Institute for
Interlaboratory Studies

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

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CONTENTS

1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Fuel Oil based on the latest version of ISO8217 and ASTM D396 twice per year. During the annual proficiency testing program 2022/2023 it was decided to continue the round robin for the analysis of Fuel Oil.

In this interlaboratory study registered for participation:
- 149 laboratories in 61 countries for regular analyzes in Fuel Oil iis22F03
- 106 laboratories in 46 countries on the Metal analyzes in Fuel Oil iis22F03M
- 54 laboratories in 24 countries on the Bromine and P-value analyzes in Fuel Oil iis22F03Br
- 73 laboratories in 35 countries on the Compatibility analyzes (assessment only) iis22F03C

In total 161 laboratories in 62 countries registered for participation in one or more proficiency tests, 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.

Sample ID	PT ID	Quantity	Purpose
#22255	iis22F03	1x 1 L	Regular analyzes
#22256	iis22F03M	1x 100 mL	Metals
#22257	iis22F03Br	1x 1 L	Bromine and P-value
#22258	iis22F03C	1x paper filter	Compatibility

Table 1: Fuel Oil samples used in PT iis22F03

Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT 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 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). This protocol is electronically available through the iis website 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 the regular analyzes in Fuel Oil a batch of approximately 200 liters Fuel Oil was obtained from a third party. After homogenization 165 amber glass bottles of 1 L were filled and labelled #22255.
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 #22255-1	958.8
sample #22255-2	958.7
sample #22255-3	958.8
sample #22255-4	958.8
sample #22255-5	958.8
sample #22255-6	958.8
sample #22255-7	958.8
sample #22255-8	958.8

Table 2: homogeneity test results of subsamples #22255

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)	0.1
reference test method	ISO12185:96
0.3 x R (reference test method)	0.5

Table 3: evaluation of the repeatability of subsamples #22255

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 analyzes of Metals in Fuel Oil a batch of approximately 15 liters of Fuel Oil which contains several metals was obtained from a third party. After homogenization 125 PE bottles of 100 mL were filled and labelled #22256.
The homogeneity of the subsamples was checked by determination of Nickel and Vanadium in accordance with IP501 on 8 stratified randomly selected subsamples.

	Nickel in mg/kg	Vanadium in mg/kg
sample #22256-1	17	37
sample #22256-2	18	40
sample #22256-3	19	41
sample #22256-4	18	39
sample #22256-5	18	41
sample #22256-6	19	40
sample #22256-7	17	37
sample #22256-8	17	38

Table 4: homogeneity test results of subsamples #22256

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

	Nickel in mg/kg	Vanadium in mg/kg
r (observed)	2	5
reference test method	IP470:05	IP470:05
0.3 x R (reference test method)	3	6

Table 5: evaluation of the repeatabilities of subsamples #22256

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

For the preparation of the sample for the analyzes of Bromine and P-value in Fuel Oil a batch of approximately 200 liters of Fuel Oil was obtained from a third party. After homogenization 75 amber glass bottles of 1 L were filled and labelled #22257.
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 #22257-1	987.2
sample #22257-2	987.1
sample #22257-3	987.0
sample #22257-4	987.2
sample #22257-5	987.2
sample #22257-6	987.1
sample #22257-7	987.1
sample #22257-8	987.2

Table 6: homogeneity test results of subsamples #22257

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)	0.2
reference test method	ISO12185:96
0.3 x R (reference test method)	0.5

Table 7: evaluation of the repeatability of subsamples #22257

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 analyzes in Fuel Oil two different batches of Fuel Oil, which were not compatible, were mixed according to ASTM D4740 and the mixture was applied to paper filters as per ASTM D4740. The paper filters with a spot were put in a tin box and labelled #22258.
The homogeneity was done visually. The homogeneity of the subsamples was assumed.

Depending on the registration of the participant the appropriate set of PT samples was sent on November 16, 2022. 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 sufficiently stable for the period of the proficiency test.

2.6 ANALYZES

The participants were requested to determine on sample #22255: Total Acid Number, API Gravity, Ash Content, Asphaltenes, Calculated Carbon Aromaticity Index, Carbon Residue micro method, Conradson Carbon Residue, Density at 15 °C, Flash Point PMcc, Heat of Combustion (Gross and Net), Hydrogen Sulfide, Kinematic Viscosity at 50 °C and 100 °C, Kinematic 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%, 10%, 20%, 30%, 40%, 50% recovered and FBP), Total Carbon, Total Hydrogen and Total Nitrogen (CHN Analysis). Also, some extra information was requested about the determination of Total Acid Number.
On sample #22256 it was requested to determine Aluminum as Al, Silicon as Si, Sum 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 #22257 it was requested to determine Bromine Number on distillate <360 °C, P-value SMS1600, P-ratio, FR_{max} and Po (D7060), P-value, Pa, Po, SE and $FR_{5/1}$ (D7112), Separability Number and Toluene dilution ratio (D7061).
On sample #22258 it was requested to determine the Compatibility rating. Also, some extra information was requested about the determination of Compatibility.

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 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. The Gauss curve is calculated from the consensus value and the corresponding standard deviation.

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 (derived from e.g. ISO or ASTM test methods), the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation in this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used, 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 test result tables in appendix 1.

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

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

4 EVALUATION

In this proficiency test some problems were encountered with the dispatch of the samples. Therefore, the reporting time on the data entry portal was extended with another two weeks.
For the regular Fuel Oil PT twenty-six participants reported test results after the extended reporting date and seven other participants did not report any test results.
For the PT on Metals in Fuel Oil twenty participants reported test results after the extended reporting date and eighteen other participants did not report any test results.
For the PT on Bromine and P-value in Fuel Oil fifteen participants reported test results after the extended reporting date and fourteen other participants did not report any test results.
For the PT on Compatibility in Fuel Oil seventeen participants reported test results after the extended reporting date and eight other participants did not report any test results.
Not all participants were able to report all tests requested.
In total 152 participants reported 3163 numerical test results. Observed were 85 outlying test results, which is 2.7%. In proficiency tests 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 in appendix 1. 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. D189) and an added designation for the year that the test method was adopted or revised (e.g. D189:06). When a method has been reapproved an “R” will be added and the year of approval (e.g. D189:06R19).

sample #22255

Total Acid Number: This determination was very problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the requirements of ASTM D664:18e2 procedure A. It was decided not to calculate z-scores due to the large variation in the reported test results. When evaluated separately for the type of end point used the calculated reproducibilities after rejection of the statistical outlier are still not in agreement with the corresponding requirements of ASTM D664:18e2 procedure A.

API Gravity: This determination was not problematic. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1298:12bR17e01.

Ash Content: This determination was very problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ISO6245:01 or ASTM D482:19.

Asphaltenes: This determination was very problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of IP143:04R21.

Calculated Carbon Aromaticity Index: This determination was not problematic. No statistical outliers were observed but five test results were excluded. The calculated reproducibility after rejection of the suspect data is in full agreement with the requirements of ISO8217:17.

Carbon Residue micro method: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ISO10370:14 but is not in agreement with the stricter requirements of ASTM D4530:15R20.

Conradson Carbon Residue: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ASTM D189:06R19.

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

Flash Point PMcc: This determination was not problematic. Four 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 not problematic. 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 not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D240:19.

Hydrogen Sulfide: This determination was not problematic. All reporting participants agreed on a test result of <0.60 mg/kg.

Kinematic Viscosity at 50 °C: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO3104:20.

Kinematic Viscosity at 100 °C: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility 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 D7042:21a.

Viscosity Stabinger at 100 °C: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D7042:21a.

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

Pour Point Lower: This determination was not problematic. One statistical outlier was observed and one other test result was 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 one other test result was 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 not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D5950:14R20.

Sediment by Extraction: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D473:22.

Total Sediment Existent (TSE): This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of IP375:11R22.

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 IP390:11R17.

Total Sediment Potential (TSP): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of IP390:11R17.

Total Sulfur: 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 ISO8754:03 and ASTM D4294:21.

Water by distillation: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ISO3733:99 and ASTM D95:13R18.

Water and Sediment: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D1796:22.

Vacuum Distillation at 10 mmHg but reported as AET: This determination may be problematic. In total seven statistical outliers were observed over eight distillation parameters. The calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D1160:18 for IBP, 20%, 30% and 40% recovered, but not for the other distillation parameters.

CHN Analysis: This determination was not problematic for Total Carbon and Total Hydrogen but was problematic for Total Nitrogen. In total four statistical outliers were observed.
The calculated reproducibilities for Total Carbon and Total Hydrogen after rejection of the statistical outliers are in agreement with the requirements of ASTM D5291-D:21. The calculated reproducibility for Nitrogen after rejection of the statistical outlier is not in agreement with the requirements of ASTM D5291-D:21.

sample #22256

Aluminum: 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 IP470:05 and IP501:05R19.

Silicon: This determination may be problematic depending on the test method used. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of IP470:05 but not in agreement with the stricter requirements of IP501:05R19.

Sum Aluminum and Silicon: This determination may be problematic depending on the test method used. No statistical outliers were observed but three test results were excluded. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of IP470:05 but not in agreement with the stricter requirements of IP501:05R19.

Iron: 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 IP470:05 and IP501:05R19.

Nickel: 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 IP501:05R19.

Sodium: 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 IP470:05 and IP501:05R19.

Vanadium: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP470:05 and IP501:05R19.

Calcium: This determination may be 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 IP501:05R19.

Phosphorus: 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 IP501:05R19 and IP500:03.

Zinc: This determination may be problematic depending on the test method used. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of IP470:05 but not in agreement with the stricter requirements of IP501:05R19.

Finally, it should be noted that proper attention for homogenization is crucial for a material such as Fuel Oil. It is very susceptible to problems when not handled correctly due to the nature of the material. 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 #22257

Bromine Number: 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 D1159:07R17.

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

P-ratio, FR_{max} and Po D7060: Remarkably, only three participants reported a test result. Therefore, no evaluation could be done due to the low number of reported test results.

P-value, Pa, Po, SE and $FR_{5/1}$ D7112: Remarkably, no test results were reported for these determinations.

Separability Number D7061: Remarkably, only two participants reported a test result. Therefore, no evaluation could be done due to the low number of reported test results.

Toluene dilution ratio D7061: Remarkably, only two participants reported a test result. Therefore, no evaluation could be done due to the low number of reported test results.

sample #22258

Compatibility rating: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D4740-M:20. When evaluated separately for type of reference for spot determination the calculated reproducibility after rejection of the statistical outlier of the group that used (copy of) original card reference is in full agreement with the requirements of ASTM D4740-M:20

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 reference methods are presented in the next table.

Parameter	unit	n	average	2.8 * sd	R(lit)
Total Acid Number	mg KOH/g	80	0.15	0.12	(0.03)
API Gravity		71	16.0	0.2	0.5
Ash Content	%M/M	99	0.025	0.013	0.005
Asphaltenes	%M/M	59	0.99	0.56	0.20
Calc. Carbon Aromaticity Index		69	821.4	2.1	2.2
Carbon Residue micro method	%M/M	82	8.02	0.91	0.98
Conradson Carbon Residue	%M/M	36	8.20	1.67	1.33
Density at 15 °C	kg/m^3	117	959.1	1.5	1.5
Flash Point PMcc	°C	109	125.3	5.7	6
Heat of Combustion (Gross)	MJ/kg	58	43.66	0.36	0.40

Parameter	unit	n	average	2.8 * sd	R(lit)
Heat of Combustion (Net)	MJ/kg	55	41.22	0.32	0.40
Hydrogen Sulfide	mg/kg	25	<0.60	n.e.	n.e.
Kinematic Viscosity at 50 °C	mm^2/s	100	334.5	28.3	28.3
Kinematic Viscosity at 100 °C	mm^2/s	83	30.41	1.04	3.67
Kin. Viscosity Stabinger at 50 °C	mm^2/s	23	327.5	19.5	33.7
Kin. Viscosity Stabinger at 100 °C	mm^2/s	22	30.36	0.58	2.18
Nitrogen	mg/kg	38	3125	889	831
Pour Point Lower	°C	52	29.5	5.7	9
Pour Point Upper	°C	77	30.9	6.2	9
Pour Point Automated 3 °C int.	°C	31	29.7	5.7	6.1
Sediment by Extraction	%M/M	67	0.018	0.017	0.037
Total Sediment Existent (TSE)	%M/M	72	0.016	0.012	0.037
Total Sediment Accel. (TSA)	%M/M	66	0.017	0.010	0.038
Total Sediment Potential (TSP)	%M/M	67	0.016	0.013	0.037
Total Sulfur	%M/M	122	0.61	0.05	0.06
Water by distillation	%V/V	83	0.05	0.06	0.2
Water and Sediment	%V/V	44	0.06	0.06	0.11
Initial Boiling Point	°C	37	220.1	34.5	49
5% recovered	°C	36	301.3	41.3	28.4
10% recovered	°C	36	373.1	26.8	21.4
20% recovered	°C	35	416.2	11.5	14.7
30% recovered	°C	35	434.0	10.4	12.4
40% recovered	°C	37	456.2	15.2	15.4
50% recovered	°C	36	502.5	23.6	17.4
Final Boiling Point	°C	32	512.8	35.4	27
Total Carbon	%M/M	28	87.2	1.4	2.4
Total Hydrogen	%M/M	27	11.5	0.5	0.8
Total Nitrogen	%M/M	25	0.35	0.12	0.10

Table 8: reproducibilities of tests on sample #22255 (For results between brackets no z-scores are calculated)

Element	unit	n	average	2.8 * sd	R(lit)
Aluminum as Al	mg/kg	81	14.7	4.8	4.8
Silicon as Si	mg/kg	82	14.9	5.6	8.5
Sum Aluminum and Silicon	mg/kg	75	29.7	8.1	9.7
Iron as Fe	mg/kg	79	22.0	4.5	12.1
Nickel as Ni	mg/kg	83	17.9	5.5	11.4
Sodium as Na	mg/kg	81	11.1	3.7	5.5
Vanadium as V	mg/kg	81	40.1	6.3	20.6
Calcium as Ca	mg/kg	77	8.1	2.9	4.5
Phosphorus as P	mg/kg	61	2.1	1.5	1.9
Zinc as Zn	mg/kg	69	1.8	0.9	0.9

Table 9: reproducibilities of tests on sample #22256

Parameter	unit	n	average	2.8 * sd	R(lit)
Bromine Number	g Br_2/100 g	35	10.6	2.3	3.8
P-value SMS1600		29	1.50	0.37	0.21
P-ratio D7060		3	1.50	n.a.	n.a.
FR_{max} D7060		3	54.8	85.4	(17.3)
Po D7060		3	80.2	113.3	(26.0)
P-value D7112		0	n.e.	n.e.	n.e.
Pa D7112		0	n.e.	n.e.	n.e.
Po D7112		0	n.e.	n.e.	n.e.
SE D7112	%	0	n.e.	n.e.	n.e.
$FR_{5/1}$ D7112		0	n.e.	n.e.	n.e.
Separability Number D7061	%T	2	n.e.	n.a.	n.a.
Toluene dilution ratio D7061		2	1:3	n.a.	n.a.
Compatibility rating		64	4.2	1.3	1

Table 10: reproducibilities of tests on sample #22257 and sample #22258

For results between brackets no z-scores are calculated

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF DECEMBER 2022 WITH PREVIOUS PTS

	December 2022	June 2022	December 2021	June 2021	December 2020
Number of reporting laboratories	152	147	139	159	129
Number of test results	3163	2488	3146	2744	2778
Number of statistical outliers	85	85	63	108	81
Percentage of statistical outliers	2.7%	3.4%	2.0%	3.9%	2.9%

Table 11: comparison with previous proficiency tests

In proficiency tests outlier percentages of 3% - 7.5% are quite normal.

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

Parameter	December 2022	June 2022	December 2021	June 2021	December 2020
Total Acid Number	(--)	(--)	(--)	(--)	(--)
API Gravity	++	++	++	++	++
Ash Content	--	--	-	-	--
Asphaltenes	--	+	+/-	-	+/-
Calc. Carbon Aromaticity Index	+/-	+	+	+	+
Carbon Residue micro method	+/-	+	+	+	++

Parameter	December 2022	June 2022	December 2021	June 2021	December 2020
Conradson Carbon Residue	-	+	+	+	+
Density at 15 °C	+/-	+/-	+	-	+
Flash Point PMcc	+/-	+/-	+	+/-	+/-
Heat of Combustion (Gross)	+	+	+/-	+/-	+/-
Heat of Combustion (Net)	+	+	+/-	+/-	+
Hydrogen Sulfide	n.e.	n.a.	n.a.	n.a.	n.a.
Kinematic Viscosity at 50 °C	+/-	+	+	++	+
Kinematic Viscosity at 100 °C	++	++	++	++	++
Kin. Viscosity Stabinger at 50 °C	+	++	++	++	++
Kin. Viscosity Stabinger at 100 °C	++	++	+	++	++
Nitrogen	+/-	-	-	-	-
Pour Point Lower	+	+/-	+	-	+
Pour Point Upper	+	-	+	+	+/-
Pour Point Automated 3 °C int.	+/-	-	+/-	+/-	--
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 Aluminum and Silicon	+	-	+/-	-	+/-
Iron as Fe	++	+	+	+	+
Nickel as Ni	++	+	+	+/-	+
Sodium as Na	+	+	+	+	+/-
Vanadium as V	++	++	++	+	+
Calcium as Ca	+	+	++	+/-	+
Phosphorus as P	+	+/-	n.e.	n.e.	n.e.
Zinc as Zn	+/-	-	n.e.	(-)	+/-
Bromine Number	+	n.a.	+/-	n.a.	-
P-value SMS1600	-	n.a.	-	n.a.	++
P-ratio D7060	n.a.	n.a.	n.a.	n.a.	n.a.
FR_{max} D7060	(--)	n.a.	n.a.	n.a.	n.a.
Po D7060	(--)	n.a.	n.a.	n.a.	n.a.
P-value D7112	n.e.	n.a.	n.a.	n.a.	n.a.

Parameter	December 2022	June 2022	December 2021	June 2021	December 2020
Pa D7112	n.e.	n.a.	n.a.	n.a.	n.a.
Po D7112	n.e.	n.a.	n.a.	n.a.	n.a.
SE D7112	n.e.	n.a.	n.a.	n.a.	n.a.
$FR_{5/1}$ D7112	n.e.	n.a.	n.a.	n.a.	n.a.
Separability Number D7061	n.e.	n.a.	n.a.	n.a.	n.a.
Toluene dilution ratio D7061	n.a.	n.a.	n.a.	n.a.	n.a.
Compatibility rating	-	n.a.	+/-	n.a.	--

Table 12: comparison of determinations to the reference test methods

For results between brackets no z-scores are calculated.

The following performance categories were used:

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

APPENDIX 1

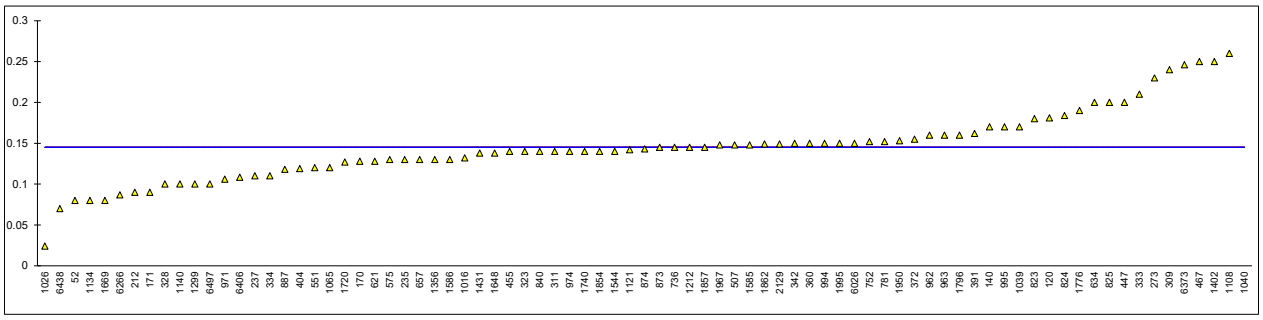
Determination of Total Acid Number on sample #22255; results in mg KOH/g

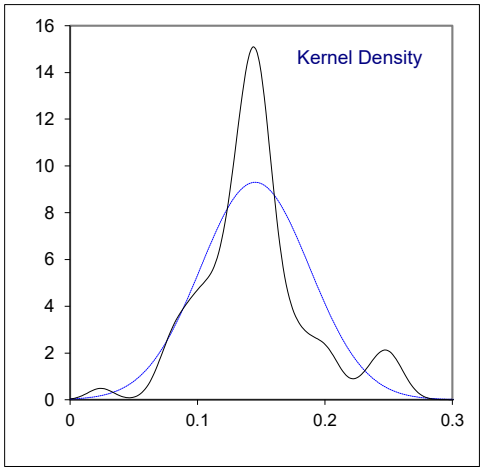
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664-A	0.08		-----	887	D664-A	0.118		-----
120	D664-A	0.181	C	-----	962	D664-A	0.16		-----
140	D664-A	0.17		-----	963	D664-A	0.16		-----
150	D664-A	<0.10		-----	971	D664-A	0.106		-----
154		-----		-----	974	D664-A	0.14		-----
159		-----		-----	994	D664-A	0.15		-----
169		-----		-----	995	D664-A	0.17		-----
170	D664-A	0.128		-----	996		-----		-----
171	D664-A	0.09		-----	997		-----		-----
175		-----		-----	1011		-----		-----
212	D664-A	0.09		-----	1016	D664-A	0.132		-----
223		-----		-----	1026	D664-A	0.02405	C	-----
225		-----		-----	1039	D664-A	0.17		-----
228		-----		-----	1040	D664-A	0.591	C,R(0.01)	-----
231		-----		-----	1065	D664-A	0.120		-----
235	D664-A	0.13		-----	1066		-----		-----
237	D664-B	0.11		-----	1108	D664-A	0.26	C	-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121	D664-A	0.142		-----
256		-----		-----	1126		-----		-----
273	D664-A	0.23		-----	1134	IP177	0.08		-----
309	D664-A	0.24		-----	1140	IP177	0.10		-----
311	D664-A	0.14		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323	D664-A	0.14		-----	1212	D664-A	0.145		-----
328	D664-A	0.10		-----	1218		-----		-----
333	D664-A	0.21		-----	1259		-----		-----
334	D664-A	0.11		-----	1299	D664-A	0.100		-----
339		-----		-----	1320		-----		-----
342	D664-A	0.15		-----	1353		-----		-----
349		-----		-----	1356	D664-A	0.13		-----
351		-----		-----	1381		-----		-----
360	D664-A	0.150		-----	1397		-----		-----
372	D664-A	0.155		-----	1402	IP177	0.25		-----
381		-----		-----	1431	D664-A	0.138		-----
391	D664-A	0.162		-----	1444		-----		-----
404	D664-A	0.119		-----	1510		-----		-----
445		-----		-----	1544	D664-A	0.1402		-----
447	D664-A	0.2		-----	1554		-----		-----
455	IP177	0.14		-----	1575		-----		-----
467	D664-A	0.250		-----	1585	D664-A	0.148		-----
480		-----		-----	1586	D664-A	0.13		-----
507	D664-A	0.148		-----	1631		-----		-----
541		-----		-----	1648	D664-A	0.138		-----
551	D664-A	0.12		-----	1650		-----		-----
575	D664-A	0.13		-----	1669	D664-A	0.08		-----
621	D664-A	0.128		-----	1681		-----		-----
631		-----		-----	1720	D664-A	0.127		-----
634	D664	0.20		-----	1740	D664-A	0.14		-----
657	D664-A	0.13		-----	1753		-----		-----
704		-----		-----	1776	D664-A	0.19		-----
710		-----		-----	1796	D664-A	0.160		-----
736	D664-A	0.145		-----	1833		-----		-----
752	D664-A	0.1520		-----	1854	D664-B	0.14		-----
753		-----		-----	1857	D664-A	0.145		-----
778		-----		-----	1862	D664-A	0.149		-----
779		-----		-----	1881		-----		-----
781	D664-A	0.152		-----	1906		-----		-----
785		-----		-----	1942		-----		-----
798		-----		-----	1943		-----		-----
823	D664-A	0.18		-----	1950	D664-A	0.153		-----
824	D664-A	0.1839		-----	1967	D664-A	0.1479		-----
825	D664-A	0.2		-----	1995	D664-A	0.15		-----
840	D664-A	0.14		-----	2129	D664-A	0.149		-----
872		-----		-----	2146		-----		-----
873	D664-A	0.145		-----	6024		-----		-----
874	D664-A	0.143		-----	6026	D664-A	0.15		-----
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	D664-A	0.1084		-----
6112		-----		-----	6438	D664-A	0.07		-----
6142		-----		-----	6447		-----		-----
6266	D664-A	0.0868		-----	6494		-----		-----
6319		-----		-----	6497	D664-A	0.10		-----
6373	D664-A	0.246		-----					

