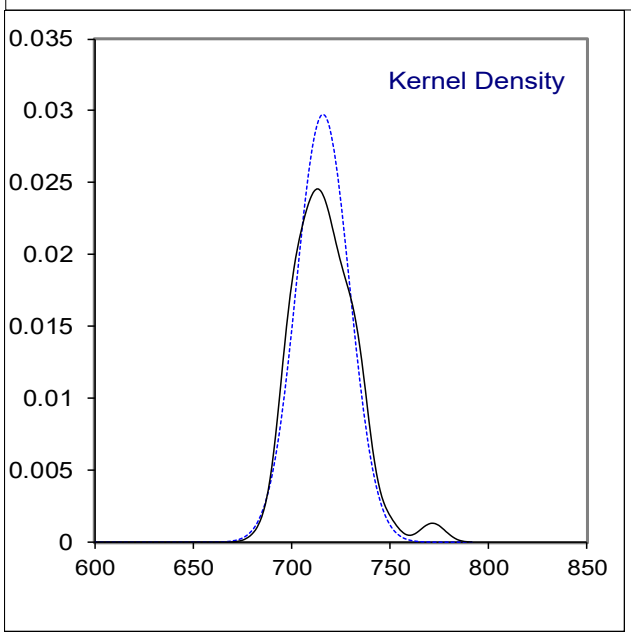
Determination of Kinematic Viscosity at 50°C on sample #20250; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	697.4		-0.86	904	ISO3104	715.0		-0.05
120	D445	699.24		-0.78	913		-----		-----
140	D445	739.49	C	1.08	914		-----		-----
150	D445	769.0	R(0.05)	2.44	962		-----		-----
154	D445	733.0		0.78	963	ISO3104	707.8		-0.38
159		-----		-----	971	ISO3104	712.9		-0.15
168	D445	721.3		0.24	974	D445	711.8		-0.20
169	D445	727.9		0.55	994	D445	710.5		-0.26
170		-----		-----	995	ISO3104	714.7		-0.06
171	ISO3104	774.3	R(0.05)	2.69	996	D445	715.2		-0.04
175	D445	714.9		-0.06	997		-----		-----
212	ISO3104	719.5		0.16	1011	ISO3104	695.4		-0.96
225	D445	699.0		-0.79	1016		-----		-----
230	ISO3104	694.8304		-0.98	1026	ISO3104	700.0		-0.74
237	D445	731.5		0.71	1040	ISO3104	723.65		0.35
238		-----		-----	1065	D445	721.2		0.24
253	D445	700.00		-0.74	1108	ISO3104	736.9		0.96
256	D445	713.2		-0.13	1109		-----		-----
273	D445	735.6		0.90	1121	ISO3104	734.29		0.84
309		-----		-----	1126		-----		-----
311	D445	700.4		-0.73	1134		-----		-----
313	D445	696.7		-0.90	1140	IP71	732.9		0.78
323	ISO3104	726.6		0.49	1167		-----		-----
333	ISO3104	719.6		0.16	1205		-----		-----
334	ISO3104	725.3		0.42	1212		-----		-----
336	ISO3104	718.1		0.09	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO3104	725.03		0.41	1299	D445	731.0		0.69
349		-----		-----	1320		-----		-----
351	ISO3104	704.70		-0.53	1356	ISO3104	727.2		0.51
356	ISO3104	728.9		0.59	1367	IP71	720.1		0.18
360	ISO3104	720.60		0.21	1381		-----		-----
370	ISO3104	702.32		-0.64	1397		-----		-----
372	ISO3104	708.9		-0.33	1402	ISO3104	718.9		0.13
381	ISO3104	334.5	R(0.01)	-17.63	1510	ISO3104	694.9		-0.98
445	IP71	717.8		0.08	1556	ISO3104	685.95		-1.39
447	D445	732.8		0.77	1585		-----		-----
463	ISO3104	703.16		-0.60	1586	ISO3104	701.27		-0.69
495	ISO3104	724.305		0.38	1631		-----		-----
507	ISO3104	737.5		0.99	1635		-----		-----
541	D445	708.405		-0.36	1648	ISO3104	712.40		-0.17
551	D445	722.3		0.29	1650	D445	737.62		0.99
558		-----		-----	1681	ISO3104	749.84		1.56
575	D445	747.54		1.45	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D445	716.8		0.03
631	D445	709.949		-0.28	1776		-----		-----
633		-----		-----	1792	ISO3104	713.31		-0.13
634	D445	733.9		0.82	1796		-----		-----
657	ISO3104	708.4		-0.36	1854	ISO3104	716.1		0.00
704	D445	714.0		-0.10	1857		-----		-----
732	D445	709.75		-0.29	1881	D445	704.2		-0.55
752	ISO3104	700.4		-0.73	1906		-----		-----
753	ISO3104	707.8		-0.38	1949		-----		-----
778	ISO3104	703.4		-0.59	1986	ISO3104	712.6		-0.16
781	ISO3104	697.2		-0.87	2129	D445	698.9		-0.80
785	ISO3104	713.6		-0.12	6054	D445	717.3		0.06
798		-----		-----	6075	ISO3104	728.45		0.57
823	ISO3104	729.0		0.60	6092	D445	705.9		-0.47
824	ISO3104	722.1		0.28	6112		-----		-----
825	ISO3104	724.9		0.41	6114	D445	722.71		0.31
840	D445	732.86		0.77	6201	D445	717.8		0.08
872	ISO3104	704.3		-0.55	6238		-----		-----
873	D445	706.1		-0.46	6262	D445	697.69		-0.85
874	D445	706.5		-0.44	6298	D445	710.65		-0.25
875	ISO3104	706.5		-0.44	6340	D445	712.0		-0.19
887		-----		-----	6359	D445	734.4		0.85
902	ISO3104	732.8		0.77					

normality	OK
n	92
outliers	3
mean (n)	716.1035
st.dev. (n)	13.40940
R(calc.)	37.5463
st.dev.(ISO3104:20)	21.63911
R(ISO3104:20)	60.5895

Lab 140 first reported 38.68

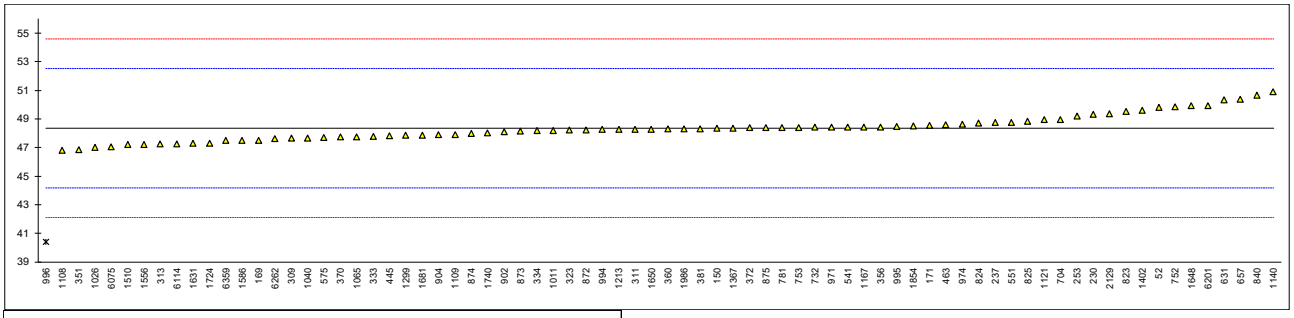


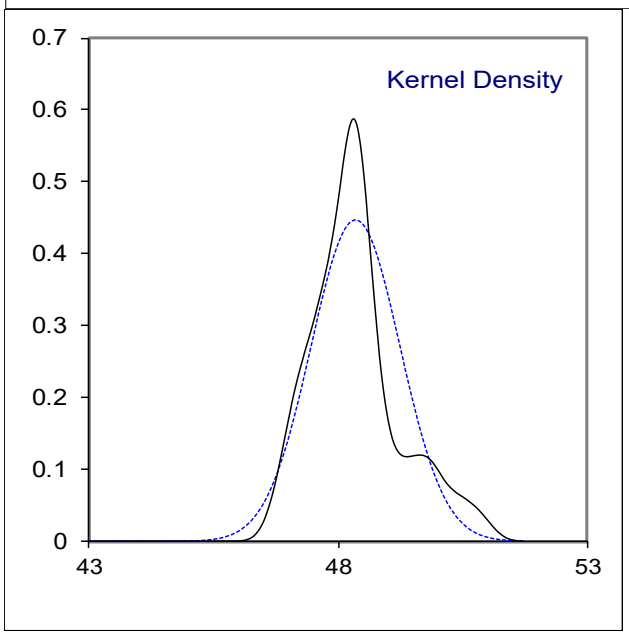


Determination of Kinematic Viscosity at 100°C on sample #20250; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	49.80		0.70	904	ISO3104	47.87		-0.23
120		-----		-----	913		-----		-----
140		-----		-----	914		-----		-----
150	D445	48.33		-0.01	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971	ISO3104	48.40		0.03
168		-----		-----	974	D445	48.60		0.12
169	D445	47.48		-0.41	994	D445	48.24		-0.05
170		-----		-----	995	ISO3104	48.47		0.06
171	ISO3104	48.52		0.09	996	D445	40.37	R(0.01)	-3.83
175		-----		-----	997		-----		-----
212		-----		-----	1011	ISO3104	48.18		-0.08
225		-----		-----	1016		-----		-----
230	ISO3104	49.316		0.47	1026	ISO3104	47.01		-0.64
237	D445	48.72		0.18	1040	ISO3104	47.630		-0.34
238		-----		-----	1065	D445	47.737		-0.29
253	D445	49.2		0.41	1108	ISO3104	46.8		-0.74
256		-----		-----	1109	D445	47.87		-0.23
273		-----		-----	1121	ISO3104	48.92		0.28
309	D445	47.63		-0.34	1126		-----		-----
311	D445	48.25		-0.04	1134		-----		-----
313	D445	47.22		-0.54	1140	IP71	50.9		1.23
323	ISO3104	48.21		-0.06	1167	ISO3104	48.425		0.04
333	ISO3104	47.75		-0.28	1205		-----		-----
334	ISO3104	48.15		-0.09	1212		-----		-----
336		-----		-----	1213	D445	48.24		-0.05
339		-----		-----	1277		-----		-----
342		-----		-----	1299	D445	47.85		-0.24
349		-----		-----	1320		-----		-----
351	ISO3104	46.83		-0.73	1356		-----		-----
356	ISO3104	48.43		0.04	1367	IP71	48.34		0.00
360	ISO3104	48.278		-0.03	1381		-----		-----
370	ISO3104	47.732		-0.29	1397		-----		-----
372	ISO3104	48.36		0.01	1402	ISO3104	49.57		0.59
381	ISO3104	48.31		-0.02	1510	ISO3104	47.2		-0.55
445	IP71	47.80		-0.26	1556	ISO3104	47.201		-0.55
447		-----		-----	1585		-----		-----
463	ISO3104	48.591		0.12	1586	ISO3104	47.47		-0.42
495		-----		-----	1631	ISO3104	47.266		-0.52
507		-----		-----	1635		-----		-----
541	D445	48.409		0.03	1648	ISO3104	49.892		0.74
551	D445	48.74		0.19	1650	D445	48.252		-0.04
558		-----		-----	1681	ISO3104	47.855		-0.23
575	D445	47.7		-0.31	1720		-----		-----
610		-----		-----	1724	D445	47.275		-0.51
621		-----		-----	1740	D445	48.00		-0.16
631	D445	50.324		0.95	1776		-----		-----
633		-----		-----	1792		-----		-----
634		-----		-----	1796		-----		-----
657	ISO3104	50.36		0.97	1854	ISO3104	48.5		0.08
704	D445	48.94		0.29	1857		-----		-----
732	D445	48.392		0.02	1881		-----		-----
752	D445	49.850		0.72	1906		-----		-----
753	ISO3104	48.38		0.02	1949		-----		-----
778		-----		-----	1986	ISO3104	48.30		-0.02
781	ISO3104	48.38		0.02	2129	D445	49.36		0.49
785		-----		-----	6054		-----		-----
798		-----		-----	6075	ISO3104	47.051		-0.62
823	D445	49.52		0.57	6092		-----		-----
824	ISO3104	48.70		0.17	6112		-----		-----
825	ISO3104	48.81		0.22	6114	D445	47.222		-0.54
840	D445	50.652		1.11	6201	D445	49.93		0.76
872	ISO3104	48.22		-0.06	6238		-----		-----
873	D445	48.13		-0.10	6262	D445	47.621		-0.35
874	D445	47.96		-0.18	6298		-----		-----
875	ISO3104	48.36		0.01	6340		-----		-----
887		-----		-----	6359	D445	47.46		-0.42
902	ISO3104	48.08		-0.13					

normality	OK
n	75
outliers	1
mean (n)	48.3430
st.dev. (n)	0.89263
R(calc.)	2.4994
st.dev.(ISO3104:20)	2.08220
R(ISO3104:20)	5.8302

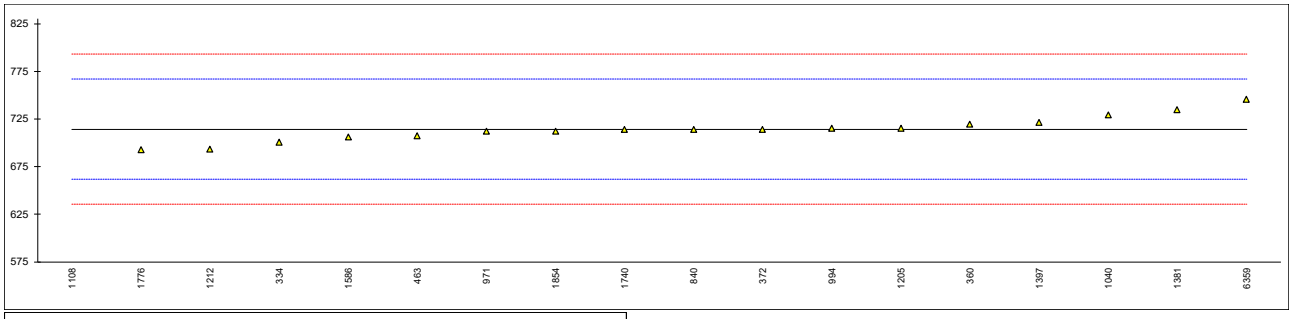


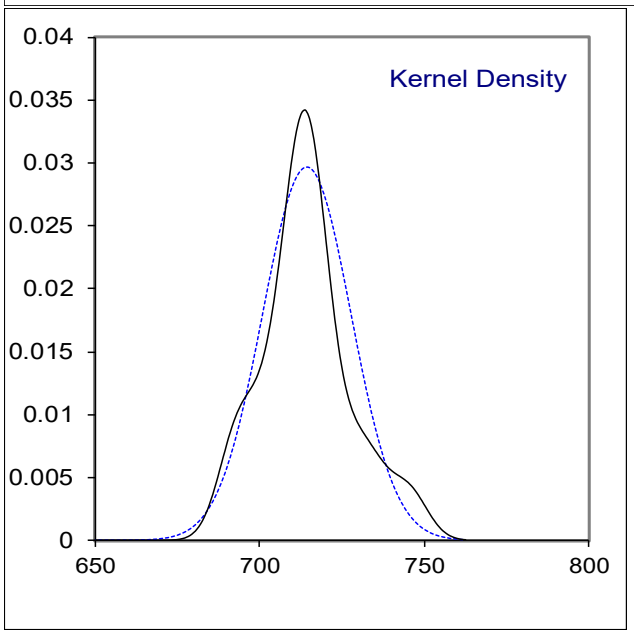


Determination of Viscosity Stabinger at 50°C on sample #20250; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904		-----		-----
120		-----		-----	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971	D7042	711.8		-0.09
168		-----		-----	974		-----		-----
169		-----		-----	994	D7042	715.0		0.03
170		-----		-----	995		-----		-----
171		-----		-----	996		-----		-----
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225		-----		-----	1016		-----		-----
230		-----		-----	1026		-----		-----
237		-----		-----	1040	D7042	728.92		0.56
238		-----		-----	1065		-----		-----
253		-----		-----	1108	D7042	509.7	G(0.01)	-7.79
256		-----		-----	1109		-----		-----
273		-----		-----	1121		-----		-----
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323		-----		-----	1167		-----		-----
333		-----		-----	1205	D7042	715.23		0.04
334	D7042	700.2		-0.54	1212	D7042	693.25		-0.80
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356		-----		-----	1367		-----		-----
360	D7042	719.18		0.19	1381	D7042	734.28		0.76
370		-----		-----	1397	D7042	721.1		0.26
372	D7042	713.9		-0.01	1402		-----		-----
381		-----		-----	1510		-----		-----
445		-----		-----	1556		-----		-----
447		-----		-----	1585		-----		-----
463	D7042	706.95		-0.28	1586	D7042	705.7		-0.33
495		-----		-----	1631		-----		-----
507		-----		-----	1635		-----		-----
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D7042	713.7		-0.02
631		-----		-----	1776	D7042	692.75		-0.82
633		-----		-----	1792		-----		-----
634		-----		-----	1796		-----		-----
657		-----		-----	1854	D7042	711.9		-0.09
704		-----		-----	1857		-----		-----
732		-----		-----	1881		-----		-----
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986		-----		-----
781		-----		-----	2129		-----		-----
785		-----		-----	6054		-----		-----
798		-----		-----	6075		-----		-----
823		-----		-----	6092		-----		-----
824		-----		-----	6112		-----		-----
825		-----		-----	6114		-----		-----
840	D7042	713.89		-0.02	6201		-----		-----
872		-----		-----	6238		-----		-----
873		-----		-----	6262		-----		-----
874		-----		-----	6298		-----		-----
875		-----		-----	6340		-----		-----
887		-----		-----	6359	D7042	745.2		1.18
902		-----		-----					

normality	OK
n	17
outliers	1
mean (n)	714.2911
st.dev. (n)	13.43075
R(calc.)	37.6061
st.dev.(D7042:16e3)	26.25020
R(D7042:16e3)	73.5006

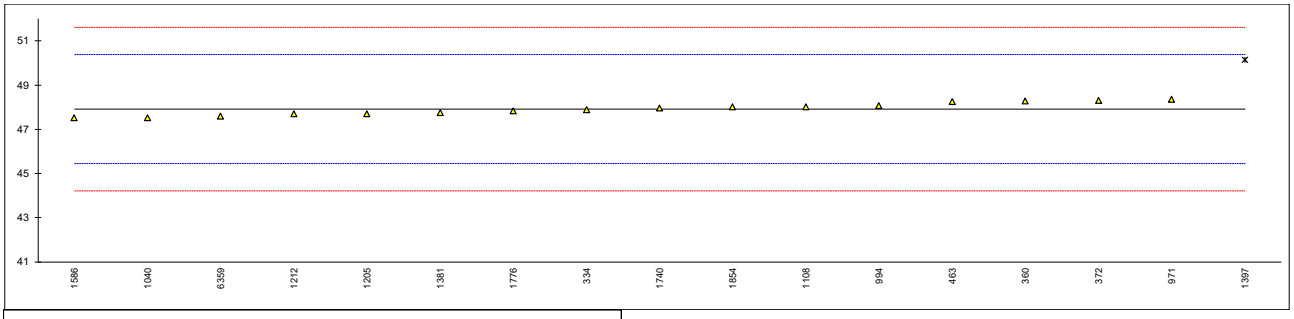


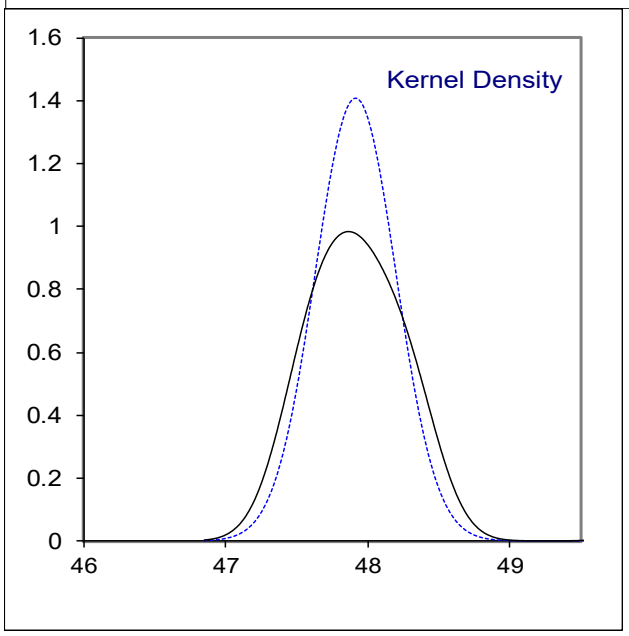


Determination of Viscosity Stabinger at 100°C on sample #20250; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904		-----		-----
120		-----		-----	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971	D7042	48.36		0.36
168		-----		-----	974		-----		-----
169		-----		-----	994	D7042	48.06		0.12
170		-----		-----	995		-----		-----
171		-----		-----	996		-----		-----
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225		-----		-----	1016		-----		-----
230		-----		-----	1026		-----		-----
237		-----		-----	1040	D7042	47.503		-0.34
238		-----		-----	1065		-----		-----
253		-----		-----	1108	D7042	48.02		0.08
256		-----		-----	1109		-----		-----
273		-----		-----	1121		-----		-----
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323		-----		-----	1167		-----		-----
333		-----		-----	1205	D7042	47.696		-0.18
334	D7042	47.87		-0.04	1212	D7042	47.688		-0.19
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356		-----		-----	1367		-----		-----
360	D7042	48.278		0.29	1381	D7042	47.759		-0.13
370		-----		-----	1397	D7042	50.14	G(0.01)	1.81
372	D7042	48.31		0.32	1402		-----		-----
381		-----		-----	1510		-----		-----
445		-----		-----	1556		-----		-----
447		-----		-----	1585		-----		-----
463	D7042	48.239		0.26	1586	D7042	47.50		-0.34
495		-----		-----	1631		-----		-----
507		-----		-----	1635		-----		-----
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D7042	47.95		0.03
631		-----		-----	1776	D7042	47.832		-0.07
633		-----		-----	1792		-----		-----
634		-----		-----	1796		-----		-----
657		-----		-----	1854	D7042	48.0		0.07
704		-----		-----	1857		-----		-----
732		-----		-----	1881		-----		-----
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986		-----		-----
781		-----		-----	2129		-----		-----
785		-----		-----	6054		-----		-----
798		-----		-----	6075		-----		-----
823		-----		-----	6092		-----		-----
824		-----		-----	6112		-----		-----
825		-----		-----	6114		-----		-----
840		-----		-----	6201		-----		-----
872		-----		-----	6238		-----		-----
873		-----		-----	6262		-----		-----
874		-----		-----	6298		-----		-----
875		-----		-----	6340		-----		-----
887		-----		-----	6359	D7042	47.60		-0.26
902		-----		-----					

normality	OK
n	16
outliers	1
mean (n)	47.9166
st.dev. (n)	0.28345
R(calc.)	0.7937
st.dev.(D7042:16e3)	1.22974
R(D7042:16e3)	3.4433