			IP only	BEP only
	normality	suspect	not OK	OK
	n	80	45	18
	outliers	1	1	0
	mean (n)	0.1452	0.1437	0.1522
	st.dev. (n)	0.04289	0.03593	0.04789
	R(calc.)	0.1201	0.1006	0.1341
	st.dev.(D664-A:18e2 IP 125 mL)	(0.01044)	(0.01033)	-----
	R(D664-A:18e2 IP 125 mL)	(0.0292)	(0.0289)	-----
Compare				
	R(D664-A:18e2 IP 60 mL)	(0.0827)	(0.0820)	-----
	R(D664-A:18e2 BEP 125 mL)	(0.0416)	-----	(0.0437)
	R(D664-A:18e2 BEP 60 mL)	(0.0843)	-----	(0.0883)

Lab 120 first reported 0.00
Lab 1026 first reported 0.0366
Lab 1040 first reported 0.318
Lab 1108 first reported 0.3341





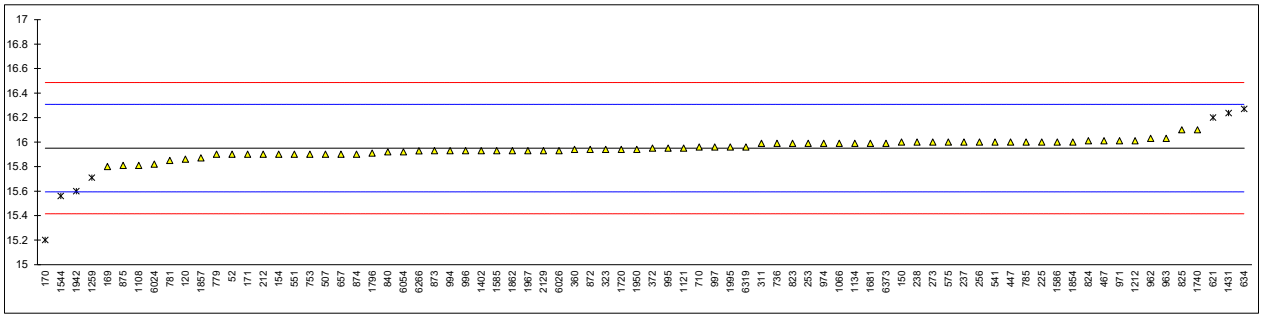
Determination of API Gravity on sample #22255

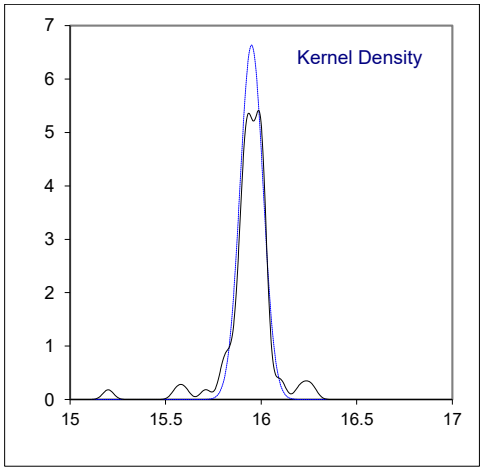
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	15.9		-0.28	887		-----		-----
120	D4052	15.86		-0.51	962	D4052	16.03		0.45
140		-----		-----	963	D1298	16.03		0.45
150	D287	16.0		0.28	971	D1298	16.01		0.33
154	D4052	15.9		-0.28	974	D1298	15.99		0.22
159		-----		-----	994	D1250	15.93		-0.11
169	D4052	15.8		-0.84	995	D1298	15.95		0.00
170	D4052	15.20	R(0.01)	-4.20	996	D1298	15.93		-0.11
171	D4052	15.9		-0.28	997	D1298	15.96		0.05
175		-----		-----	1011		-----		-----
212	ISO12185	15.90		-0.28	1016		-----		-----
223		-----		-----	1026		-----		-----
225	D4052	16.0		0.28	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235		-----		-----	1066	D4052	15.99		0.22
237	D4052	16.00		0.28	1108	ISO12185	15.81		-0.79
238	D1298	16.0	C	0.28	1109		-----		-----
253	D4052	15.99		0.22	1121	D4052	15.95		0.00
256	D1298	16.0		0.28	1126		-----		-----
273	D4052	16.0	C	0.28	1134	D4052	15.99		0.22
309		-----		-----	1140		-----		-----
311	D1298	15.99		0.22	1167		-----		-----
313		-----		-----	1191		-----		-----
323	D1298	15.94		-0.06	1212	D287	16.01		0.33
328		-----		-----	1218		-----		-----
333		-----		-----	1259	ISO12185	15.71	R(0.05)	-1.35
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381		-----		-----
360	D4052	15.94		-0.06	1397		-----		-----
372	D1298	15.95		0.00	1402	D4052	15.93		-0.11
381		-----		-----	1431	ISO12185	16.236	R(0.05)	1.60
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544	D4052	15.56	R(0.01)	-2.19
447	D1250	16.0		0.28	1554		-----		-----
455		-----		-----	1575		-----		-----
467	D4052	16.01		0.33	1585	D1298	15.93		-0.11
480		-----		-----	1586	D1298	16.0		0.28
507	D4052	15.9	C	-0.28	1631		-----		-----
541	D4052	16.0		0.28	1648		-----		-----
551	D4052	15.9		-0.28	1650		-----		-----
575	D1298	16.0		0.28	1669		-----		-----
621	D4052	16.2	R(0.05)	1.40	1681	D4052	15.99		0.22
631		-----		-----	1720	D4052	15.94		-0.06
634	D1298	16.27	R(0.05)	1.79	1740	D1298	16.1		0.84
657	ISO12185	15.9		-0.28	1753		-----		-----
704		-----		-----	1776		-----		-----
710	ISO12185	15.96		0.05	1796	D1298	15.91		-0.23
736	D1298	15.99		0.22	1833		-----		-----
752		-----		-----	1854	ISO12185	16.0		0.28
753	D1298	15.9		-0.28	1857	D1250	15.87		-0.45
778		-----		-----	1862	D1298	15.93		-0.11
779	D1298	15.9		-0.28	1881		-----		-----
781	ISO12185	15.85		-0.56	1906		-----		-----
785	D1298	16.0		0.28	1942	D1298	15.6	R(0.01)	-1.96
798		-----		-----	1943		-----		-----
823	D4052	15.99		0.22	1950	D1298	15.94		-0.06
824	ISO12185	16.01		0.33	1967	D1298	15.930		-0.11
825	ISO12185	16.1		0.84	1995	D4052	15.96		0.05
840	ISO12185	15.92		-0.17	2129	D1298	15.93		-0.11
872	D1298	15.94		-0.06	2146		-----		-----
873	D1298	15.93		-0.11	6024	D1298	15.82		-0.73
874	D1298	15.9		-0.28	6026	D1298	15.93		-0.11
875	D1298	15.81		-0.79	6054	D4052	15.92		-0.17

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438		-----		-----
6142		-----		-----	6447		-----		-----
6266	D4052	15.928		-0.12	6494		-----		-----
6319	Calc.	15.96		0.05	6497		-----		-----
6373	ISO12185	15.99		0.22					

	normality	OK
	n	71
	outliers	7
	mean (n)	15.950
	st.dev. (n)	0.0601
	R(calc.)	0.168
	st.dev.(D1298:12bR17e01)	0.1786
	R(D1298:12bR17e01)	0.5
Compare		
	R(D4052:22)	0.133

Lab 238 first reported 16.4
Lab 273 first reported 15.3
Lab 507 first reported 16.5





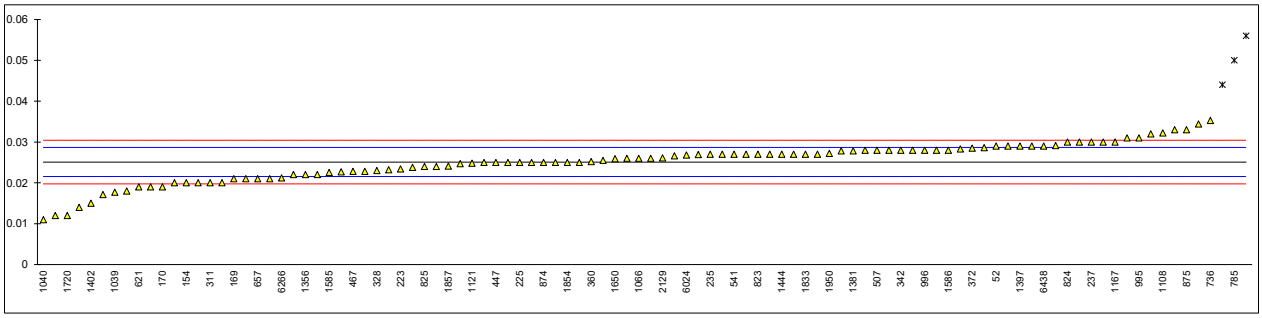
Determination of Ash Content on sample #22255; results in %M/M

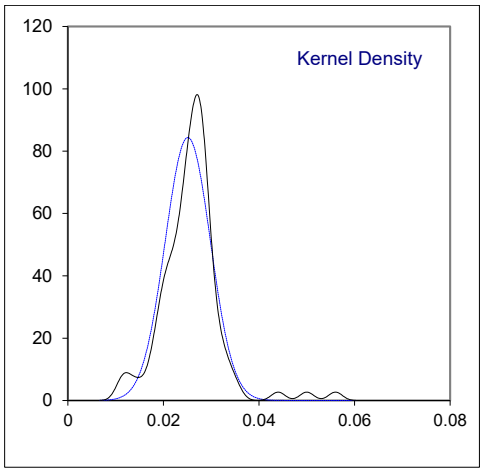
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	0.029		2.18	887		-----		-----
120	ISO6245	0.031		3.30	962	D482	0.027		1.06
140		-----		-----	963	ISO6245	0.0266		0.84
150	D482	0.018		-3.98	971	ISO6245	0.025		-0.06
154	D482	0.020		-2.86	974	D482	0.027		1.06
159		-----		-----	994	D482	0.028		1.62
169	D482	0.021		-2.30	995	ISO6245	0.031		3.30
170	D482	0.019		-3.42	996	D482	0.028		1.62
171	ISO6245	0.020		-2.86	997	ISO6245	0.030		2.74
175		-----		-----	1011	ISO6245	0.012		-7.34
212	ISO6245	0.026		0.50	1016	D482	0.02377		-0.75
223	D482	0.0234		-0.95	1026		-----		-----
225	D482	0.025		-0.06	1039	ISO6245	0.0177		-4.14
228		-----		-----	1040	ISO6245	0.011		-7.90
231		-----		-----	1065		-----		-----
235	ISO6245	0.027	C	1.06	1066	D482	0.026		0.50
237	D482	0.03		2.74	1108	D482	0.0322		3.98
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO6245	0.0248		-0.17
256	D482	0.025		-0.06	1126		-----		-----
273	D482	0.025		-0.06	1134	IP4	0.0232		-1.06
309		-----		-----	1140	IP4	0.021		-2.30
311	D482	0.020		-2.86	1167	ISO6245	0.030		2.74
313		-----		-----	1191		-----		-----
323	ISO6245	0.02		-2.86	1212	ISO6245	0.020		-2.86
328	ISO6245	0.023		-1.18	1218		-----		-----
333	ISO6245	0.030		2.74	1259		-----		-----
334	ISO6245	0.021		-2.30	1299	D482	0.029		2.18
339		-----		-----	1320		-----		-----
342	ISO6245	0.028		1.62	1353		-----		-----
349		-----		-----	1356	ISO6245	0.022		-1.74
351	ISO6245	0.0171		-4.48	1381	ISO6245	0.0278		1.51
360	D482	0.0252		0.06	1397	ISO6245	0.029		2.18
372	ISO6245	0.0285		1.90	1402	IP4	0.015		-5.66
381		-----		-----	1431	D482	0.0227		-1.34
391		-----		-----	1444	ISO6245	0.027		1.06
404	D482	0.028		1.62	1510		-----		-----
445	ISO6245	0.0190		-3.42	1544	D482	0.0269		1.01
447	IP4	0.025		-0.06	1554	ISO6245	0.025		-0.06
455	IP4	0.022		-1.74	1575	D482	0.028		1.62
467	ISO6245	0.0228		-1.29	1585	ISO6245	0.0225		-1.46
480		-----		-----	1586	ISO6245	0.028		1.62
507	ISO6245	0.028		1.62	1631		-----		-----
541	D482	0.027		1.06	1648	ISO6245	0.027		1.06
551	D482	0.027		1.06	1650	ISO6245	0.0259		0.45
575		-----		-----	1669	D482	0.014		-6.22
621	D482	0.019		-3.42	1681	ISO6245	0.0344		5.21
631		-----		-----	1720	D482	0.012		-7.34
634	D482	0.044	R(0.05)	10.58	1740	D482	0.026		0.50
657	D482	0.021		-2.30	1753	ISO6245	0.029		2.18
704		-----		-----	1776		-----		-----
710	D482	0.033		4.42	1796	D482	0.024		-0.62
736	ISO6245	0.0353		5.71	1833	ISO6245	0.027		1.06
752	ISO6245	0.0286		1.96	1854	ISO6245	0.025		-0.06
753		-----		-----	1857	ISO6245	0.0241		-0.56
778		-----		-----	1862	D482	0.0228		-1.29
779	ISO6245	0.056	R(0.01)	17.30	1881		-----		-----
781	ISO6245	0.0283		1.79	1906		-----		-----
785	D482	0.05	R(0.01)	13.94	1942	ISO6245	0.022		-1.74
798		-----		-----	1943		-----		-----
823	ISO6245	0.027		1.06	1950	D482	0.0272		1.18
824	ISO6245	0.03		2.74	1967	D482	0.0247		-0.22
825	D482	0.024		-0.62	1995	D482	0.025		-0.06
840	D482	0.0278		1.51	2129	ISO6245	0.0261		0.56
872		-----		-----	2146		-----		-----
873	D482	0.028		1.62	6024	D482	0.0268		0.95
874	ISO6245	0.025		-0.06	6026		-----		-----
875	ISO6245	0.033		4.42	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092	ISO6245	0.032		3.86	6406		-----		-----
6112		-----		-----	6438	D482	0.029		2.18
6142		-----		-----	6447		-----		-----
6266	D482	0.0212		-2.18	6494		-----		-----
6319	D482	0.027		1.06	6497	D482	0.0255		0.22
6373	D482	0.02911		2.25					

	normality	OK
	n	99
	outliers	3
	mean (n)	0.0251
	st.dev. (n)	0.00473
	R(calc.)	0.0132
	st.dev.(ISO6245:01)	0.00179
	R(ISO6245:01)	0.005
Compare		
	R(D482:19)	0.005

lab 235 first reported 0.0053





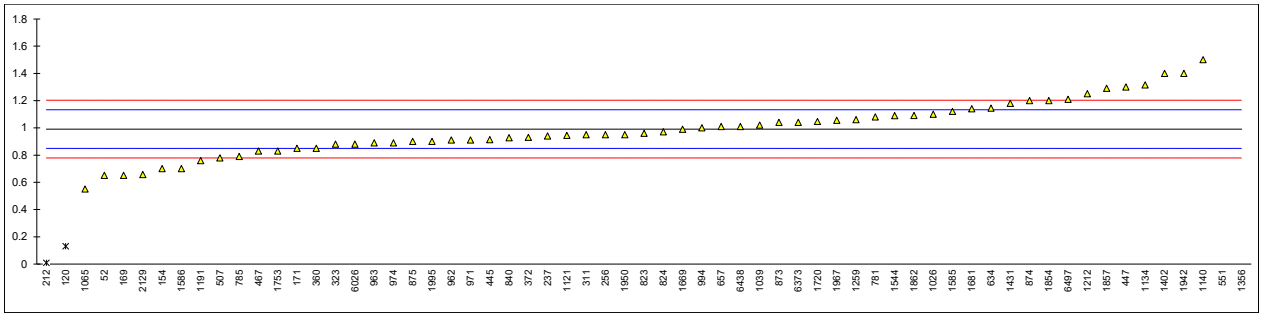
Determination of Asphaltenes on sample #22255; results in %M/M

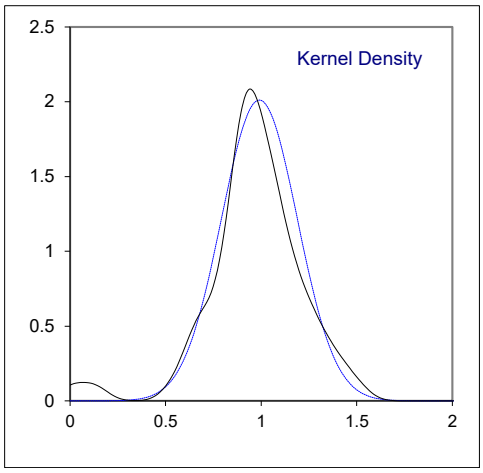
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP143	0.65		-4.82	887		-----		-----
120	D3279	0.13	C,R(0.01)	-12.16	962	D6560	0.91		-1.14
140		-----		-----	963	IP143	0.89		-1.43
150		-----		-----	971	IP143	0.91		-1.14
154	D6560	0.70		-4.11	974	IP143	0.89		-1.43
159		-----		-----	994	D6560	1.0		0.13
169	IP143	0.65		-4.82	995		-----		-----
170		-----		-----	996		-----		-----
171	IP143	0.85		-1.99	997		-----		-----
175		-----		-----	1011		-----		-----
212	IP143	0.0082	R(0.01)	-13.88	1016		-----		-----
223		-----		-----	1026	IP143	1.1		1.54
225		-----		-----	1039	D6560	1.02		0.41
228		-----		-----	1040		-----		-----
231		-----		-----	1065	D6560	0.55		-6.23
235		-----		-----	1066		-----		-----
237	D6560	0.94		-0.72	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121	IP143	0.944		-0.66
256	IP143	0.95		-0.58	1126		-----		-----
273		-----		-----	1134	IP143	1.315		4.58
309		-----		-----	1140	IP143	1.5		7.19
311	IP143	0.95		-0.58	1167		-----		-----
313		-----		-----	1191	DIN51595	0.75884		-3.28
323	IP143	0.88		-1.57	1212	IP143	1.25		3.66
328		-----		-----	1218		-----		-----
333		-----		-----	1259	D6560	1.06		0.97
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356	D6560	5.3	R(0.01)	60.87
351		-----		-----	1381		-----		-----
360	IP143	0.85		-1.99	1397		-----		-----
372	IP143	0.93		-0.86	1402	IP143	1.4		5.78
381		-----		-----	1431	D6560	1.1803		2.67
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	IP143	0.913		-1.10	1544	D6560	1.089		1.38
447	IP143	1.3		4.37	1554		-----		-----
455		-----		-----	1575		-----		-----
467	IP143	0.830		-2.27	1585	IP143	1.12		1.82
480		-----		-----	1586	IP143	0.70		-4.11
507	D6560	0.779		-3.00	1631		-----		-----
541		-----		-----	1648		-----		-----
551	IP143	2.66	R(0.01)	23.58	1650		-----		-----
575		-----		-----	1669	IP143	0.99	C	-0.01
621		-----		-----	1681	IP143	1.14		2.10
631		-----		-----	1720	JPI-5S-45-95	1.046		0.78
634	D6560	1.145		2.18	1740		-----		-----
657	IP143	1.01		0.27	1753	IP143	0.83		-2.27
704		-----		-----	1776		-----		-----
710		-----		-----	1796		-----		-----
736		-----		-----	1833		-----		-----
752		-----		-----	1854	IP143	1.2		2.95
753		-----		-----	1857	IP143	1.29		4.22
778		-----		-----	1862	D6560	1.09		1.40
779		-----		-----	1881		-----		-----
781	IP143	1.08		1.26	1906		-----		-----
785	IP143	0.79		-2.84	1942	IP143	1.4		5.78
798		-----		-----	1943		-----		-----
823	IP143	0.96		-0.44	1950	IP143	0.95		-0.58
824	D6560	0.97		-0.30	1967	IP143	1.0551		0.91
825		-----		-----	1995	D6560	0.9		-1.29
840	D6560	0.927		-0.90	2129	IP143	0.657		-4.72
872		-----		-----	2146		-----		-----
873	IP143	1.04		0.69	6024		-----		-----
874	IP143	1.2		2.95	6026	D6560	0.88		-1.57
875	IP143	0.90		-1.29	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438	IP143	1.01		0.27
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497	IP143	1.21		3.09
6373	IP143	1.04		0.69					

normality	OK
n	59
outliers	4
mean (n)	0.991
st.dev. (n)	0.1983
R(calc.)	0.555
st.dev.(IP143:04R21)	0.0708
R(IP143:04R21)	0.198

Lab 120 first reported 0.013
Lab 1669 first reported 4.4





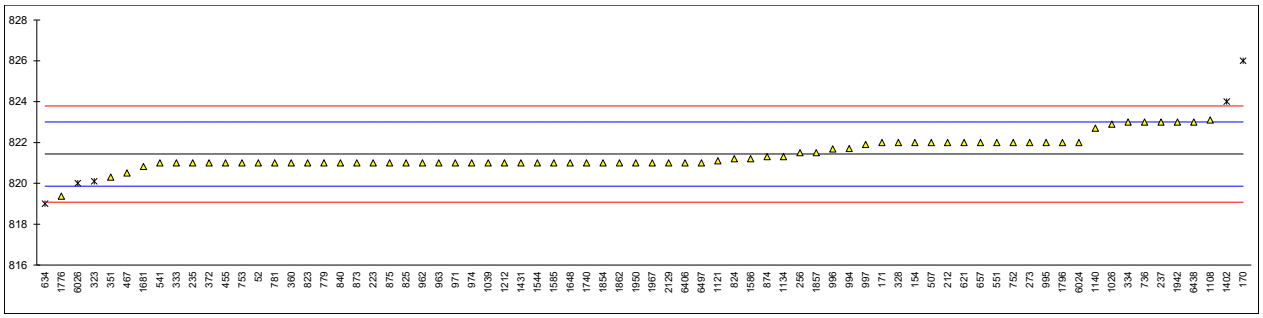
Determination of Calculated Carbon Aromaticity Index on sample #22255

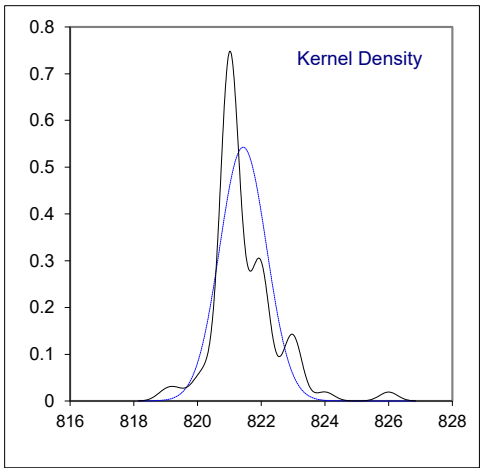
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	ISO8217	821		-0.55	887		-----		-----
120		-----		-----	962	ISO8217	821		-0.55
140		-----		-----	963	ISO8217	821		-0.55
150		-----		-----	971	ISO8217	821		-0.55
154	ISO8217	822		0.72	974	ISO8217	821		-0.55
159		-----		-----	994	ISO8217	821.7		0.34
169		-----		-----	995	ISO8217	822		0.72
170	ISO8217	826	ex	5.81	996	ISO8217	821.68		0.31
171	ISO8217	822		0.72	997	ISO8217	821.9		0.59
175		-----		-----	1011		-----		-----
212	ISO8217	822		0.72	1016		-----		-----
223	ISO8217	821		-0.55	1026	ISO8217	822.9	C	1.86
225		-----		-----	1039	ISO8217	821		-0.55
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235	ISO8217	821		-0.55	1066		-----		-----
237	ISO8217	823	E	1.99	1108	ISO8217	823.1		2.12
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO8217	821.1		-0.43
256	ISO8217	821.5		0.08	1126		-----		-----
273	ISO8217	822	C	0.72	1134	ISO8217	821.3		-0.17
309		-----		-----	1140	ISO8217	822.7		1.61
311		-----		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323	ISO8217	820.10	ex	-1.70	1212	ISO8217	821		-0.55
328	ISO8217	822		0.72	1218		-----		-----
333	ISO8217	821		-0.55	1259		-----		-----
334	ISO8217	823		1.99	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351	ISO8217	820.30		-1.45	1381		-----		-----
360	ISO8217	821		-0.55	1397		-----		-----
372	ISO8217	821		-0.55	1402	ISO8217	824	ex,C,E	3.26
381		-----		-----	1431	ISO8217	821		-0.55
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544	ISO8217	821		-0.55
447		-----		-----	1554		-----		-----
455	ISO8217	821.0		-0.55	1575		-----		-----
467	ISO8217	820.5		-1.19	1585	ISO8217	821		-0.55
480		-----		-----	1586	ISO8217	821.2		-0.30
507	ISO8217	822	C	0.72	1631		-----		-----
541	ISO8217	821		-0.55	1648	ISO8217	821		-0.55
551	ISO8217	822		0.72	1650		-----		-----
575		-----		-----	1669		-----		-----
621	ISO8217	822	E	0.72	1681	ISO8217	820.82		-0.78
631		-----		-----	1720		-----		-----
634	ISO8217	819	ex	-3.10	1740	ISO8217	821		-0.55
657	ISO8217	822		0.72	1753		-----		-----
704		-----		-----	1776	ISO8217	819.37	C	-2.63
710		-----		-----	1796	ISO8217	822		0.72
736	ISO8217	823	E	1.99	1833		-----		-----
752	ISO8217	822		0.72	1854	ISO8217	821		-0.55
753	ISO8217	821		-0.55	1857	ISO8217	821.5		0.08
778		-----		-----	1862	ISO8217	821		-0.55
779	ISO8217	821		-0.55	1881		-----		-----
781	ISO8217	821		-0.55	1906		-----		-----
785		-----		-----	1942	ISO8217	823	C	1.99
798		-----		-----	1943		-----		-----
823	ISO8217	821		-0.55	1950	ISO8217	821		-0.55
824	ISO8217	821.2		-0.30	1967	ISO8217	821		-0.55
825	ISO8217	821		-0.55	1995		-----		-----
840	ISO8217	821.0		-0.55	2129	ISO8217	821		-0.55
872		-----		-----	2146		-----		-----
873	ISO8217	821		-0.55	6024	ISO8217	822.0		0.72
874	ISO8217	821.3		-0.17	6026	ISO8217	820	ex	-1.83
875	ISO8217	821		-0.55	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	ISO8217	821.0		-0.55
6112		-----		-----	6438	ISO8217	823	C,E	1.99
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497	ISO8217	821		-0.55
6373		-----		-----					

normality	OK
n	69
outliers	0 +5ex
mean (n)	821.436
st.dev. (n)	0.7353
R(calc.)	2.059
st.dev.(ISO8217:17)	0.7857
R(ISO8217:17)	2.2

Lab 170 test result excluded from statistical calculations because of statistical outlier in Density at 15 °C
Lab 237 calculation difference between reported test result and result calculated by iis; iis calculated 820
Lab 273 first reported 827
Lab 323 test result excluded from statistical calculations because of statistical outlier in Kinematic Viscosity at 50 °C
Lab 507 first reported 818
Lab 621 calculation difference between reported test result and result calculated by iis; iis calculated 820
Lab 634 test result excluded from statistical calculations because of statistical outlier in Density at 15 °C
Lab 736 calculation difference between reported test result and result calculated by iis; iis calculated 821
Lab 1026 first reported 819
Lab 1402 first reported 819. The revised test result is excluded from statistical calculations because of statistical outlier in Kinematic Viscosity at 50 °C. Calculation difference between reported test result and result calculated by iis; iis calculated 819
Lab 1776 first reported 846.4
Lab 1942 first reported 798
Lab 6026 test result excluded from statistical calculations because of statistical outlier in Kinematic Viscosity at 50 °C
Lab 6438 first reported 853. Calculation difference between reported test result and result calculated by iis; iis calculated 822





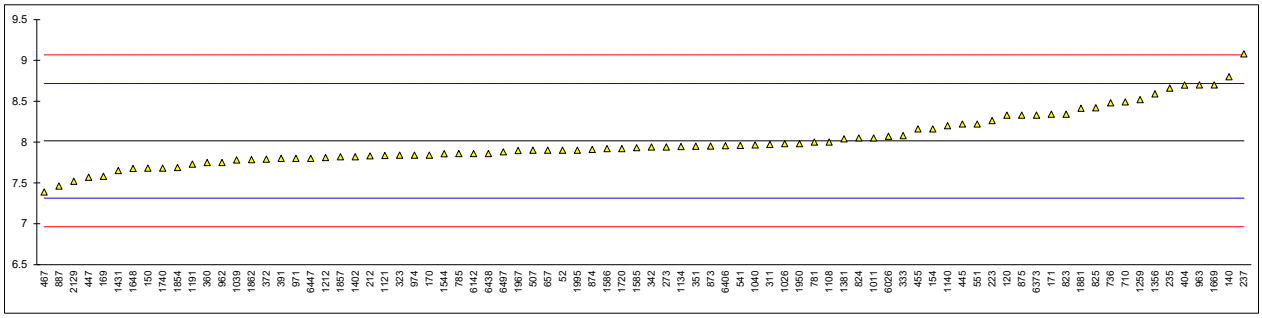
Determination of Carbon Residue micro method on sample #22255; results in %M/M

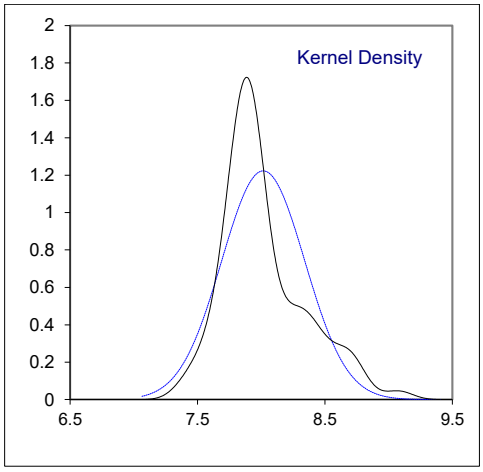
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	7.90		-0.33	887	D4530	7.46		-1.58
120	D4530	8.33		0.90	962	D4530	7.75		-0.76
140	ISO10370	8.80		2.24	963	ISO10370	8.7		1.95
150	D4530	7.68		-0.96	971	ISO10370	7.80		-0.61
154	D4530	8.16		0.41	974	D4530	7.84		-0.50
159		-----		-----	994		-----		-----
169	D4530	7.58		-1.24	995		-----		-----
170	D4530	7.8403		-0.50	996		-----		-----
171	ISO10370	8.34		0.93	997		-----		-----
175		-----		-----	1011	ISO10370	8.05		0.10
212	ISO10370	7.830		-0.53	1016		-----		-----
223	D4530	8.2621		0.70	1026	D4530	7.98		-0.10
225		-----		-----	1039	ISO10370	7.78		-0.67
228		-----		-----	1040	ISO10370	7.965		-0.14
231		-----		-----	1065		-----		-----
235	ISO10370	8.66		1.84	1066		-----		-----
237	D4530	9.08	C	3.04	1108	ISO10370	8.0		-0.04
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO10370	7.837		-0.51
256		-----		-----	1126		-----		-----
273	D4530	7.94		-0.22	1134	IP398	7.94475		-0.20
309		-----		-----	1140	IP398	8.2		0.53
311	D4530	7.97		-0.13	1167		-----		-----
313		-----		-----	1191	ISO10370	7.7290		-0.82
323	ISO10370	7.84		-0.50	1212	ISO10370	7.81		-0.59
328		-----		-----	1218		-----		-----
333	ISO10370	8.08		0.18	1259	ISO10370	8.52		1.44
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342	ISO10370	7.94		-0.22	1353		-----		-----
349		-----		-----	1356	ISO10370	8.59		1.64
351	ISO10370	7.948		-0.19	1381	ISO10370	8.040		0.07
360	ISO10370	7.75		-0.76	1397		-----		-----
372	ISO10370	7.79		-0.64	1402	IP398	7.82		-0.56
381		-----		-----	1431	D4530	7.652		-1.04
391	ISO10370	7.80		-0.61	1444		-----		-----
404	D4530	8.698		1.95	1510		-----		-----
445	ISO10370	8.220		0.58	1544	ISO10370	7.858		-0.45
447	IP398	7.57		-1.27	1554		-----		-----
455	IP398	8.16		0.41	1575		-----		-----
467	ISO10370	7.388		-1.79	1585	D4530	7.93		-0.24
480		-----		-----	1586	ISO10370	7.92		-0.27
507	ISO10370	7.90		-0.33	1631		-----		-----
541	D4530	7.96		-0.16	1648	ISO10370	7.677		-0.97
551	D4530	8.22		0.58	1650		-----		-----
575		-----		-----	1669	D4530	8.7	C	1.95
621		-----		-----	1681		-----		-----
631		-----		-----	1720	D4530	7.92		-0.27
634		-----		-----	1740	D4530	7.68		-0.96
657	D4530	7.90		-0.33	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D4530	8.49		1.35	1796		-----		-----
736	ISO10370	8.48		1.32	1833		-----		-----
752		-----		-----	1854	ISO10370	7.69		-0.93
753		-----		-----	1857	ISO10370	7.819		-0.56
778		-----		-----	1862	D4530	7.785		-0.66
779		-----		-----	1881	ISO10370	8.412		1.13
781	ISO10370	8.00		-0.04	1906		-----		-----
785	D4530	7.86		-0.44	1942		-----	W	-----
798		-----		-----	1943		-----		-----
823	ISO10370	8.34		0.93	1950	ISO10370	7.98		-0.10
824	ISO10370	8.05		0.10	1967	D4530	7.896		-0.34
825	ISO10370	8.42		1.15	1995	D4530	7.9		-0.33
840		-----		-----	2129	ISO10370	7.52		-1.41
872		-----		-----	2146		-----		-----
873	ISO10370	7.95		-0.19	6024		-----		-----
874	ISO10370	7.91		-0.30	6026	ISO10370	8.07		0.16
875	ISO10370	8.33		0.90	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	ISO10370	7.955		-0.17
6112		-----		-----	6438	D4530	7.86		-0.44
6142	ISO10370	7.86		-0.44	6447	D4530	7.80		-0.61
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497	D4530	7.88		-0.39
6373	ISO10370	8.33		0.90					

	normality	OK
	n	82
	outliers	0
	mean (n)	8.0156
	st.dev. (n)	0.32629
	R(calc.)	0.9136
	st.dev.(ISO10370:14)	0.35060
	R(ISO10370:14)	0.9817
Compare		
	R(D4530:15R20)	0.5156

Lab 237 first reported 8.94
Lab 1669 first reported 9.3
Lab 1942 test result withdrawn, reported 11.35



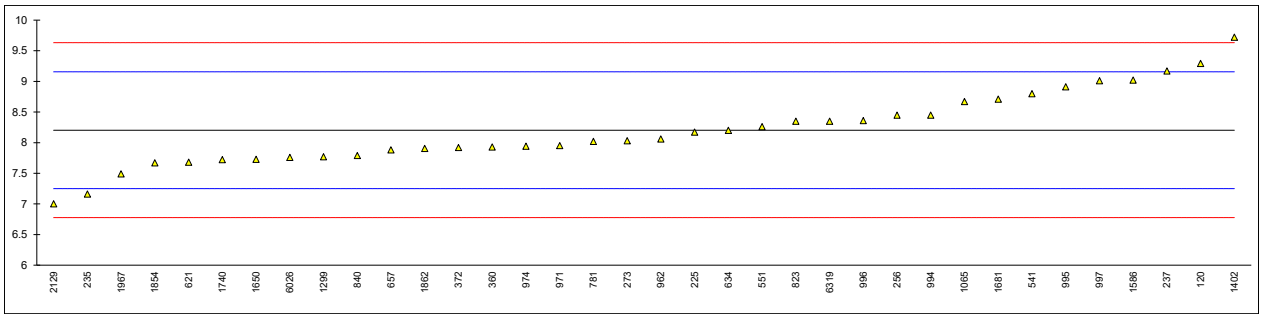


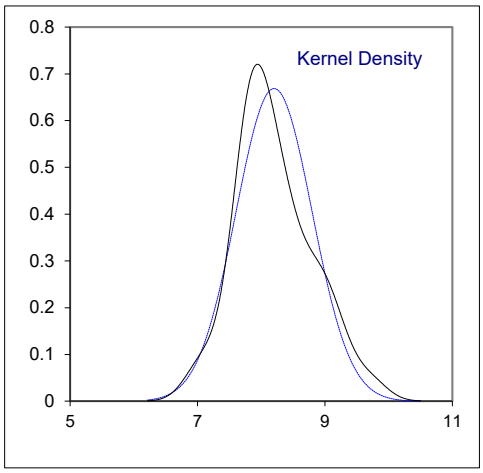
Determination of Conradson Carbon Residue on sample #22255; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887		-----		-----
120	D189	9.2935		2.29	962	D189	8.06		-0.30
140		-----		-----	963		-----		-----
150		-----		-----	971	D189	7.95		-0.53
154		-----		-----	974	D189	7.94		-0.55
159		-----		-----	994	D189	8.45		0.52
169		-----		-----	995	D189	8.91		1.49
170		-----		-----	996	D189	8.36		0.33
171		-----		-----	997	D189	9.01		1.70
175		-----		-----	1011		-----		-----
212		-----		-----	1016		-----		-----
223		-----		-----	1026		-----		-----
225	D4530	8.17		-0.07	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065	D4530	8.671		0.98
235	D189	7.16		-2.19	1066		-----		-----
237	D189	9.17		2.03	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256	D189	8.45		0.52	1126		-----		-----
273	D189	8.03		-0.36	1134		-----		-----
309		-----		-----	1140		-----		-----
311		-----		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323		-----		-----	1212		-----		-----
328		-----		-----	1218		-----		-----
333		-----		-----	1259		-----		-----
334		-----		-----	1299	D4530	7.77		-0.91
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381		-----		-----
360	ISO6615	7.93		-0.57	1397		-----		-----
372	D189	7.92		-0.59	1402	IP13	9.72		3.19
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544		-----		-----
447		-----		-----	1554		-----		-----
455		-----		-----	1575		-----		-----
467		-----		-----	1585		-----		-----
480		-----		-----	1586	D189	9.02		1.72
507		-----		-----	1631		-----		-----
541	D189	8.80		1.26	1648		-----		-----
551	D189	8.26		0.12	1650	D189	7.729		-1.00
575		-----		-----	1669		-----		-----
621	D189	7.68		-1.10	1681	D189	8.71		1.07
631		-----		-----	1720		-----		-----
634	D189	8.2		-0.01	1740	ISO6615	7.72		-1.01
657	D189	7.88		-0.68	1753		-----		-----
704		-----		-----	1776		-----		-----
710		-----		-----	1796		-----		-----
736		-----		-----	1833		-----		-----
752		-----		-----	1854	D4530	7.67		-1.12
753		-----		-----	1857		-----		-----
778		-----		-----	1862	D189	7.905		-0.63
779		-----		-----	1881		-----		-----
781	D189	8.02		-0.38	1906		-----		-----
785		-----		-----	1942		-----		-----
798		-----		-----	1943		-----		-----
823	D189	8.35		0.31	1950		-----		-----
824		-----		-----	1967	D189	7.4879		-1.50
825		-----		-----	1995		-----		-----
840	D189	7.788		-0.87	2129	D189	7.00		-2.53
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874		-----		-----	6026	D189	7.76		-0.93
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438		-----		-----
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319	D189	8.35		0.31	6497		-----		-----
6373		-----		-----					

normality	OK
n	36
outliers	0
mean (n)	8.2026
st.dev. (n)	0.59650
R(calc.)	1.6702
st.dev.(D189:06R19)	0.47590
R(D189:06R19)	1.3325





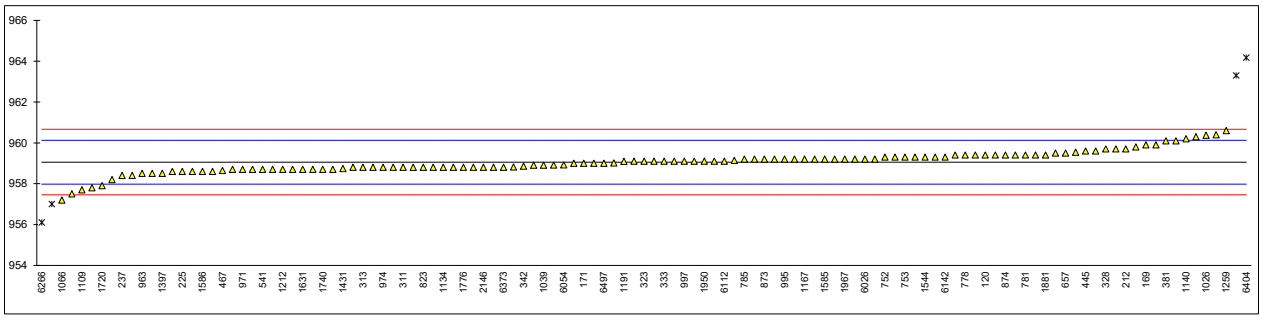
Determination of Density at 15 °C on sample #22255; results in kg/m^3