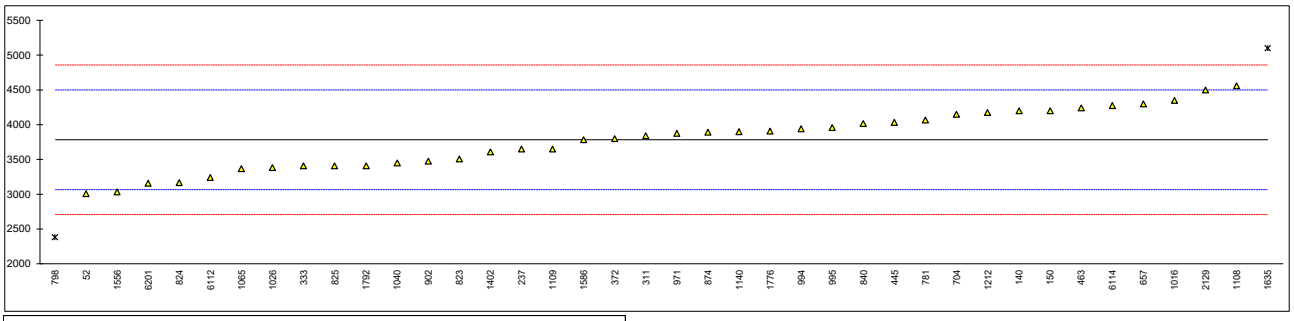


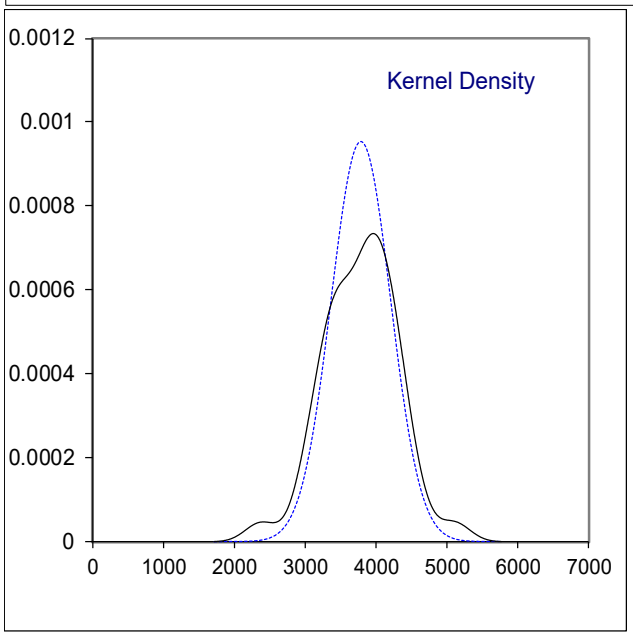
Determination of Nitrogen on sample #20250; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	3000		-2.18	904		-----		-----
120		-----		-----	913		-----		-----
140	D5762 Volumetric	4200	C	1.16	914		-----		-----
150	D5762 Volumetric	4200		1.16	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971	D5762 Gravimetric	3872		0.25
168		-----		-----	974		-----		-----
169		-----		-----	994	D5762 Gravimetric	3938		0.43
170		-----		-----	995	D3228	3951		0.47
171		-----		-----	996		-----		-----
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225		-----		-----	1016	D5762 Gravimetric	4345.12		1.57
230		-----		-----	1026	D5762 Volumetric	3380		-1.12
237	D4629	3642		-0.39	1040	D4629	3442		-0.95
238		-----		-----	1065	D5762 Gravimetric	3362		-1.17
253		-----		-----	1108	D5762 Gravimetric	4555		2.15
256		-----		-----	1109	D4629	3642		-0.39
273		-----		-----	1121		-----		-----
309		-----		-----	1126		-----		-----
311	D5762 Volumetric	3834		0.14	1134		-----		-----
313		-----		-----	1140	D4629	3893.5231		0.31
323		-----		-----	1167		-----		-----
333	D5762 Volumetric	3400		-1.06	1205		-----		-----
334		-----		-----	1212	D3228	4170		1.08
336		-----		-----	1213		-----		-----
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356		-----		-----	1367		-----		-----
360		-----		-----	1381		-----		-----
370		-----		-----	1397		-----		-----
372	D5762 Volumetric	3800		0.05	1402	D5762 Volumetric	3600		-0.51
381		-----		-----	1510		-----		-----
445	D5762 Gravimetric	4030		0.69	1556	D5762 Volumetric	3028		-2.10
447		-----		-----	1585		-----		-----
463	D5762 Gravimetric	4242		1.28	1586	D5762 Volumetric	3783		0.00
495		-----		-----	1631		-----		-----
507		-----		-----	1635	D5762 Gravimetric	5100	R(0.05)	3.67
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740		-----		-----
631		-----		-----	1776	D5762 Volumetric	3900.65		0.33
633		-----		-----	1792	D3228	3405		-1.05
634		-----		-----	1796		-----		-----
657	D5762 Gravimetric	4300		1.44	1854		-----		-----
704	D5762 Gravimetric	4146		1.01	1857		-----		-----
732		-----		-----	1881		-----		-----
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986		-----		-----
781	D3228	4060		0.77	2129	D3228	4501		2.00
785		-----		-----	6054		-----		-----
798	D5762 Gravimetric	2375	R(0.05)	-3.92	6075		-----		-----
823	D5762 Gravimetric	3500		-0.78	6092		-----		-----
824	D5762 Gravimetric	3163		-1.72	6112	D5762 Volumetric	3235		-1.52
825	D5762 Gravimetric	3400		-1.06	6114	D5762 Volumetric	4274		1.37
840	D3228	4010		0.63	6201	D5762 Gravimetric	3150		-1.76
872		-----		-----	6238		-----		-----
873		-----		-----	6262		-----		-----
874	D5762 Volumetric	3886		0.29	6298		-----		-----
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902	D5762 Gravimetric	3473		-0.86					

normality	OK
n	38
outliers	2
mean (n)	3781.93
st.dev. (n)	418.328
R(calc.)	1171.32
st.dev.(D5762:18a)	359.283
R(D5762:18a)	1005.99

Lab 140 first reported 5100



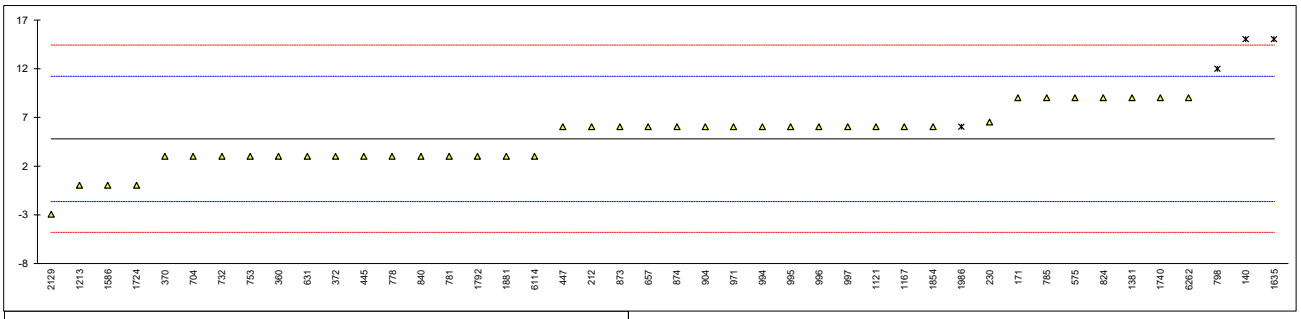


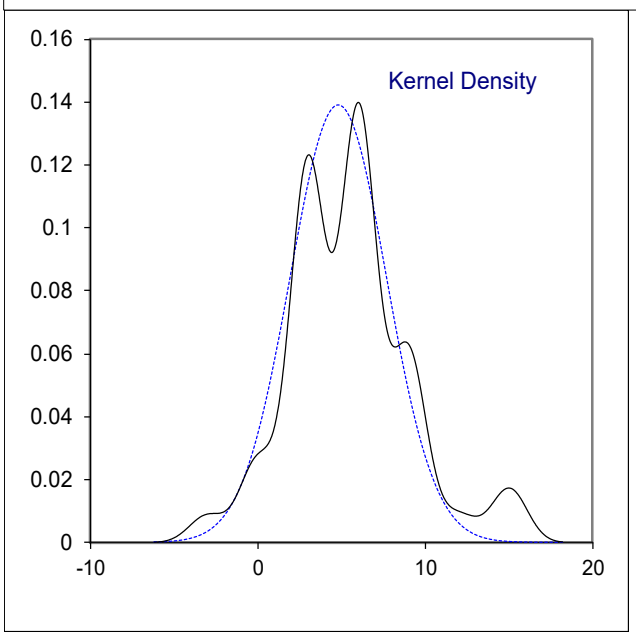
Determination of Pour Point, Lower on sample #20250; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904	ISO3016	6		0.37
120		-----		-----	913		-----		-----
140	D97	15	R(0.05)	3.17	914		-----		-----
150		-----		-----	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971	ISO3016	6		0.37
168		-----		-----	974		-----		-----
169		-----		-----	994	D97	6		0.37
170		-----		-----	995	ISO3016	6		0.37
171	ISO3016	9		1.30	996	D97	6		0.37
175		-----		-----	997	ISO3016	6		0.37
212	ISO3016	6		0.37	1011		-----		-----
225		-----		-----	1016		-----		-----
230	ISO3016	6.47		0.52	1026		-----		-----
237		-----		-----	1040		-----		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108		-----		-----
256		-----		-----	1109		-----		-----
273		-----		-----	1121	ISO3016	6		0.37
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323		-----		-----	1167	ISO3016	6		0.37
333		-----		-----	1205		-----		-----
334		-----		-----	1212		-----		-----
336		-----		-----	1213	D97	0		-1.50
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356		-----		-----	1367		-----		-----
360	ISO3016	3		-0.56	1381	ISO3016	9.0		1.30
370	D97	3		-0.56	1397		-----		-----
372	ISO3016	3		-0.56	1402		-----		-----
381		-----		-----	1510		-----		-----
445	D97	3		-0.56	1556		-----		-----
447	ISO3016	6		0.37	1585		-----		-----
463		-----		-----	1586	D97	0		-1.50
495		-----		-----	1631		-----		-----
507		-----		-----	1635	ISO3016	15	R(0.05)	3.17
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
558		-----		-----	1681		-----		-----
575	D97	9		1.30	1720		-----		-----
610		-----		-----	1724	D97	0		-1.50
621		-----		-----	1740	D97	9		1.30
631	D97	3		-0.56	1776		-----		-----
633		-----		-----	1792	ISO3016	3		-0.56
634		-----		-----	1796		-----		-----
657	ISO3016	6		0.37	1854	ISO3016	6		0.37
704	D97	3		-0.56	1857		-----		-----
732	D97	3		-0.56	1881	ISO3016	3		-0.56
752		-----		-----	1906		-----		-----
753	ISO3016	3		-0.56	1949		-----		-----
778	ISO3016	3		-0.56	1986	ISO3016	6	ex	0.37
781	ISO3016	3		-0.56	2129	D97	-3		-2.43
785	ISO3016	9		1.30	6054		-----		-----
798	D97	12	ex	2.24	6075		-----		-----
823		-----		-----	6092		-----		-----
824	ISO3016	9		1.30	6112		-----		-----
825		-----		-----	6114	D97	3		-0.56
840	D97	3		-0.56	6201		-----		-----
872		-----		-----	6238		-----		-----
873	D97	6		0.37	6262	D97	9		1.30
874	ISO3016	6		0.37	6298		-----		-----
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902		-----		-----					

normality	OK
n	40
outliers	2 (+2ex)
mean (n)	4.81
st.dev. (n)	2.872
R(calc.)	8.04
st.dev.(ISO3016:19)	3.214
R(ISO3016:19)	9

Lab 798 test result excluded as PP lower > PP upper, which is in principle not possible
Lab 1968 test result excluded as PP lower > PP upper, which is in principle not possible



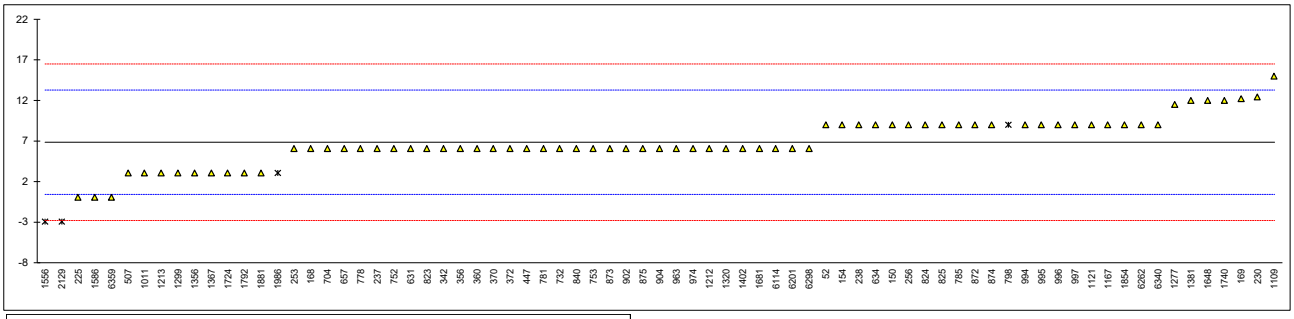


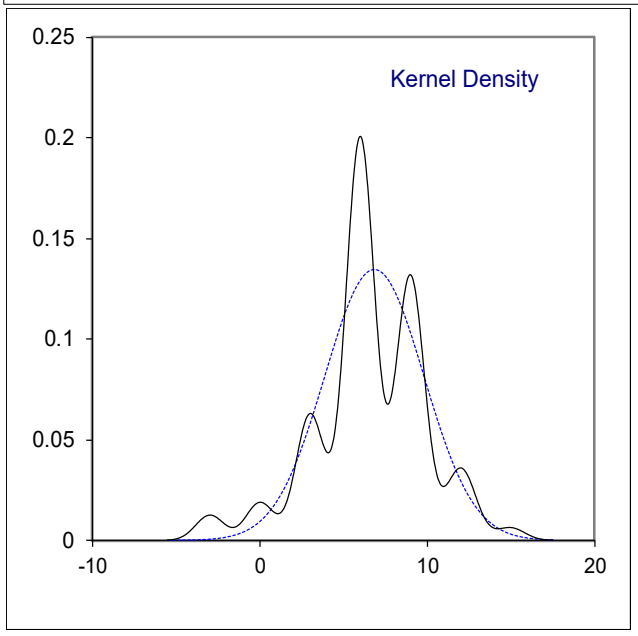
Determination of Pour Point, Upper on sample #20250; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	9		0.67	904	ISO3016	6		-0.26
120		-----		-----	913		-----		-----
140		-----		-----	914		-----		-----
150	D97	9		0.67	962		-----		-----
154	D97	9		0.67	963	ISO3016	6		-0.26
159		-----		-----	971		-----		-----
168	D97	6		-0.26	974	D97	6		-0.26
169	D97	12.2		1.67	994	D97	9		0.67
170		-----		-----	995	ISO3016	9		0.67
171		-----		-----	996	D97	9		0.67
175		-----		-----	997	ISO3016	9		0.67
212		-----		-----	1011	D97	3		-1.20
225	D97	0		-2.13	1016		-----		-----
230	ISO3016	12.41		1.73	1026		-----		-----
237	D97	6		-0.26	1040		-----		-----
238	D97	9		0.67	1065		-----		-----
253	D97	6		-0.26	1108		-----		-----
256	D97	9.0		0.67	1109	D97	15		2.54
273		-----		-----	1121	ISO3016	9		0.67
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323		-----		-----	1167	ISO3016	9		0.67
333		-----		-----	1205		-----		-----
334		-----		-----	1212	ISO3016	6		-0.26
336		-----		-----	1213	D97	3		-1.20
339		-----		-----	1277	D97	11.5		1.45
342	ISO3016	6		-0.26	1299	D97	3		-1.20
349		-----		-----	1320	ISO3016	6		-0.26
351		-----		-----	1356	ISO3016	3		-1.20
356	ISO3016	6		-0.26	1367	D97	3		-1.20
360	ISO3016	6		-0.26	1381	ISO3016	12.0		1.60
370	D97	6		-0.26	1397		-----		-----
372	ISO3016	6		-0.26	1402	ISO3016	6		-0.26
381		-----		-----	1510		-----		-----
445		-----		-----	1556	ISO3016	-3.0	DG(0.05)	-3.06
447	ISO3016	6		-0.26	1585		-----		-----
463		-----		-----	1586	D97	0		-2.13
495		-----		-----	1631		-----		-----
507	ISO3016	3		-1.20	1635		-----		-----
541		-----		-----	1648	ISO3016	12		1.60
551		-----		-----	1650		-----		-----
558		-----		-----	1681	ISO3016	6		-0.26
575		-----		-----	1720		-----		-----
610		-----		-----	1724	D97	3		-1.20
621		-----		-----	1740	D97	12		1.60
631	D97	6		-0.26	1776		-----		-----
633		-----		-----	1792	ISO3016	3		-1.20
634	D97	9		0.67	1796		-----		-----
657	ISO3016	6		-0.26	1854	ISO3016	9		0.67
704	D97	6		-0.26	1857		-----		-----
732	D97	6		-0.26	1881	ISO3016	3		-1.20
752	D97	6		-0.26	1906		-----		-----
753	ISO3016	6		-0.26	1949		-----		-----
778	ISO3016	6		-0.26	1986	ISO3016	3	ex	-1.20
781	ISO3016	6		-0.26	2129	D97	-3	DG(0.05)	-3.06
785	ISO3016	9		0.67	6054		-----		-----
798	D97	9	ex	0.67	6075		-----		-----
823	ISO3016	6		-0.26	6092		-----		-----
824	ISO3016	9		0.67	6112		-----		-----
825	ISO3016	9		0.67	6114	D97	6		-0.26
840	D97	6		-0.26	6201	D97	6		-0.26
872	ISO3016	9		0.67	6238		-----		-----
873	D97	6		-0.26	6262	D97	9		0.67
874	ISO3016	9		0.67	6298	D97	6		-0.26
875	D97	6		-0.26	6340	D97	9		0.67
887		-----		-----	6359	D97	0		-2.13
902	ISO3016	6		-0.26					

normality	OK
n	71
outliers	2 (+2ex)
mean (n)	6.85
st.dev. (n)	2.969
R(calc.)	8.31
st.dev.(ISO3016:19)	3.214
R(ISO3016:19)	9

Lab 798 test result excluded as PP lower > PP upper, which is in principle not possible
Lab 1968 test result excluded as PP lower > PP upper, which is in principle not possible

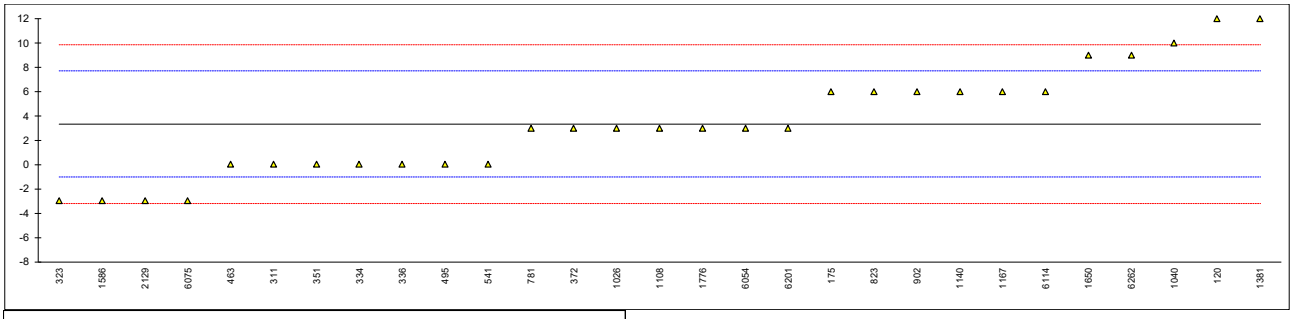


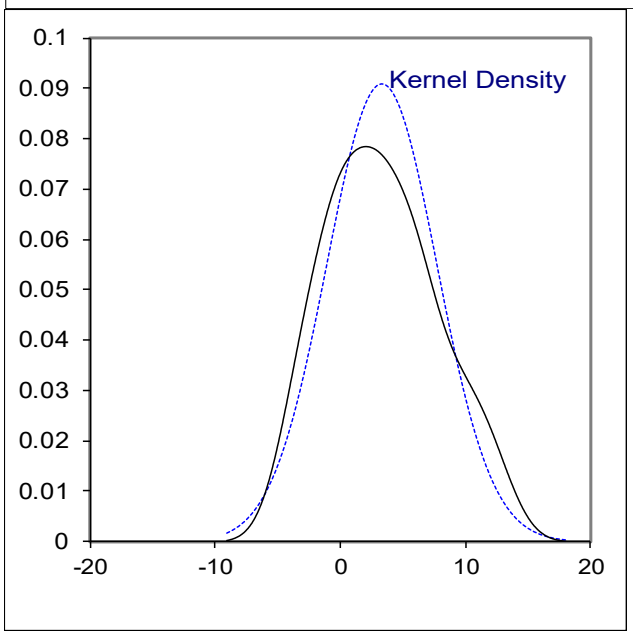


Determination of Pour Point, Automated, 3°C interval on sample #20250; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	904		-----		-----
120	D5949	12		3.97	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154		-----		-----	963		-----		-----
159		-----		-----	971		-----		-----
168		-----		-----	974		-----		-----
169		-----		-----	994		-----		-----
170		-----		-----	995		-----		-----
171		-----		-----	996		-----		-----
175	D5950	6.0		1.22	997		-----		-----
212		-----		-----	1011		-----		-----
225		-----		-----	1016		-----		-----
230		-----		-----	1026	D5950	3		-0.16
237		-----		-----	1040	ISO3016	10.0		3.05
238		-----		-----	1065		-----		-----
253		-----		-----	1108	D5950	3		-0.16
256		-----		-----	1109		-----		-----
273		-----		-----	1121		-----		-----
309		-----		-----	1126		-----		-----
311	D5950	0		-1.54	1134		-----		-----
313		-----		-----	1140	D5950	6.0		1.22
323	D5950	-3		-2.91	1167	D6749	6		1.22
333		-----		-----	1205		-----		-----
334	D5950	0		-1.54	1212		-----		-----
336	D5950	0		-1.54	1213		-----		-----
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351	D6749	0.0		-1.54	1356		-----		-----
356		-----		-----	1367		-----		-----
360		-----		-----	1381	D6749	12.0		3.97
370		-----		-----	1397		-----		-----
372	D5950	3		-0.16	1402		-----		-----
381		-----		-----	1510		-----		-----
445		-----		-----	1556		-----		-----
447		-----		-----	1585		-----		-----
463	D6892	0		-1.54	1586	D5950	-3.0		-2.91
495	D6892	0		-1.54	1631		-----		-----
507		-----		-----	1635		-----		-----
541	D5950	0		-1.54	1648		-----		-----
551		-----		-----	1650	D5950	9.0		2.60
558		-----		-----	1681		-----		-----
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740		-----		-----
631		-----		-----	1776	D5950	3		-0.16
633		-----		-----	1792		-----		-----
634		-----		-----	1796		-----		-----
657		-----		-----	1854		-----		-----
704		-----		-----	1857		-----		-----
732		-----		-----	1881		-----		-----
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986		-----		-----
781	D5950	3		-0.16	2129	D5950	-3.0		-2.91
785		-----		-----	6054	D5950	3		-0.16
798		-----		-----	6075		-3		-2.91
823	D5950	6		1.22	6092		-----		-----
824		-----		-----	6112		-----		-----
825		-----		-----	6114	D5950	6		1.22
840		-----		-----	6201	D5950	3		-0.16
872		-----		-----	6238		-----		-----
873		-----		-----	6262	D6892	9		2.60
874		-----		-----	6298		-----		-----
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902	D6892	6		1.22					

normality	OK
n	29
outliers	0
mean (n)	3.34
st.dev. (n)	4.394
R(calc.)	12.30
st.dev.(D5950:14)	2.179
R(D5950:14)	6.1



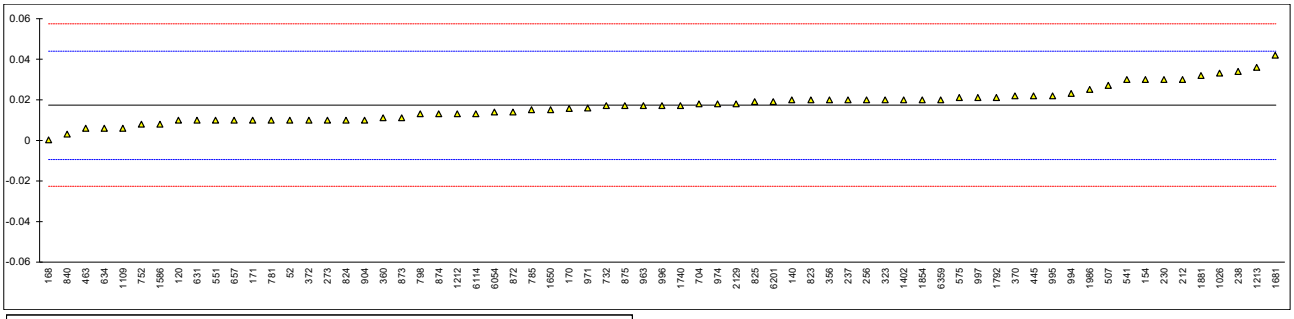


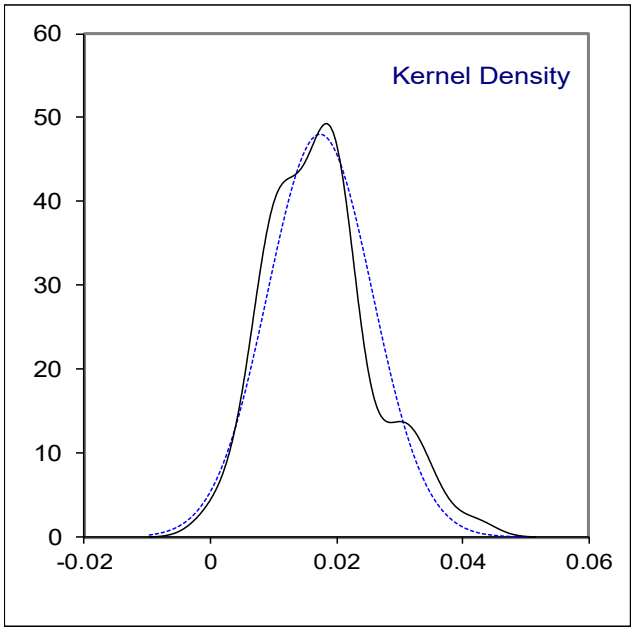
Determination of Sediment by Extraction on sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D473	0.01		-0.56	904	ISO3735	0.01		-0.56
120	D473	0.01		-0.56	913		-----		-----
140	D473	0.02		0.19	914		-----		-----
150		-----		-----	962		-----		-----
154	D473	0.03		0.94	963	D473	0.017		-0.03
159		-----		-----	971	D473	0.016		-0.11
168	D473	0.00		-1.30	974	D473	0.018		0.04
169		-----		-----	994	D473	0.023		0.42
170	D473	0.0155		-0.14	995	D473	0.022		0.34
171	D473	0.01		-0.56	996	D473	0.017		-0.03
175		-----		-----	997	D473	0.021		0.27
212	D473	0.03		0.94	1011		-----		-----
225		-----		-----	1016		-----		-----
230	D473	0.03	C	0.94	1026	D473	0.033	C	1.16
237	D473	0.02		0.19	1040		-----		-----
238	D473	0.034		1.24	1065		-----		-----
253		-----		-----	1108		-----		-----
256	D473	0.02		0.19	1109	D473	0.006		-0.86
273	D473	0.01		-0.56	1121		-----		-----
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323	D473	0.02		0.19	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212	D473	0.013		-0.33
336		-----		-----	1213	D473	0.036		1.39
339		-----		-----	1277		-----		-----
342		-----		-----	1299		-----		-----
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356	D473	0.02		0.19	1367		-----		-----
360	D473	0.011		-0.48	1381		-----		-----
370	D473	0.022		0.34	1397		-----		-----
372	D473	0.01		-0.56	1402	IP53	0.02		0.19
381		-----		-----	1510		-----		-----
445	D473	0.022		0.34	1556		-----		-----
447		-----		-----	1585		-----		-----
463	D473	0.006		-0.86	1586	D473	0.0080		-0.71
495		-----		-----	1631		-----		-----
507	D473	0.027		0.72	1635		-----		-----
541	D473	0.030		0.94	1648		-----		-----
551	D473	0.01		-0.56	1650	D473	0.015		-0.18
558		-----		-----	1681	D473	0.042		1.84
575	D473	0.021		0.27	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D473	0.017		-0.03
631	D473	0.010		-0.56	1776		-----		-----
633		-----		-----	1792	D473	0.021		0.27
634	D473	0.006		-0.86	1796		-----		-----
657	D473	0.01		-0.56	1854	D473	0.020		0.19
704	D473	0.018		0.04	1857		-----		-----
732	D473	0.017		-0.03	1881	D473	0.032		1.09
752	ISO3735	0.008		-0.71	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	ISO3735	0.025		0.57
781	D473	0.01		-0.56	2129	IP53	0.018		0.04
785	D473	0.015		-0.18	6054	D473	0.01381		-0.27
798	D473	0.013		-0.33	6075		-----		-----
823	D473	0.02		0.19	6092		-----		-----
824	D473	0.01		-0.56	6112		-----		-----
825	D473	0.0189		0.11	6114	D473	0.013		-0.33
840	D473	0.003		-1.08	6201	D473	0.019		0.12
872	D473	0.014		-0.26	6238		-----		-----
873	D473	0.011		-0.48	6262		-----		-----
874	D473	0.013		-0.33	6298		-----		-----
875	D473	0.017		-0.03	6340		-----		-----
887		-----		-----	6359	D473	0.02		0.19
902		-----		-----					

normality	OK
n	67
outliers	0
mean (n)	0.0174
st.dev. (n)	0.00830
R(calc.)	0.0232
st.dev.(D473:07e1)	0.01337
R(D473:07e1)	0.0374

Lab 230 first reported 1.84
Lab 1026 first reported 0.074

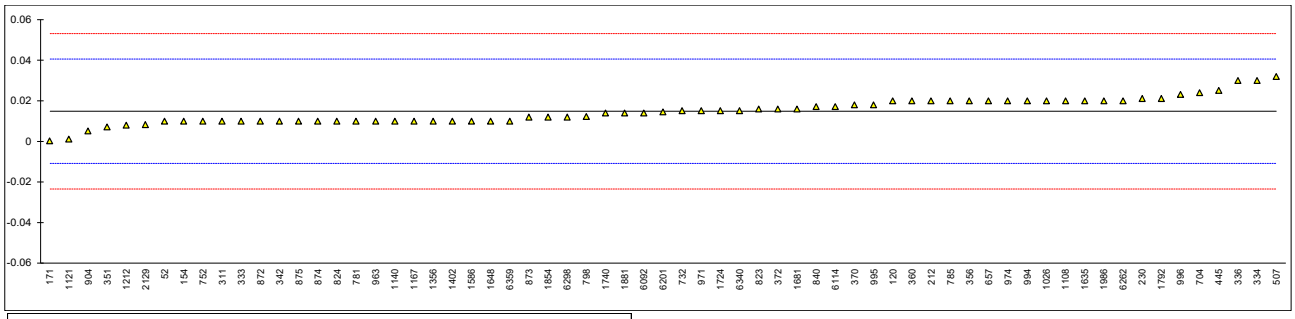


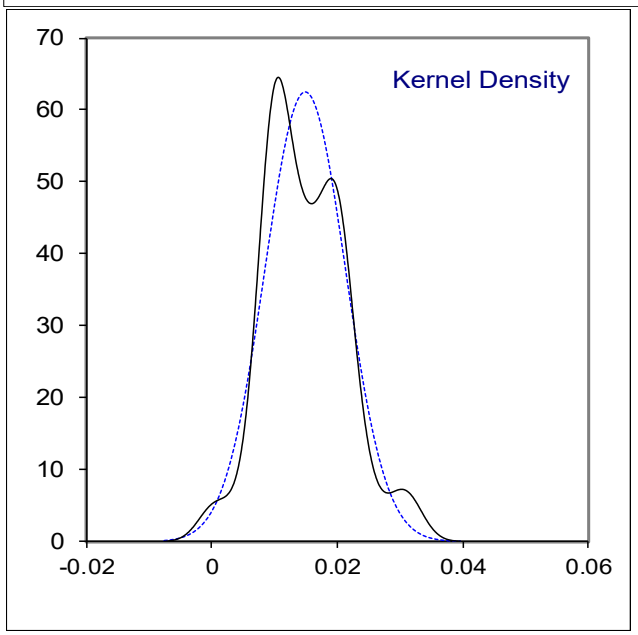


Determination of Total Sediment Existent (TSE) of sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	0.01		-0.38	904	IP375	0.005		-0.77
120	D4870	0.02		0.40	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154	D4870	0.01		-0.38	963	IP375	0.01		-0.38
159		-----		-----	971	ISO10307-1	0.015		0.01
168		-----		-----	974	IP375	0.02		0.40
169		-----		-----	994	IP375	0.020		0.40
170		-----		-----	995	IP375	0.018		0.24
171	IP375	0.00		-1.16	996	D4870	0.023		0.63
175		-----		-----	997		-----		-----
212	ISO10307-1	0.02		0.40	1011		-----		-----
225		-----		-----	1016		-----		-----
230	ISO10307-1	0.021		0.48	1026	IP375	0.02		0.40
237		-----		-----	1040	ISO10307-1	<0,01		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108	ISO10307-1	0.02		0.40
256		-----		-----	1109		-----		-----
273		-----		-----	1121	ISO10307-1	0.001		-1.08
309		-----		-----	1126		-----		-----
311	ISO10307-1	0.01		-0.38	1134		-----		-----
313		-----		-----	1140	IP375	0.01		-0.38
323		-----		-----	1167	ISO10307-1	0.01		-0.38
333	ISO10307-1	0.01		-0.38	1205		-----		-----
334	IP375	0.03		1.18	1212	IP375	0.0078		-0.55
336	IP375	0.03		1.18	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO10307-1	0.01		-0.38	1299	ISO10307-1	<0.01		-----
349		-----		-----	1320		-----		-----
351	ISO10307-1	0.007		-0.62	1356	ISO10307-1	0.01		-0.38
356	IP375	0.02		0.40	1367	IP375	<0.01		-----
360	IP375	0.020		0.40	1381		-----		-----
370	ISO10307-1	0.018		0.24	1397		-----		-----
372	IP375	0.016		0.09	1402	IP375	0.01		-0.38
381		-----		-----	1510	IP375	<0.01		-----
445	IP375	0.025		0.79	1556		-----		-----
447		-----		-----	1585		-----		-----
463		-----		-----	1586	IP375	0.01		-0.38
495		-----		-----	1631		-----		-----
507	IP375	0.032		1.34	1635	D4870	0.02		0.40
541	D4870	<0.01		-----	1648	ISO10307-1	0.010		-0.38
551		-----		-----	1650		-----		-----
558		-----		-----	1681	ISO10307-1	0.016		0.09
575		-----		-----	1720		-----		-----
610		-----		-----	1724	IP375	0.015		0.01
621		-----		-----	1740	D4870	0.014		-0.07
631	D4870	<0.01		-----	1776		-----		-----
633		-----		-----	1792	IP375	0.021		0.48
634		-----		-----	1796		-----		-----
657	IP375	0.02		0.40	1854	ISO10307-1	0.012		-0.23
704	IP375	0.024		0.71	1857		-----		-----
732	D4870	0.015		0.01	1881	D4870	0.014		-0.07
752	ISO10307-1	0.010		-0.38	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	ISO10307-1	0.02		0.40
781	IP375	0.01		-0.38	2129	IP375	0.00825		-0.52
785	IP375	0.02		0.40	6054		-----		-----
798	IP375	0.0121		-0.22	6075		-----		-----
823	ISO10307-1	0.016		0.09	6092	IP375	0.014		-0.07
824	ISO10307-1	0.01		-0.38	6112		-----		-----
825		-----		-----	6114	ISO10307-1	0.017		0.16
840	ISO10307-1	0.017		0.16	6201	ISO10307-1	0.0145		-0.03
872	IP375	0.01		-0.38	6238		-----		-----
873	IP375	0.012		-0.23	6262	ISO10307-1	0.02		0.40
874	IP375	0.01		-0.38	6298	IP375	0.012		-0.23
875	IP375	0.01		-0.38	6340	IP375	0.015		0.01
887		-----		-----	6359	ISO10307-1	0.01		-0.38
902	ISO10307-1	<0,01		-----					

normality	OK
n	65
outliers	0
mean (n)	0.0149
st.dev. (n)	0.00638
R(calc.)	0.0179
st.dev.(IP375:11)	0.01281
R(IP375:11)	0.0359

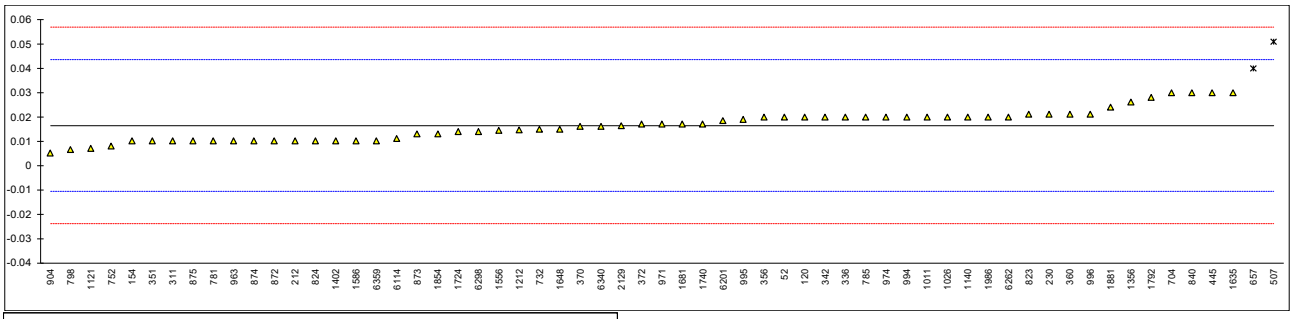


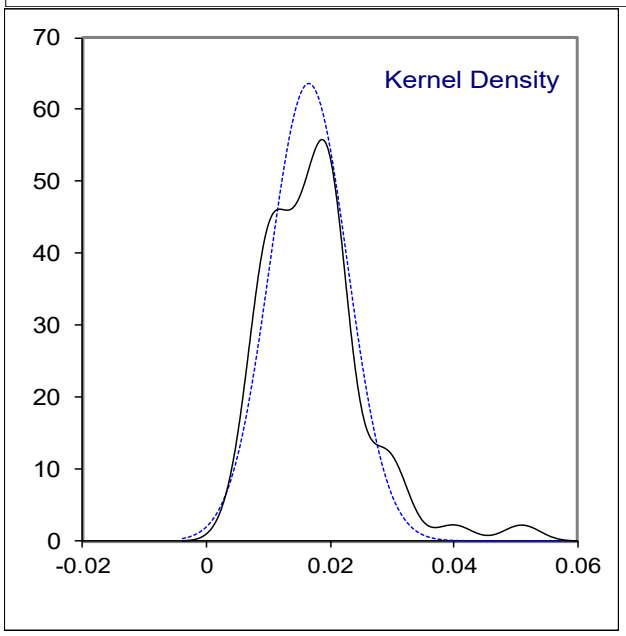


Determination of Total Sediment Accelerated (TSA) of sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	0.02		0.26	904	IP390	0.005		-0.86
120	D4870	0.02		0.26	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154	D4870	0.01		-0.49	963	IP390	0.01		-0.49
159		-----		-----	971	ISO10307-2	0.017		0.03
168		-----		-----	974	IP390	0.02		0.26
169		-----		-----	994	IP390	0.020		0.26
170		-----		-----	995	IP390	0.019		0.18
171	IP390	<0.01		-----	996	D4870	0.021		0.33
175		-----		-----	997		-----		-----
212	ISO10307-2	0.01		-0.49	1011	ISO10307-2	0.02		0.26
225		-----		-----	1016		-----		-----
230	ISO10307-2	0.021		0.33	1026	ISO10307-2	0.02		0.26
237		-----		-----	1040	ISO10307-2	<0,01		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108		-----		-----
256		-----		-----	1109		-----		-----
273		-----		-----	1121	ISO10307-2	0.007		-0.71
309		-----		-----	1126		-----		-----
311	ISO10307-2	0.01		-0.49	1134		-----		-----
313		-----		-----	1140	IP390	0.02		0.26
323		-----		-----	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212	IP390	0.0146		-0.14
336	IP390	0.02		0.26	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO10307-2	0.02		0.26	1299	ISO10307-2	<0.01		-----
349		-----		-----	1320		-----		-----
351	ISO10307-2	0.010		-0.49	1356	ISO10307-2	0.026		0.70
356	IP390	0.02		0.26	1367	IP390	<0.01		-----
360	IP390	0.021		0.33	1381		-----		-----
370	ISO10307-2	0.016		-0.04	1397		-----		-----
372	IP390	0.017		0.03	1402	IP390	0.01		-0.49
381		-----		-----	1510		-----		-----
445	IP390	0.03		1.00	1556	ISO10307-2	0.0145		-0.15
447		-----		-----	1585		-----		-----
463		-----		-----	1586	IP390	0.01		-0.49
495		-----		-----	1631		-----		-----
507	IP390	0.051	R(0.01)	2.55	1635	D4870	0.03		1.00
541		-----		-----	1648	ISO10307-2	0.015		-0.11
551		-----		-----	1650		-----		-----
558		-----		-----	1681	ISO10307-2	0.017		0.03
575		-----		-----	1720		-----		-----
610		-----		-----	1724	IP390	0.014		-0.19
621		-----		-----	1740	D4870	0.017		0.03
631	D4870	<0.01		-----	1776		-----		-----
633		-----		-----	1792	IP390	0.028		0.85
634		-----		-----	1796		-----		-----
657	IP390	0.04	R(0.05)	1.74	1854	ISO10307-2	0.013		-0.26
704	IP390	0.030		1.00	1857		-----		-----
732	D4870	0.015		-0.11	1881	IP390	0.024		0.55
752	ISO10307-2	0.008		-0.63	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	ISO10307-2	0.02		0.26
781	IP390	0.01		-0.49	2129	IP390	0.0164		-0.01
785	IP390	0.02		0.26	6054		-----		-----
798	IP390	0.0066		-0.74	6075		-----		-----
823	ISO10307-2	0.021		0.33	6092		-----		-----
824	ISO10307-2	0.01		-0.49	6112		-----		-----
825		-----		-----	6114	ISO10307-2	0.011		-0.41
840	ISO10307-2	0.030		1.00	6201	ISO10307-2	0.0185		0.14
872	IP390	0.01		-0.49	6238		-----		-----
873	IP390	0.013		-0.26	6262	ISO10307-2	0.02		0.26
874	IP390	0.01		-0.49	6298	IP390	0.014		-0.19
875	IP390	0.01		-0.49	6340	IP390	0.016		-0.04
887		-----		-----	6359	ISO10307-2	0.01		-0.49
902	ISO10307-2	<0,01		-----					

normality	OK
n	59
outliers	2
mean (n)	0.0166
st.dev. (n)	0.00627
R(calc.)	0.0176
st.dev.(IP390:11)	0.01351
R(IP390:11)	0.0378

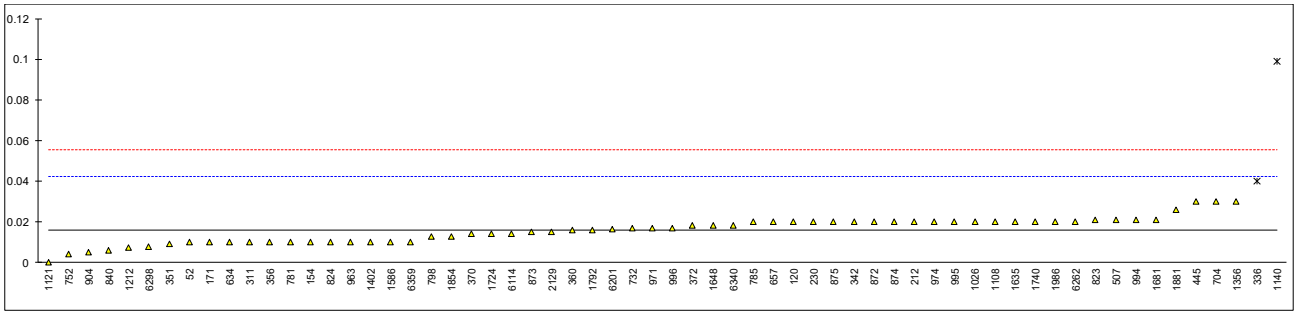


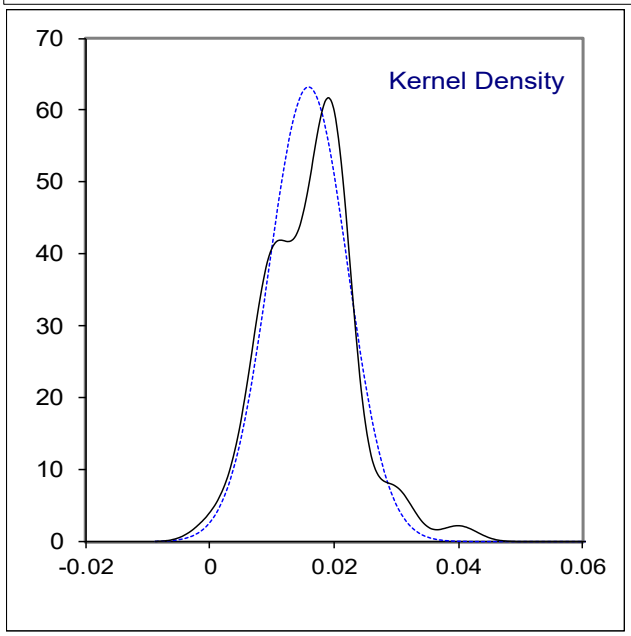


Determination of Total Sediment Potential (TSP) of sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	0.01		-0.44	904	IP390	0.005		-0.82
120	D4870	0.02		0.31	913		-----		-----
140		-----		-----	914		-----		-----
150		-----		-----	962		-----		-----
154	D4870	0.01		-0.44	963	IP390	0.01		-0.44
159		-----		-----	971	ISO10307-2	0.017		0.09
168		-----		-----	974	IP390	0.02		0.31
169		-----		-----	994	IP390	0.021		0.39
170		-----		-----	995	IP390	0.020		0.31
171	IP390	0.01		-0.44	996	D4870	0.017		0.09
175		-----		-----	997		-----		-----
212	ISO10307-2	0.02		0.31	1011		-----		-----
225		-----		-----	1016		-----		-----
230	ISO10307-2	0.020		0.31	1026	ISO10307-2	0.02		0.31
237		-----		-----	1040		-----		-----
238		-----		-----	1065		-----		-----
253		-----		-----	1108	ISO10307-2	0.02		0.31
256		-----		-----	1109		-----		-----
273		-----		-----	1121	ISO10307-2	0.000		-1.20
309		-----		-----	1126		-----		-----
311	ISO10307-2	0.01		-0.44	1134		-----		-----
313		-----		-----	1140	IP390	0.099	R(0.01)	6.29
323		-----		-----	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212	IP390	0.0074		-0.64
336	IP390	0.04	R(0.05)	1.83	1213		-----		-----
339		-----		-----	1277		-----		-----
342	ISO10307-2	0.02		0.31	1299	ISO10307-2	<0.01		-----
349		-----		-----	1320		-----		-----
351	ISO10307-2	0.009		-0.52	1356	ISO10307-2	0.03		1.07
356	IP390	0.01		-0.44	1367	IP390	<0.01		-----
360	IP390	0.016		0.01	1381		-----		-----
370	ISO10307-2	0.014		-0.14	1397		-----		-----
372	IP390	0.018		0.16	1402	IP390	0.01		-0.44
381		-----		-----	1510		-----		-----
445	IP390	0.03		1.07	1556		-----		-----
447		-----		-----	1585		-----		-----
463		-----		-----	1586	ISO10307-2	0.01		-0.44
495		-----		-----	1631		-----		-----
507	IP390	0.021		0.39	1635	D4870	0.02		0.31
541		-----		-----	1648	ISO10307-2	0.018		0.16
551		-----		-----	1650		-----		-----
558		-----		-----	1681	ISO10307-2	0.021		0.39
575		-----		-----	1720		-----		-----
610		-----		-----	1724	IP390	0.014		-0.14
621		-----		-----	1740	D4870	0.020		0.31
631	D4870	<0.01		-----	1776		-----		-----
633		-----		-----	1792	IP390	0.016		0.01
634	D4870	0.01		-0.44	1796		-----		-----
657	IP390	0.02		0.31	1854	ISO10307-2	0.013		-0.22
704	IP390	0.030		1.07	1857		-----		-----
732	D4870	0.017		0.09	1881	IP390	0.026		0.77
752	ISO10307-2	0.004		-0.90	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986	ISO10307-2	0.02		0.31
781	IP390	0.01		-0.44	2129	IP390	0.015		-0.06
785	IP390	0.02		0.31	6054		-----		-----
798	IP390	0.0129		-0.22	6075		-----		-----
823	ISO10307-2	0.021		0.39	6092		-----		-----
824	ISO10307-2	0.01		-0.44	6112		-----		-----
825		-----		-----	6114	ISO10307-2	0.014		-0.14
840	ISO10307-2	0.006		-0.74	6201	ISO10307-2	0.0165		0.05
872	IP390	0.02		0.31	6238		-----		-----
873	IP390	0.015		-0.06	6262	ISO10307-2	0.02		0.31
874	IP390	0.020		0.31	6298	IP390	0.008		-0.59
875	IP390	0.02		0.31	6340	IP390	0.018		0.16
887		-----		-----	6359	ISO10307-2	0.01		-0.44
902	ISO10307-2	<0,01		-----					

normality	OK
n	60
outliers	2
mean (n)	0.0158
st.dev. (n)	0.00631
R(calc.)	0.0177
st.dev.(IP390:11)	0.01322
R(IP390:11)	0.0370