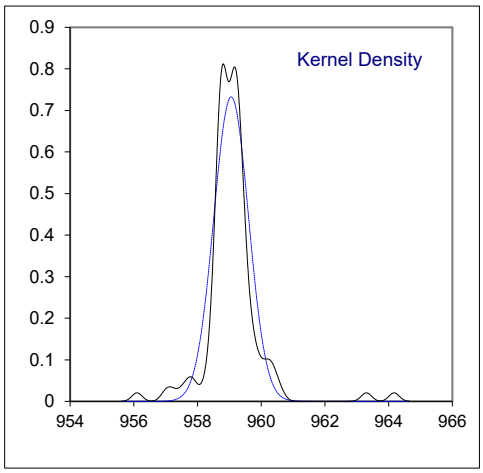
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	959.2		0.27	887		-----		-----
120	D4052	959.4		0.64	962	D4052	958.5		-1.04
140	D4052	959.1		0.08	963	ISO12185	958.5		-1.04
150		-----		-----	971	ISO12185	958.7		-0.66
154	D4052	959.4		0.64	974	D1298	958.8		-0.48
159		-----		-----	994	ISO12185	959.4		0.64
169	D4052	959.9		1.58	995	ISO12185	959.2		0.27
170	D4052	963.30	R(0.01)	7.92	996	D1298	959.3		0.46
171	ISO12185	959.0	C	-0.10	997	ISO12185	959.1		0.08
175		-----		-----	1011		-----		-----
212	ISO12185	959.7		1.20	1016		-----		-----
223	D4052	958.6		-0.85	1026	D4052	960.37	C	2.45
225	D4052	958.6		-0.85	1039	ISO12185	958.9		-0.29
228		-----		-----	1040	ISO12185	959.8	C	1.39
231		-----		-----	1065		-----		-----
235	ISO12185	959.1		0.08	1066	ISO12185	957.2		-3.46
237	D4052	958.4		-1.22	1108	ISO12185	960.1		1.95
238	D1298	958.8	C	-0.48	1109	D4052	957.7	C	-2.53
253	D4052	958.8		-0.48	1121	ISO12185	958.8		-0.48
256	D1298	959.2		0.27	1126	ISO12185	959.14		0.16
273	D4052	958.8	C	-0.48	1134	IP365	958.8		-0.48
309		-----		-----	1140	IP365	960.2		2.14
311	ISO12185	958.8		-0.48	1167	ISO12185	959.2	C	0.27
313	D4052	958.8		-0.48	1191	ISO12185	959.09		0.06
323	ISO12185	959.1		0.08	1212	ISO12185	958.7		-0.66
328	ISO12185	959.7		1.20	1218		-----		-----
333	ISO12185	959.1		0.08	1259	ISO12185	960.6		2.88
334	ISO12185	959.4		0.64	1299	D4052	958.7		-0.66
339		-----		-----	1320		-----		-----
342	ISO12185	958.86		-0.36	1353		-----		-----
349		-----		-----	1356	ISO12185	958.6		-0.85
351	ISO12185	958.20		-1.60	1381	ISO12185	959.54		0.90
360	D4052	958.9		-0.29	1397	ISO12185	958.5		-1.04
372	ISO12185	959.1		0.08	1402	IP365	959.2		0.27
381	ISO12185	960.1	C	1.95	1431	ISO12185	958.74		-0.59
391	ISO12185	959.5		0.83	1444		-----		-----
404		-----		-----	1510		-----		-----
445	ISO12185	959.6		1.02	1544	ISO12185	959.30		0.46
447	IP365	958.7		-0.66	1554	ISO3675	959.1		0.08
455	IP365	958.7		-0.66	1575		-----		-----
467	ISO12185	958.65		-0.76	1585	ISO12185	959.2		0.27
480		-----		-----	1586	ISO12185	958.6		-0.85
507	D4052	959.3	C	0.46	1631	ISO12185	958.7		-0.66
541	ISO12185	958.7		-0.66	1648	ISO12185	958.8		-0.48
551	D4052	959.4		0.64	1650	D4052	958.7		-0.66
575	D4052	959.0		-0.10	1669	ISO12185	960.3		2.32
621	D4052	957.8		-2.34	1681	ISO12185	958.82		-0.44
631		-----		-----	1720	D4052	957.9		-2.16
634	D1298	957.0	C,R(0.05)	-3.84	1740	D1298	958.7		-0.66
657	ISO12185	959.5		0.83	1753	ISO12185	957.5		-2.90
704		-----		-----	1776	ISO12185	958.8		-0.48
710	ISO12185	959.02		-0.07	1796	ISO12185	959.3		0.46
736	D1298	958.8		-0.48	1833	ISO12185	958.7		-0.66
752	ISO3675	959.3		0.46	1854	ISO12185	958.8		-0.48
753	ISO12185	959.3		0.46	1857	ISO12185	959.6		1.02
778	ISO12185	959.4		0.64	1862	D1298	959.20		0.27
779	D1298	959.4		0.64	1881	ISO12185	959.4		0.64
781	ISO12185	959.4		0.64	1906		-----		-----
785	D1298	959.2		0.27	1942	D7042	960.4	C	2.51
798		-----		-----	1943		-----		-----
823	ISO12185	958.8		-0.48	1950	ISO12185	959.1		0.08
824	ISO12185	958.7		-0.66	1967	D1298	959.2		0.27
825	ISO12185	958.4		-1.22	1995	D4052	959.1		0.08
840	ISO12185	958.91		-0.27	2129	D4052	959.2		0.27
872	ISO12185	959.2		0.27	2146	ISO12185	958.8		-0.48
873	ISO12185	959.2		0.27	6024	D1298	959.9		1.58
874	ISO12185	959.4		0.64	6026	D1298	959.2		0.27
875	ISO12185	959.7		1.20	6054	D4052	958.92		-0.25

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	ISO12185	964.17	C,R(0.01)	9.55
6092	ISO12185	958.8		-0.48	6406	ISO12185	958.6		-0.85
6112	ISO12185	959.1		0.08	6438	D4052	959.0		-0.10
6142	ISO12185	959.3		0.46	6447		-----		-----
6266	D4052	956.10	R(0.01)	-5.52	6494		-----		-----
6319	D1298	959.2		0.27	6497	D4052	959.0		-0.10
6373	ISO12185	958.8		-0.48					

normality	suspect
n	117
outliers	4
mean (n)	959.055
st.dev. (n)	0.5445
R(calc.)	1.525
st.dev.(ISO12185:96)	0.5357
R(ISO12185:96)	1.5

Lab 171 first reported 0.9590 kg/m^3
Lab 238 first reported 956.0
Lab 273 first reported 963.2
Lab 381 first reported 988.4
Lab 507 first reported 955.2
Lab 634 first reported 0.9570 kg/m^3
Lab 1026 first reported 956.8
Lab 1040 first reported 921.9
Lab 1109 reported 0.9577 kg/m^3
Lab 1167 first reported 957.0
Lab 1942 first reported 961.3
Lab 6404 first reported 956.0





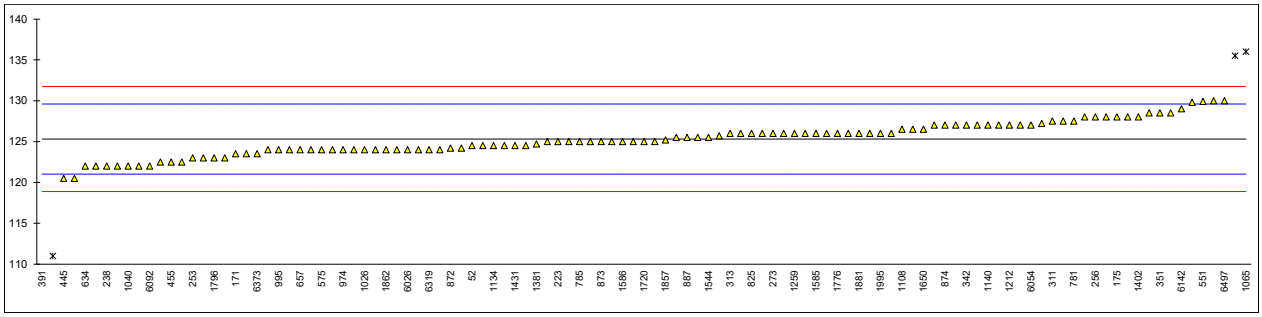
Determination of Flash Point PMcc on sample #22255; results in °C

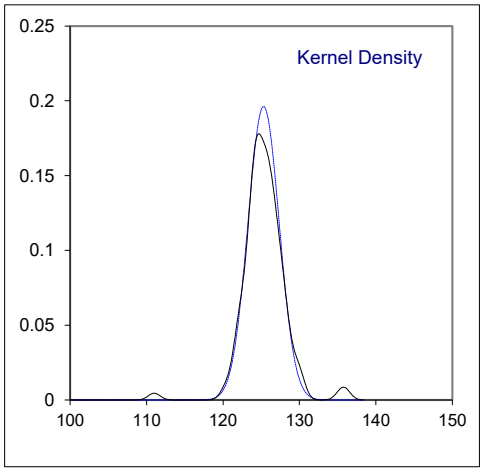
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-B	124.5		-0.38	887	D93-B	125.5		0.09
120	D93-B	127.2		0.88	962	D93-B	122		-1.54
140		-----		-----	963	ISO2719-B	127.5		1.02
150	D93-B	>120		-----	971	ISO2719-B	124.0		-0.61
154	D93-B	>121		-----	974	D93-B	124		-0.61
159		-----		-----	994	D93-B	124.0		-0.61
169	D93-B	123.5		-0.84	995	ISO2719-B	124.0		-0.61
170		-----		-----	996	D93-B	124		-0.61
171	ISO2719-A	123.5		-0.84	997	ISO2719	126.0		0.32
175	D93-B	128		1.26	1011	ISO2719-B	127.0		0.79
212	ISO2719-B	125.7		0.18	1016		-----		-----
223	D93-B	125.0		-0.14	1026	ISO2719-B	124		-0.61
225	D93-B	126.0		0.32	1039	ISO2719-B	>110		-----
228		-----		-----	1040	ISO2719-A	122.0		-1.54
231	D93-B	126		0.32	1065	D93-A	136	R(0.01)	4.99
235	ISO2719-B	125		-0.14	1066		-----		-----
237	D93-B	124.0		-0.61	1108	ISO2719-B	126.5		0.56
238	D93-B	122.0	C	-1.54	1109	D93-A	>115		-----
253	D93-B	123		-1.08	1121	ISO2719-B	124.2		-0.52
256	D93-B	128.0		1.26	1126		-----		-----
273	D93-B	126		0.32	1134	IP34-B	124.5		-0.38
309		-----		-----	1140	IP34-B	127.0		0.79
311	D93-B	127.5		1.02	1167	ISO2719-B	127.0		0.79
313	D93-B	126.0	C	0.32	1191	ISO2719-A	122.0		-1.54
323		-----		-----	1212	ISO2719-B	127.0		0.79
328		-----		-----	1218		-----		-----
333	ISO2719-B	127.0		0.79	1259	ISO2719-B	126		0.32
334	ISO2719-B	123		-1.08	1299	D93-B	111.0	C,R(0.01)	-6.68
339		-----		-----	1320		-----		-----
342	D93-B	127		0.79	1353		-----		-----
349		-----		-----	1356	ISO2719-B	135.5	R(0.01)	4.76
351	ISO2719-B	128.5		1.49	1381	ISO2719-B	124.70		-0.28
360	ISO2719-B	125.0		-0.14	1397	D93-B	124.5		-0.38
372	ISO2719-B	124.0		-0.61	1402	IP34-B	128.0		1.26
381		-----		-----	1431	D93-B	124.5		-0.38
391	ISO2719-B	90	R(0.01)	-16.48	1444	ISO2719-A	126.0		0.32
404		-----		-----	1510		-----		-----
445	ISO2719-A	120.5		-2.24	1544	ISO2719-B	125.50		0.09
447	D93-B	122.5		-1.31	1554	ISO2719-A	124.5		-0.38
455	D93-B	122.5		-1.31	1575		-----		-----
467	ISO2719-B	128.5		1.49	1585	D93-B	126.0		0.32
480		-----		-----	1586	ISO2719-B	125.0		-0.14
507	D93-B	>110		-----	1631	ISO2719-B	126.5		0.56
541	D93-B	125.5		0.09	1648	ISO2719-B	126.0		0.32
551	D93-A	129.9		2.14	1650	D93-B	126.5		0.56
575	D93-B	124.0		-0.61	1669	D93-A	120.5		-2.24
621	D93-B	128.5		1.49	1681	ISO2719-B	125.0		-0.14
631		-----		-----	1720	D93-B	125.0	C	-0.14
634	D93-B	122.0		-1.54	1740	ISO2719-B	127		0.79
657	D93-B	124.0		-0.61	1753	ISO2719-A	124		-0.61
704		-----		-----	1776	ISO2719-B	126.0		0.32
710	D93-B	125.5		0.09	1796	D93-B	123.0		-1.08
736	ISO2719-B	122		-1.54	1833	ISO2719-B	125		-0.14
752	ISO2719-B	122.5		-1.31	1854	D93-B	126		0.32
753	D93-B	128.0		1.26	1857	ISO2719-B	125.2		-0.05
778	D93-B	127.0		0.79	1862	D93-B	124.0		-0.61
779	ISO2719-B	128.0		1.26	1881	ISO2719-B	126.0		0.32
781	ISO2719-B	127.5		1.02	1906		-----		-----
785	D93-B	125.0		-0.14	1942		-----		-----
798		-----		-----	1943		-----		-----
823	ISO2719-B	125.0		-0.14	1950	ISO2719	123.0		-1.08
824	ISO2719-B	125		-0.14	1967	D93-B	126.0		0.32
825	ISO2719-A	126.0		0.32	1995	D93-B	126		0.32
840	D93-B	128.0		1.26	2129	IP34-B	129.8		2.10
872	ISO2719-B	124.2		-0.52	2146		-----		-----
873	ISO2719-B	125.0		-0.14	6024	D93	124.0		-0.61
874	ISO2719-B	127.0		0.79	6026	D93-B	124.0		-0.61
875	ISO2719-B	124.5		-0.38	6054	D93-B	127		0.79

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	ISO2719-B	126.0		0.32
6092	D93-B	122		-1.54	6406	ISO2719-B	130.0		2.19
6112		-----		-----	6438	D93-B	124.0		-0.61
6142	ISO2719-B	129		1.72	6447		-----		-----
6266	D93-B	124.0		-0.61	6494		-----		-----
6319	D93-B	124.0		-0.61	6497	D93-B	130.0		2.19
6373	ISO2719-B	123.5		-0.84					

normality	OK
n	109
outliers	4
mean (n)	125.306
st.dev. (n)	2.0328
R(calc.)	5.692
st.dev.(ISO2719-B:16)	2.1429
R(ISO2719-B:16)	6

Lab 238 first reported 105
Lab 313 first reported 132.5
Lab 1299 first reported 110.0
Lab 1720 first reported 170.1





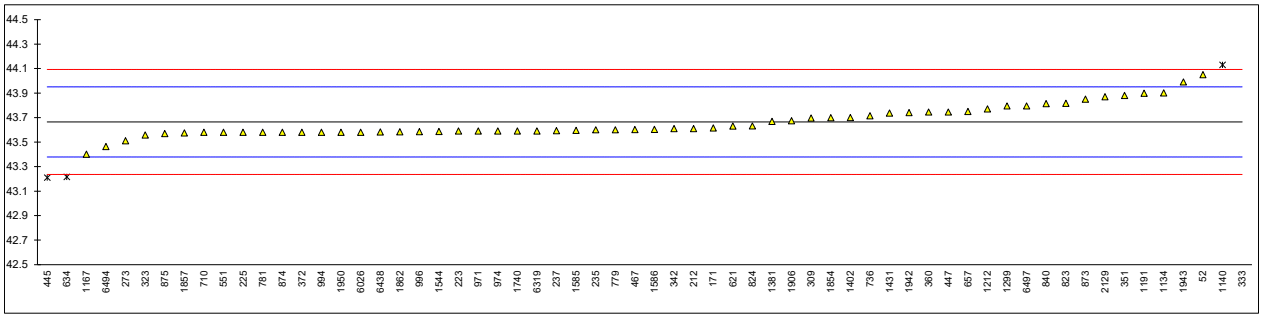
Determination of Heat of Combustion (Gross) on sample #22255; results in MJ/kg

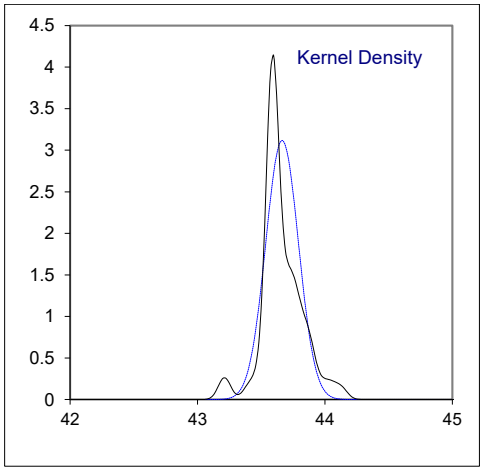
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D240	44.050		2.70	887		-----		-----
120		-----		-----	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971	D4868	43.59		-0.52
154		-----		-----	974	D4868	43.59		-0.52
159		-----		-----	994	D4868	43.58		-0.59
169		-----		-----	995		-----		-----
170		-----		-----	996	D4868	43.585		-0.56
171	D240	43.615		-0.35	997		-----		-----
175		-----		-----	1011		-----		-----
212	D4868	43.61		-0.38	1016		-----		-----
223	D240	43.59		-0.52	1026		-----		-----
225	D4868	43.58		-0.59	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235	D4868	43.60		-0.45	1066		-----		-----
237	D4868	43.593		-0.50	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273	D4868	43.51		-1.08	1134	D240	43.9015		1.66
309	D240	43.695		0.21	1140		44.13	R(0.05)	3.26
311		-----		-----	1167		43.400	C	-1.85
313		-----		-----	1191	D240	43.898		1.63
323	D4868	43.558	C	-0.75	1212	D240	43.771		0.74
328		-----		-----	1218		-----		-----
333	D240	48.845	R(0.01)	36.26	1259		-----		-----
334		-----		-----	1299		43.794		0.90
339		-----		-----	1320		-----		-----
342	D4868	43.61		-0.38	1353		-----		-----
349		-----		-----	1356		-----		-----
351	D4868	43.88		1.51	1381	D240	43.6684		0.02
360	D240	43.745		0.56	1397		-----		-----
372	D4868	43.58		-0.59	1402	IP12	43.70		0.25
381		-----		-----	1431	D240	43.736		0.50
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	D240	43.2099	R(0.05)	-3.19	1544		43.587		-0.55
447	D240	43.745		0.56	1554		-----		-----
455		-----		-----	1575		-----		-----
467	D4868	43.602		-0.44	1585	D4868	43.595		-0.49
480		-----		-----	1586	D240	43.603		-0.43
507		-----		-----	1631		-----		-----
541		-----		-----	1648		-----		-----
551	D4868	43.58		-0.59	1650		-----		-----
575		-----		-----	1669		-----		-----
621	D240	43.63		-0.24	1681		-----		-----
631		-----		-----	1720		-----		-----
634	D240	43.215	R(0.05)	-3.15	1740	D4868	43.590		-0.52
657	D240	43.750		0.60	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D4868	43.579		-0.60	1796		-----		-----
736	D240	43.715		0.35	1833		-----	W	-----
752		-----		-----	1854	D240	43.699		0.24
753		-----		-----	1857	D4868	43.574		-0.64
778		-----		-----	1862	D4868	43.584		-0.57
779	D4868	43.60		-0.45	1881		-----		-----
781	D4868	43.58		-0.59	1906	D4809	43.674		0.06
785		-----		-----	1942		43.74		0.53
798		-----		-----	1943		43.991	C	2.28
823	KSM2057	43.8162		1.06	1950	D4868	43.58		-0.59
824	KSM2057	43.631		-0.24	1967		-----		-----
825		-----		-----	1995		-----		-----
840	D4868	43.8145		1.05	2129	D240	43.869		1.43
872		-----		-----	2146		-----		-----
873	ISO8217	43.85		1.30	6024		-----		-----
874	D4868	43.58		-0.59	6026	D240	43.58		-0.59
875	D4868	43.57		-0.66	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438	D4868	43.582		-0.58
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		43.463	C	-1.41
6319	D4868	43.59		-0.52	6497	D240	43.795		0.91
6373		-----		-----					

normality	OK
n	58
outliers	4
mean (n)	43.6650
st.dev. (n)	0.12799
R(calc.)	0.3584
st.dev.(D240:19)	0.14286
R(D240:19)	0.40

Lab 323 first reported 43.370
Lab 1167 first reported 42.890
Lab 1833 test result withdrawn, reported 44.066
Lab 1943 first reported 44.064
Lab 6494 first reported 43.055





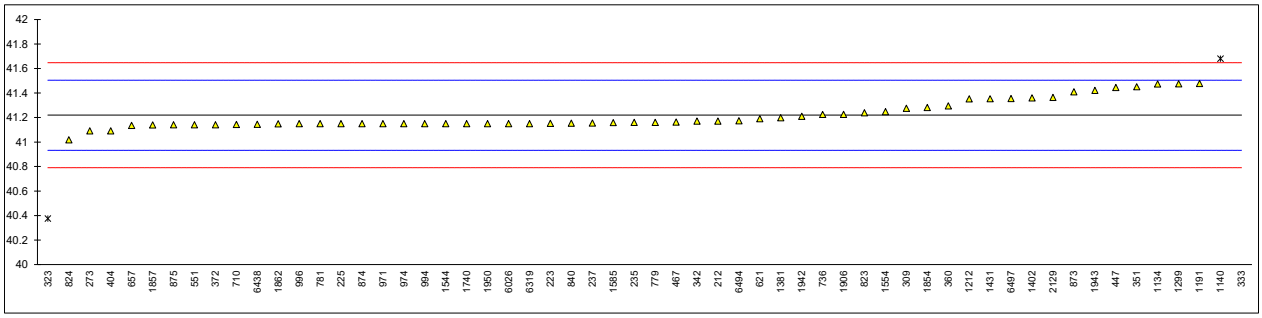
Determination of Heat of Combustion (Net) on sample #22255; results in MJ/kg

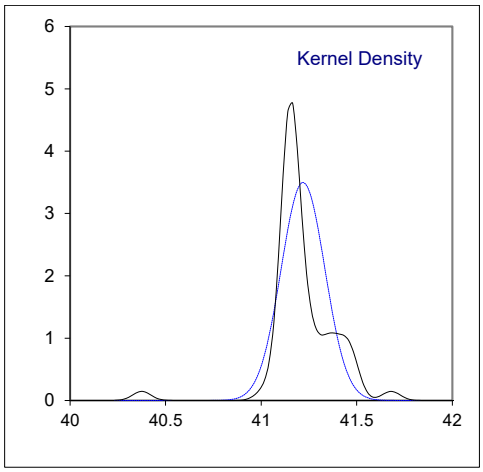
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887		-----		-----
120		-----		-----	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971	D4868	41.15		-0.48
154		-----		-----	974	D4868	41.15		-0.48
159		-----		-----	994	D4868	41.15		-0.48
169		-----		-----	995		-----		-----
170		-----		-----	996	D4868	41.149		-0.49
171		-----		-----	997		-----		-----
175		-----		-----	1011		-----		-----
212	D4868	41.17		-0.34	1016		-----		-----
223	D240	41.152		-0.47	1026		-----		-----
225	D4868	41.15		-0.48	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235	D4868	41.16		-0.41	1066		-----		-----
237	D4868	41.154		-0.46	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273	D4868	41.09		-0.90	1134	D240	41.474		1.78
309	D240	41.275		0.39	1140		41.68	R(0.05)	3.23
311		-----		-----	1167		-----		-----
313		-----		-----	1191	D240	41.477		1.80
323	D4868	40.375	C,R(0.01)	-5.91	1212	D240	41.352		0.93
328		-----		-----	1218		-----		-----
333	D240	46.340	R(0.01)	35.85	1259		-----		-----
334		-----		-----	1299		41.475		1.79
339		-----		-----	1320		-----		-----
342	D4868	41.17		-0.34	1353		-----		-----
349		-----		-----	1356		-----		-----
351	D4868	41.45		1.62	1381	D240	41.1976		-0.15
360	D240	41.294		0.52	1397		-----		-----
372	D4868	41.14		-0.55	1402	IP12	41.36		0.99
381		-----		-----	1431	D240	41.353		0.94
391		-----		-----	1444		-----		-----
404	D4868	41.09		-0.90	1510		-----		-----
445		-----		-----	1544		41.150		-0.48
447	D240	41.445		1.58	1554		41.247		0.19
455		-----		-----	1575		-----		-----
467	D4868	41.163		-0.39	1585	D4868	41.158		-0.43
480		-----		-----	1586		-----		-----
507		-----		-----	1631		-----		-----
541		-----		-----	1648		-----		-----
551	D4868	41.14		-0.55	1650		-----		-----
575		-----		-----	1669		-----		-----
621	D240	41.19		-0.20	1681		-----		-----
631		-----		-----	1720		-----		-----
634		-----		-----	1740	D4868	41.150		-0.48
657	D240	41.135		-0.59	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D4868	41.143		-0.53	1796		-----		-----
736	D240	41.225		0.04	1833		-----		-----
752		-----		-----	1854	D240	41.281		0.43
753		-----		-----	1857	D4868	41.139		-0.56
778		-----		-----	1862	D4868	41.148		-0.50
779	D4868	41.16		-0.41	1881		-----		-----
781	D4868	41.15		-0.48	1906	D4809	41.226		0.05
785		-----		-----	1942		41.21		-0.06
798		-----		-----	1943		41.422	C	1.42
823	KSM2057	41.2380		0.13	1950	D4868	41.15		-0.48
824	KSM2057	41.018		-1.41	1967		-----		-----
825		-----		-----	1995		-----		-----
840	D240	41.153		-0.46	2129	D240	41.363		1.01
872		-----		-----	2146		-----		-----
873	ISO8217	41.41		1.34	6024		-----		-----
874	D4868	41.15		-0.48	6026	D240	41.15		-0.48
875	D4868	41.14		-0.55	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438	D4868	41.145		-0.52
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		41.172	C	-0.33
6319	D4868	41.15		-0.48	6497	D240	41.355		0.95
6373		-----		-----					

normality	suspect
n	55
outliers	3
mean (n)	41.2193
st.dev. (n)	0.11406
R(calc.)	0.3194
st.dev.(D240:19)	0.14286
R(D240:19)	0.40

Lab 323 first reported 40.930
Lab 1943 first reported 41.478
Lab 6494 first reported 40.7618





Determination of Hydrogen Sulfide on sample #22255; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887		-----		-----
120		-----		-----	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971	IP570-A	<0.60		-----
154		-----		-----	974		-----		-----
159		-----		-----	994		-----		-----
169		-----		-----	995		-----		-----
170		-----		-----	996		-----		-----
171	IP570-A	0.00		-----	997		-----		-----
175		-----		-----	1011		-----		-----
212		-----		-----	1016		-----		-----
223	IP570-A	0.01		-----	1026		-----		-----
225		-----		-----	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235		-----		-----	1066		-----		-----
237		-----		-----	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140	IP570-B	<0.5		-----
311		-----		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323	IP570-A	< 0.60		-----	1212	IP570-A	0		-----
328		-----		-----	1218		-----		-----
333		-----		-----	1259		-----		-----
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381		-----		-----
360		-----		-----	1397		-----		-----
372	IP570-A	<0.60		-----	1402		-----		-----
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	IP570-A	0.00		-----	1544		-----		-----
447	IP570-A	<0.01		-----	1554		-----		-----
455		-----		-----	1575		-----		-----
467		-----		-----	1585	IP570-A	0.00		-----
480		-----		-----	1586	IP570-A	0.00		-----
507		-----		-----	1631		-----		-----
541		-----		-----	1648	IP570-A	<0.60		-----
551		-----		-----	1650		-----		-----
575		-----		-----	1669		-----		-----
621		-----		-----	1681		-----		-----
631		-----		-----	1720		-----		-----
634		-----		-----	1740	IP570-A	<0.60		-----
657	IP570-A	<0.60		-----	1753		-----		-----
704		-----		-----	1776		-----		-----
710		-----		-----	1796		-----		-----
736	IP570-A	0.00		-----	1833		-----		-----
752		-----		-----	1854	IP570-B	<0.60		-----
753		-----		-----	1857	IP570-B	0.41		-----
778		-----		-----	1862	IP570	0.00		-----
779		-----		-----	1881		-----		-----
781	IP570-A	<0.60		-----	1906		-----		-----
785		-----		-----	1942		-----		-----
798		-----		-----	1943		-----		-----
823		-----		-----	1950		-----		-----
824		-----		-----	1967	IP399	0.2328		-----
825		-----		-----	1995		-----		-----
840	IP399	<0.5		-----	2129	IP499	<0.5		-----
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874	IP570-A	<0.60		-----	6026		-----		-----
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	IP570-A	0.03		-----
6112		-----		-----	6438		-----		-----
6142	IP570-A	0		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373		-----		-----					

n	25
mean (n)	<0.60

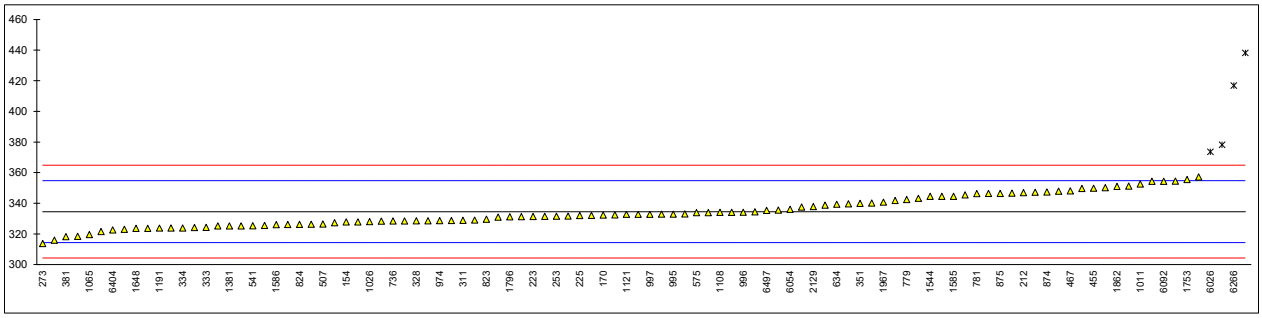
Determination of Kinematic Viscosity at 50 °C on sample #22255; results in mm²/s

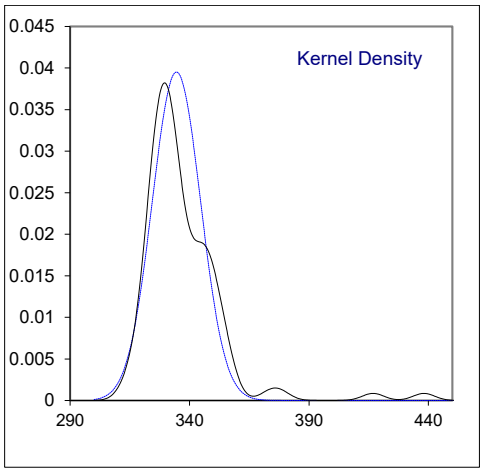
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	337.5		0.29	887		-----		-----
120	D445	344.5		0.98	962	D445	331.2		-0.33
140		-----		-----	963	ISO3104	331.59		-0.29
150		-----		-----	971	ISO3104	327.8		-0.67
154	D445	327.8		-0.67	974	D445	328.6		-0.59
159		-----		-----	994	D445	334.4		-0.01
169	D445	323.9		-1.05	995	ISO3104	332.9		-0.16
170	D445	332.25		-0.23	996	D445	334.1		-0.04
171	ISO3104	318.4		-1.60	997	ISO3104	332.8		-0.17
175	D445	347.2		1.25	1011	ISO3104	352.6		1.79
212	ISO3104	346.90		1.22	1016		-----		-----
223	D445	331.3		-0.32	1026	ISO3104	328		-0.65
225	D445	332.0		-0.25	1039	ISO3104	357.10		2.23
228		-----		-----	1040	ISO3104	332.89		-0.16
231		-----		-----	1065	D445	319.51		-1.49
235	ISO3104	331.3732		-0.31	1066		-----		-----
237	D445	354.4		1.96	1108	ISO3104	334.0		-0.05
238		-----		-----	1109	D445	326.3		-0.82
253	D445	331.5		-0.30	1121	ISO3104	332.75		-0.18
256	D445	332.1		-0.24	1126	ISO3104	332.38		-0.21
273	D445	313.7	C	-2.06	1134	IP71	326.14		-0.83
309		-----		-----	1140	IP71	327.3		-0.72
311	D445	328.8		-0.57	1167		-----		-----
313	D445	335.6		0.10	1191	ISO3104	323.74		-1.07
323	ISO3104	378.1	R(0.05)	4.31	1212		-----		-----
328	ISO3104	328.5		-0.60	1218		-----		-----
333	ISO3104	324.3		-1.01	1259		-----		-----
334	ISO3104	323.9		-1.05	1299	D445	329.0		-0.55
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356	ISO3104	325.5		-0.89
351	ISO3104	339.90		0.53	1381	ISO3104	325.25		-0.92
360	ISO3104	332.79		-0.17	1397		-----		-----
372	D445	354.3		1.95	1402	ISO3104	438.1	R(0.01)	10.24
381	D445	318.2		-1.62	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	ISO3104	324.2		-1.02	1544	ISO3104	344.4300		0.98
447	D445	315.8		-1.85	1554		-----		-----
455	IP71	349.8		1.51	1575		-----		-----
467	ISO3104	348.05		1.34	1585	ISO3104	344.5		0.98
480		-----		-----	1586	D445	326.0		-0.85
507	D445	326.5		-0.80	1631		-----		-----
541	D445	325.3		-0.91	1648	ISO3104	323.54		-1.09
551	D445	328.3		-0.62	1650	ISO3104	333.05		-0.15
575	D445	333.8		-0.07	1669	D445	328.4		-0.61
621	D445	323		-1.14	1681	ISO3104	343.26		0.86
631		-----		-----	1720		-----		-----
634	D445	339.35		0.48	1740	ISO3104	323.6		-1.08
657	ISO3104	341.8		0.72	1753	ISO3104	355.5343		2.08
704		-----		-----	1776		-----		-----
710	D445	325.27		-0.92	1796	D445	331.1		-0.34
736	ISO3104	328.4		-0.61	1833		-----		-----
752	ISO3104	328.7		-0.58	1854	ISO3104	328.5		-0.60
753	ISO3104	345.4		1.07	1857	ISO3104	346.61		1.19
778	D445	339.6		0.50	1862	D445	350.98		1.63
779	ISO3104	342.4		0.78	1881	ISO3104	333.87		-0.07
781	ISO3104	346.30		1.16	1906		-----		-----
785	D445	346.4		1.17	1942		-----		-----
798		-----		-----	1943		-----		-----
823	ISO3104	329.6		-0.49	1950	ISO3104	351.20		1.65
824	ISO3104	326.2		-0.83	1967	D445	340.7360		0.61
825	ISO3104	325.2		-0.92	1995	D445	334		-0.05
840	D445	338.77		0.42	2129	ISO3104	337.79	C	0.32
872	ISO3104	347.9		1.32	2146		-----		-----
873	D445	350.2		1.55	6024	D445	340.1		0.55
874	ISO3104	347.4		1.27	6026	ISO3104	373.6	R(0.05)	3.86
875	ISO3104	346.4		1.17	6054	D445	336.01511875		0.15

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	ISO3104	322.6		-1.18
6092	D445	354.3	C	1.95	6406	ISO3104	330.95		-0.36
6112		-----		-----	6438	D445	321.6		-1.28
6142	ISO3104	349.6		1.49	6447		-----		-----
6266	D445	416.82	R(0.01)	8.14	6494		-----		-----
6319		-----		-----	6497	D445	335.3		0.07
6373		-----		-----					

normality	OK
n	100
outliers	4
mean (n)	334.5457
st.dev. (n)	10.09907
R(calc.)	28.2774
st.dev.(ISO3104:20)	10.10926
R(ISO3104:20)	28.3059

Lab 273 first reported 301.6
Lab 2129 first reported 361.25
Lab 6092 first reported 364.3



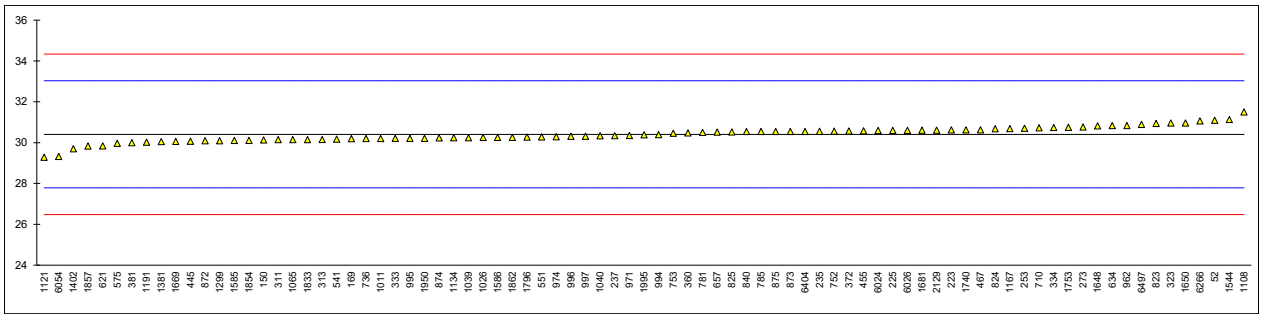


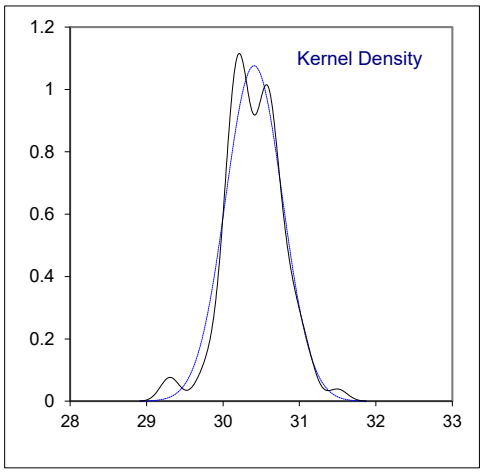
Determination of Kinematic Viscosity at 100 °C on sample #22255; results in mm²/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	31.09		0.52	887		-----		-----
120		-----		-----	962	D445	30.84		0.33
140		-----		-----	963		-----		-----
150	D445	30.13		-0.21	971	ISO3104	30.35		-0.04
154		-----		-----	974	D445	30.29		-0.09
159		-----		-----	994	D445	30.39		-0.01
169	D445	30.19		-0.17	995	ISO3104	30.21		-0.15
170		-----		-----	996	D445	30.31		-0.07
171		-----		-----	997	ISO3104	30.31		-0.07
175		-----		-----	1011	ISO3104	30.20		-0.16
212		-----		-----	1016		-----		-----
223	D445	30.62		0.16	1026	D445	30.25		-0.12
225	D445	30.60		0.15	1039	ISO3104	30.24		-0.13
228		-----		-----	1040	ISO3104	30.33		-0.06
231		-----		-----	1065	D445	30.14		-0.20
235	ISO3104	30.555		0.11	1066		-----		-----
237	D445	30.34		-0.05	1108	ISO3104	31.5		0.83
238		-----		-----	1109		-----		-----
253	D445	30.7		0.22	1121	ISO3104	29.29		-0.85
256		-----		-----	1126		-----		-----
273	D445	30.77		0.28	1134	IP71	30.239		-0.13
309		-----		-----	1140		-----		-----
311	D445	30.14		-0.20	1167	ISO3104	30.69		0.22
313	D445	30.15		-0.20	1191	ISO3104	30.023		-0.29
323	ISO3104	30.96		0.42	1212		-----		-----
328		-----		-----	1218		-----		-----
333	ISO3104	30.21		-0.15	1259		-----		-----
334	ISO3104	30.74		0.25	1299	D445	30.09		-0.24
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381	ISO3104	30.045		-0.28
360	ISO3104	30.475		0.05	1397		-----		-----
372	D445	30.57		0.12	1402	ISO3104	29.70		-0.54
381	D445	30.00		-0.31	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	ISO3104	30.07		-0.26	1544	ISO3104	31.1300		0.55
447		-----		-----	1554		-----		-----
455	IP71	30.58		0.13	1575		-----		-----
467	ISO3104	30.623		0.16	1585	ISO3104	30.106		-0.23
480		-----		-----	1586	D445	30.26		-0.11
507		-----		-----	1631		-----		-----
541	D445	30.17		-0.18	1648	ISO3104	30.818		0.31
551	D445	30.28		-0.10	1650	ISO3104	30.960		0.42
575	D445	29.97		-0.33	1669	D445	30.06		-0.27
621	D445	29.84		-0.43	1681	ISO3104	30.608		0.15
631		-----		-----	1720		-----		-----
634	D445	30.835		0.33	1740	ISO3104	30.62		0.16
657	ISO3104	30.51		0.08	1753	ISO3104	30.7508		0.26
704		-----		-----	1776		-----		-----
710	D445	30.721		0.24	1796	ISO3104	30.27		-0.10
736	ISO3104	30.20		-0.16	1833	ISO3104	30.14		-0.20
752	ISO3104	30.56		0.12	1854	ISO3104	30.11		-0.23
753	ISO3104	30.46		0.04	1857	ISO3104	29.833		-0.44
778		-----		-----	1862	D445	30.261		-0.11
779		-----		-----	1881		-----		-----
781	ISO3104	30.500		0.07	1906		-----		-----
785	D445	30.55		0.11	1942		-----		-----
798		-----		-----	1943		-----		-----
823	D445	30.94		0.41	1950	ISO3104	30.21		-0.15
824	ISO3104	30.68		0.21	1967		-----		-----
825	ISO3104	30.52		0.09	1995	D445	30.38		-0.02
840	D445	30.541		0.10	2129	ISO3104	30.61		0.15
872	ISO3104	30.09		-0.24	2146		-----		-----
873	D445	30.55		0.11	6024	D445	30.59		0.14
874	ISO3104	30.23		-0.14	6026	ISO3104	30.60		0.15
875	ISO3104	30.55		0.11	6054	D445	29.325		-0.83

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	ISO3104	30.55		0.11
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438		-----		-----
6142		-----		-----	6447		-----		-----
6266	D445	31.066		0.50	6494		-----		-----
6319		-----		-----	6497	D445	30.89		0.37
6373		-----		-----					

normality	suspect
n	83
outliers	0
mean (n)	30.4072
st.dev. (n)	0.37076
R(calc.)	1.0381
st.dev.(ISO3104:20)	1.30968
R(ISO3104:20)	3.6671





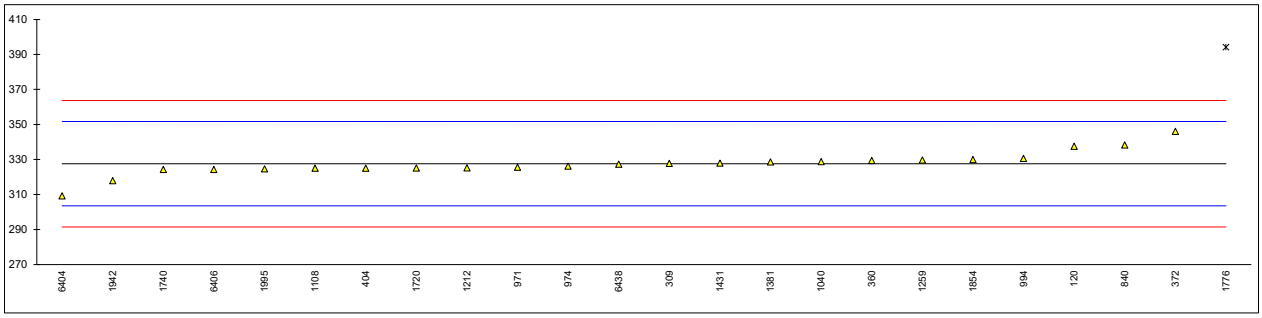
Determination of Kinematic Viscosity Stabinger at 50 °C on sample #22255; results in mm²/s

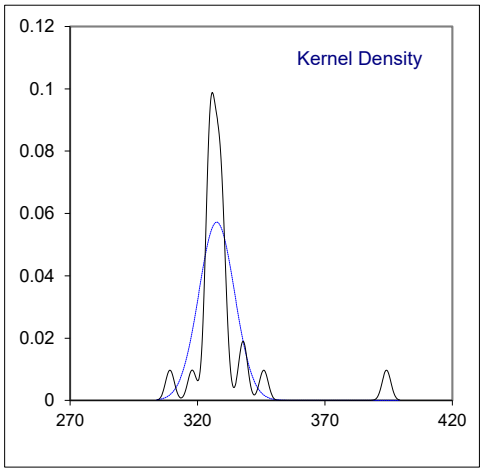
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887		-----		-----
120	D7042	337.54		0.83	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971	D7042	325.5		-0.17
154		-----		-----	974	D7042	326.2		-0.11
159		-----		-----	994	D7042	330.6		0.25
169		-----		-----	995		-----		-----
170		-----		-----	996		-----		-----
171		-----		-----	997		-----		-----
175		-----		-----	1011		-----		-----
212		-----		-----	1016		-----		-----
223		-----		-----	1026		-----		-----
225		-----		-----	1039		-----		-----
228		-----		-----	1040	D7042	328.75		0.10
231		-----		-----	1065		-----		-----
235		-----		-----	1066		-----		-----
237		-----		-----	1108	D7042	325		-0.21
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309	D7042	327.74		0.02	1140		-----		-----
311		-----		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323		-----		-----	1212	D7042	325.2		-0.20
328		-----		-----	1218		-----		-----
333		-----		-----	1259	D7042	329.61		0.17
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381	D7042	328.52		0.08
360	D7042	329.36		0.15	1397		-----		-----
372	D7042	346.0	C	1.53	1402		-----		-----
381		-----		-----	1431	D7042	327.87		0.03
391		-----		-----	1444		-----		-----
404	D7042	325.02		-0.21	1510		-----		-----
445		-----		-----	1544		-----		-----
447		-----		-----	1554		-----		-----
455		-----		-----	1575		-----		-----
467		-----		-----	1585		-----		-----
480		-----		-----	1586		-----		-----
507		-----		-----	1631		-----		-----
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
575		-----		-----	1669		-----		-----
621		-----		-----	1681		-----		-----
631		-----		-----	1720	D7042	325.1		-0.20
634		-----		-----	1740	D7042	324.2		-0.28
657		-----		-----	1753		-----		-----
704		-----		-----	1776	D7042	394.16	R(0.01)	5.53
710		-----		-----	1796		-----		-----
736		-----		-----	1833		-----		-----
752		-----		-----	1854	D7042	329.9		0.20
753		-----		-----	1857		-----		-----
778		-----		-----	1862		-----		-----
779		-----		-----	1881		-----		-----
781		-----		-----	1906		-----		-----
785		-----		-----	1942	D7042	317.90		-0.80
798		-----		-----	1943		-----		-----
823		-----		-----	1950		-----		-----
824		-----		-----	1967		-----		-----
825		-----		-----	1995	D7042	324.58		-0.25
840	D7042	338.25		0.89	2129		-----		-----
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874		-----		-----	6026		-----		-----
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	D7042	309.2		-1.52
6092		-----		-----	6406	D7042	324.27		-0.27
6112		-----		-----	6438	D7042	327.3		-0.02
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373		-----		-----					

normality	not OK
n	23
outliers	1
mean (n)	327.5482
st.dev. (n)	6.97632
R(calc.)	19.5337
st.dev.(D7042:21a)	12.03740
R(D7042:21a)	33.7047