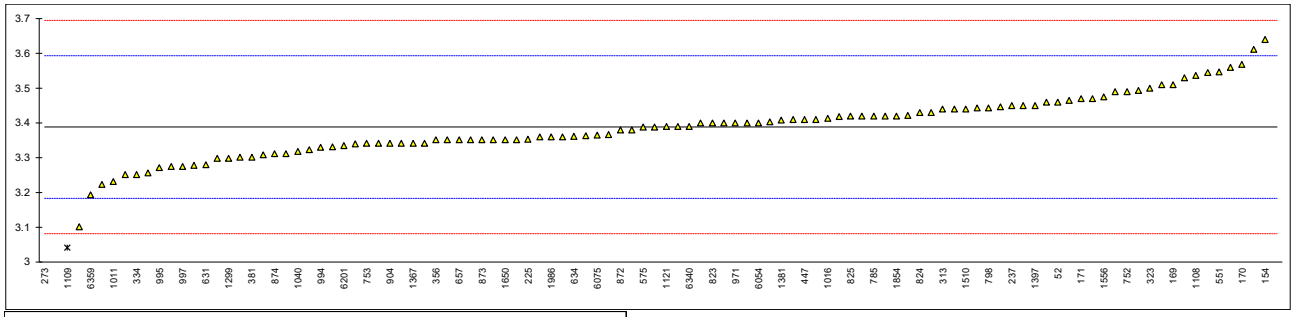


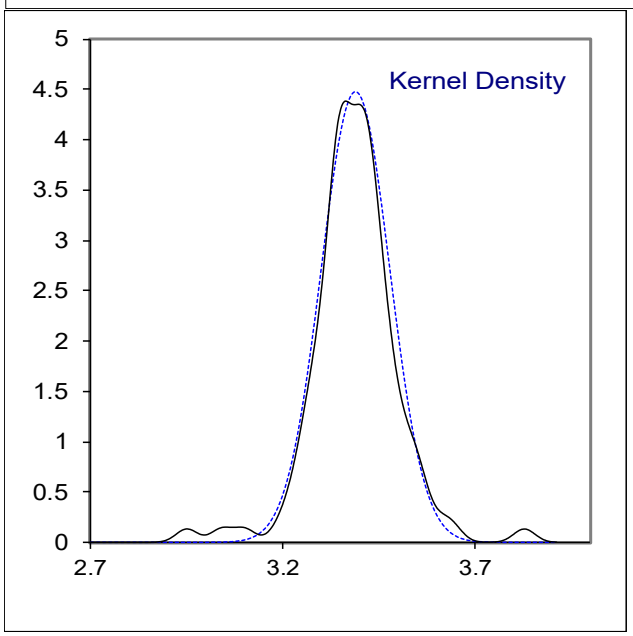
Determination of Total Sulfur on sample #20250; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4294	3.46		0.70	904	ISO8754	3.34		-0.47
120	D4294	3.61128		2.17	913		-----		-----
140	D4294	3.42		0.31	914		-----		-----
150	D4294	3.56		1.67	962		-----		-----
154	D4294	3.64		2.45	963	ISO8754	3.40		0.11
159		-----		-----	971	ISO8754	3.40		0.11
168	D4294	3.53		1.38	974	D4294	3.39		0.02
169	D4294	3.51		1.19	994	D4294	3.329		-0.58
170	D4294	3.5682		1.75	995	ISO8754	3.271		-1.14
171	D4294	3.47		0.80	996	D4294	3.256		-1.29
175	D4294	3.51		1.19	997	ISO8754	3.274		-1.11
212	ISO8754	3.44		0.50	1011	ISO8754	3.23		-1.54
225	D4294	3.352		-0.35	1016	ISO8754	3.412		0.23
230	D4294	3.297		-0.89	1026	D2622	3.418		0.29
237	D4294	3.45		0.60	1040	ISO8754	3.317		-0.69
238	D4294	3.274		-1.11	1065	D4294	3.34		-0.47
253	D4294	3.40		0.11	1108	ISO8754	3.536		1.44
256		-----		-----	1109	D4294	3.04	R(0.05)	-3.39
273	D4294	2.5	C,R(0.01)	-8.66	1121	ISO8754	3.3895		0.01
309	D4294	3.493	C	1.02	1126		-----		-----
311	ISO8754	3.46		0.70	1134		-----		-----
313	ISO8754	3.44		0.50	1140	IP336	3.465		0.75
323	ISO8754	3.50		1.09	1167		-----		-----
333	ISO8754	3.10		-2.81	1205		-----		-----
334	ISO8754	3.25		-1.35	1212	ISO8754	3.45		0.60
336		-----		-----	1213	D4294	3.827	C,R(0.01)	4.28
339	INH-050	3.49		0.99	1277	D4294	2.95	R(0.01)	-4.27
342	ISO8754	3.442		0.52	1299	D2622	3.297		-0.89
349		-----		-----	1320		-----		-----
351	ISO8754	3.402		0.13	1356	ISO8754	3.35		-0.37
356	ISO8754	3.35		-0.37	1367	IP336	3.34		-0.47
360	ISO8754	3.30		-0.86	1381	ISO8754	3.407		0.18
370	ISO8754	3.366		-0.22	1397	D2622	3.45		0.60
372	ISO8754	3.42		0.31	1402	IP336	3.33		-0.57
381	ISO8754	3.3		-0.86	1510	ISO8754	3.44		0.50
445	IP336	3.544		1.52	1556	ISO8754	3.4747		0.84
447	IP336	3.41		0.21	1585		-----		-----
463	ISO8754	3.35		-0.37	1586	ISO8754	3.277		-1.08
495	ISO8754	3.222		-1.62	1631		-----		-----
507	ISO8754	3.341		-0.46	1635	D4294	3.36		-0.28
541		-----		-----	1648	ISO8754	3.421		0.32
551	D4294	3.5463		1.54	1650	ISO8754	3.35		-0.37
558		-----		-----	1681	ISO8754	3.339		-0.48
575	D4294	3.3876		-0.01	1720		-----		-----
610		-----		-----	1724	IP336	3.31		-0.76
621		-----		-----	1740	D4294	3.40		0.11
631	D4294	3.279		-1.06	1776	ISO8754	3.410		0.21
633		-----		-----	1792	ISO8754	3.307		-0.79
634	D4294	3.361		-0.27	1796		-----		-----
657	D4294	3.35		-0.37	1854	ISO8754	3.42		0.31
704	ISO8754	3.350		-0.37	1857		-----		-----
732	ISO8754	3.323		-0.64	1881	ISO8754	3.35		-0.37
752	D4294	3.49		0.99	1906	D5623	3.409	C	0.20
753	ISO8754	3.34		-0.47	1949		-----		-----
778	D4294	3.47		0.80	1986	ISO8754	3.36		-0.28
781	ISO8754	3.446		0.56	2129	D4294	3.362		-0.26
785	ISO8754	3.42		0.31	6054	D4294	3.40		0.11
798	D4294	3.443		0.53	6075	ISO8754	3.365		-0.23
823	ISO8754	3.40		0.11	6092	D4294	3.43		0.41
824	ISO8754	3.43		0.41	6112		-----		-----
825	ISO8754	3.42		0.31	6114	D4294	3.388		0.00
840	D4294	3.250		-1.35	6201	ISO8754	3.334		-0.53
872	ISO8754	3.38		-0.08	6238		-----		-----
873	D4294	3.35		-0.37	6262		-----		-----
874	D4294	3.31		-0.76	6298	D4294	3.36		-0.28
875	D4294	3.38		-0.08	6340	D4294	3.39		0.02
887		-----		-----	6359	D2622	3.1918		-1.91
902	ISO8754	3.34		-0.47					

normality	OK
n	104
outliers	4
mean (n)	3.3883
st.dev. (n)	0.08913
R(calc.)	0.2496
st.dev.(ISO8754:03)	0.10261
R(ISO8754:03)	0.2873
Compare	
R(D4294:16e1)	0.1596

Lab 273 first reported 3.0
Lab 309 first reported 3.07
Lab 1213 first reported 0.827
Lab 1906 first reported 2.912

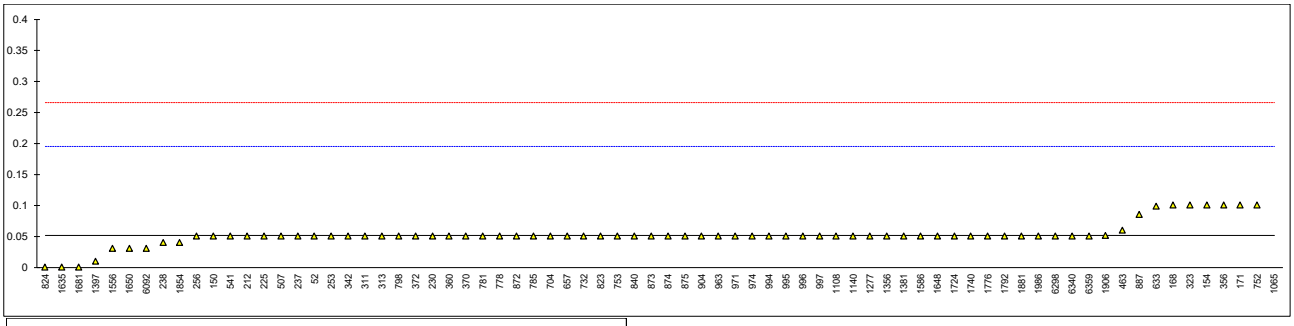


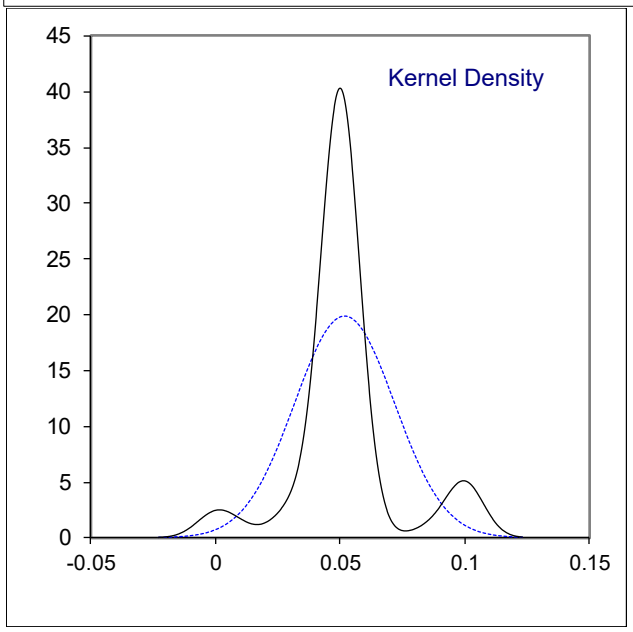


Determination of Water by distillation on sample #20250; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D95	0.05		-0.02	904	ISO3733	0.05		-0.02
120	D95	<0.05		-----	913		-----		-----
140		-----		-----	914		-----		-----
150	D95	0.05		-0.02	962		-----		-----
154	D95	0.10		0.68	963	ISO3733	0.05		-0.02
159		-----		-----	971	ISO3733	0.05		-0.02
168	D95	0.10		0.68	974	D95	0.05		-0.02
169		-----		-----	994	D95	0.05		-0.02
170		-----		-----	995	ISO3733	0.05		-0.02
171	D95	0.10		0.68	996	D95	0.05		-0.02
175		-----		-----	997	ISO3733	0.05		-0.02
212	ISO3733	0.05		-0.02	1011	ISO3733	<0.10		-----
225	D95	0.05		-0.02	1016		-----		-----
230	ISO3733	0.05		-0.02	1026	D95	<0.025		-----
237	D95	0.05		-0.02	1040		-----		-----
238	D95	0.04		-0.16	1065	D6304-A	1.1863	R(0.01)	15.88
253	D95	0.05		-0.02	1108	ISO3733	0.05		-0.02
256	D95	0.05		-0.02	1109	D95	<0.025		-----
273	D95	<0.05		-----	1121	ISO3733	<0.05		-----
309		-----		-----	1126		-----		-----
311	D95	0.05		-0.02	1134		-----		-----
313	D95	0.05		-0.02	1140	IP74	0.05		-0.02
323	ISO3733	0.10		0.68	1167	EN1428	<0.1		-----
333	D95	<0.1		-----	1205		-----		-----
334	D95	<0.1		-----	1212		-----		-----
336	ISO3733	<0.10		-----	1213	D95	<0.1		-----
339		-----		-----	1277	D95	0.05		-0.02
342	ISO3733	0.05		-0.02	1299	D95	<0.1		-----
349	D95	<0,1		-----	1320		-----		-----
351	ISO3733	<0,05		-----	1356	D6304-A	0.05		-0.02
356	ISO3733	0.10		0.68	1367	D95	<0.05		-----
360	ISO3733	0.05		-0.02	1381	ISO3733	0.05		-0.02
370	D95	0.05		-0.02	1397	ISO3733	0.01		-0.58
372	ISO3733	0.05		-0.02	1402	IP74	<0.05		-----
381		-----		-----	1510	ISO3733	<0.05		-----
445	D95	<0.05		-----	1556	D6304-C	0.03		-0.30
447	D95	<0.10		-----	1585		-----		-----
463	ISO3733	0.06		0.12	1586	D95	0.05		-0.02
495		-----		-----	1631		-----		-----
507	ISO3733	0.050		-0.02	1635	D95	0.00		-0.72
541	D95	0.05		-0.02	1648	ISO3733	0.05		-0.02
551	D95	<0.05		-----	1650	D95	0.03		-0.30
558		-----		-----	1681	ISO3733	0.0		-0.72
575	D95	<0.05		-----	1720		-----		-----
610		-----		-----	1724	D95	0.05		-0.02
621		-----		-----	1740	D95	0.05		-0.02
631	D95	<0.01		-----	1776	D6304-A	0.05		-0.02
633	D95	0.098		0.65	1792	ISO3733	0.05		-0.02
634	D95	<0.05		-----	1796		-----		-----
657	D95	0.05		-0.02	1854	ISO3733	0.04		-0.16
704	ISO3733	0.05		-0.02	1857		-----		-----
732	D95	0.05		-0.02	1881	D95	0.05		-0.02
752	D95	0.10		0.68	1906	D6304-C	0.051		-0.01
753	ISO3733	0.05		-0.02	1949		-----		-----
778	D95	0.05		-0.02	1986	ISO3733	0.05		-0.02
781	ISO3733	0.05		-0.02	2129	D95	<0.05		-----
785	D95	0.05		-0.02	6054	D95	<0.05		-----
798	D95	0.05		-0.02	6075		-----		-----
823	ISO3733	0.05		-0.02	6092	D95	0.03		-0.30
824	ISO3733	0		-0.72	6112		-----		-----
825	ISO3733	L0.05		-----	6114	D95	<0.05		-----
840	D95	0.05		-0.02	6201	D95	<0,1		-----
872	ISO3733	0.05		-0.02	6238		-----		-----
873	D95	0.05		-0.02	6262	D95	<0,05		-----
874	D95	0.05		-0.02	6298	D95	0.05		-0.02
875	D95	0.05		-0.02	6340	D95	0.05		-0.02
887	D95	0.085		0.47	6359	D95	0.05		-0.02
902	ISO3733	<0,1		-----					

normality	not OK
n	73
outliers	1
mean (n)	0.0517
st.dev. (n)	0.02004
R(calc.)	0.0561
st.dev.(ISO3733:99)	0.07143
R(ISO3733:99)	0.2
Compare	
R(D95:13)	0.2

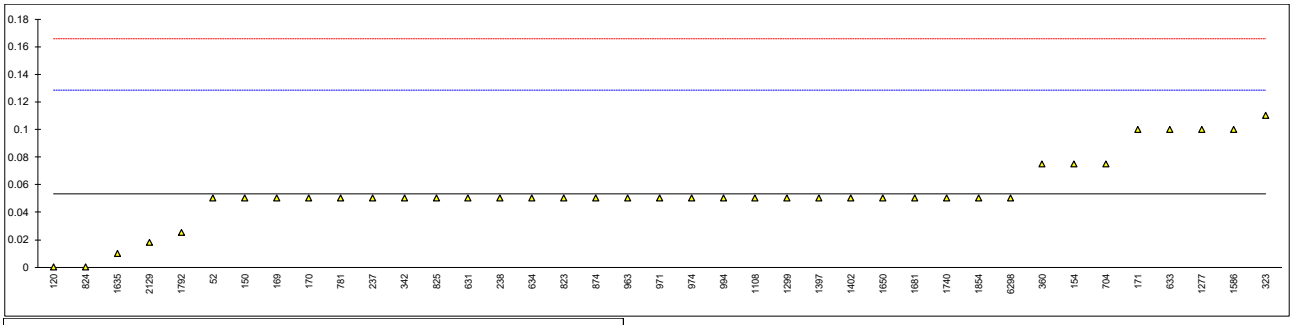


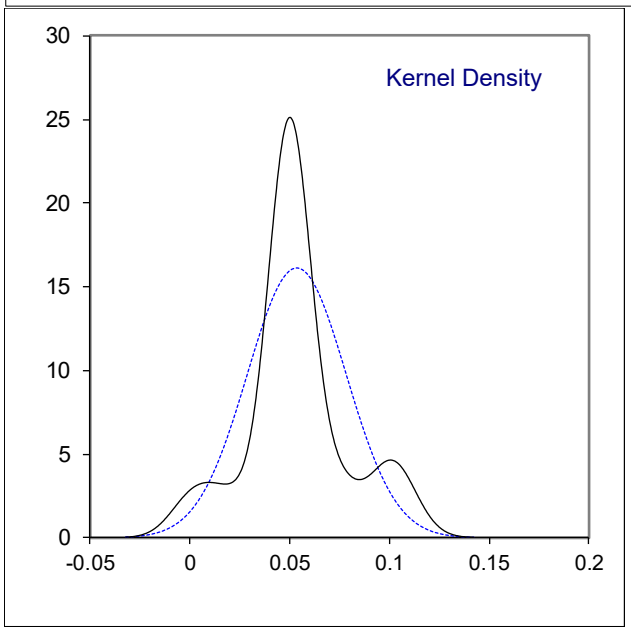


Determination of Water and Sediment on sample #20250; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1796	0.05		-0.09	904		-----		-----
120	D1796	0.00		-1.43	913		-----		-----
140		-----		-----	914		-----		-----
150	D1796	0.05		-0.09	962		-----		-----
154	D1796	0.075		0.57	963	D1796	0.05		-0.09
159		-----		-----	971	D1796	0.05		-0.09
168		-----		-----	974	D1796	0.05		-0.09
169	D1796	0.05		-0.09	994	D1796	0.05		-0.09
170	D1796	0.050		-0.09	995		-----		-----
171	D1796	0.10		1.24	996		-----		-----
175		-----		-----	997		-----		-----
212		-----		-----	1011		-----		-----
225		-----		-----	1016		-----		-----
230		-----		-----	1026		-----		-----
237	D1796	0.05		-0.09	1040		-----		-----
238	D1796	0.05		-0.09	1065		-----		-----
253		-----		-----	1108	D1796	0.05		-0.09
256		-----		-----	1109	D1796	<0.05		-----
273		-----		-----	1121		-----		-----
309		-----		-----	1126		-----		-----
311		-----		-----	1134		-----		-----
313		-----		-----	1140		-----		-----
323	D1796	0.11		1.51	1167		-----		-----
333		-----		-----	1205		-----		-----
334		-----		-----	1212		-----		-----
336		-----		-----	1213		-----		-----
339		-----		-----	1277	D1796	0.1		1.24
342	D1796	0.05		-0.09	1299	D1796	0.05		-0.09
349		-----		-----	1320		-----		-----
351		-----		-----	1356		-----		-----
356		-----		-----	1367		-----		-----
360	D1796	0.075		0.57	1381		-----		-----
370		-----		-----	1397	ISO3734	0.05		-0.09
372		-----		-----	1402	D1796	0.05		-0.09
381		-----		-----	1510		-----		-----
445		-----		-----	1556		-----		-----
447		-----		-----	1585		-----		-----
463		-----		-----	1586	D1796	0.10		1.24
495		-----		-----	1631		-----		-----
507		-----		-----	1635	D1796	0.01		-1.16
541	D1796	<0.1		-----	1648		-----		-----
551		-----		-----	1650	D1796	0.05		-0.09
558		-----		-----	1681	D1796	0.05		-0.09
575		-----		-----	1720		-----		-----
610		-----		-----	1724		-----		-----
621		-----		-----	1740	D1796	0.05		-0.09
631	D1796	0.05		-0.09	1776		-----		-----
633	D1796	0.1		1.24	1792	D1796	0.025		-0.76
634	D1796	0.05		-0.09	1796		-----		-----
657	D1796	<0.05		-----	1854	D1796	0.05		-0.09
704	D1796	0.075		0.57	1857		-----		-----
732		-----		-----	1881		-----		-----
752		-----		-----	1906		-----		-----
753		-----		-----	1949		-----		-----
778		-----		-----	1986		-----		-----
781	D1796	0.05		-0.09	2129	Calculation	0.018		-0.95
785		-----		-----	6054		-----		-----
798		-----		-----	6075		-----		-----
823	ISO3734	0.05		-0.09	6092		-----		-----
824	D1796	0		-1.43	6112		-----		-----
825	D1796	0.05		-0.09	6114		-----		-----
840		-----		-----	6201		-----		-----
872		-----		-----	6238		-----		-----
873		-----		-----	6262		-----		-----
874	D1796	0.05		-0.09	6298	D1796	0.05		-0.09
875		-----		-----	6340		-----		-----
887		-----		-----	6359		-----		-----
902		-----		-----					

normality	suspect
n	39
outliers	0
mean (n)	0.0535
st.dev. (n)	0.02473
R(calc.)	0.0692
st.dev.(D1796:11)	0.03750
R(D1796:11)	0.1050





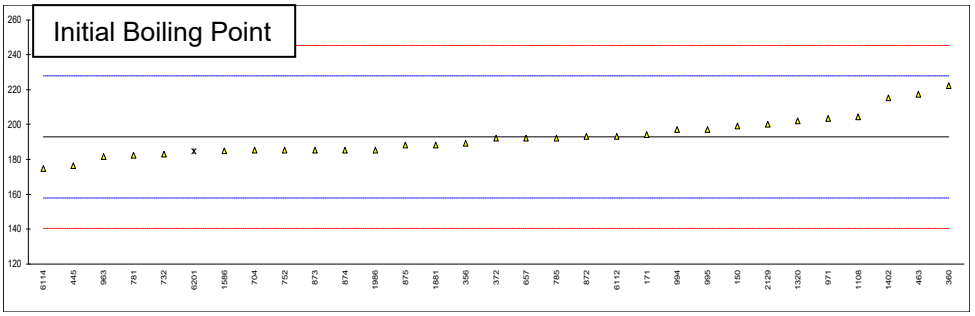
Vacuum Distillation at 10 mmHg but reported as AET on sample #20250, results in °C

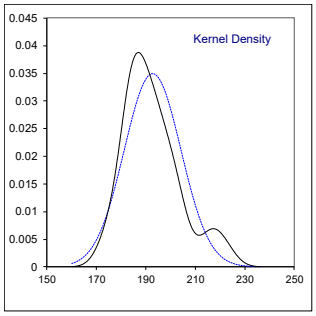
lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
52		-----	-----	-----	-----	-----	-----	-----	-----
120		-----	-----	-----	-----	-----	-----	-----	-----
140		-----	-----	-----	-----	-----	-----	-----	-----
150	D1160	199	288	338	402	456	496	526	537
154		-----	-----	-----	-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----	-----	-----	-----
168		-----	-----	-----	-----	-----	-----	-----	-----
169		-----	-----	-----	-----	-----	-----	-----	-----
170		-----	-----	-----	-----	-----	-----	-----	-----
171	D1160	194	222 (R1)	334	403	457	496	525	525
175		-----	-----	-----	-----	-----	-----	-----	-----
212		-----	-----	-----	-----	-----	-----	-----	-----
225		-----	-----	-----	-----	-----	-----	-----	-----
230		-----	-----	-----	-----	-----	-----	-----	-----
237		-----	-----	-----	-----	-----	-----	-----	-----
238		-----	-----	-----	-----	-----	-----	-----	-----
253		-----	-----	-----	-----	-----	-----	-----	-----
256		-----	-----	-----	-----	-----	-----	-----	-----
273		-----	-----	-----	-----	-----	-----	-----	-----
309		-----	-----	-----	-----	-----	-----	-----	-----
311		-----	-----	-----	-----	-----	-----	-----	-----
313		-----	-----	-----	-----	-----	-----	-----	-----
323		-----	-----	-----	-----	-----	-----	-----	-----
333		-----	-----	-----	-----	-----	-----	-----	-----
334		-----	-----	-----	-----	-----	-----	-----	-----
336		-----	-----	-----	-----	-----	-----	-----	-----
339		-----	-----	-----	-----	-----	-----	-----	-----
342		-----	-----	-----	-----	-----	-----	-----	-----
349		-----	-----	-----	-----	-----	-----	-----	-----
351		-----	-----	-----	-----	-----	-----	-----	-----
356	D1160	189	280	328	401	455	494	524	530
360	D1160	222	301	344	409	464	501	-----	520
370		-----	-----	-----	-----	-----	-----	-----	-----
372	D1160	192	280	325	395	453	489	525	530
381		-----	-----	-----	-----	-----	-----	-----	-----
445	D1160	176.1	272.1	318.1	389.9	449.2	488.9	518.2	522.0
447		-----	-----	-----	-----	-----	-----	-----	-----
463	D1160	217	293	350	427 (R1)	484 (R1)	-----	-----	502
495		-----	-----	-----	-----	-----	-----	-----	-----
507		-----	-----	-----	-----	-----	-----	-----	-----
541		-----	-----	-----	-----	-----	-----	-----	-----
551		-----	-----	-----	-----	-----	-----	-----	-----
558		-----	-----	-----	-----	-----	-----	-----	-----
575		-----	-----	-----	-----	-----	-----	-----	-----
610		-----	-----	-----	-----	-----	-----	-----	-----
621		-----	-----	-----	-----	-----	-----	-----	-----
631		-----	-----	-----	-----	-----	-----	-----	-----
633		-----	-----	-----	-----	-----	-----	-----	-----
634		-----	-----	-----	-----	-----	-----	-----	-----
657	D1160	192	280	327	398	454	492	520	527
704	D1160	185.0	271.0	323.0	394.0	450.0	491.0	520.0	526.0
732	D1160	182.7	270.8	327.9	394.5	453	492.6	523.7	530
752	D1160	185	277	327	397	458	495	522	522
753		-----	-----	-----	-----	-----	-----	-----	-----
778		-----	-----	-----	-----	-----	-----	-----	-----
781	D1160	182	265	316	391	449	493	-----	514
785	D1160	192	281	324	400	458	502	-----	524
798		-----	-----	-----	-----	-----	-----	-----	-----
823		-----	-----	-----	-----	-----	-----	-----	-----
824		-----	-----	-----	-----	-----	-----	-----	-----
825		-----	-----	-----	-----	-----	-----	-----	-----
840		-----	-----	-----	-----	-----	-----	-----	-----
872	D1160	193	273	325	391	449	494	-----	519
873	D1160	185	272	322	394	450	494	-----	518
874	D1160	185	271	322	395	450	493	-----	518
875	D1160	188	268	322	397	452	501	-----	520
887		-----	-----	-----	-----	-----	-----	-----	-----
902		-----	-----	-----	-----	-----	-----	-----	-----
904		-----	-----	-----	-----	-----	-----	-----	-----
913		-----	-----	-----	-----	-----	-----	-----	-----
914		-----	-----	-----	-----	-----	-----	-----	-----
962		-----	-----	-----	-----	-----	-----	-----	-----
963	D1160	181.4	273.2	318.9	385.6	442.4	481.1	-----	522.4 C
971	D1160	203.1	281.2	326.4	397.2	454.2	495.2	525.1	528.6
974		-----	-----	-----	-----	-----	-----	-----	-----