Lab 372 first reported 356.0



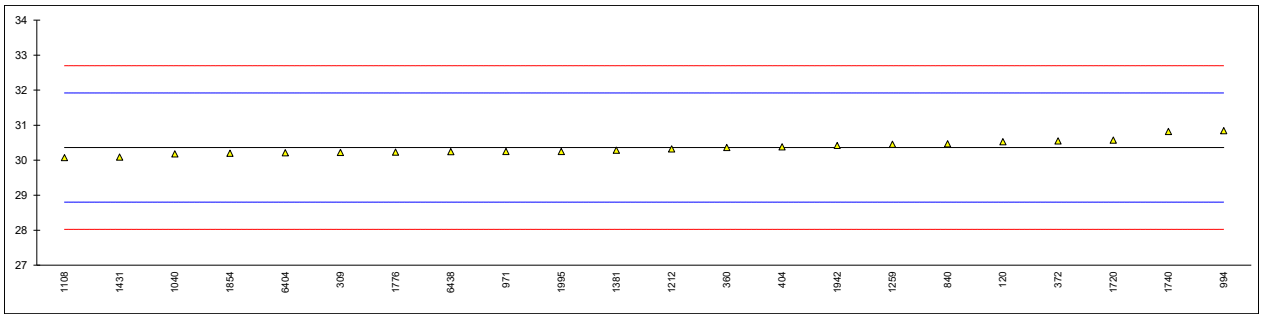


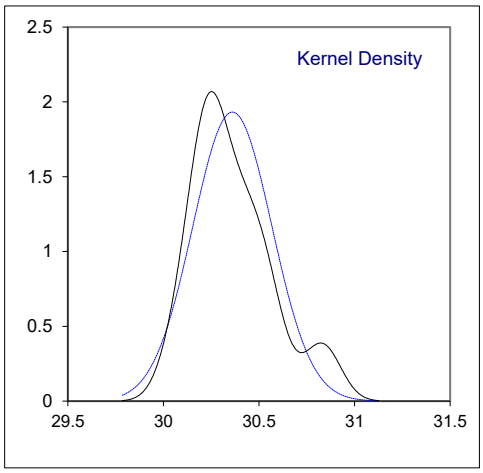
Determination of Kinematic Viscosity Stabinger at 100 °C on sample #22255; results in mm²/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887		-----		-----
120	D7042	30.525		0.21	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971	D7042	30.25		-0.14
154		-----		-----	974		-----		-----
159		-----		-----	994	D7042	30.84		0.62
169		-----		-----	995		-----		-----
170		-----		-----	996		-----		-----
171		-----		-----	997		-----		-----
175		-----		-----	1011		-----		-----
212		-----		-----	1016		-----		-----
223		-----		-----	1026		-----		-----
225		-----		-----	1039		-----		-----
228		-----		-----	1040	D7042	30.178		-0.23
231		-----		-----	1065		-----		-----
235		-----		-----	1066		-----		-----
237		-----		-----	1108	D7042	30.07		-0.37
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309	D7042	30.22		-0.18	1140		-----		-----
311		-----		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323		-----		-----	1212	D7042	30.32		-0.05
328		-----		-----	1218		-----		-----
333		-----		-----	1259		30.452		0.12
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381	D7042	30.281		-0.10
360	D7042	30.365		0.01	1397		-----		-----
372	D7042	30.55		0.24	1402		-----		-----
381		-----		-----	1431	D7042	30.089		-0.35
391		-----		-----	1444		-----		-----
404	D7042	30.38		0.03	1510		-----		-----
445		-----		-----	1544		-----		-----
447		-----		-----	1554		-----		-----
455		-----		-----	1575		-----		-----
467		-----		-----	1585		-----		-----
480		-----		-----	1586		-----		-----
507		-----		-----	1631		-----		-----
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
575		-----		-----	1669		-----		-----
621		-----		-----	1681		-----		-----
631		-----		-----	1720	D7042	30.57		0.27
634		-----		-----	1740	D7042	30.82		0.59
657		-----		-----	1753		-----		-----
704		-----		-----	1776	D7042	30.229		-0.17
710		-----		-----	1796		-----		-----
736		-----		-----	1833		-----		-----
752		-----		-----	1854	D7042	30.20		-0.21
753		-----		-----	1857		-----		-----
778		-----		-----	1862		-----		-----
779		-----		-----	1881		-----		-----
781		-----		-----	1906		-----		-----
785		-----		-----	1942	D7042	30.42		0.08
798		-----		-----	1943		-----		-----
823		-----		-----	1950		-----		-----
824		-----		-----	1967		-----		-----
825		-----		-----	1995	D7042	30.25		-0.14
840	D7042	30.466		0.14	2129		-----		-----
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874		-----		-----	6026		-----		-----
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	D7042	30.21		-0.19
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438	D7042	30.24		-0.15
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373		-----		-----					

normality	OK
n	22
outliers	0
mean (n)	30.3602
st.dev. (n)	0.20646
R(calc.)	0.5781
st.dev.(D7042:21a)	0.77917
R(D7042:21a)	2.1817





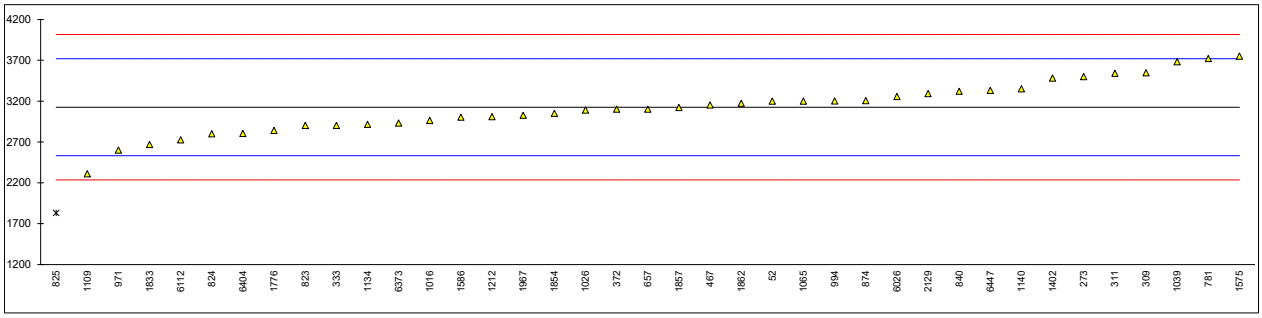
Determination of Nitrogen on sample #22255; results in mg/kg

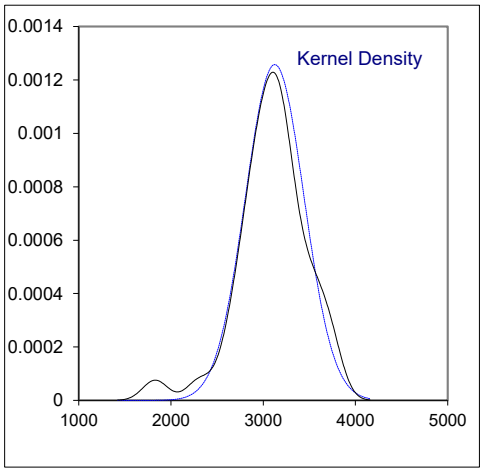
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	3200		0.25	887		-----		-----
120		-----		-----	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971	D5762 Gravimetric	2600		-1.77
154		-----		-----	974		-----		-----
159		-----		-----	994	D5762 Volumetric	3201		0.26
169		-----		-----	995		-----		-----
170		-----		-----	996		-----		-----
171		-----		-----	997		-----		-----
175		-----		-----	1011		-----		-----
212		-----		-----	1016		2962.81		-0.55
223		-----		-----	1026	D5762 Gravimetric	3090		-0.12
225		-----		-----	1039	D4629	3680.6	C	1.87
228		-----		-----	1040		-----		-----
231		-----		-----	1065	D4629	3200		0.25
235		-----		-----	1066		-----		-----
237		-----		-----	1108		-----		-----
238		-----		-----	1109	D4629 Gravimetric	2310		-2.75
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273	D5762 Gravimetric	3500		1.26	1134	D5762 Gravimetric	2915.324		-0.71
309	D5762	3546		1.42	1140	D4629	3351		0.76
311	D5762 Volumetric	3540		1.40	1167		-----		-----
313		-----		-----	1191		-----		-----
323		-----		-----	1212	D5762 Volumetric	3009		-0.39
328		-----		-----	1218		-----		-----
333	D5762 Gravimetric	2900		-0.76	1259		-----		-----
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381		-----		-----
360		-----		-----	1397		-----		-----
372	D5762 Volumetric	3100		-0.08	1402	D5762 Volumetric	3480.67		1.20
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544		-----		-----
447		-----		-----	1554		-----		-----
455		-----		-----	1575	D3228	3750		2.11
467	D5762 Gravimetric	3152		0.09	1585		-----		-----
480		-----		-----	1586	D5762 Volumetric	3003		-0.41
507		-----		-----	1631		-----		-----
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
575		-----		-----	1669		-----		-----
621		-----		-----	1681		-----		-----
631		-----		-----	1720		-----		-----
634		-----		-----	1740		-----		-----
657	D5762 Gravimetric	3100		-0.08	1753		-----		-----
704		-----		-----	1776	D5762 Volumetric	2840		-0.96
710		-----		-----	1796		-----		-----
736		-----		-----	1833	D4629	2669		-1.54
752		-----		-----	1854	D4629	3050		-0.25
753		-----		-----	1857	D5762 Gravimetric	3120		-0.02
778		-----		-----	1862	D5762 Gravimetric	3172		0.16
779		-----		-----	1881		-----		-----
781	D5762 Gravimetric	3720		2.00	1906		-----		-----
785		-----		-----	1942		-----		-----
798		-----		-----	1943		-----		-----
823	D5762 Gravimetric	2900		-0.76	1950		-----		-----
824	D5762 Volumetric	2800		-1.09	1967	D5762	3025		-0.34
825	D4629	1830	R(0.05)	-4.36	1995		-----		-----
840	D3223	3320		0.66	2129	D3228	3291		0.56
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874	D5762	3205		0.27	6026	D5762 Gravimetric	3257		0.44
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	D5762 Gravimetric	2802.69		-1.09
6092		-----		-----	6406		-----		-----
6112	D4629	2724		-1.35	6438		-----		-----
6142		-----		-----	6447	D4629	3330		0.69
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373	D4629	2931		-0.65					

normality	OK
n	38
outliers	1
mean (n)	3124.95
st.dev. (n)	317.394
R(calc.)	888.70
st.dev.(D5762:18a)	296.870
R(D5762:18a)	831.24

Lab 1039 first reported 4100.56





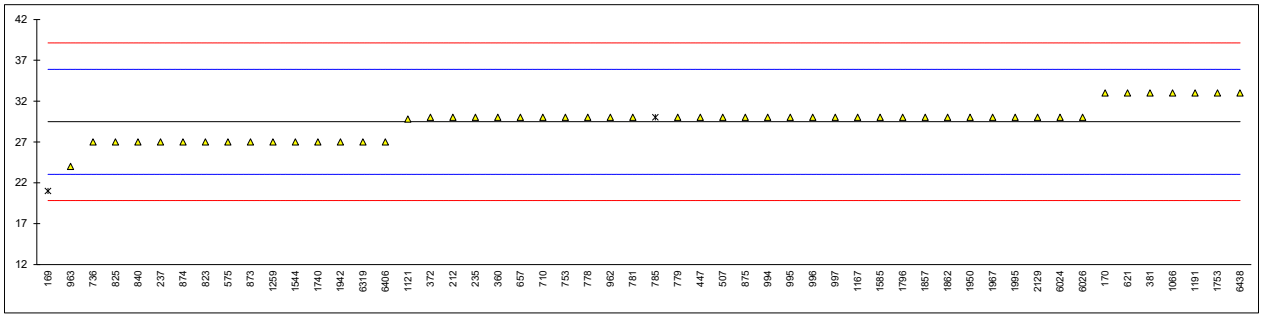
Determination of Pour Point Lower on sample #22255; results in °C

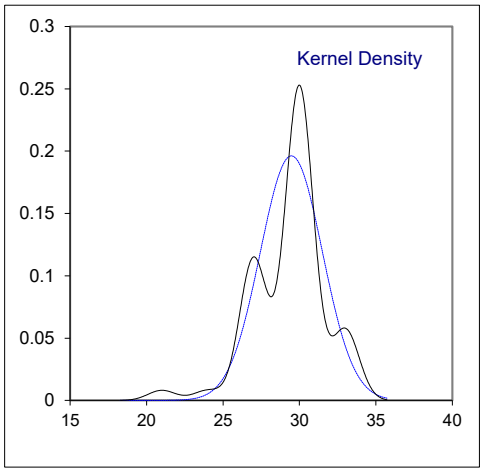
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887		-----		-----
120		-----		-----	962	D97	30		0.16
140		-----		-----	963	ISO3016	24		-1.70
150		-----		-----	971		-----		-----
154		-----		-----	974		-----		-----
159		-----		-----	994	D97	30		0.16
169	D97	21	R(0.01)	-2.64	995	ISO3016	30		0.16
170	D97	33		1.10	996	D97	30		0.16
171		-----		-----	997	ISO3016	30		0.16
175		-----		-----	1011		-----		-----
212	ISO3016	30		0.16	1016		-----		-----
223		-----		-----	1026		-----		-----
225		-----		-----	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235	ISO3016	30		0.16	1066	ISO3016	33		1.10
237	D97	27		-0.77	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO3016	29.8		0.10
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140		-----		-----
311		-----		-----	1167	ISO3016	30		0.16
313		-----		-----	1191	ISO3016	33		1.10
323		-----		-----	1212		-----		-----
328		-----		-----	1218		-----		-----
333		-----		-----	1259	ISO3016	27		-0.77
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381		-----		-----
360	ISO3016	30		0.16	1397		-----		-----
372	ISO3016	30		0.16	1402		-----		-----
381	ISO3016	33		1.10	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544	ISO3016	27.0		-0.77
447	IP15	30		0.16	1554		-----		-----
455		-----		-----	1575		-----		-----
467		-----		-----	1585	ISO3016	30		0.16
480		-----		-----	1586		-----		-----
507	D97	30		0.16	1631		-----		-----
541		-----		-----	1648		-----		-----
551		-----		-----	1650		-----		-----
575	D97	27		-0.77	1669		-----		-----
621	D97	33		1.10	1681		-----		-----
631		-----		-----	1720		-----		-----
634		-----		-----	1740	D97	27		-0.77
657	ISO3016	30		0.16	1753	D97	33		1.10
704		-----		-----	1776		-----		-----
710	D97	30		0.16	1796	D97	30		0.16
736	ISO3016	27		-0.77	1833		-----		-----
752		-----		-----	1854		-----		-----
753	ISO3016	30		0.16	1857	ISO3016	30		0.16
778	D97	30		0.16	1862	ISO3016	30		0.16
779	ISO3016	30		0.16	1881		-----		-----
781	ISO3016	30		0.16	1906		-----		-----
785	ISO3016	30.0	ex	0.16	1942	D97	27		-0.77
798		-----		-----	1943		-----		-----
823	ISO3016	27		-0.77	1950	ISO3016	30		0.16
824		-----		-----	1967	D97	30		0.16
825	ISO3016	27		-0.77	1995	D97	30		0.16
840	D97	27		-0.77	2129	ISO3016	30		0.16
872		-----		-----	2146		-----		-----
873	ISO3016	27		-0.77	6024	ISO3016	30		0.16
874	ISO3016	27		-0.77	6026	ISO3016	30		0.16
875	ISO3016	30		0.16	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	ISO3016	27		-0.77
6112		-----		-----	6438	D97	33		1.10
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319	D97	27		-0.77	6497		-----		-----
6373		-----		-----					

normality	OK
n	52
outliers	1 +1ex
mean (n)	29.48
st.dev. (n)	2.033
R(calc.)	5.69
st.dev.(ISO3016:19)	3.214
R(ISO3016:19)	9

Lab 785 test result excluded as PP Lower > PP Upper, which in theory is not possible





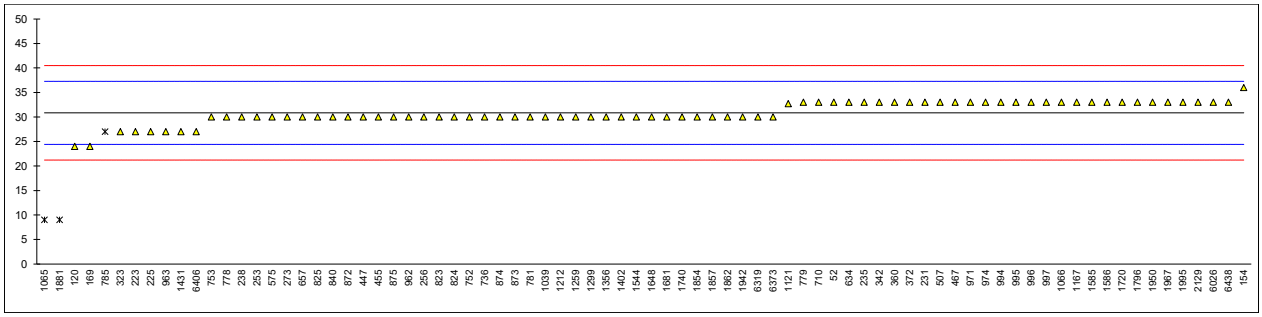
Determination of Pour Point Upper on sample #22255; results in °C

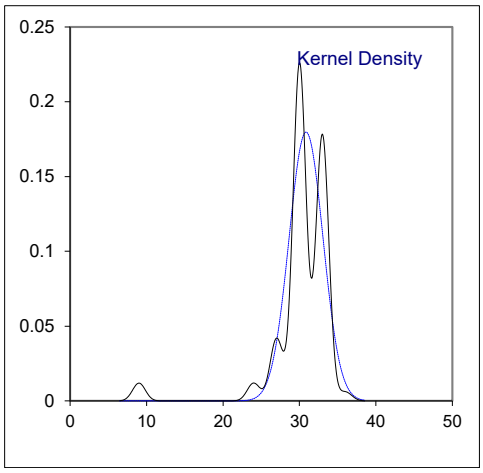
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	33		0.67	887		-----		-----
120	D97	24.0		-2.13	962	D97	30		-0.27
140		-----		-----	963	ISO3016	27		-1.20
150		-----		-----	971	ISO3016	33		0.67
154	D97	36		1.60	974	D97	33		0.67
159		-----		-----	994	D97	33		0.67
169	D97	24		-2.13	995	ISO3016	33		0.67
170		-----		-----	996	D97	33		0.67
171		-----		-----	997	ISO3016	33		0.67
175		-----		-----	1011		-----		-----
212		-----		-----	1016		-----		-----
223	D97	27		-1.20	1026		-----		-----
225	D97	27		-1.20	1039	ISO3016	30		-0.27
228		-----		-----	1040		-----		-----
231	D97	33		0.67	1065	D97	9	R(0.01)	-6.80
235	ISO3016	33		0.67	1066	ISO3016	33		0.67
237		-----		-----	1108		-----		-----
238	D97	30		-0.27	1109		-----		-----
253	D97	30		-0.27	1121	ISO3016	32.7		0.57
256	D97	30		-0.27	1126		-----		-----
273	D97	30	C	-0.27	1134		-----		-----
309		-----		-----	1140		-----		-----
311		-----		-----	1167	ISO3016	33		0.67
313		-----		-----	1191		-----		-----
323	ISO3016	27		-1.20	1212	D97	30		-0.27
328		-----		-----	1218		-----		-----
333		-----		-----	1259	ISO3016	30		-0.27
334		-----		-----	1299	D97	30		-0.27
339		-----		-----	1320		-----		-----
342	D97	33		0.67	1353		-----		-----
349		-----		-----	1356	ISO3016	30		-0.27
351		-----		-----	1381		-----		-----
360	ISO3016	33		0.67	1397		-----		-----
372	ISO3016	33		0.67	1402	ISO3016	30		-0.27
381		-----		-----	1431	D97	27		-1.20
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544	ISO3016	30.0		-0.27
447	IP15	30		-0.27	1554		-----		-----
455	D97	30		-0.27	1575		-----		-----
467	ISO3016	33		0.67	1585	ISO3016	33		0.67
480		-----		-----	1586	ISO3016	33		0.67
507	D97	33		0.67	1631		-----		-----
541		-----		-----	1648	ISO3016	30		-0.27
551		-----		-----	1650		-----		-----
575	D97	30		-0.27	1669		-----		-----
621		-----		-----	1681	ISO3016	30		-0.27
631		-----		-----	1720	D97	33		0.67
634	D97	33		0.67	1740	D97	30		-0.27
657	ISO3016	30		-0.27	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D97	33		0.67	1796	D97	33		0.67
736	ISO3016	30		-0.27	1833		-----		-----
752	ISO3016	30		-0.27	1854	ISO3016	30		-0.27
753	ISO3016	30		-0.27	1857	ISO3016	30		-0.27
778	D97	30		-0.27	1862	ISO3016	30		-0.27
779	ISO3016	33		0.67	1881	ISO3016	9	R(0.01)	-6.80
781	ISO3016	30		-0.27	1906		-----		-----
785	ISO3016	27.0	ex	-1.20	1942	D97	30		-0.27
798		-----		-----	1943		-----		-----
823	ISO3016	30		-0.27	1950	ISO3016	33		0.67
824	ISO3016	30		-0.27	1967	D97	33		0.67
825	ISO3016	30		-0.27	1995	D97	33		0.67
840	D97	30		-0.27	2129	ISO3016	33		0.67
872	ISO3016	30		-0.27	2146		-----		-----
873	ISO3016	30		-0.27	6024		-----		-----
874	ISO3016	30		-0.27	6026	ISO3016	33		0.67
875	ISO3016	30		-0.27	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	ISO3016	27		-1.20
6112		-----		-----	6438	D97	33		0.67
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319	D97	30		-0.27	6497		-----		-----
6373	D97	30		-0.27					

normality	suspect
n	77
outliers	2 +1ex
mean (n)	30.85
st.dev. (n)	2.219
R(calc.)	6.21
st.dev.(ISO3016:19)	3.214
R(ISO3016:19)	9

Lab 273 first reported 21
Lab 785 test result excluded as PP Lower > PP Upper, which in theory is not possible