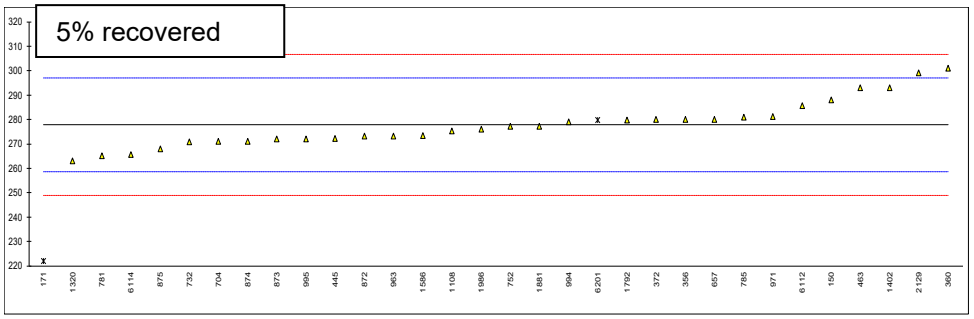
lab	method	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
994	D1160	197.0	279.0	323.0	396.0	456.0	501.0	529.0	536.0
995	D1160	197.0	272.0	321.5	392.0	449.5	493.5	523.5	531.5
996		-----	-----	-----	-----	-----	-----	-----	-----
997		-----	-----	-----	-----	-----	-----	-----	-----
1011		-----	-----	-----	-----	-----	-----	-----	-----
1016		-----	-----	-----	-----	-----	-----	-----	-----
1026		-----	-----	-----	-----	-----	-----	-----	-----
1040		-----	-----	-----	-----	-----	-----	-----	-----
1065		-----	-----	-----	-----	-----	-----	-----	-----
1108	D1160	204.2	275.3	324.9	403.0	456.2	491.9	522.2	530.4
1109		-----	-----	-----	-----	-----	-----	-----	-----
1121		-----	-----	-----	-----	-----	-----	-----	-----
1126		-----	-----	-----	-----	-----	-----	-----	-----
1134		-----	-----	-----	-----	-----	-----	-----	-----
1140		-----	-----	-----	-----	-----	-----	-----	-----
1167		-----	-----	-----	-----	-----	-----	-----	-----
1205		-----	-----	-----	-----	-----	-----	-----	-----
1212		-----	-----	-----	-----	-----	-----	-----	-----
1213		-----	-----	-----	-----	-----	-----	-----	-----
1277		-----	-----	-----	-----	-----	-----	-----	-----
1299		-----	-----	-----	-----	-----	-----	-----	-----
1320	D1160	202	263	326	399	450	492	523	526
1356		-----	-----	-----	-----	-----	-----	-----	-----
1367		-----	-----	-----	-----	-----	-----	-----	-----
1381		-----	-----	-----	-----	-----	-----	-----	-----
1397		-----	-----	-----	-----	-----	-----	-----	-----
1402		215	293	332	397	452	493	525	530
1510		-----	-----	-----	-----	-----	-----	-----	-----
1556		-----	-----	-----	-----	-----	-----	-----	-----
1585		-----	-----	-----	-----	-----	-----	-----	-----
1586	D1160	184.9	273.4	314.7	394.2	445.2	486.7	517.7	517.7
1631		-----	-----	-----	-----	-----	-----	-----	-----
1635		-----	-----	-----	-----	-----	-----	-----	-----
1648		-----	-----	-----	-----	-----	-----	-----	-----
1650		-----	-----	-----	-----	-----	-----	-----	-----
1681		-----	-----	-----	-----	-----	-----	-----	-----
1720		-----	-----	-----	-----	-----	-----	-----	-----
1724		-----	-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----	-----
1776		-----	-----	-----	-----	-----	-----	-----	-----
1792		-----	279.8	329.4	399.4	452.9	495.1	527.3	528.6
1796		-----	-----	-----	-----	-----	-----	-----	-----
1854		-----	-----	-----	-----	-----	-----	-----	-----
1857		-----	-----	-----	-----	-----	-----	-----	-----
1881	D1160	188	277	326	395	451	494	526	531
1906		-----	-----	-----	-----	-----	-----	-----	-----
1949		-----	-----	-----	-----	-----	-----	-----	-----
1986		185	276	326	400	452	491	522	527
2129	D1160	200	299	346	413	467	499	-----	-----
6054		-----	-----	-----	-----	-----	-----	-----	-----
6075		-----	-----	-----	-----	-----	-----	-----	-----
6092		-----	-----	-----	-----	-----	-----	-----	-----
6112	D1160	193.0	285.5	331.9	399.4	454.8	493.6	521.1	521.1
6114	D1160	174.4	265.6	307.6	387.2	450.5	487.8	506.9 (R1)	508
6201	D1160	184.3 ex	279.7 ex	335.8 ex	435.4 (R1)	475.2 (R1)	495.6 ex	540.4 (R1)	551.3 (R5)
6238		-----	-----	-----	-----	-----	-----	-----	-----
6262		-----	----- W	----- W	----- W	----- W	----- W	----- W	----- W
6298		-----	-----	-----	-----	-----	-----	-----	-----
6340		-----	-----	-----	-----	-----	-----	-----	-----
6359		----- W	----- W	----- W	----- W	----- W	----- W	----- W	----- W
	normality	OK	OK	suspect	suspect	suspect	suspect	OK	suspect
	n	30	30	31	30	30	30	20	30
	outliers	0 (+1ex)	1 (+1ex)	0 (+1ex)	2	2	0 (+1ex)	2	1
	mean (n)	192.79	277.86	326.69	396.98	453.03	493.58	523.29	524.08
	st.dev. (n)	11.408	9.465	8.866	5.772	4.920	4.500	2.941	7.656
	R(calc.)	31.94	26.50	24.82	16.16	13.78	12.60	8.23	21.44
	st.dev.(D1160:18)	17.500	9.605	7.757	7.064	6.330	5.557	5.189	9.643
	R(D1160:18)	49	26.89	21.72	19.78	17.72	15.56	14.53	27

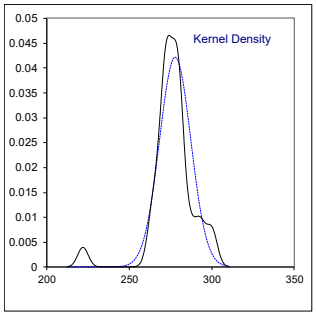
R1 and R5 respectively outlier and straggler in Rosner's outlier test

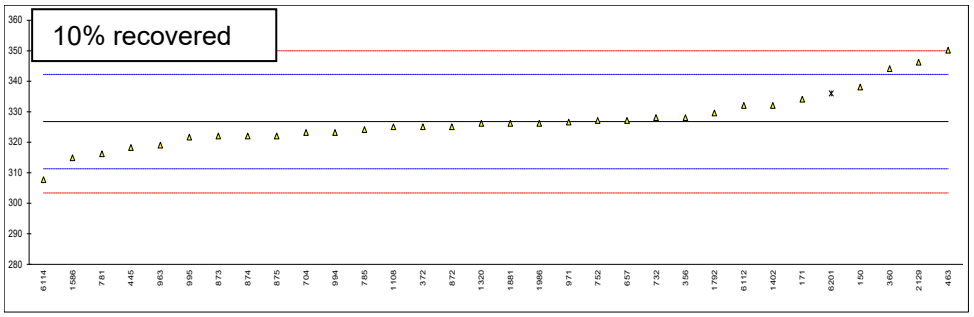
Lab 963 first reported 491.5
Lab 6262 test result withdrawn, reported 292.9, 333.2, 397.0, 452.4, 498.1, 535.6, 563.6
Lab 6359 test result withdrawn, reported 225, 249.3, 267.9, 300.7, 363.1, 478.9, 479.6, 480


Initial Boiling Point


Kernel Density


5% recovered


Kernel Density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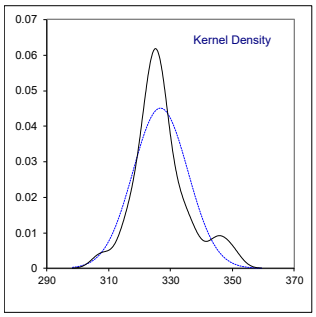
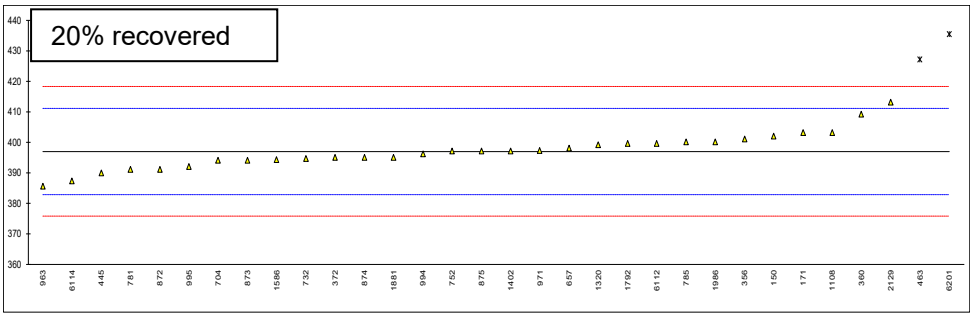
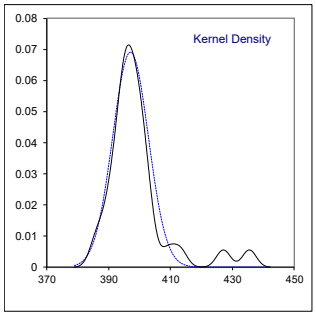
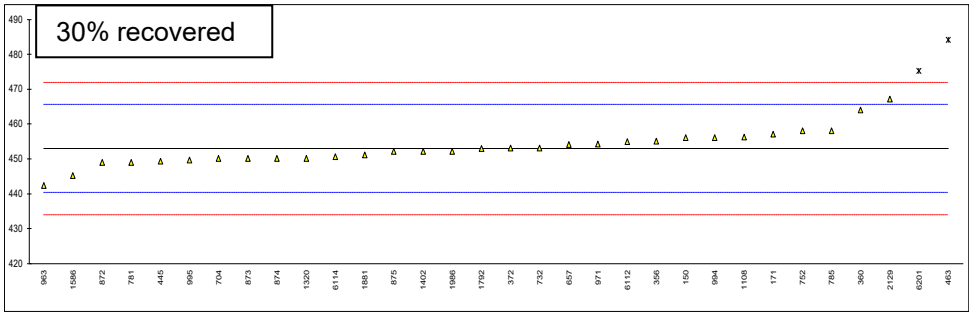
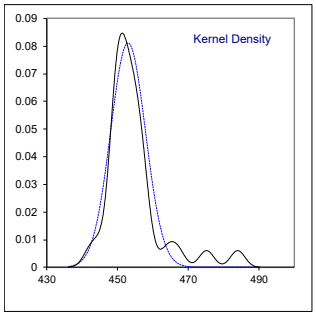
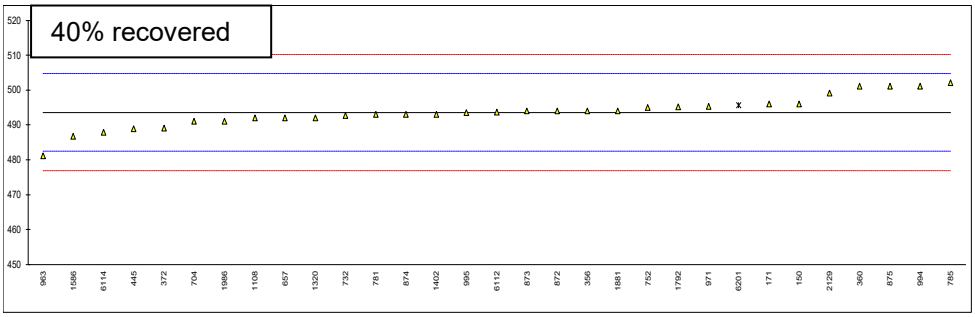

Kernel Density

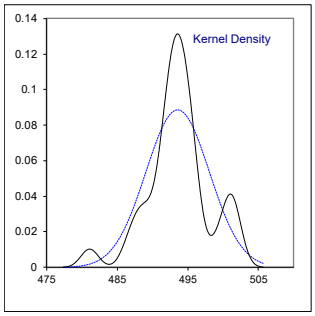

20% recovered

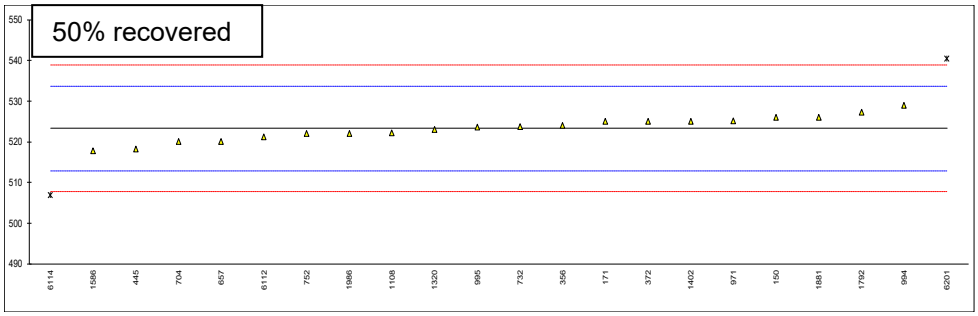

Kernel Density

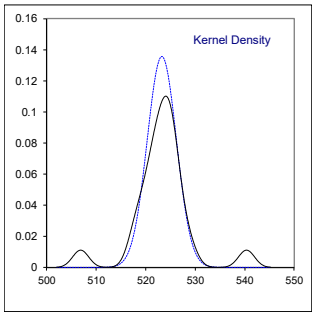

30% recovered

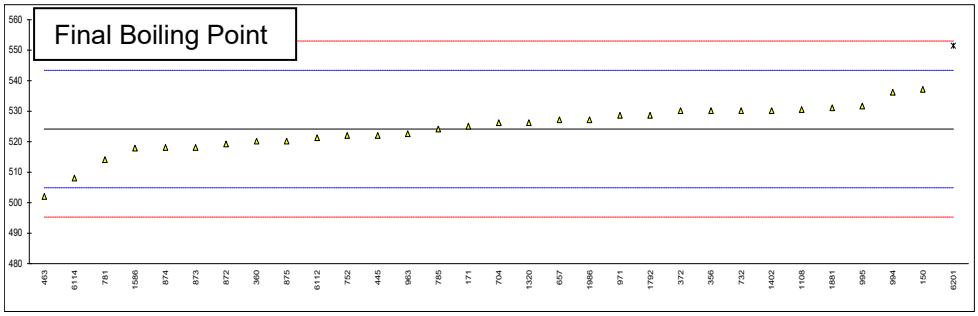

Kernel Density

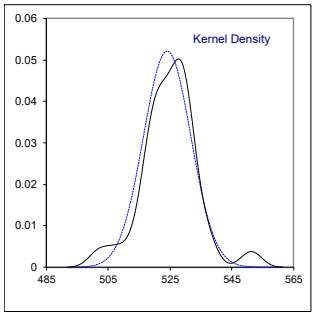

40% recovered


Kernel Density


50% recovered
550
540
530
520
510
500
490
6114
1586
445
704
657
6112
752
1986
1108
1320
995
732
356
171
372
1402
971
150
1881
1792
994
6201


Kernel Density
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
500
510
520
530
540
550


Final Boiling Point
560
550
540
530
520
510
500
490
480
463
6114
781
1586
874
873
872
360
875
6112
752
445
963
785
171
704
1320
657
1986
971
1792
372
356
732
1402
1108
1881
995
994
150
6201


Kernel Density
0.06
0.05
0.04
0.03
0.02
0.01
0
485
505
525
545
565

z-scores of Vacuum Distillation at 10 mmHg but reported as AET on sample #20250

lab	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
52	-----	-----	-----	-----	-----	-----	-----	-----
120	-----	-----	-----	-----	-----	-----	-----	-----
140	-----	-----	-----	-----	-----	-----	-----	-----
150	0.35	1.06	1.46	0.71	0.47	0.44	0.52	1.34
154	-----	-----	-----	-----	-----	-----	-----	-----
159	-----	-----	-----	-----	-----	-----	-----	-----
168	-----	-----	-----	-----	-----	-----	-----	-----
169	-----	-----	-----	-----	-----	-----	-----	-----
170	-----	-----	-----	-----	-----	-----	-----	-----
171	0.07	-5.82	0.94	0.85	0.63	0.44	0.33	0.10
175	-----	-----	-----	-----	-----	-----	-----	-----
212	-----	-----	-----	-----	-----	-----	-----	-----
225	-----	-----	-----	-----	-----	-----	-----	-----
230	-----	-----	-----	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
253	-----	-----	-----	-----	-----	-----	-----	-----
256	-----	-----	-----	-----	-----	-----	-----	-----
273	-----	-----	-----	-----	-----	-----	-----	-----
309	-----	-----	-----	-----	-----	-----	-----	-----
311	-----	-----	-----	-----	-----	-----	-----	-----
313	-----	-----	-----	-----	-----	-----	-----	-----
323	-----	-----	-----	-----	-----	-----	-----	-----
333	-----	-----	-----	-----	-----	-----	-----	-----
334	-----	-----	-----	-----	-----	-----	-----	-----
336	-----	-----	-----	-----	-----	-----	-----	-----
339	-----	-----	-----	-----	-----	-----	-----	-----
342	-----	-----	-----	-----	-----	-----	-----	-----
349	-----	-----	-----	-----	-----	-----	-----	-----
351	-----	-----	-----	-----	-----	-----	-----	-----
356	-0.22	0.22	0.17	0.57	0.31	0.08	0.14	0.61
360	1.67	2.41	2.23	1.70	1.73	1.34	-----	-0.42
370	-----	-----	-----	-----	-----	-----	-----	-----
372	-0.05	0.22	-0.22	-0.28	0.00	-0.82	0.33	0.61
381	-----	-----	-----	-----	-----	-----	-----	-----
445	-0.95	-0.60	-1.11	-1.00	-0.61	-0.84	-0.98	-0.22
447	-----	-----	-----	-----	-----	-----	-----	-----
463	1.38	1.58	3.01	4.25	4.89	-----	-----	-2.29
495	-----	-----	-----	-----	-----	-----	-----	-----
507	-----	-----	-----	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----	-----	-----	-----
551	-----	-----	-----	-----	-----	-----	-----	-----
558	-----	-----	-----	-----	-----	-----	-----	-----
575	-----	-----	-----	-----	-----	-----	-----	-----
610	-----	-----	-----	-----	-----	-----	-----	-----
621	-----	-----	-----	-----	-----	-----	-----	-----
631	-----	-----	-----	-----	-----	-----	-----	-----
633	-----	-----	-----	-----	-----	-----	-----	-----
634	-----	-----	-----	-----	-----	-----	-----	-----
657	-0.05	0.22	0.04	0.14	0.15	-0.28	-0.63	0.30
704	-0.45	-0.71	-0.48	-0.42	-0.48	-0.46	-0.63	0.20
732	-0.58	-0.74	0.16	-0.35	0.00	-0.18	0.08	0.61
752	-0.45	-0.09	0.04	0.00	0.79	0.26	-0.25	-0.22
753	-----	-----	-----	-----	-----	-----	-----	-----
778	-----	-----	-----	-----	-----	-----	-----	-----
781	-0.62	-1.34	-1.38	-0.85	-0.64	-0.10	-----	-1.04
785	-0.05	0.33	-0.35	0.43	0.79	1.52	-----	-0.01
798	-----	-----	-----	-----	-----	-----	-----	-----
823	-----	-----	-----	-----	-----	-----	-----	-----
824	-----	-----	-----	-----	-----	-----	-----	-----
825	-----	-----	-----	-----	-----	-----	-----	-----
840	-----	-----	-----	-----	-----	-----	-----	-----
872	0.01	-0.51	-0.22	-0.85	-0.64	0.08	-----	-0.53
873	-0.45	-0.61	-0.60	-0.42	-0.48	0.08	-----	-0.63
874	-0.45	-0.71	-0.60	-0.28	-0.48	-0.10	-----	-0.63
875	-0.27	-1.03	-0.60	0.00	-0.16	1.34	-----	-0.42
887	-----	-----	-----	-----	-----	-----	-----	-----
902	-----	-----	-----	-----	-----	-----	-----	-----
904	-----	-----	-----	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----	-----	-----	-----
962	-----	-----	-----	-----	-----	-----	-----	-----
963	-0.65	-0.49	-1.00	-1.61	-1.68	-2.25	-----	-0.17
971	0.59	0.35	-0.04	0.03	0.18	0.29	0.35	0.47
974	-----	-----	-----	-----	-----	-----	-----	-----

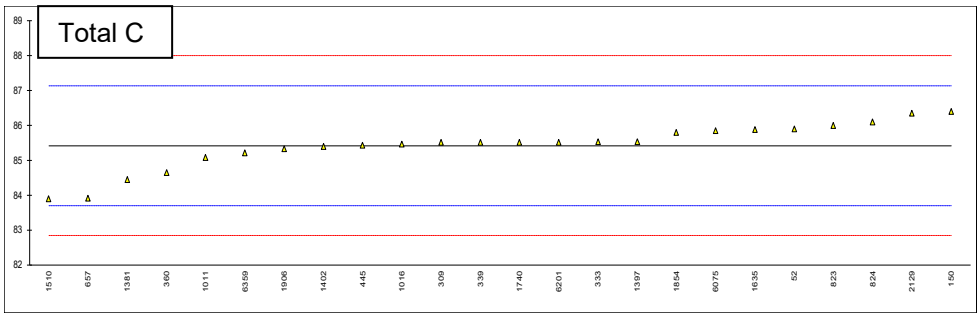
lab	IBP	5%rec	10%rec	20%rec	30%rec	40%rec	50%rec	FBP
994	0.24	0.12	-0.48	-0.14	0.47	1.34	1.10	1.24
995	0.24	-0.61	-0.67	-0.70	-0.56	-0.01	0.04	0.77
996	-----	-----	-----	-----	-----	-----	-----	-----
997	-----	-----	-----	-----	-----	-----	-----	-----
1011	-----	-----	-----	-----	-----	-----	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1026	-----	-----	-----	-----	-----	-----	-----	-----
1040	-----	-----	-----	-----	-----	-----	-----	-----
1065	-----	-----	-----	-----	-----	-----	-----	-----
1108	0.65	-0.27	-0.23	0.85	0.50	-0.30	-0.21	0.66
1109	-----	-----	-----	-----	-----	-----	-----	-----
1121	-----	-----	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	-----	-----	-----
1134	-----	-----	-----	-----	-----	-----	-----	-----
1140	-----	-----	-----	-----	-----	-----	-----	-----
1167	-----	-----	-----	-----	-----	-----	-----	-----
1205	-----	-----	-----	-----	-----	-----	-----	-----
1212	-----	-----	-----	-----	-----	-----	-----	-----
1213	-----	-----	-----	-----	-----	-----	-----	-----
1277	-----	-----	-----	-----	-----	-----	-----	-----
1299	-----	-----	-----	-----	-----	-----	-----	-----
1320	0.53	-1.55	-0.09	0.29	-0.48	-0.28	-0.06	0.20
1356	-----	-----	-----	-----	-----	-----	-----	-----
1367	-----	-----	-----	-----	-----	-----	-----	-----
1381	-----	-----	-----	-----	-----	-----	-----	-----
1397	-----	-----	-----	-----	-----	-----	-----	-----
1402	1.27	1.58	0.68	0.00	-0.16	-0.10	0.33	0.61
1510	-----	-----	-----	-----	-----	-----	-----	-----
1556	-----	-----	-----	-----	-----	-----	-----	-----
1585	-----	-----	-----	-----	-----	-----	-----	-----
1586	-0.45	-0.46	-1.55	-0.39	-1.24	-1.24	-1.08	-0.66
1631	-----	-----	-----	-----	-----	-----	-----	-----
1635	-----	-----	-----	-----	-----	-----	-----	-----
1648	-----	-----	-----	-----	-----	-----	-----	-----
1650	-----	-----	-----	-----	-----	-----	-----	-----
1681	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-----	-----	-----	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----	-----	-----	-----
1776	-----	-----	-----	-----	-----	-----	-----	-----
1792	-----	0.20	0.35	0.34	-0.02	0.27	0.77	0.47
1796	-----	-----	-----	-----	-----	-----	-----	-----
1854	-----	-----	-----	-----	-----	-----	-----	-----
1857	-----	-----	-----	-----	-----	-----	-----	-----
1881	-0.27	-0.09	-0.09	-0.28	-0.32	0.08	0.52	0.72
1906	-----	-----	-----	-----	-----	-----	-----	-----
1949	-----	-----	-----	-----	-----	-----	-----	-----
1986	-0.45	-0.19	-0.09	0.43	-0.16	-0.46	-0.25	0.30
2129	0.41	2.20	2.49	2.27	2.21	0.98	-----	-----
6054	-----	-----	-----	-----	-----	-----	-----	-----
6075	-----	-----	-----	-----	-----	-----	-----	-----
6092	-----	-----	-----	-----	-----	-----	-----	-----
6112	0.01	0.80	0.67	0.34	0.28	0.00	-0.42	-0.31
6114	-1.05	-1.28	-2.46	-1.38	-0.40	-1.04	-3.16	-1.67
6201	-0.49	0.19	1.17	5.44	3.50	0.36	3.30	2.82
6238	-----	-----	-----	-----	-----	-----	-----	-----
6262	-----	-----	-----	-----	-----	-----	-----	-----
6298	-----	-----	-----	-----	-----	-----	-----	-----
6340	-----	-----	-----	-----	-----	-----	-----	-----
6359	-----	-----	-----	-----	-----	-----	-----	-----

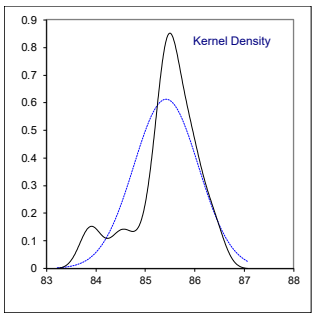
Determination of Total Carbon, Hydrogen and Nitrogen on sample #20250; results in %M/M

lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
52		85.9		0.56	10.1		-0.29	-----		-----
120		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150		86.4		1.14	10.3		0.47	-----		-----
154		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
168		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171		-----		-----	-----		-----	-----		-----
175		-----		-----	-----		-----	-----		-----
212		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
230		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
253		-----		-----	-----		-----	-----		-----
256		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
309	D5291-C	85.5		0.09	10.1		-0.29	0.45		0.56
311		-----		-----	-----		-----	-----		-----
313		-----		-----	-----		-----	-----		-----
323		-----		-----	-----		-----	-----		-----
333	D5291-A	85.52		0.12	10.09		-0.33	0.47		1.11
334		-----		-----	-----		-----	-----		-----
336		-----		-----	-----		-----	-----		-----
339		85.5		0.09	10.10		-0.29	0.44		0.29
342		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
351		-----		-----	-----		-----	-----		-----
356		-----		-----	-----		-----	-----		-----
360	D5291-A	84.64		-0.91	10.30		0.47	0.40		-0.81
370		-----		-----	-----		-----	-----		-----
372		-----		-----	-----		-----	-----		-----
381		-----		-----	-----		-----	-----		-----
445	D5291-C	85.43		0.01	9.89		-1.09	0.43		0.01
447		-----		-----	-----		-----	-----		-----
463		-----		-----	-----		-----	-----		-----
495		-----		-----	-----		-----	-----		-----
507		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
551		-----		-----	-----		-----	-----		-----
558		-----		-----	-----		-----	-----		-----
575		-----		-----	-----		-----	-----		-----
610		-----		-----	-----		-----	-----		-----
621		-----		-----	-----		-----	-----		-----
631		-----		-----	-----		-----	-----		-----
633		-----		-----	-----		-----	-----		-----
634		-----		-----	-----		-----	-----		-----
657	D5291-D	83.91		-1.75	10.64		1.76	0.57	C	3.86
704		-----		-----	-----		-----	-----		-----
732		-----		-----	-----		-----	-----		-----
752		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
778		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
823	D5291-D	86.0		0.67	10.3		0.47	0.37		-1.64
824		86.09		0.78	10.16		-0.07	-----		-----
825		-----		-----	-----		-----	-----		-----
840		-----		-----	-----		-----	-----		-----
872		-----		-----	-----		-----	-----		-----
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
887		-----		-----	-----		-----	-----		-----
902		-----		-----	-----		-----	-----		-----
904		-----		-----	-----		-----	-----		-----
913		-----		-----	-----		-----	-----		-----
914		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
971		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----

lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
996		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
1011		85.08		-0.40	10.48		1.15	0.35		-2.19
1016		85.46		0.05	-----		-----	0.461		0.87
1026		-----		-----	-----		-----	-----		-----
1040		-----		-----	-----		-----	-----		-----
1065		-----		-----	-----		-----	-----		-----
1108		-----		-----	-----		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1121		-----		-----	-----		-----	-----		-----
1126		-----		-----	-----		-----	-----		-----
1134		-----		-----	-----		-----	-----		-----
1140		-----		-----	-----		-----	-----		-----
1167		-----		-----	-----		-----	-----		-----
1205		-----		-----	-----		-----	-----		-----
1212		-----		-----	-----		-----	-----		-----
1213	D5291-A	-----		-----	-----		-----	0.381		-1.34
1277		-----		-----	-----		-----	-----		-----
1299		-----		-----	-----		-----	-----		-----
1320		-----		-----	-----		-----	-----		-----
1356		-----		-----	-----		-----	-----		-----
1367		-----		-----	-----		-----	-----		-----
1381		84.445		-1.13	10.306		0.49	-----		-----
1397	D5291-A	85.53		0.13	10.35		0.66	0.46		0.84
1402		85.39		-0.04	9.86		-1.20	-----		-----
1510	D5291-D	83.89		-1.78	9.78		-1.51	0.27		-4.39
1556		-----		-----	-----		-----	-----		-----
1585		-----		-----	-----		-----	-----		-----
1586		-----		-----	-----		-----	-----		-----
1631		-----		-----	-----		-----	-----		-----
1635	D5291-D	85.87		0.52	10.25		0.28	0.42		-0.26
1648		-----		-----	-----		-----	-----		-----
1650		-----		-----	-----		-----	-----		-----
1681		-----		-----	-----		-----	-----		-----
1720		-----		-----	-----		-----	-----		-----
1724		-----		-----	-----		-----	-----		-----
1740	D5291-A	85.5		0.09	10.1		-0.29	0.39		-1.09
1776		-----		-----	-----		-----	-----		-----
1792		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1854	D5291-D	85.8		0.44	10.23		0.20	0.42		-0.26
1857		-----		-----	-----		-----	-----		-----
1881		-----		-----	-----		-----	-----		-----
1906		85.323	C	-0.11	10.168	C	-0.03	0.490	C	1.66
1949		-----		-----	-----		-----	-----		-----
1986		-----		-----	-----		-----	-----		-----
2129	D5291-A	86.35		1.08	10.30		0.47	0.51		2.21
6054		-----		-----	-----		-----	-----		-----
6075	D5291-D	85.84		0.49	10.03		-0.56	0.74	C,R(0.01)	8.54
6092		-----		-----	-----		-----	-----		-----
6112		-----		-----	-----		-----	-----		-----
6114		-----		-----	-----		-----	-----		-----
6201	D5291-A	85.510		0.10	10.064		-0.43	0.0394	R(0.01)	-10.74
6238		-----		-----	-----		-----	-----		-----
6262		-----		-----	-----		-----	-----		-----
6298		-----		-----	-----		-----	-----		-----
6340		-----		-----	-----		-----	-----		-----
6359		85.21		-0.24	9.459	R(0.05)	-2.72	0.450		0.56
normality		OK			OK			suspect		
n		24			22			18		
outliers		0			1			2		
mean (n)		85.4203			10.1771			0.4296		
st.dev. (n)		0.65160			0.19855			0.06627		
R(calc.)		1.8245			0.5560			0.1855		
st.dev.(D5291-ABC:16)		0.86079			0.26365			0.03634		
R(D5291-ABC:16)		2.4102			0.7382			0.1018		

Lab 657 first reported 0.81
Lab 1906 first reported 83.36, 9.551, 0.545
Lab 6075 first reported 0.94


Total C
89
88
87
86
85
84
83
82
1510 657 1381 360 1011 6359 1906 1402 445 1016 309 339 1740 6201 333 1397 1854 6075 1635 52 823 824 2129 150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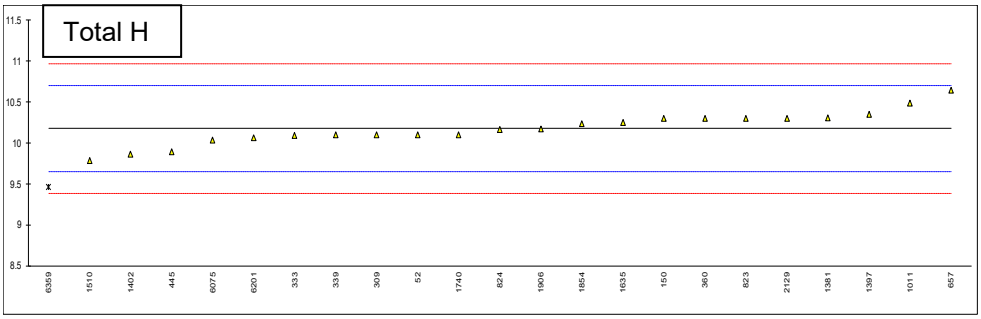
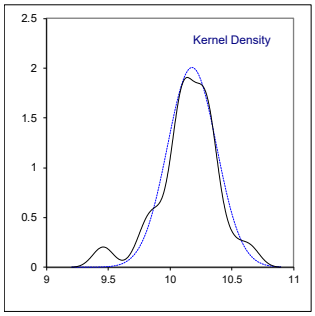
0.5
0.4
0.3
0.2
0.1
0
83 84 85 86 87 88


Total H
11.5
11
10.5
10
9.5
9
8.5
6359 1510 1402 445 6075 6201 333 339 309 52 1740 824 1906 1854 1635 150 360 823 2129 1381 1397 1011 657


Kernel Density
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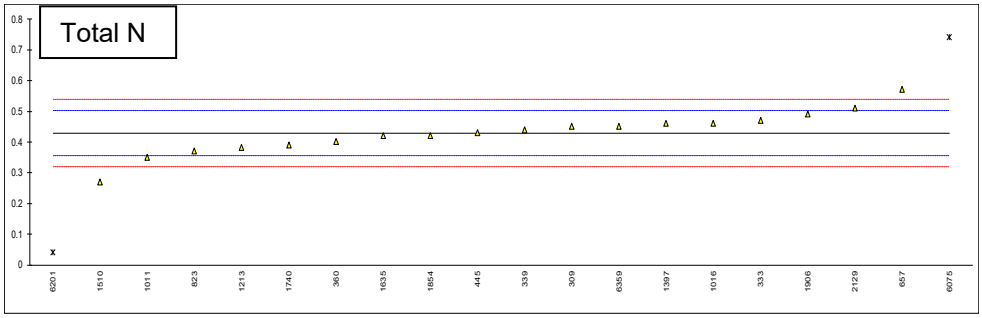
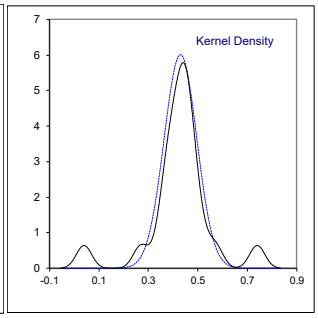
2
1.5
1
0.5
0
9 9.5 10 10.5 11


Total N
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
6201 1510 1011 823 1213 1740 360 1635 1854 445 339 309 6359 1397 1016 333 1906 2129 657 6075


Kernel Density
7
6
5
4
3
2
1
0
-0.1 0.1 0.3 0.5 0.7 0.9

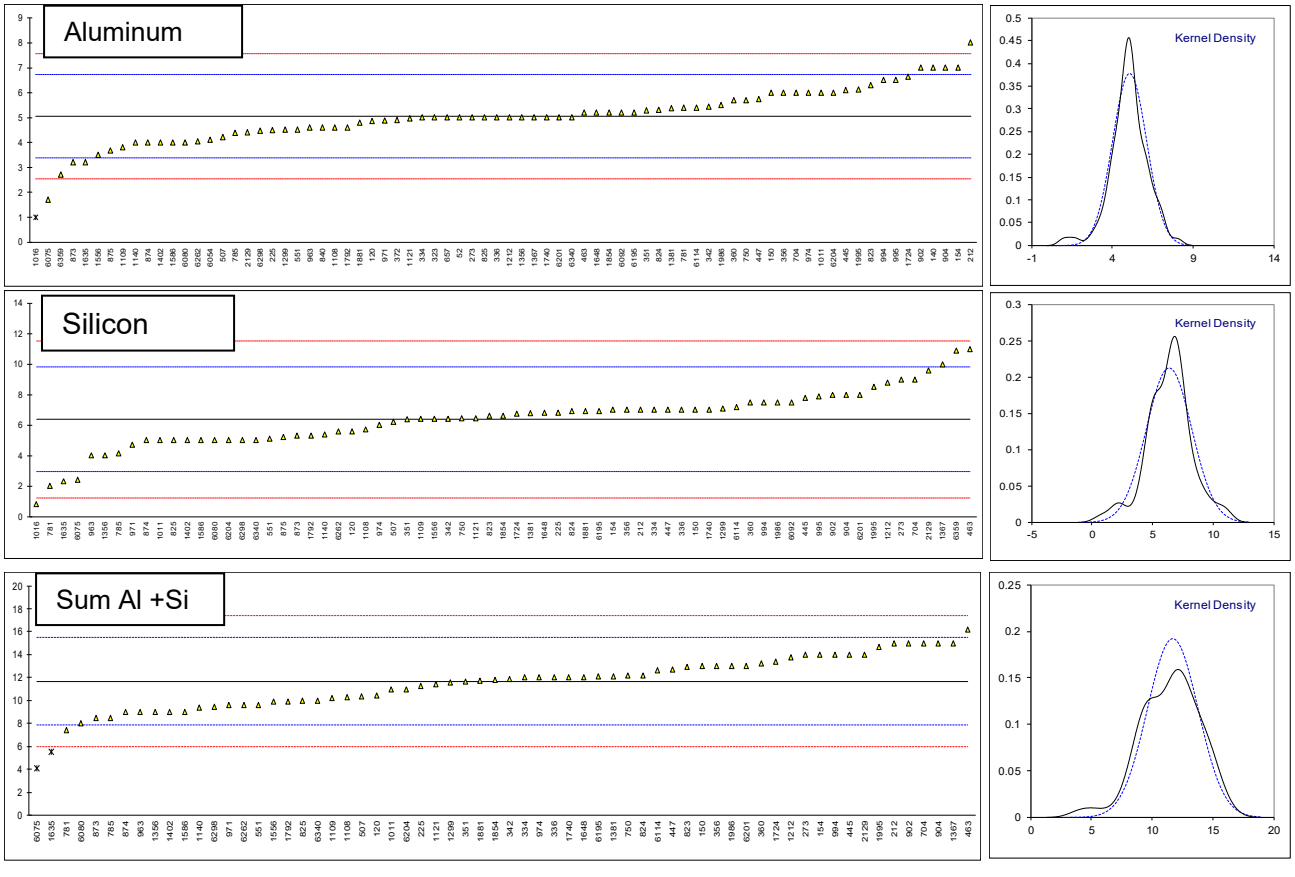
Determination of Aluminum as Al, Silicon as Si and total Al+Si on sample #20251; results in mg/kg

lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Sum Al+Si	mark	z(targ)
52	IP501	5		-0.07	<10		-----	<15		-----
120	IP501	4.8525		-0.25	5.583		-0.47	10.4355		-0.66
140	IP501	7		2.32	<10		-----	-----		-----
150	IP501	6	C	1.12	7		0.35	13	C	0.69
154	IP501	7		2.32	7		0.35	14		1.21
159		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171	IP501	<5		-----	<10		-----	<15		-----
175		-----		-----	-----		-----	-----		-----
212	IP470	8		3.52	7		0.35	15		1.73
225	IP501	4.48		-0.70	6.83		0.25	11.31		-0.20
230	IP470	<5	C	-----	<10	C	-----	<15	C	-----
237		-----		-----	-----		-----	-----		-----
273	IP501	5		-0.07	9		1.52	14		1.21
311	IP501	<5		-----	<10		-----	<15		-----
323	IP501	5		-0.07	<10		-----	<15		-----
333	IP501	<5		-----	<10		-----	<15		-----
334	IP501	5		-0.07	7		0.35	12		0.16
336	IP501	5		-0.07	7		0.35	12		0.16
342	IP501	5.43327		0.45	6.4309		0.02	11.8636		0.09
351	IP501	5.28		0.26	6.39		0.00	11.67		-0.01
356	IP501	6	C	1.12	7	C	0.35	13	C	0.69
360	IP501	5.7		0.76	7.5		0.64	13.2		0.79
370	IP470	< 5		-----	< 10		-----	< 15		-----
372	IP470	4.9		-0.19	<10		-----	<15		-----
381		-----		-----	-----		-----	-----		-----
445	IP501	6.1		1.24	7.8		0.82	14		1.21
447	IP501	5.74		0.81	7.00		0.35	12.74		0.55
463	IP470	5.2		0.17	11.0		2.68	16.2		2.36
495		-----		-----	-----		-----	-----		-----
507	IP501	4.2		-1.03	6.2		-0.11	10.4		-0.67
541	IP501	<5		-----	<10		-----	<15		-----
551	IP501	4.503		-0.67	5.125		-0.74	9.628		-1.08
631		-----		-----	-----		-----	-----		-----
657	IP501	5		-0.07	<10		-----	<15		-----
704	IP470	6		1.12	9		1.52	15		1.73
750	IP501	5.70		0.76	6.46		0.04	12.16		0.25
781	IP501	5.4		0.41	2.0		-2.56	7.4		-2.24
785	IP470	4.38		-0.82	4.14		-1.31	8.5		-1.67
798		-----		-----	-----		-----	-----		-----
823	IP501	6.3		1.48	6.6		0.12	12.9		0.63
824	IP501	5.3		0.29	6.9		0.30	12.2		0.27
825	IP501	5		-0.07	5		-0.81	10		-0.88
840	D5184	4.6		-0.55	<10		-----	<15		-----
872		-----		-----	-----		-----	-----		-----
873	IP470	3.2		-2.23	5.3		-0.64	8.5		-1.67
874	IP501	4		-1.27	5		-0.81	9		-1.41
875	IP501	3.68		-1.65	5.2		-0.69	-----		-----
902	IP501	7		2.32	8		0.94	15		1.73
904	IP501	7		2.32	8		0.94	15		1.73
913		-----		-----	-----		-----	-----		-----
963	IP501	4.6		-0.55	4		-1.39	9		-1.41
971	IP501	4.87		-0.23	4.71		-0.98	9.58		-1.10
974	IP501	6		1.12	6		-0.23	12		0.16
994	IP501	6.5		1.72	7.5		0.64	14		1.21
995	IP470	6.5		1.72	7.87		0.86	-----		-----
1011	ISO10478	6		1.12	5		-0.81	11		-0.36
1016	In house	1	R(0.05)	-4.86	0.8		-3.26	-----		-----
1040		-----		-----	-----		-----	-----		-----
1108	IP470	4.6		-0.55	5.7		-0.40	10.3		-0.73
1109	IP470	3.8		-1.51	6.4		0.00	10.2		-0.78
1121	IP501	4.97		-0.11	6.46		0.04	11.4		-0.15
1126		-----		-----	-----		-----	-----		-----
1134		-----		-----	-----		-----	-----		-----
1140	IP501	3.992		-1.28	5.384		-0.59	9.376		-1.21
1212	IP501	5.0		-0.07	8.8		1.40	13.8		1.11
1213		-----		-----	-----		-----	-----		-----
1299	IP501	4.5		-0.67	7.1		0.41	11.6		-0.05
1356	ISO10478	5		-0.07	4		-1.39	9		-1.41
1367	IP501	5		-0.07	10		2.10	15		1.73
1381	ISO10478	5.36		0.36	6.77		0.22	12.13		0.23
1402	IP501	4		-1.27	5		-0.81	9		-1.41
1556	IP501	3.5		-1.87	6.4		0.00	9.9		-0.94

lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Sum Al+Si	mark	z(targ)
1586	IP470	4		-1.27	5		-0.81	9		-1.41
1635	D5185	3.2		-2.23	2.3		-2.38	5.5	DG(0.05)	-3.24
1648	IP501	5.20		0.17	6.81		0.24	12.01		0.17
1720		-----		-----	-----		-----	-----		-----
1724	IP501	6.627		1.87	6.757		0.21	13.384		0.89
1740	IP501	5		-0.07	7		0.35	12		0.16
1792	IP501	4.6		-0.55	5.3		-0.64	9.9		-0.94
1796		-----		-----	-----		-----	-----		-----
1854	IP501	5.2		0.17	6.6		0.12	11.8		0.06
1857		-----		-----	-----		-----	-----		-----
1881	IP470	4.8		-0.31	6.9		0.30	11.7		0.01
1949		-----		-----	-----		-----	-----		-----
1986	IP470	5.5		0.53	7.5		0.64	13		0.69
1995	IP501	6.13		1.28	8.52		1.24	14.65		1.55
2129	IP470	4.4		-0.79	9.6		1.87	14.0		1.21
6054	IP501	4.10686		-1.14	-----		-----	-----		-----
6075	In house	1.7		-4.02	2.4		-2.32	4.1	DG(0.05)	-3.97
6080	IP501	4.0		-1.27	5.0		-0.81	8.0	E	-1.93
6092	IP501	5.2		0.17	7.5		0.64	-----		-----
6114	IP501	5.4		0.41	7.2		0.47	12.6		0.48
6195	IP501	5.2		0.17	6.9		0.30	12.1		0.22
6201	IP501	5		-0.07	8		0.94	13		0.69
6204	IP501	6.0		1.12	5.0		-0.81	11.0		-0.36
6262	IP501	4.03		-1.23	5.58		-0.47	9.61		-1.09
6298	IP501	4.46		-0.72	5.00		-0.81	9.46		-1.17
6340	IP501	5		-0.07	5		-0.81	10		-0.88
6359		2.7		-2.83	10.9		2.62	-----		-----
	normality	suspect			suspect			OK		
	n	75			69			62		
	outliers	1			0			2		
	mean (n)	5.06			6.39			11.69		
	st.dev. (n)	1.058			1.877			2.082		
	R(calc.)	2.96			5.26			5.83		
	st.dev.(IP470:05)	0.835			1.718			1.910		
	R(IP470:05)	2.34			4.81			5.35		
compare										
	R(IP501:05)	1.71			2.12			2.72		

Lab 150 first reported respectively 8, 15
Lab 230 first reported respectively 0, 0, 0
Lab 356 first reported respectively 12, 11, 23

Lab 6080: possibly calculation difference. Iis calculated 9

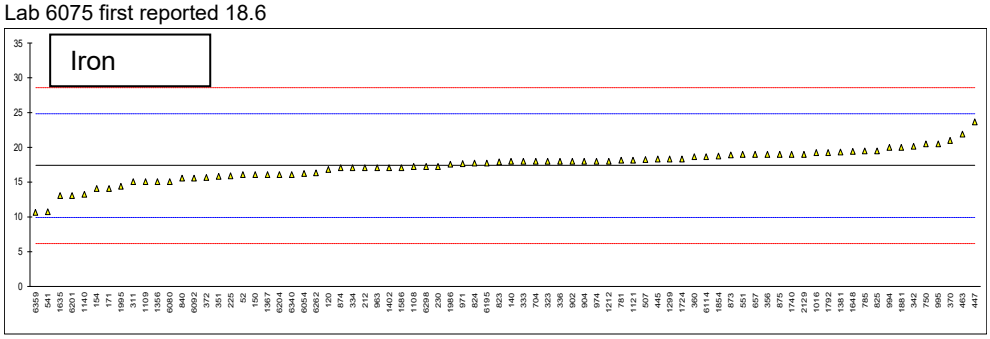


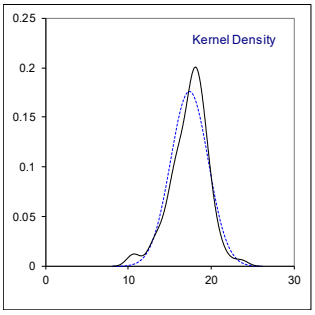
Determination of Iron as Fe, Nickel as Ni, Sodium as Na on sample #20251; results in mg/kg