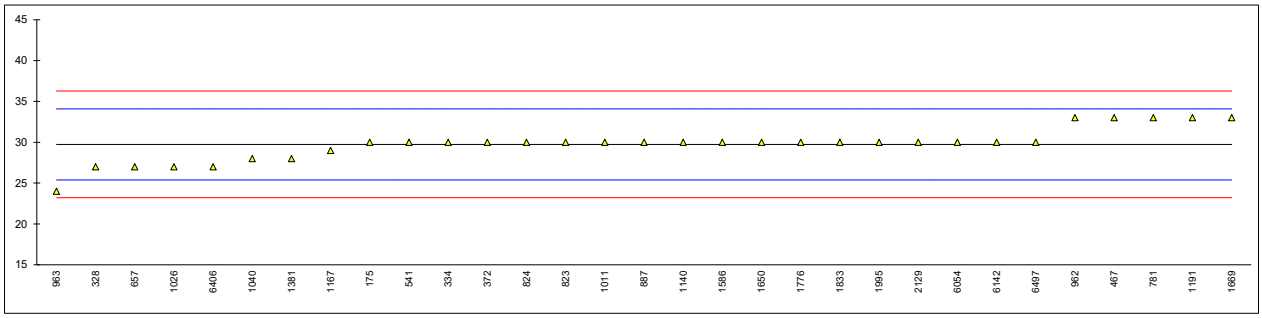
Determination of Pour Point Automated 3 °C interval on sample #22255; results in °C

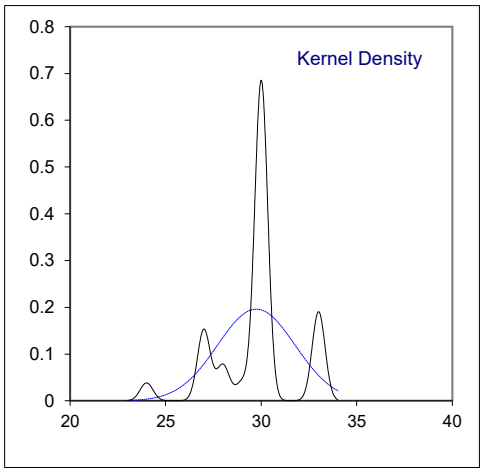
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	887	D6749	30	C	0.12
120		-----		-----	962	D5950	33		1.50
140		-----		-----	963	D5950	24		-2.64
150		-----		-----	971		-----		-----
154		-----		-----	974		-----		-----
159		-----		-----	994		-----		-----
169		-----		-----	995		-----		-----
170		-----		-----	996		-----		-----
171		-----		-----	997		-----		-----
175	D5950	30		0.12	1011	D6892	30		0.12
212		-----		-----	1016		-----		-----
223		-----		-----	1026	D5950	27		-1.26
225		-----		-----	1039		-----		-----
228		-----		-----	1040	D5950	28.0		-0.80
231		-----		-----	1065		-----		-----
235		-----		-----	1066		-----		-----
237		-----		-----	1108	D5950	>30		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140	D5950	30		0.12
311		-----		-----	1167	D6749	29		-0.34
313		-----		-----	1191	D5950	33		1.50
323		-----		-----	1212		-----		-----
328	D5950	27		-1.26	1218		-----		-----
333		-----		-----	1259		-----		-----
334	D5950	30		0.12	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381	D6749	28.0		-0.80
360		-----		-----	1397		-----		-----
372	D5950	30		0.12	1402		-----		-----
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544		-----		-----
447		-----		-----	1554		-----		-----
455		-----		-----	1575		-----		-----
467	D6892	33		1.50	1585		-----		-----
480		-----		-----	1586	D5950	30		0.12
507		-----		-----	1631		-----		-----
541	D5950	30		0.12	1648		-----		-----
551		-----		-----	1650	D5950	30		0.12
575		-----		-----	1669	D5950	33	C	1.50
621		-----		-----	1681		-----		-----
631		-----		-----	1720		-----		-----
634		-----		-----	1740		-----		-----
657	D5950	27		-1.26	1753		-----		-----
704		-----		-----	1776	D5950	30		0.12
710		-----		-----	1796		-----		-----
736		-----		-----	1833	D5950	30		0.12
752		-----		-----	1854		-----		-----
753		-----		-----	1857		-----		-----
778		-----		-----	1862		-----		-----
779		-----		-----	1881		-----		-----
781	D5950	33		1.50	1906		-----		-----
785		-----		-----	1942		-----		-----
798		-----		-----	1943		-----		-----
823	D5950	30		0.12	1950		-----		-----
824	D6892	30		0.12	1967		-----		-----
825		-----		-----	1995	D5950	30		0.12
840		-----		-----	2129	D5950	30		0.12
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874		-----		-----	6026		-----		-----
875		-----		-----	6054	D5950	30		0.12

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	D5950	27		-1.26
6112		-----		-----	6438		-----		-----
6142	D5950	30		0.12	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497	D5950	30		0.12
6373		-----		-----					

normality	suspect
n	31
outliers	0
mean (n)	29.74
st.dev. (n)	2.033
R(calc.)	5.69
st.dev.(D5950:14R20)	2.179
R(D5950:14R20)	6.1

Lab 887 first reported -30
Lab 1669 first reported 9



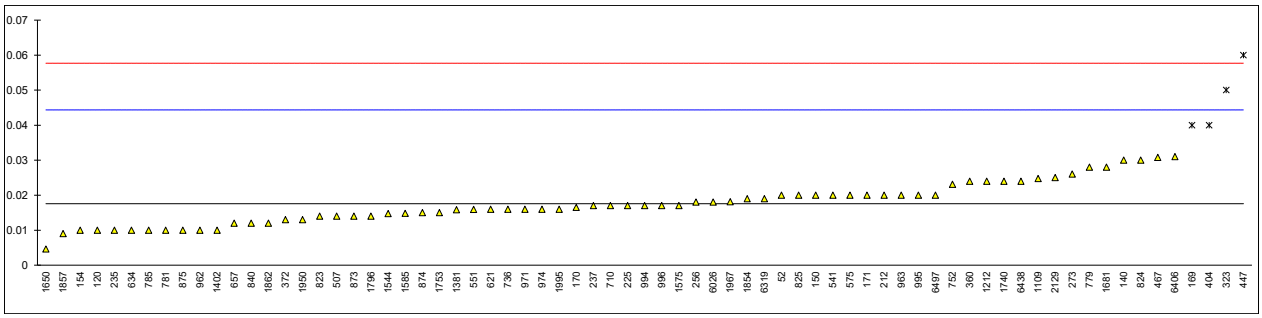


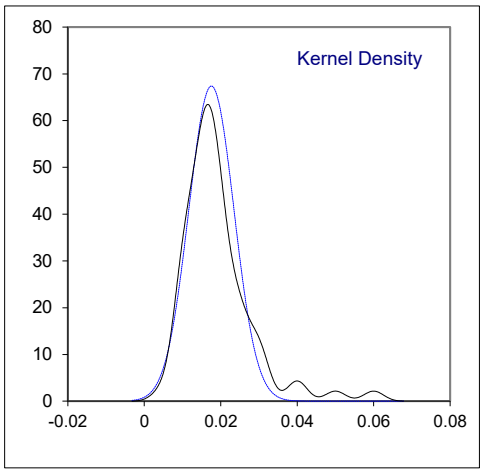
Determination of Sediment by Extraction on sample #22255; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D473	0.02		0.18	887		-----		-----
120	D473	0.01		-0.56	962	D473	0.01		-0.56
140	D473	0.03		0.93	963	D473	0.02		0.18
150	D473	0.02		0.18	971	D473	0.016		-0.12
154	D473	0.01		-0.56	974	D473	0.016		-0.12
159		-----		-----	994	D473	0.017		-0.04
169	D473	0.04	R(0.05)	1.68	995	D473	0.020		0.18
170	D473	0.0165		-0.08	996	D473	0.017		-0.04
171	D473	0.02		0.18	997		-----		-----
175		-----		-----	1011		-----		-----
212	D473	0.02		0.18	1016		-----		-----
223		-----		-----	1026		-----		-----
225	D473	0.017		-0.04	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235	D473	0.01		-0.56	1066		-----		-----
237	D473	0.017		-0.04	1108		-----		-----
238		-----		-----	1109	D473	0.02476		0.54
253		-----		-----	1121		-----		-----
256	D473	0.018		0.03	1126		-----		-----
273	D473	0.026		0.63	1134	D473	<0.01		-----
309		-----		-----	1140		-----		-----
311	D473	<0.01		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323	D473	0.05	R(0.01)	2.42	1212	D473	0.024		0.48
328		-----		-----	1218		-----		-----
333		-----		-----	1259		-----		-----
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342		-----		-----	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381	ISO3735	0.0158		-0.13
360	D473	0.024		0.48	1397		-----		-----
372	D473	0.013		-0.34	1402	IP53	0.01		-0.56
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404	D473	0.04	R(0.05)	1.68	1510		-----		-----
445		-----		-----	1544	D473	0.0147		-0.21
447	D473	0.06	R(0.01)	3.17	1554		-----		-----
455		-----		-----	1575	D473	0.017		-0.04
467	D473	0.0308		0.99	1585	D473	0.0148		-0.21
480		-----		-----	1586		-----		-----
507	D473	0.014		-0.27	1631		-----		-----
541	D473	0.02		0.18	1648		-----		-----
551	D473	0.0159		-0.12	1650	D473	0.0046		-0.97
575	D473	0.02		0.18	1669		-----		-----
621	D473	0.016		-0.12	1681	D473	0.028		0.78
631		-----		-----	1720		-----		-----
634	D473	0.01		-0.56	1740	ISO3735	0.024		0.48
657	D473	0.012		-0.41	1753	D473	0.015		-0.19
704		-----		-----	1776		-----		-----
710	D473	0.017		-0.04	1796	D473	0.014		-0.27
736	D473	0.016		-0.12	1833		-----		-----
752	D473	0.0231		0.41	1854	D473	0.019		0.11
753		-----		-----	1857	D473	0.009		-0.64
778		-----		-----	1862	D473	0.012		-0.41
779	D473	0.028		0.78	1881		-----		-----
781	D473	0.01		-0.56	1906		-----		-----
785	D473	0.01		-0.56	1942		-----		-----
798		-----		-----	1943		-----		-----
823	D473	0.014		-0.27	1950	D473	0.013		-0.34
824	D473	0.030		0.93	1967	D473	0.0181		0.04
825	D473	0.02		0.18	1995	D473	0.016		-0.12
840	D473	0.012		-0.41	2129	D473	0.025		0.56
872		-----		-----	2146		-----		-----
873	D473	0.014		-0.27	6024		-----		-----
874	D473	0.015		-0.19	6026	D473	0.018		0.03
875	D473	0.01		-0.56	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	D473	0.031		1.00
6112		-----		-----	6438	D473	0.024		0.48
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319	D473	0.019		0.11	6497	D473	0.02		0.18
6373		-----		-----					

normality	OK
n	67
outliers	4
mean (n)	0.0176
st.dev. (n)	0.00592
R(calc.)	0.0166
st.dev.(D473:22)	0.01338
R(D473:22)	0.0375





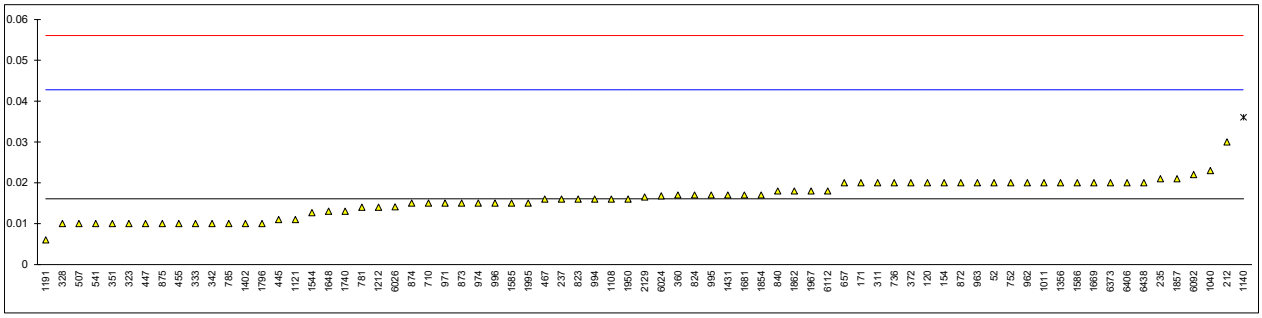
Determination of Total Sediment Existent (TSE) of sample #22255; results in %M/M

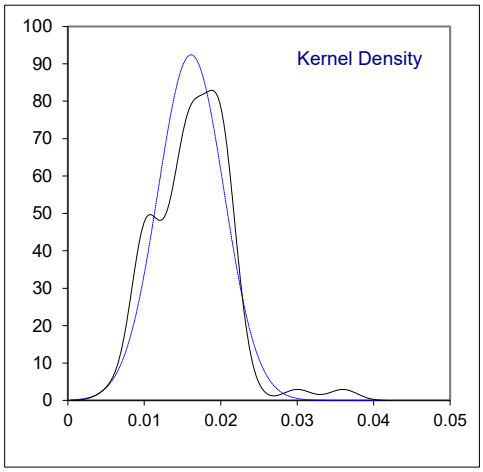
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	0.02		0.29	887		-----		-----
120	D4870	0.02		0.29	962	D4870	0.02		0.29
140		-----		-----	963	IP375	0.02		0.29
150		-----		-----	971	IP375	0.015		-0.08
154	D4870	0.02		0.29	974	IP375	0.015		-0.08
159		-----		-----	994	IP375	0.016		-0.01
169		-----		-----	995	IP375	0.017		0.07
170		-----		-----	996	D4870	0.015		-0.08
171	IP375	0.02		0.29	997		-----		-----
175		-----		-----	1011	ISO10307-1	0.02		0.29
212	ISO10307-1	0.03		1.04	1016		-----		-----
223		-----		-----	1026		-----		-----
225		-----		-----	1039		-----		-----
228		-----		-----	1040	ISO10307-1	0.023		0.52
231		-----		-----	1065		-----		-----
235	ISO10307-1	0.021		0.37	1066		-----		-----
237	D4870	0.016		-0.01	1108	ISO10307-1	0.016		-0.01
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO10307-1	0.011		-0.38
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140	IP375	0.036	R(0.01)	1.49
311	ISO10307-1	0.02		0.29	1167		-----		-----
313		-----		-----	1191	ISO10307-1	0.00603		-0.76
323	ISO10307-1	0.01		-0.46	1212	IP375	0.014		-0.16
328	IP375	0.01		-0.46	1218		-----		-----
333	ISO10307-1	0.01		-0.46	1259		-----		-----
334		-----		-----	1299	ISO10307-1	<0.01		-----
339		-----		-----	1320		-----		-----
342	ISO10307-1	0.01		-0.46	1353		-----		-----
349		-----		-----	1356	ISO10307-1	0.02		0.29
351	ISO10307-1	0.01		-0.46	1381		-----		-----
360	IP375	0.017		0.07	1397		-----		-----
372	IP375	0.020		0.29	1402	IP375	0.01		-0.46
381		-----		-----	1431	D4870	0.017	C	0.07
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	IP375	0.011		-0.38	1544	ISO10307-1	0.0127		-0.26
447	IP375	0.01		-0.46	1554		-----		-----
455	IP375	0.01		-0.46	1575		-----		-----
467	ISO10307-1	0.016		-0.01	1585	IP375	0.015		-0.08
480		-----		-----	1586	ISO10307-1	0.02		0.29
507	D4870	0.01		-0.46	1631		-----		-----
541	D4870	0.01		-0.46	1648	ISO10307-1	0.013		-0.23
551		-----		-----	1650		-----		-----
575		-----		-----	1669	ISO10307-1	0.02		0.29
621		-----		-----	1681	IP375	0.017		0.07
631		-----		-----	1720		-----		-----
634		-----		-----	1740	D4870	0.013		-0.23
657	IP375	0.02		0.29	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D4870	0.015		-0.08	1796	IP375	0.010		-0.46
736	IP375	0.02		0.29	1833		-----		-----
752	IP375	0.02		0.29	1854	ISO10307-1	0.017		0.07
753		-----		-----	1857	IP375	0.021		0.37
778		-----		-----	1862	ISO10307-1	0.018		0.14
779		-----		-----	1881		-----		-----
781	IP375	0.014		-0.16	1906		-----		-----
785	IP375	0.01		-0.46	1942		-----		-----
798		-----		-----	1943		-----		-----
823	ISO10307-1	0.016		-0.01	1950	IP375	0.016		-0.01
824	ISO10307-1	0.017		0.07	1967	IP375	0.0180		0.14
825		-----		-----	1995	D4870	0.015		-0.08
840	D4870	0.018		0.14	2129	IP375	0.0165		0.03
872	IP375	0.02		0.29	2146		-----		-----
873	IP375	0.015		-0.08	6024	IP375	0.0168		0.05
874	IP375	0.015		-0.08	6026	ISO10307-1	0.0141		-0.15
875	IP375	0.01		-0.46	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092	IP375	0.022		0.44	6406	ISO10307-1	0.02		0.29
6112	IP375	0.018		0.14	6438	IP375	0.02		0.29
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373	ISO10307-1	0.02		0.29					

normality	OK
n	72
outliers	1
mean (n)	0.0161
st.dev. (n)	0.00432
R(calc.)	0.0121
st.dev.(IP375:11R22)	0.01332
R(IP375:11R22)	0.0373

Lab 1431 first reported 0.033





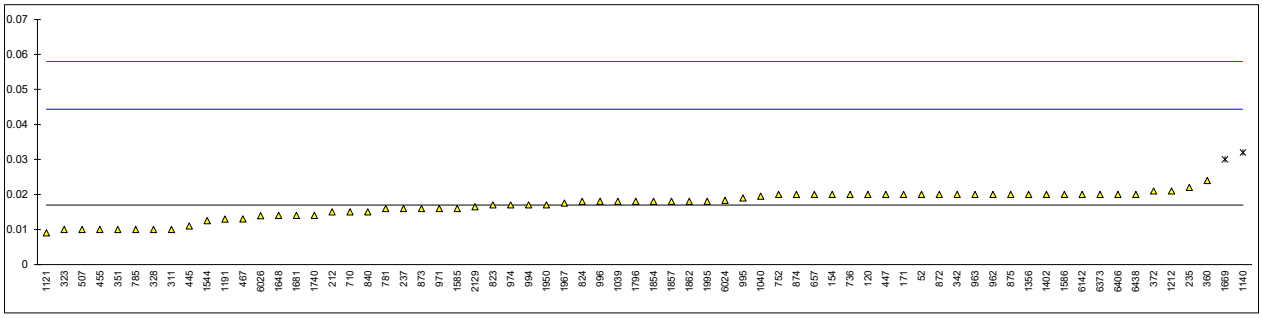
Determination of Total Sediment Accelerated (TSA) of sample #22255; results in %M/M

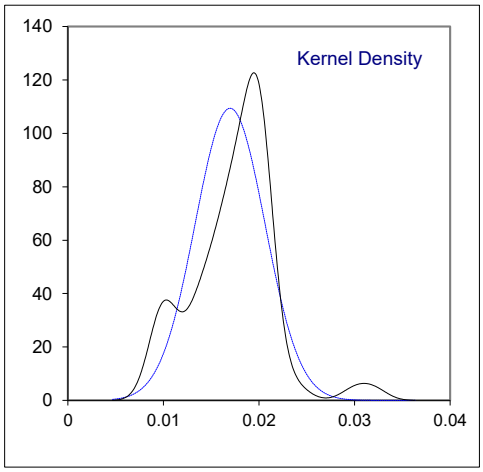
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	0.02		0.22	887		-----		-----
120	D4870	0.02		0.22	962	D4870	0.02		0.22
140		-----		-----	963	IP390	0.02		0.22
150		-----		-----	971	IP390	0.016		-0.07
154	D4870	0.02		0.22	974	IP390	0.017		0.00
159		-----		-----	994	IP390	0.017		0.00
169		-----		-----	995	IP390	0.019		0.15
170		-----		-----	996	D4870	0.018		0.08
171	ISO10307-2	0.02		0.22	997		-----		-----
175		-----		-----	1011		-----		-----
212	ISO10307-2	0.015		-0.14	1016		-----		-----
223		-----		-----	1026		-----		-----
225		-----		-----	1039	ISO10307-2	0.018		0.08
228		-----		-----	1040	ISO10307-2	0.0195		0.18
231		-----		-----	1065		-----		-----
235	ISO10307-2	0.022	C	0.37	1066		-----		-----
237	D4870	0.016		-0.07	1108		-----		-----
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO10307-2	0.009		-0.58
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140	IP390	0.032	R(0.05)	1.10
311	ISO10307-2	0.01		-0.51	1167		-----		-----
313		-----		-----	1191	ISO10307-2	0.01295		-0.29
323	ISO10307-2	0.01		-0.51	1212	IP390	0.021		0.29
328	IP390	0.01		-0.51	1218		-----		-----
333		-----		-----	1259		-----		-----
334		-----		-----	1299	ISO10307-2	<0.01		-----
339		-----		-----	1320		-----		-----
342	ISO10307-2	0.02		0.22	1353		-----		-----
349		-----		-----	1356	ISO10307-2	0.02		0.22
351	ISO10307-2	0.01		-0.51	1381		-----		-----
360	IP390	0.024		0.51	1397		-----		-----
372	IP390	0.021		0.29	1402	IP390	0.02		0.22
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445	IP390	0.011		-0.44	1544	ISO10307-2	0.0125		-0.33
447	IP390	0.02		0.22	1554		-----		-----
455	IP390	0.01		-0.51	1575		-----		-----
467	ISO10307-2	0.013		-0.29	1585	IP390	0.016		-0.07
480		-----		-----	1586	ISO10307-2	0.02		0.22
507	D4870	0.01		-0.51	1631		-----		-----
541		-----		-----	1648	ISO10307-2	0.014		-0.22
551		-----		-----	1650		-----		-----
575		-----		-----	1669	ISO10307-2	0.03	R(0.05)	0.95
621		-----		-----	1681	IP390	0.014		-0.22
631		-----		-----	1720		-----		-----
634		-----		-----	1740	D4870	0.014		-0.22
657	IP390	0.02		0.22	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D4870	0.015		-0.14	1796	IP390	0.018		0.08
736	IP390	0.02		0.22	1833		-----		-----
752	IP390	0.02		0.22	1854	ISO10307-2	0.018		0.08
753		-----		-----	1857	IP390	0.018		0.08
778		-----		-----	1862	ISO10307-2	0.018		0.08
779		-----		-----	1881		-----		-----
781	IP390	0.016		-0.07	1906		-----		-----
785	IP390	0.01		-0.51	1942		-----		-----
798		-----		-----	1943		-----		-----
823	ISO10307-2	0.017		0.00	1950	IP390	0.017		0.00
824	ISO10307-2	0.018		0.08	1967	ISO10307-2	0.0175		0.04
825		-----		-----	1995	D4870	0.018		0.08
840	ISO10307-2	0.015		-0.14	2129	IP390	0.0165		-0.03
872	IP390	0.02		0.22	2146		-----		-----
873	IP390	0.016		-0.07	6024	IP390	0.0183		0.10
874	IP390	0.020		0.22	6026	ISO10307-2	0.0139		-0.22
875	IP390	0.02		0.22	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	ISO10307-2	0.02		0.22
6112		-----		-----	6438	IP390	0.02		0.22
6142	ISO10307-2	0.02		0.22	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373	ISO10307-2	0.02		0.22					

normality	OK
n	66
outliers	2
mean (n)	0.0170
st.dev. (n)	0.00365
R(calc.)	0.0102
st.dev.(IP390:11R17)	0.01368
R(IP390:11R17)	0.0383