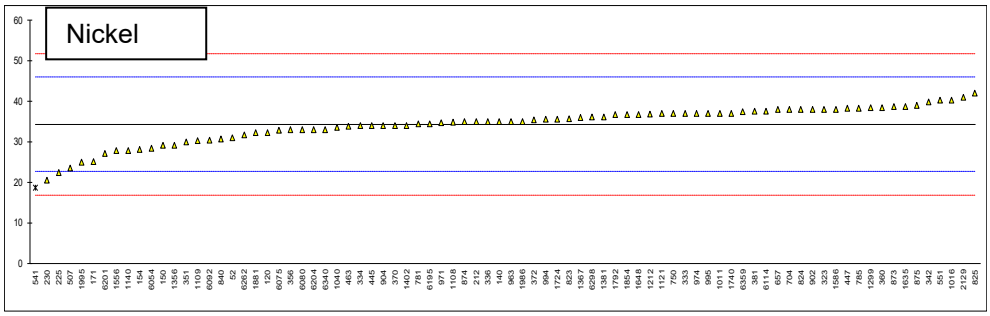
lab	method	Fe	mark	z(targ)	Ni	mark	z(targ)	Na	mark	z(targ)
52	IP501	16		-0.37	31		-0.57	11		-0.27
120	IP501	16.755		-0.17	32.225		-0.36	11.815		0.14
140	IP501	18		0.16	35		0.11	17		2.71
150	IP501	16		-0.37	29		-0.92	11		-0.27
154	IP501	14		-0.91	28		-1.09	13		0.73
159		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171	IP501	14		-0.91	25		-1.60	29	R(0.01)	8.65
175		-----		-----	-----		-----	-----		-----
212	IP470	17		-0.10	35		0.11	14		1.22
225	IP501	15.87		-0.41	22.34		-2.06	9.09		-1.21
230	IP470	17.2295		-0.04	20.4782		-2.38	16.8932		2.65
237		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311	IP501	15		-0.64	-----		-----	10		-0.76
323	IP501	18		0.16	38		0.63	12		0.23
333	IP501	18		0.16	37		0.46	11		-0.27
334	IP501	17		-0.10	34		-0.06	5		-3.24
336	IP501	18		0.16	35		0.11	13		0.73
342	IP501	20.1551		0.74	39.7945		0.94	10.2702		-0.63
351	IP501	15.78		-0.43	29.91		-0.76	11.82		0.14
356	IP501	19		0.43	33		-0.23	16		2.21
360	IP501	18.6		0.32	38.4		0.70	11.6		0.03
370	IP470	21		0.97	34		-0.06	12		0.23
372	IP470	15.6		-0.48	35.4		0.18	11.1		-0.22
381		-----		-----	37.5		0.54	-----		-----
445	IP501	18.3		0.24	34.0		-0.06	16.4		2.41
447	IP501	23.65		1.67	38.16		0.66	12.01		0.24
463	IP470	21.9		1.21	33.8		-0.09	12.0		0.23
495		-----		-----	-----		-----	-----		-----
507	IP501	18.2		0.22	23.5		-1.86	11.9		0.18
541	IP501	10.7		-1.79	18.6	R(0.05)	-2.70	9.0		-1.26
551	IP501	18.977		0.43	40.300		1.02	13.718		1.08
631		-----		-----	-----		-----	-----		-----
657	IP501	19		0.43	38		0.63	13		0.73
704	IP470	18		0.16	38		0.63	12		0.23
750	IP501	20.48		0.83	36.99		0.46	12.33		0.39
781	IP501	18.1		0.19	34.3		-0.01	10.7		-0.41
785	IP470	19.49		0.56	38.28		0.68	13		0.73
798		-----		-----	-----		-----	-----		-----
823	IP501	17.9		0.14	35.7		0.23	12.8		0.63
824	IP501	17.7		0.08	38.0		0.63	12.4		0.43
825	IP501	19.5		0.56	42		1.32	10		-0.76
840	IP501	15.5		-0.50	30.6		-0.64	10.4		-0.56
872		-----		-----	-----		-----	-----		-----
873	IP470	18.9		0.40	38.7		0.75	12.0		0.23
874	IP501	17		-0.10	35		0.11	11		-0.27
875	IP501	19		0.43	39		0.80	12		0.23
902	IP501	18		0.16	38		0.63	10		-0.76
904	IP501	18		0.16	34		-0.06	10		-0.76
913		-----		-----	-----		-----	-----		-----
963	IP501	17		-0.10	35		0.11	15		1.72
971	IP501	17.6		0.06	34.7		0.06	11.8		0.13
974	IP501	18		0.16	37		0.46	12		0.23
994	IP501	20		0.70	35.5		0.20	10.0		-0.76
995	IP470	20.5		0.83	37		0.46	12.1		0.28
1011		-----		-----	37		0.46	9.4		-1.06
1016	In house	19.2		0.48	40.3		1.02	10.677		-0.43
1040		-----		-----	33.53		-0.14	-----		-----
1108	IP470	17.2		-0.05	34.8		0.08	8.8		-1.36
1109	IP470	15.0		-0.64	30.2		-0.71	11.2		-0.17
1121	IP501	18.1		0.19	36.9		0.44	11.1		-0.22
1126		-----		-----	-----		-----	-----		-----
1134		-----		-----	-----		-----	-----		-----
1140	IP501	13.19		-1.12	27.82		-1.12	10.80		-0.36
1212	IP501	18.0		0.16	36.8		0.42	12.4		0.43
1213		-----		-----	-----		-----	-----		-----
1299	IP501	18.3		0.24	38.3		0.68	11.4		-0.07
1356	IP501	15		-0.64	29		-0.92	11		-0.27
1367	IP501	16		-0.37	36		0.29	15		1.72
1381	D5863-A	19.28		0.51	36.15		0.31	-----		-----
1402	IP501	17		-0.10	34		-0.06	11		-0.27
1556		-----		-----	27.8		-1.12	12.9		0.68

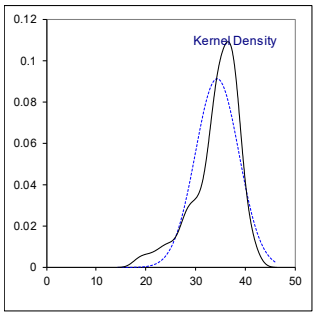
lab	method	Fe	mark	z(targ)	Ni	mark	z(targ)	Na	mark	z(targ)
1586	IP470	17		-0.10	38		0.63	11		-0.27
1635	D5185	13.0		-1.17	38.7		0.75	5.94		-2.77
1648	IP501	19.39		0.54	36.68		0.40	11.40		-0.07
1720		-----		-----	-----		-----	-----		-----
1724	IP501	18.30		0.24	35.53		0.21	11.63		0.05
1740	IP501	19		0.43	37		0.46	11		-0.27
1792	IP501	19.2		0.48	36.6		0.39	12.6		0.53
1796		-----		-----	-----		-----	-----		-----
1854	IP501	18.7		0.35	36.6		0.39	11.1		-0.22
1857		-----		-----	-----		-----	-----		-----
1881	IP470	20.0		0.70	32.2		-0.37	9.5		-1.01
1949		-----		-----	-----		-----	-----		-----
1986	IP470	17.5		0.03	35		0.11	10.5		-0.51
1995	IP501	14.36		-0.81	24.89		-1.62	14.54		1.49
2129	IP470	19.0		0.43	41		1.14	12		0.23
6054	IP501	16.2120		-0.31	28.3576		-1.03	9.91313		-0.80
6075		-----		-----	32.8		-0.26	8.63	C	-1.44
6080	IP501	15.0		-0.64	33.0		-0.23	8.0		-1.75
6092	IP501	15.5		-0.50	30.3		-0.69	13.8		1.12
6114	IP501	18.6		0.32	37.5		0.54	11.8		0.13
6195	IP501	17.7		0.08	34.4		0.01	9.4		-1.06
6201	IP501	13		-1.17	27		-1.26	11		-0.27
6204	IP501	16.0		-0.37	33.0		-0.23	11.0		-0.27
6262	IP501	16.31		-0.29	31.68		-0.46	9.91		-0.81
6298	IP501	17.22		-0.04	36.14		0.31	14.50		1.47
6340	IP501	16		-0.37	33		-0.23	11		-0.27
6359		10.6		-1.82	37.3		0.51	10.3		-0.61
	normality	suspect			suspect			suspect		
	n	78			81			79		
	outliers	0			1			1		
	mean (n)	17.39			34.33			11.54		
	st.dev. (n)	2.272			4.375			2.071		
	R(calc.)	6.36			12.25			5.80		
	st.dev.(IP470:05)	3.739			5.826			2.018		
	R(IP470:05)	10.47			16.31			5.65		
compare										
	R(IP501:05)	4.51			11.76			4.09		

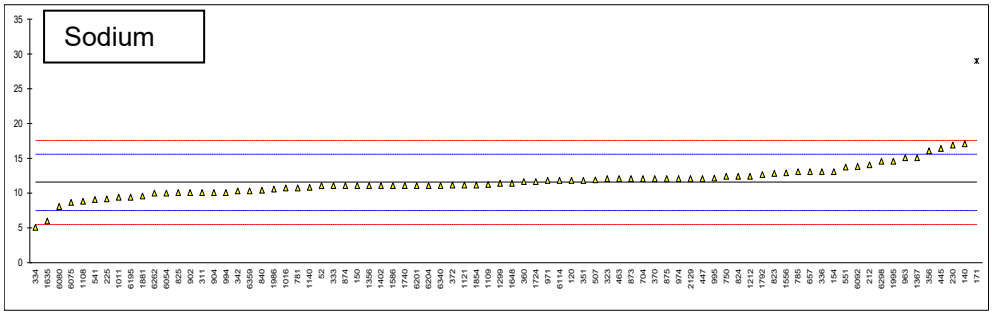
Lab 6075 first reported 18.6

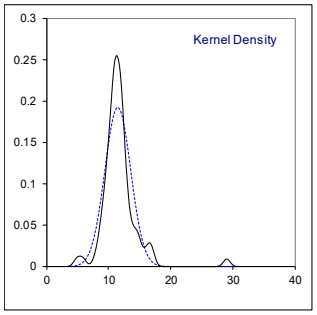










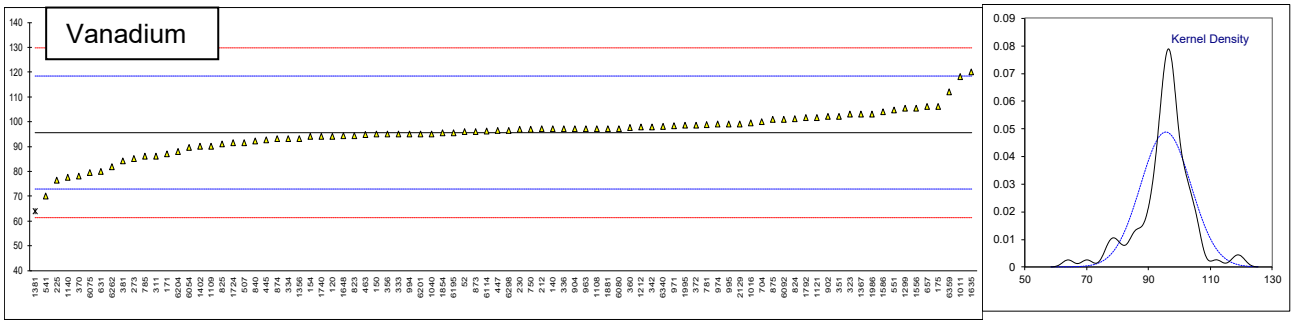


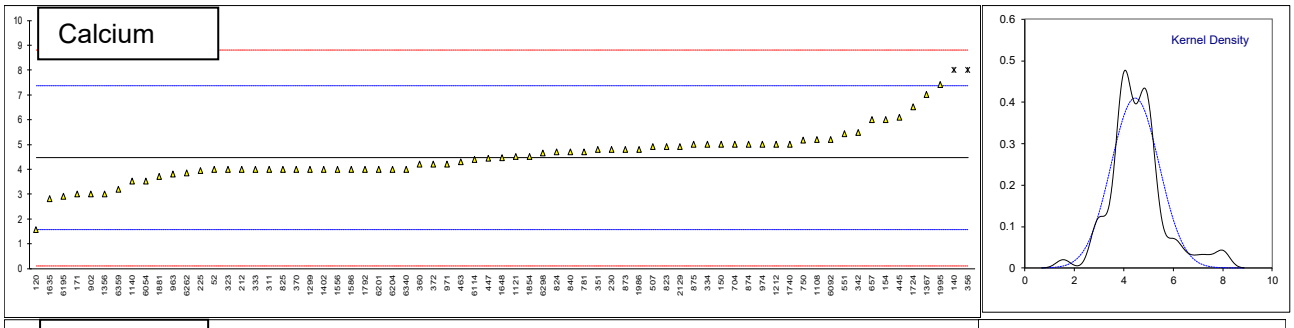
Determination of Vanadium as V, Calcium as Ca and Zinc as Zn on sample #20251; results in mg/kg

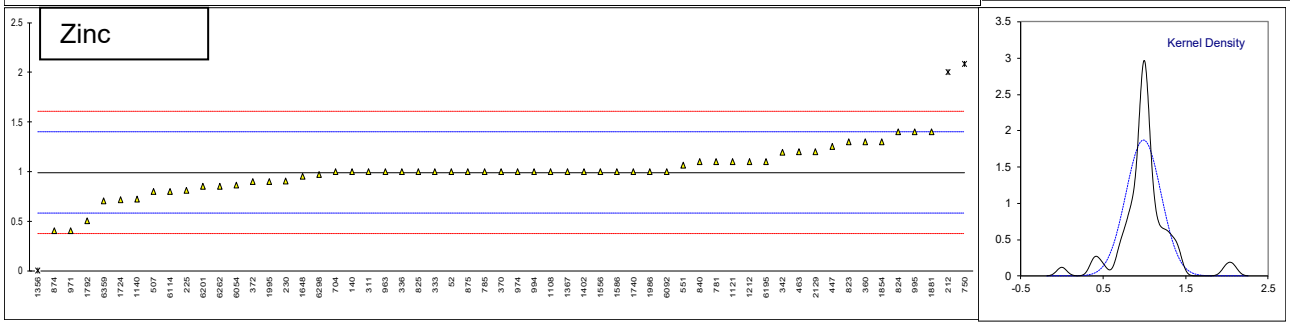
lab	method	V	mark	z(targ)	Ca	mark	z(targ)	Zn	mark	z(targ)
52	IP501	96		0.03	4		-0.32	1		0.04
120	IP501	94.13		-0.13	1.566		-2.00	<1		-----
140	IP501	97		0.12	8	R(0.05)	2.44	1		0.04
150	IP501	95		-0.05	5		0.37	<1		-----
154	IP501	94		-0.14	6		1.06	<1		-----
159		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171	IP501	87		-0.76	3		-1.01	<1		-----
175	D5863-B	106		0.91	-----		-----	-----		-----
212	IP470	97		0.12	4		-0.32	2	R(0.01)	4.90
225	IP501	76.36		-1.69	3.94		-0.36	0.81		-0.88
230	IP470	96.7862		0.10	4.7931		0.23	0.9007		-0.44
237		-----		-----	-----		-----	-----		-----
273	IP501	85		-0.93	-----		-----	-----		-----
311	IP501	86		-0.84	4		-0.32	1		0.04
323	IP501	103		0.65	4		-0.32	<1		-----
333	IP501	95		-0.05	4		-0.32	1		0.04
334	IP501	93		-0.23	5		0.37	<1		-----
336	IP501	97		0.12	-----		-----	1		0.04
342	IP501	97.8619		0.20	5.4779		0.70	1.1909		0.97
351	IP501	102.08		0.57	4.79		0.22	<1		-----
356	IP501	95		-0.05	8	R(0.05)	2.44	<1	C	-----
360	IP501	97.6		0.18	4.2		-0.18	1.3		1.50
370	IP470	78		-1.55	4		-0.32	1		0.04
372	IP470	98.6		0.26	4.2		-0.18	0.9		-0.44
381	IP501	84.1		-1.01	-----		-----	-----		-----
445	IP501	92.6		-0.26	6.1		1.13	<1		-----
447	IP501	96.48		0.08	4.43		-0.02	1.25		1.26
463	IP470	94.7		-0.08	4.3		-0.11	1.2		1.01
495		-----		-----	-----		-----	-----		-----
507	IP501	91.5		-0.36	4.9		0.30	0.8		-0.93
541	IP501	70.1		-2.24	<3		-----	<1		-----
551	IP501	104.635		0.79	5.418		0.66	1.060		0.33
631	D5863-A	80.001		-1.37	-----		-----	-----		-----
657	IP501	106		0.91	6		1.06	<1		-----
704	IP470	100		0.39	5		0.37	1		0.04
750	IP501	96.97		0.12	5.16		0.48	2.08	R(0.01)	5.29
781	IP501	98.7		0.27	4.7		0.16	1.1		0.53
785	IP470	86		-0.84	-----		-----	1		0.04
798		-----		-----	-----		-----	-----		-----
823	IP501	94.3		-0.11	4.9		0.30	1.3		1.50
824	IP501	101.1		0.48	4.7		0.16	1.4		1.99
825	IP501	91		-0.40	4		-0.32	1		0.04
840	IP501	92.2		-0.30	4.7		0.16	1.1		0.53
872		-----		-----	-----		-----	-----		-----
873	IP470	96.0		0.03	4.8		0.23	-----		-----
874	IP501	93		-0.23	5		0.37	0.4		-2.87
875	IP501	101		0.47	5		0.37	1		0.04
902	IP501	102		0.56	3		-1.01	<1		-----
904	IP501	97		0.12	-----		-----	<1		-----
913		-----		-----	-----		-----	-----		-----
963	IP501	97		0.12	3.8		-0.46	1		0.04
971	IP501	98.2		0.23	4.2		-0.18	0.4		-2.87
974	IP501	99		0.30	5		0.37	1		0.04
994	IP501	95		-0.05	-----		-----	1		0.04
995	IP470	99		0.30	-----		-----	1.4		1.99
1011	D5863-B	118		1.97	-----		-----	-----		-----
1016	In house	99.5		0.34	-----		-----	-----		-----
1040	IP501	95.01		-0.05	-----		-----	-----		-----
1108	D5863-B	97.0		0.12	5.2		0.51	1.0		0.04
1109	IP470	90.1		-0.48	-----		-----	-----		-----
1121	IP501	101.6		0.53	4.5		0.02	1.1		0.53
1126		-----		-----	-----		-----	-----		-----
1134		-----		-----	-----		-----	-----		-----
1140	IP501	77.65		-1.58	3.509		-0.66	0.723		-1.30
1212	IP501	97.8		0.19	5.0		0.37	1.1		0.53
1213		-----		-----	-----		-----	-----		-----
1299	IP501	105.4		0.86	4.0		-0.32	<1.0		-----
1356	IP501	93		-0.23	3		-1.01	0	R(0.01)	-4.82
1367	IP501	103		0.65	7		1.75	1		0.04
1381	D5863-A	63.97	R(0.05)	-2.78	-----		-----	-----		-----
1402	IP501	90		-0.49	4		-0.32	1		0.04
1556	IP501	105.4		0.86	4.0		-0.32	1.0		0.04
1586	IP470	104		0.74	4		-0.32	1		0.04

lab	method	V	mark	z(targ)	Ca	mark	z(targ)	Zn	mark	z(targ)
1635	D5185	120		2.14	2.82		-1.13	<1		-----
1648	IP501	94.17		-0.13	4.45		-0.01	0.95		-0.20
1720		-----		-----	-----		-----	-----		-----
1724	IP501	91.43		-0.37	6.505		1.41	0.717		-1.33
1740	IP501	94		-0.14	5		0.37	1		0.04
1792	IP501	101.5		0.52	4.0		-0.32	0.5		-2.39
1796		-----		-----	-----		-----	-----		-----
1854	IP501	95.4		-0.02	4.5		0.02	1.3		1.50
1857		-----		-----	-----		-----	-----		-----
1881	IP470	97.0		0.12	3.7		-0.53	1.4		1.99
1949		-----		-----	-----		-----	-----		-----
1986	IP470	103		0.65	4.8		0.23	1		0.04
1995	IP501	98.45		0.25	7.42		2.04	0.9		-0.44
2129	IP470	99		0.30	4.9		0.30	1.2		1.01
6054	IP501	89.5393		-0.53	3.52161		-0.65	0.861337		-0.63
6075	D5863-B	79.5		-1.41	-----		-----	-----		-----
6080	IP501	97.0		0.12	<3		-----	<1		-----
6092	IP501	101		0.47	5.2		0.51	1.0		0.04
6114	IP501	96.2		0.05	4.4		-0.04	0.8		-0.93
6195	IP501	95.4		-0.02	2.9		-1.08	1.1		0.53
6201	IP501	95		-0.05	4		-0.32	0.85		-0.69
6204	IP501	88.0		-0.67	4.0		-0.32	<1.0		-----
6262	IP501	81.81		-1.21	3.85		-0.42	0.85		-0.69
6298	IP501	96.48		0.08	4.66		0.14	0.97		-0.10
6340	IP501	98		0.21	4		-0.32	<1		-----
6359		112.0		1.44	3.2		-0.87	0.7		-1.42
	normality	suspect			suspect			suspect		
	n	85			67			54		
	outliers	1			2			3		
	mean (n)	95.60			4.46			0.99		
	st.dev. (n)	8.159			0.971			0.213		
	R(calc.)	22.84			2.72			0.60		
	st.dev.(IP470:05)	11.384			1.449			0.206		
	R(IP470:05)	31.88			4.06			0.58		
compare										
	R(IP501:05)	25.92			1.70			0.51		

Lab 356 first reported 5



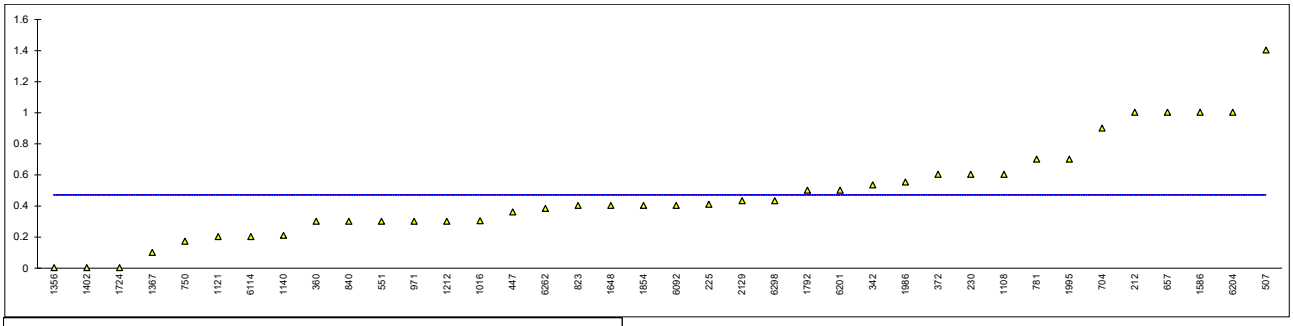


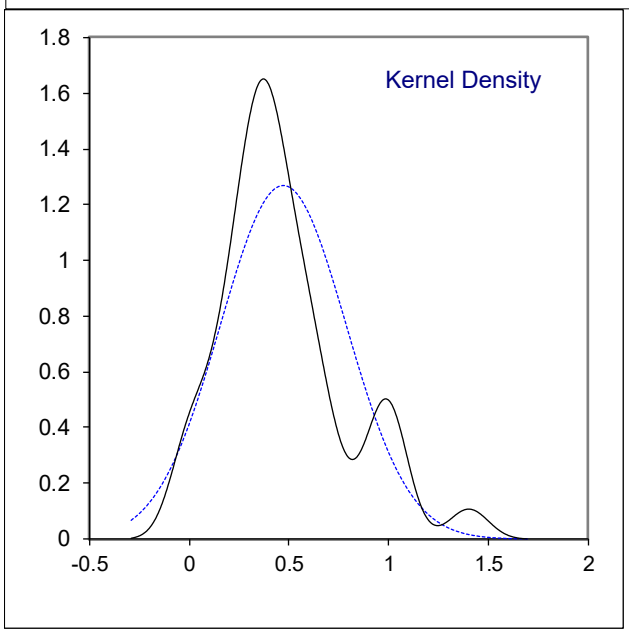


Determination of Phosphorus as P on sample #20251; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	<1		-----	
120	IP501	<1		-----	
140	IP501	<1		-----	
150	IP501	<1		-----	
154	IP501	<1		-----	
159		-----		-----	
169		-----		-----	
170		-----		-----	
171	IP501	<1		-----	
175		-----		-----	
212	IP500	1		-----	
225	IP501	0.41		-----	
230	IP501	0.6		-----	
237		-----		-----	
273		-----		-----	
311	IP501	<1		-----	
323	IP501	<1		-----	
333	IP501	<1		-----	
334	IP501	<1		-----	
336	IP501	<1		-----	
342	IP501	0.5345		-----	
351	IP501	<1		-----	
356	IP501	<1	C	-----	first reported 4
360	IP501	0.3		-----	
370		-----		-----	
372	IP500	0.6		-----	
381		-----		-----	
445	IP501	<1		-----	
447	IP501	0.36		-----	
463		-----		-----	
495		-----		-----	
507	IP501	1.4		-----	
541	IP501	<1		-----	
551	IP501	0.300		-----	
631		-----		-----	
657	IP501	1		-----	
704	IP500	0.9		-----	
750	IP501	0.17		-----	
781	IP501	0.7		-----	
785		-----		-----	
798		-----		-----	
823	IP501	0.4		-----	
824	IP501	<1		-----	
825	IP501	<1		-----	
840	IP501	0.3		-----	
872		-----		-----	
873		-----		-----	
874		-----		-----	
875		-----		-----	
902	IP501	<1		-----	
904		-----		-----	
913		-----		-----	
963	IP501	<1		-----	
971	IP501	0.3		-----	
974	IP501	<1		-----	
994	IP501	<1		-----	
995		-----		-----	
1011		-----		-----	
1016	NEN6966	0.304		-----	
1040		-----		-----	
1108	IP501	0.6		-----	
1109		-----		-----	
1121	IP501	0.2		-----	
1126		-----		-----	
1134		-----		-----	
1140	IP501	0.209		-----	
1212	IP501	0.3		-----	
1213		-----		-----	
1299		-----		-----	
1356	IP501	0		-----	
1367	IP501	0.1		-----	
1381		-----		-----	
1402	IP501	0		-----	
1556		-----		-----	
1586	IP501	1		-----	

lab	method	value	mark	z(targ)	remarks
1635	D5185	<1		-----	
1648	IP501	0.40		-----	
1720		-----		-----	
1724	IP501	0.00		-----	
1740	IP501	<1		-----	
1792	IP501	0.5		-----	
1796		-----		-----	
1854	IP501	0.4		-----	
1857		-----		-----	
1881		-----		-----	
1949		-----		-----	
1986	IP500	0.55		-----	
1995	IP501	0.7		-----	
2129	IP500	0.43		-----	
6054		-----		-----	
6075		-----		-----	
6080	IP501	<1		-----	
6092	IP501	0.4		-----	
6114	IP501	0.2		-----	
6195	IP501	<1		-----	
6201	IP501	0.5		-----	
6204	IP501	1.0		-----	
6262	IP501	0.38		-----	
6298	IP501	0.43		-----	
6340	IP501	<1		-----	
6359		-----		-----	
	n	63			
	mean (n)	<1			

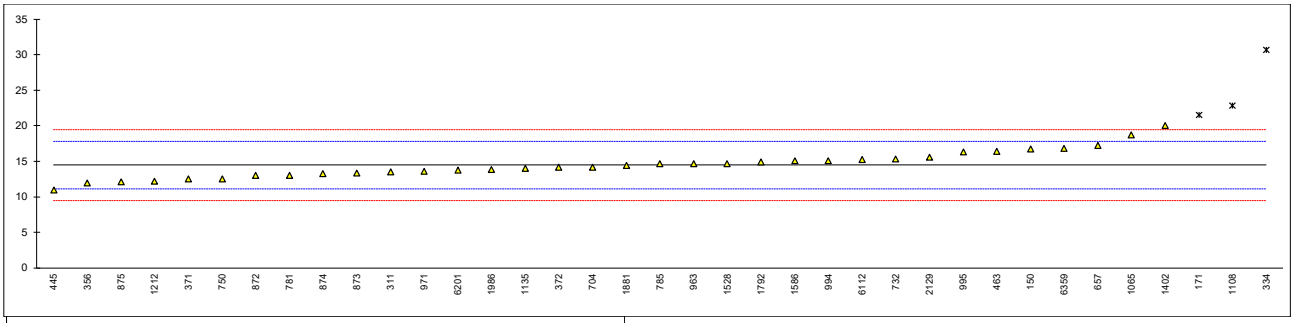


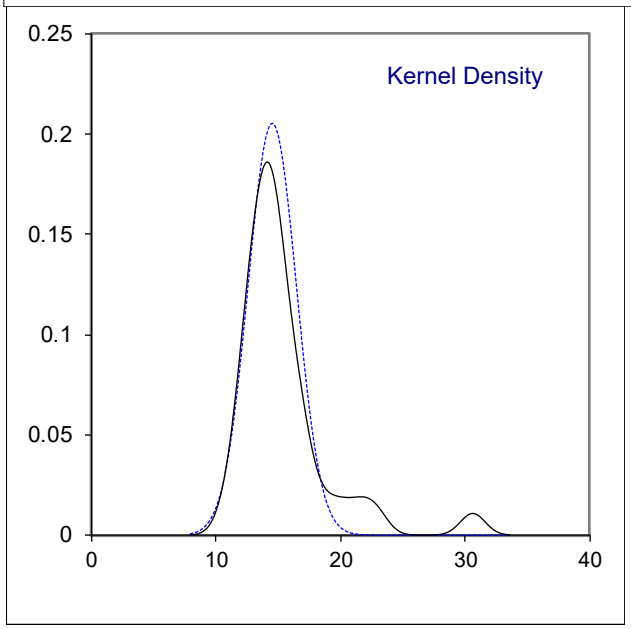


Determination of Bromine Number on distillate <360°C AET on sample #20252; results in g Br_2/100g

lab	method	value	mark	z(targ)	remarks
120	D1159	<1.0		<-8.07	Possibly false negative test result
140		-----		-----	
150	D1159	16.7		1.33	
170		-----		-----	
171	D1159	21.5	R(0.05)	4.20	
311	D1159	13.5		-0.59	
323		-----		-----	
334	D1159	30.6	R(0.01)	9.65	
356	D1159	11.9		-1.55	
371	D1159	12.48		-1.20	
372	D1159	14.1		-0.23	
445	D1159	10.9		-2.15	
463	D1159	16.39		1.14	
551		-----		-----	
657	D1159	17.2		1.63	
704	D1159	14.1		-0.23	
732	D1159	15.32		0.50	
750	D1159	12.5		-1.19	
752		-----		-----	
781	D1159	13.0		-0.89	
785	D1159	14.6		0.07	
798		-----		-----	
823		-----		-----	
872	D1159	13.0		-0.89	
873	D1159	13.3		-0.71	
874	D1159	13.2		-0.77	
875	D1159	12.1		-1.43	
963	D1159	14.60	C	0.07	First reported 23.42
971	D1159	13.53		-0.57	
994	D1159	15.02		0.32	
995	D1159	16.25		1.06	
1011		-----		-----	
1026		-----		-----	
1065	D1159	18.63		2.48	
1108	D1159	22.8	R(0.05)	4.98	
1134		-----		-----	
1135	D1159	14.0		-0.29	
1212	D1159	12.16		-1.39	
1299		-----		-----	
1320		-----		-----	
1402	D1159	20		3.30	
1528	D1159	14.63		0.09	
1585		-----		-----	
1586	D1159	15.0		0.31	
1792	D1159	14.888		0.24	
1857		-----		-----	
1862		-----		-----	
1881	D1159	14.39		-0.06	
1949		-----		-----	
1950		-----		-----	
1986	D1159	13.8		-0.41	
2129	D1159	15.5		0.61	
6112	D1159	15.2		0.43	
6201	D1159	13.71		-0.46	
6262		-----		-----	
6359	D1159	16.8		1.39	

normality	OK
n	34
outliers	3
mean (n)	14.482
st.dev. (n)	1.9425
R(calc.)	5.439
st.dev.(D1159:07)	1.6699
R(D1159:07)	4.676

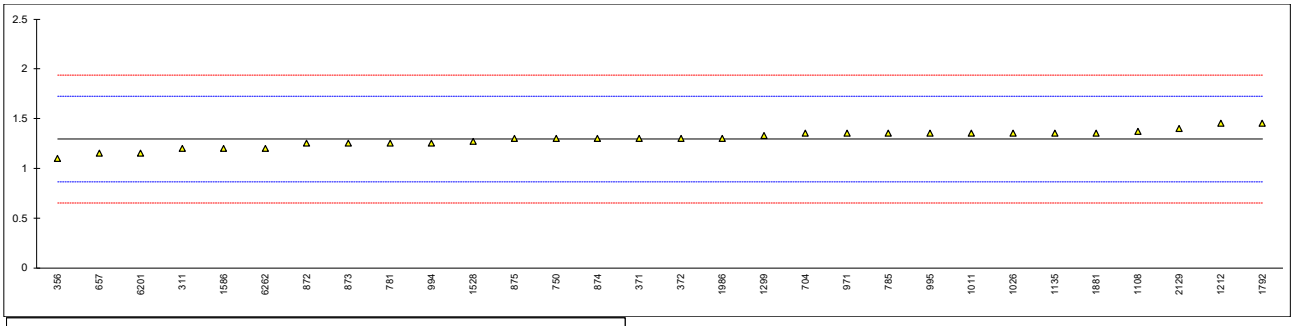

35
30
25
20
15
10
5
0
445
356
875
1212
371
750
872
781
874
873
311
971
6201
1986
1135
372
704
1881
785
963
1528
1792
1586
994
6112
732
2129
995
463
150
6359
657
1065
1402
171
1108
334

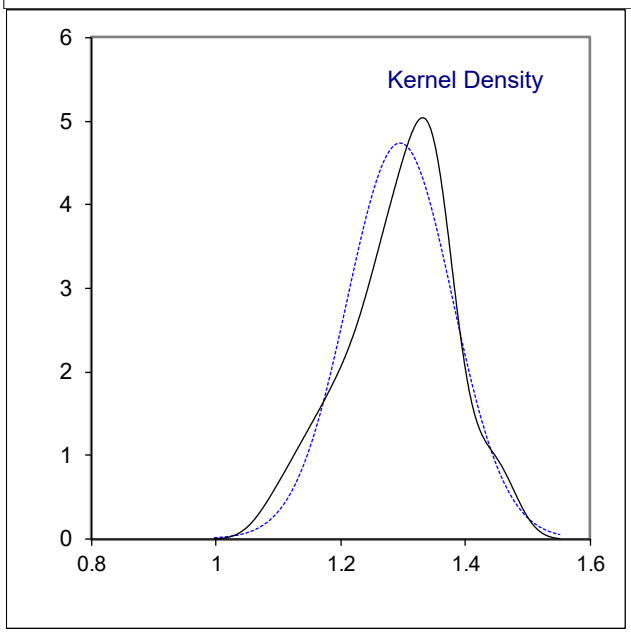

Kernel Density
0.25
0.2
0.15
0.1
0.05
0
0
10
20
30
40

Determination of P-Value on sample #20252

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
170		-----		-----	
171		-----		-----	
311	SMS1600	1.20		-0.45	
323		-----		-----	
334		-----		-----	
356	SMS1600	1.10		-0.91	
371	SMS1600	1.30		0.02	
372	SMS1600	1.30		0.02	
445		-----		-----	
463		-----		-----	
551		-----		-----	
657	SMS1600	1.15		-0.68	
704	SMS1600	1.35		0.25	
732		-----		-----	
750	SMS1600	1.30		0.02	
752		-----		-----	
781	SMS1600	1.25		-0.21	
785	SMS1600	1.35		0.25	
798		-----		-----	
823		-----		-----	
872	SMS1600	1.25		-0.21	
873	SMS1600	1.25		-0.21	
874	SMS1600	1.30		0.02	
875	SMS1600	1.30		0.02	
963		-----		-----	
971	SMS1600	1.35		0.25	
994	SMS1600	1.25		-0.21	
995	SMS1600	1.35		0.25	
1011	SMS1600	1.35		0.25	
1026	D7060	1.35		0.25	
1065		-----		-----	
1108	SMS1600	1.37		0.35	
1134		-----		-----	
1135	SMS1600	1.35		0.25	
1212	SMS1600	1.45		0.72	
1299	SMS1600	1.33		0.16	
1320		-----		-----	
1402		-----		-----	
1528	D7112	1.27	C	-0.12	First reported 2.07
1585		-----		-----	
1586	SMS1600	1.2		-0.45	
1792	SMS1600	1.45		0.72	
1857		-----		-----	
1862		-----		-----	
1881	SMS1600	1.35		0.25	
1949		-----		-----	
1950		-----		-----	
1986	SMS1600	1.30		0.02	
2129	SMS1600	1.40		0.49	
6112		-----		-----	
6201	SMS1600	1.15		-0.68	
6262	SMS1600	1.20		-0.45	
6359		-----		-----	

normality	OK
n	30
outliers	0
mean (n)	1.296
st.dev. (n)	0.0843
R(calc.)	0.236
st.dev.(SMS1600)	0.2143
R(SMS1600)	0.6

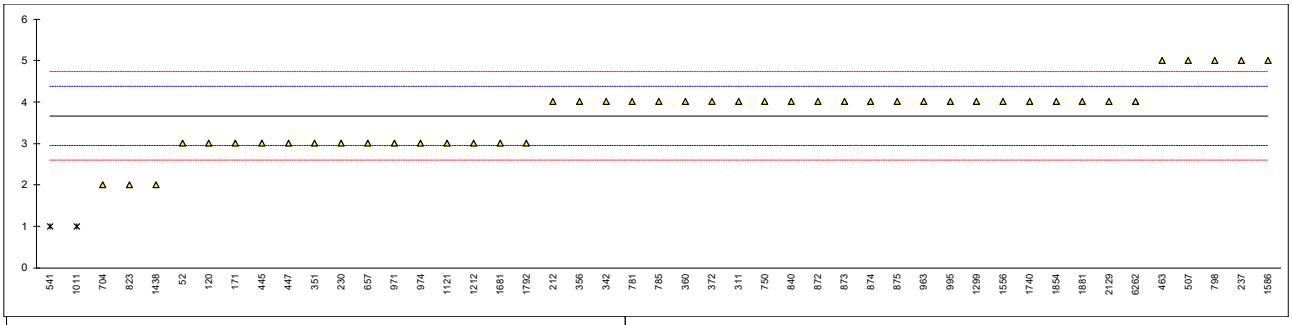

2.5
2
1.5
1
0.5
0
356
657
6201
311
1586
6262
872
873
781
994
1528
875
750
874
371
372
1986
1299
704
971
785
995
1011
1026
1135
1881
1108
2129
1212
1792

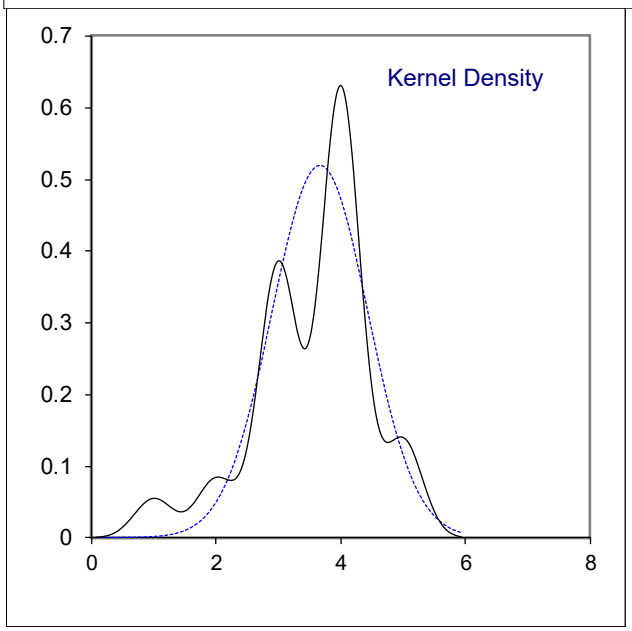

Kernel Density
6
5
4
3
2
1
0
0.8
1
1.2
1.4
1.6

Determination of Compatibility rating on sample #20253;

lab	method	value	mark	z(targ)		Ratio/remarks
52	D4740 Manual	3		-1.87	Original card	A+B=25g+30g
120	D4740 Manual	3		-1.87	---	
140		-----		-----	---	
154		-----		-----	---	
170		-----		-----	---	
171	D4740 Manual	3		-1.87	---	
212	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	
225		-----		-----	---	
228		-----		-----	---	
230	D4740 Manual	3		-1.87	Acc. to Reference Spot Description (Table 1)	
237	D4740 Manual	5		3.73	Copy of the original card	
311	D4740 Manual	4		0.93	---	A+B=12.5g+17.5g
323		-----		-----	---	
342	D4740 Manual	4		0.93	Copy of the original card	A+B=20.71+29.00g
351	D4740 Manual	3		-1.87	Original card	
356	D4740 Manual	4		0.93	Original card	A+B=24.90+34.90g
360	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	
372	D4740 Manual	4		0.93	Original card	
445	D4740 Manual	3		-1.87	Acc. to Reference Spot Description (Table 1)	
447	D4740 Manual	3		-1.87	---	
463	D4740 Manual	5		3.73	Acc. to Reference Spot Description (Table 1)	A+B=25+27g
507	D4740 Manual	5		3.73	Original card	
541	D4740 Manual	1	DG(0.05)	-7.47	Original card	
551		-----		-----	Acc. to Reference Spot Description (Table 1)	
657	D4740 Manual	3		-1.87	Original card	
704	D4740 Manual	2		-4.67	Acc. to Reference Spot Description (Table 1)	A+B=25+35g
750	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	
752		-----		-----	---	
781	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	A+B=20+28g
785	D4740 Manual	4		0.93	Copy of the original card	A+B=20+28g
798	D4740 Manual	5		3.73	---	
823	D4740 Manual	2		-4.67	Original card	
840	D4740 Manual	4		0.93	Copy of the original card	
872	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	
873	D4740 Manual	4		0.93	---	
874	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	
875	D4740 Manual	4		0.93	---	
963	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	
971	D4740 Manual	3		-1.87	---	
974	D4740 Manual	3		-1.87	Original card	
995	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	A+B=25+28g
1011	D4740 Manual	1	DG(0.05)	-7.47	Acc. to Reference Spot Description (Table 1)	
1065		-----		-----	---	
1121	D4740 Manual	3		-1.87	Original card	A+B=25+30.5g
1134		-----		-----	---	
1212	D4740 Manual	3		-1.87	Acc. to Reference Spot Description (Table 1)	
1299	D4740 Manual	4		0.93	---	
1438	D4740 Automated	2		-4.67	---	A+B=25+30.2g
1556	D4740 Manual	4		0.93	Copy of the original card	
1585		-----		-----	---	
1586	D4740 Manual	5		3.73	Acc. to Reference Spot Description (Table 1)	
1681	D4740 Manual	3		-1.87	Acc. to Reference Spot Description (Table 1)	A+B=20+28g
1740	D4740 Manual	4		0.93	Acc. to Reference Spot Description (Table 1)	A+B=20+28g
1792	D4740 Manual	3		-1.87	Acc. to Reference Spot Description (Table 1)	A+B=25+29g
1854	D4740 Manual	4		0.93	---	
1881	D4740 Manual	4		0.93	---	
2129	D4740 Manual	4		0.93	Copy of the original card	
6262	D4740 Manual	4	C	0.93	---	First reported 1

normality	OK
n	45
outliers	2
mean (n)	3.7
st.dev. (n)	0.77
R(calc.)	2.2
st.dev.(D4740-M:20)	0.36
R(D4740-M:20)	1


6
5
4
3
2
1
0
541 1011 704 823 1438 52 120 171 445 447 351 230 657 971 974 1121 1212 1681 1792 212 356 342 781 785 360 372 311 750 840 872 873 874 875 963 995 1299 1556 1740 1854 1881 2129 6262 463 507 798 237 1586


Kernel Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 2 4 6 8

APPENDIX 2 Analytical details of the determination: Total Acid Number

lab	End point determination	Volume solvent
52	Inflection Point	125 mL
120	Buffer End Point pH 10	125 mL
140	---	---
150	---	---
154	---	---
159	---	---
168	---	---
169	---	---
170	Inflection Point	60 mL
171	Inflection Point	60 mL
175	---	---
212	Inflection Point	125 mL
225	---	---
230	---	---
237	---	---
238	---	---
253	---	---
256	---	---
273	---	---
309	Buffer End Point pH 11	60 mL
311	---	---
313	---	---
323	Inflection Point	60 mL
336	---	---
333	Inflection Point	125 mL
334	Inflection Point	125 mL
339	---	---
342	Buffer End Point pH 11	125 mL
349	---	---
351	---	---
356	Inflection Point	125 mL
360	Inflection Point	60 mL
370	---	---
372	Inflection Point	60 mL
381	---	---
445	---	60 mL
447	Inflection Point	125 mL
463	Buffer End Point pH 11	125 mL
495	---	---
507	Inflection Point	60 mL
541	---	
551	---	---
558	---	---
575	---	---
610	---	---
621	---	---
631	---	---
633	Inflection Point	125 mL
634	---	---
657	Inflection Point	125 mL
704	Inflection Point	125 mL
732	---	---
752	Inflection Point	125 mL
753	---	---
778	---	---
781	Inflection Point	125 mL
785	---	---
798	---	---
823	Inflection Point	125 mL
824	Inflection Point	125 mL
825	---	---
840	Inflection Point	60 mL
872	Inflection Point	125 mL
873	Buffer End Point pH 10	125 mL
874	Buffer End Point pH 10	125 mL
875	---	---
887	---	---
902	Inflection Point	125 mL
904	Inflection Point	125 mL
913	---	---
914	---	---
962	---	---
963	Inflection Point	60 mL
971	---	---
974	Inflection Point	125 mL
994	Inflection Point	125 mL
995	Inflection Point	125 mL
996	---	---
997	---	---
1011	---	---
1016	---	---
1026	Buffer End Point pH 10	125 mL
1040	Inflection Point	60 mL
1065	---	---
1108	Inflection Point	125 mL
1109	Inflection Point	125 mL
1121	Inflection Point	125 mL
1126	---	---
1134	---	---
1140	Inflection Point	125 mL
1167	---	---
1205	---	---
1212	Buffer End Point pH 10	125 mL
1213	---	---
1277	---	---
1299	---	---
1320	---	---
1356	---	---
1367	---	---
1381	---	---
1397	---	---
1402	Buffer End Point pH 11	60 mL
1510	---	---
1556	Buffer End Point pH 10	125 mL
1585	---	---
1586	Inflection Point	125 mL
1631	---	---
1635	---	---
1648	Buffer End Point pH 10	60 mL
1650	---	---
1681	---	---
1720	---	---
1724	---	---
1740	Inflection Point	60 mL
1776	---	---
1792	Inflection Point	60 mL
1796	---	---
1854	Inflection Point	125 mL
1857	---	---
1881	Inflection Point	125 mL
1906	---	---
1949	---	---
1986	Inflection Point	60 mL
2129	Inflection Point	125 mL
6054	---	---
6075	---	---
6092	---	---
6112	---	---
6114	Inflection Point	125 mL
6201	Inflection Point	125 mL
6238	---	---
6262	---	---
6298	Inflection Point	125 mL
6340	Inflection Point	125 mL
6359	Inflection Point	60 mL

APPENDIX 3

Number of participants per country

1 lab in ARGENTINA
1 lab in AUSTRALIA
1 lab in AZERBAIJAN
4 labs in BELGIUM
2 labs in BRAZIL
1 lab in BULGARIA
1 lab in CANADA
1 lab in COLOMBIA
1 lab in CONGO-BRAZZAVILLE
2 labs in COTE D'IVOIRE
2 labs in CROATIA
1 lab in DENMARK
1 lab in DJIBOUTI
1 lab in EGYPT
2 labs in ESTONIA
4 labs in FRANCE
2 labs in GEORGIA
2 labs in GERMANY
6 labs in GREECE
2 labs in INDIA
1 lab in INDONESIA
2 labs in ISRAEL
1 lab in KAZAKHSTAN
1 lab in LATVIA
2 labs in LITHUANIA
1 lab in MACEDONIA
1 lab in MALAYSIA
2 labs in MALTA
1 lab in MARTINIQUE
1 lab in MAURITIUS
1 lab in MOROCCO
7 labs in NETHERLANDS
2 labs in NIGERIA
1 lab in PANAMA
3 labs in PHILIPPINES
1 lab in POLAND
3 labs in PORTUGAL
1 lab in ROMANIA
17 labs in RUSSIAN FEDERATION
2 labs in SAUDI ARABIA
1 lab in SERBIA
1 lab in SINGAPORE
1 lab in SLOVAKIA
1 lab in SOUTH AFRICA
3 labs in SOUTH KOREA
5 labs in SPAIN
1 lab in SUDAN
4 labs in SWEDEN
1 lab in TAIWAN
1 lab in TANZANIA
1 lab in TOGO
5 labs in TURKEY
1 lab in TURKMENISTAN
2 labs in UKRAINE
7 labs in UNITED ARAB EMIRATES
10 labs in UNITED KINGDOM
10 labs in UNITED STATES OF AMERICA
2 labs in VIETNAM
1 lab in ZAMBIA

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	= calculation difference between reported test result and result calculated by iis
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

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