Lab 235 first reported 0.031





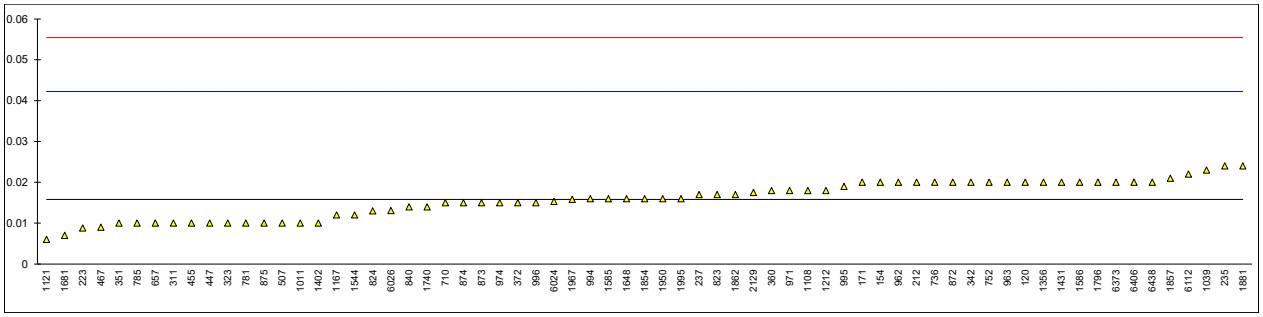
Determination of Total Sediment Potential (TSP) of sample #22255; results in %M/M

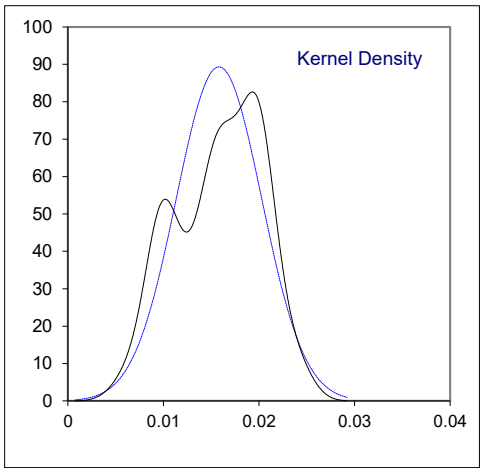
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	<0.01		-----	887		-----		-----
120	D4870	0.02		0.32	962	D4870	0.02		0.32
140		-----		-----	963	IP390	0.02		0.32
150		-----		-----	971	IP390	0.018		0.17
154	D4870	0.02		0.32	974	IP390	0.015		-0.06
159		-----		-----	994	IP390	0.016		0.01
169		-----		-----	995	IP390	0.019		0.24
170		-----		-----	996	D4870	0.015		-0.06
171	IP390	0.02		0.32	997		-----		-----
175		-----		-----	1011	ISO10307-2	0.01		-0.44
212	ISO10307-2	0.02		0.32	1016		-----		-----
223	IP390	0.0088		-0.53	1026		-----		-----
225		-----		-----	1039	ISO10307-2	0.023		0.54
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235	ISO10307-2	0.024		0.62	1066		-----		-----
237	D4870	0.017		0.09	1108		0.018		0.17
238		-----		-----	1109		-----		-----
253		-----		-----	1121	ISO10307-2	0.006		-0.74
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140	IP390	<0.01		-----
311	ISO10307-2	0.01	C	-0.44	1167	ISO10307-2	0.012		-0.29
313		-----		-----	1191		-----		-----
323	ISO10307-2	0.01		-0.44	1212	IP390	0.018		0.17
328		-----		-----	1218		-----		-----
333		-----		-----	1259		-----		-----
334		-----		-----	1299		-----		-----
339		-----		-----	1320		-----		-----
342	ISO10307-2	0.02		0.32	1353		-----		-----
349		-----		-----	1356	ISO10307-2	0.02		0.32
351	ISO10307-2	0.01		-0.44	1381		-----		-----
360	IP390	0.018		0.17	1397		-----		-----
372	IP390	0.015		-0.06	1402	IP390	0.01		-0.44
381		-----		-----	1431	D4870	0.020	C	0.32
391		-----		-----	1444		-----		-----
404		-----		-----	1510		-----		-----
445		-----		-----	1544	ISO10307-2	0.0120		-0.29
447	IP390	0.01		-0.44	1554		-----		-----
455	IP390	0.01		-0.44	1575		-----		-----
467	ISO10307-2	0.009		-0.52	1585	IP390	0.016		0.01
480		-----		-----	1586	IP390	0.02		0.32
507	D4870	0.01		-0.44	1631		-----		-----
541		-----		-----	1648	ISO10307-2	0.016		0.01
551		-----		-----	1650		-----		-----
575		-----		-----	1669		-----		-----
621		-----		-----	1681	IP390	0.007		-0.67
631		-----		-----	1720		-----		-----
634		-----		-----	1740	D4870	0.014		-0.14
657	IP390	0.01		-0.44	1753		-----		-----
704		-----		-----	1776		-----		-----
710	D4870	0.015		-0.06	1796	IP390	0.020		0.32
736	IP390	0.02		0.32	1833		-----		-----
752	IP390	0.02		0.32	1854	ISO10307-2	0.016		0.01
753		-----		-----	1857	IP390	0.021		0.39
778		-----		-----	1862	ISO10307-2	0.017		0.09
779		-----		-----	1881	ISO10307-2	0.024		0.62
781	IP390	0.010		-0.44	1906		-----		-----
785	IP390	0.01		-0.44	1942		-----		-----
798		-----		-----	1943		-----		-----
823	ISO10307-2	0.017		0.09	1950	IP390	0.016		0.01
824	ISO10307-2	0.013		-0.21	1967	ISO10307-2	0.0158		0.00
825		-----		-----	1995	D4870	0.016		0.01
840	ISO10307-2	0.014		-0.14	2129	IP390	0.0175		0.13
872	IP390	0.02		0.32	2146		-----		-----
873	IP390	0.015		-0.06	6024	IP390	0.0153		-0.04
874	IP390	0.015		-0.06	6026	ISO10307-2	0.0131		-0.21
875	IP390	0.01		-0.44	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406	ISO10307-2	0.02		0.32
6112	IP390	0.022		0.47	6438	IP390	0.02		0.32
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373	ISO10307-2	0.02		0.32					

normality	OK
n	67
outliers	0
mean (n)	0.0158
st.dev. (n)	0.00446
R(calc.)	0.0125
st.dev.(IP390:11R17)	0.01320
R(IP390:11R17)	0.0370

Lab 311 first reported 0.03
Lab 1431 first reported 0.0321





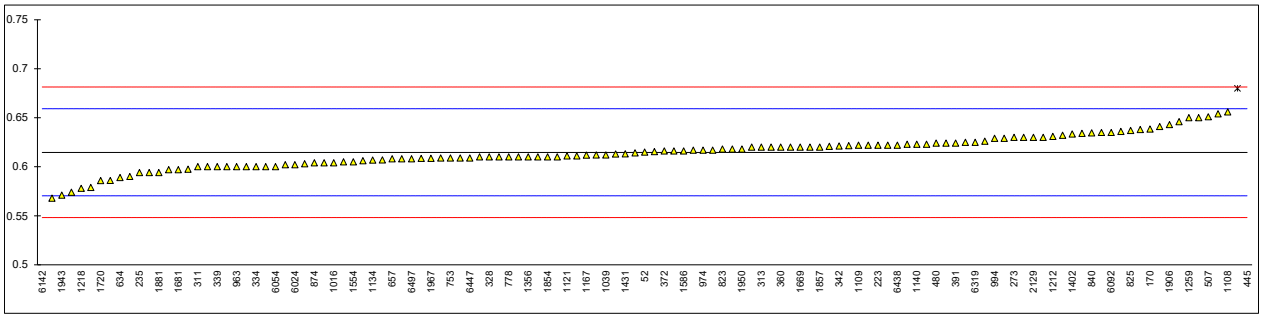
Determination of Total Sulfur on sample #22255; results in %M/M

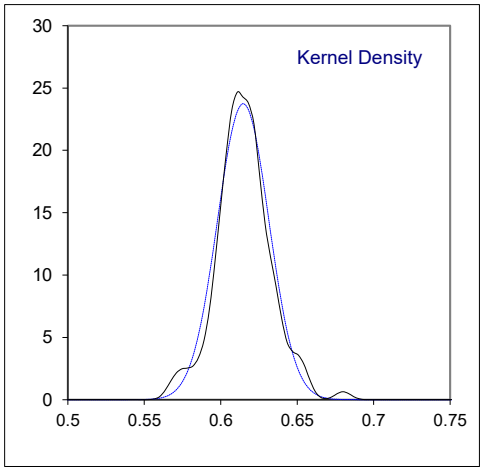
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4294	0.615		0.01	887		-----		-----
120	D4294	0.636		0.96	962	D4294	0.609		-0.26
140	D4294	0.629		0.64	963	ISO8754	0.6		-0.66
150	D4294	0.634		0.87	971	ISO8754	0.617		0.10
154	D4294	0.646		1.41	974	D4294	0.617		0.10
159		-----		-----	994	D4294	0.629		0.64
169	D4294	0.654		1.77	995	ISO8754	0.638		1.05
170	D4294	0.6384		1.07	996	D4294	0.624		0.42
171	D4294	0.616		0.06	997		-----		-----
175		-----		-----	1011	ISO8754	0.60		-0.66
212	ISO8754	0.5788		-1.62	1016	ISO8754	0.604		-0.48
223	D1552	0.622		0.33	1026	D2622	0.612	C	-0.12
225	D4294	0.6220		0.33	1039	ISO8754	0.612		-0.12
228		-----		-----	1040	ISO8754	0.6215		0.31
231		-----		-----	1065	D4294	0.61		-0.21
235	D4294	0.594		-0.93	1066		-----		-----
237	D4294	0.617		0.10	1108	ISO8754	0.656		1.86
238	D4294	0.604		-0.48	1109	D2622	0.6219		0.32
253	D4294	0.62		0.24	1121	ISO8754	0.611		-0.17
256		-----		-----	1126	ISO8754	0.62	C	0.24
273	D4294	0.63		0.69	1134	IP336	0.6068		-0.36
309	ISO8754	0.603		-0.53	1140	IP336	0.623		0.37
311	ISO8754	0.60		-0.66	1167	ISO8754	0.6118		-0.13
313	ISO8754	0.62		0.24	1191	ISO8754	0.5975		-0.78
323	ISO8754	0.61		-0.21	1212	ISO8754	0.6310		0.73
328	D4294	0.61		-0.21	1218	In house	0.578		-1.66
333	ISO8754	0.59		-1.11	1259	ISO8754	0.65		1.59
334	ISO8754	0.60		-0.66	1299	D2622	0.586	C	-1.29
339	INH-024	0.60		-0.66	1320		-----		-----
342	ISO8754	0.6212		0.29	1353	ISO8754	0.568		-2.11
349		-----		-----	1356	ISO8754	0.61		-0.21
351	ISO8754	0.632		0.78	1381	ISO8754	0.635		0.91
360	ISO8754	0.620		0.24	1397	D2622	0.574		-1.84
372	ISO8754	0.616		0.06	1402	IP336	0.6334		0.84
381	ISO8754	0.6	C	-0.66	1431	D4294	0.6132		-0.07
391	ISO8754	0.624		0.42	1444		-----		-----
404		-----		-----	1510		-----		-----
445	IP366	0.955	R(0.01)	15.34	1544	ISO8754	0.5940		-0.93
447	IP336	0.61		-0.21	1554	ISO8754	0.605		-0.44
455	IP336	0.60		-0.66	1575		-----		-----
467	ISO8754	0.613		-0.08	1585	D4294	0.611		-0.17
480	ISO8754	0.624		0.42	1586	ISO8754	0.616		0.06
507	D4294	0.651		1.64	1631		-----		-----
541		-----		-----	1648	ISO8754	0.614		-0.03
551	D4294	0.6085		-0.28	1650	D4294	0.625		0.46
575		-----		-----	1669	ISO8754	0.62	C	0.24
621	D4294	0.608		-0.30	1681	ISO8754	0.597		-0.80
631		-----		-----	1720	D4294	0.5858		-1.30
634	D4294	0.589		-1.16	1740	D4294	0.62		0.24
657	D4294	0.608		-0.30	1753		-----		-----
704		-----		-----	1776	ISO8754	0.61		-0.21
710	D4294	0.623		0.37	1796	ISO8754	0.607		-0.35
736	ISO8754	0.6209		0.28	1833	ISO8754	0.63		0.69
752	ISO8754	0.618		0.15	1854	ISO8754	0.61		-0.21
753	ISO8754	0.609		-0.26	1857	ISO8754	0.620		0.24
778	D4294	0.610		-0.21	1862	D4294	0.609		-0.26
779	D4294	0.597		-0.80	1881	ISO8754	0.594		-0.93
781	ISO8754	0.600		-0.66	1906	D5623	0.643		1.28
785	D4294	0.62		0.24	1942	D4294	0.68	C,R(0.05)	2.94
798		-----		-----	1943	ISO16994	0.571	C	-1.97
823	ISO8754	0.618		0.15	1950	ISO8754	0.618		0.15
824	ISO8754	0.626		0.51	1967	D4294	0.6087		-0.27
825	D4294	0.637		1.00	1995	D4294	0.641		1.19
840	D4294	0.6344		0.89	2129	ISO8754	0.630		0.69
872	ISO8754	0.606		-0.39	2146	ISO8754	0.622		0.33
873	D4294	0.605		-0.44	6024	D4294	0.602		-0.57
874	ISO8754	0.604		-0.48	6026	D4294	0.623		0.37
875	ISO8754	0.602		-0.57	6054	D4294	0.60		-0.66

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	ISO8754	0.61		-0.21
6092	D4294	0.635		0.91	6406	ISO8754	0.6155		0.04
6112		-----		-----	6438	D4294	0.622		0.33
6142	ISO8754	0.06	R(0.01)	-25.01	6447	D2622	0.609		-0.26
6266		-----		-----	6494	D1552	0.65		1.59
6319	D4294	0.625		0.46	6497	D2622	0.6080		-0.30
6373	ISO8754	0.63		0.69					

	normality	OK
	n	122
	outliers	3
	mean (n)	0.6147
	st.dev. (n)	0.01680
	R(calc.)	0.0470
	st.dev.(ISO8754:03)	0.02218
	R(ISO8754:03)	0.0621
Compare		
	R(D4294:21)	0.0531

Lab 381 first reported 0.53
Lab 1026 first reported 0.56
Lab 1126 first reported 0.56
Lab 1299 first reported 0.62
Lab 1669 first reported 0.67
Lab 1942 first reported 0.72
Lab 1943 first reported 0.510





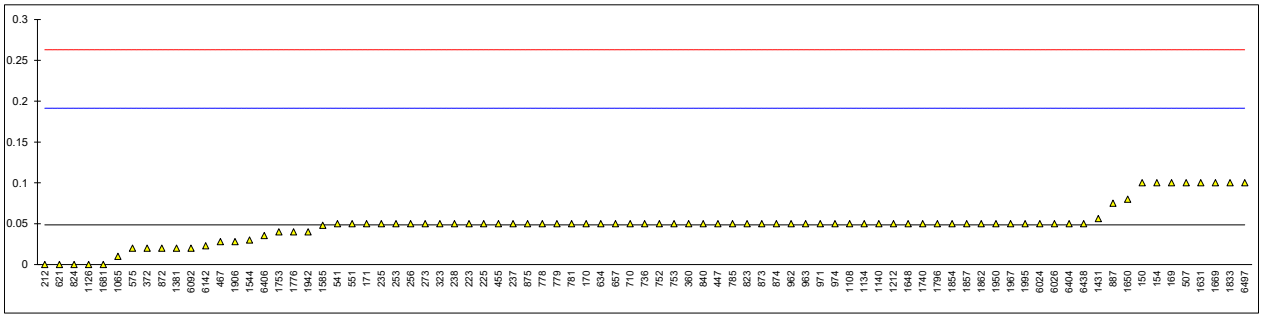
Determination of Water by distillation on sample #22255; results in %V/V

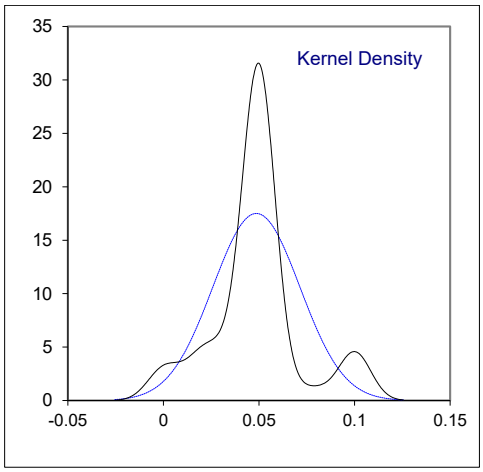
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D95	<0.05		-----	887	D95	0.075		0.37
120	D95	<0.05		-----	962	D95	0.05		0.02
140		-----		-----	963	ISO3733	0.05		0.02
150	D95	0.10		0.72	971	ISO3733	0.05		0.02
154	D95	0.10		0.72	974	D95	0.05		0.02
159		-----		-----	994	D95	<0.05		-----
169	D95	0.10	C	0.72	995	ISO3733	<0.05		-----
170	D95	0.05		0.02	996	D95	<0.05		-----
171	D95	0.05		0.02	997		-----		-----
175		-----		-----	1011	ISO3733	<0.10		-----
212	ISO3733	0.00		-0.68	1016		-----		-----
223	D95	0.05		0.02	1026		-----		-----
225	D95	0.05		0.02	1039	ISO3733	<0.1		-----
228		-----		-----	1040		-----		-----
231	D95	<0.05		-----	1065	D6304-A	0.01		-0.54
235	ISO3733	0.05		0.02	1066		-----		-----
237	D95	0.05		0.02	1108	ISO3733	0.05		0.02
238	D95	0.05		0.02	1109	D95	<0.05		-----
253	D95	0.05		0.02	1121	ISO3733	<0.05		-----
256	D95	0.05		0.02	1126	D95	0.00		-0.68
273	D95	0.05		0.02	1134	ISO3733	0.05		0.02
309		-----		-----	1140	D95	0.05		0.02
311	D95	<0.05		-----	1167	EN1428	<0.1		-----
313	D95	<0.05		-----	1191		-----		-----
323	ISO3733	0.05		0.02	1212	ISO3733	0.05		0.02
328		-----		-----	1218		-----		-----
333	D95	<0.1		-----	1259	ISO3733	<0,05		-----
334		-----		-----	1299	D95	<0.1		-----
339		-----		-----	1320		-----		-----
342	D95	<0,1		-----	1353		-----		-----
349	D95	<0,1		-----	1356	D6304-A	<0.05		-----
351	ISO3733	<0,05		-----	1381	ISO3733	0.02		-0.40
360	ISO3733	0.05		0.02	1397		-----		-----
372	ISO3733	0.02		-0.40	1402	IP74	<0.05		-----
381		-----		-----	1431	D95	0.0561		0.11
391		-----		-----	1444		-----		-----
404	D95	<0.025		-----	1510		-----		-----
445	ISO3733	<0.05		-----	1544	ISO3733	0.03		-0.26
447	D95	0.05		0.02	1554	ISO3733	Absence		-----
455	D95	0.05		0.02	1575		-----		-----
467	ISO3733	0.028		-0.29	1585	D95	0.048		-0.01
480		-----		-----	1586		-----		-----
507	D95	0.10		0.72	1631	ISO3733	0.1		0.72
541	D95	0.05		0.02	1648	ISO3733	0.05		0.02
551	D95	0.05		0.02	1650	D95	0.08		0.44
575	D95	0.02		-0.40	1669	D95	0.1		0.72
621	D95	0		-0.68	1681	ISO3733	0.00		-0.68
631		-----		-----	1720		-----		-----
634	D95	0.05		0.02	1740	D95	0.05		0.02
657	D95	0.05		0.02	1753	D95	0.04		-0.12
704		-----		-----	1776	D6304-B	0.04		-0.12
710	D95	0.05		0.02	1796	D95	0.05		0.02
736	ISO3733	0.05		0.02	1833	D95	0.1		0.72
752	ISO3733	0.05		0.02	1854	ISO3733	0.05		0.02
753	ISO3733	0.05		0.02	1857	ISO3733	0.05		0.02
778	D95	0.05		0.02	1862	ISO3733	0.05		0.02
779	D95	0.05		0.02	1881		-----		-----
781	ISO3733	0.05		0.02	1906	D6304-C	0.028		-0.29
785	ISO3733	0.05		0.02	1942	D95	0.04		-0.12
798		-----		-----	1943		-----		-----
823	ISO3733	0.05		0.02	1950	ISO3733	0.05		0.02
824	ISO3733	0.00		-0.68	1967	D95	0.05		0.02
825	ISO3733	L0.05		-----	1995	D95	0.05		0.02
840	D95	0.05		0.02	2129	D95	<0.05		-----
872	ISO3733	0.02		-0.40	2146		-----		-----
873	ISO3733	0.05		0.02	6024	D95	0.05		0.02
874	ISO3733	0.05		0.02	6026	ISO3733	0.05		0.02
875	ISO3733	0.05		0.02	6054	D95	<0.05		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404	ISO3733	0.05		0.02
6092	D95	0.02		-0.40	6406	ISO3733	0.0355		-0.18
6112		-----		-----	6438	D95	0.05		0.02
6142	ISO3733	0.023		-0.36	6447		-----		-----
6266		-----		-----	6494	EN15934	<0.1		-----
6319	D95	<0.05		-----	6497	D95	0.10		0.72
6373	D95	<0.05		-----					

	normality	suspect
	n	83
	outliers	0
	mean (n)	0.0486
	st.dev. (n)	0.02280
	R(calc.)	0.0638
	st.dev.(ISO3733:99)	0.07143
	R(ISO3733:99)	0.2
Compare		
	R(D95:13R18)	0.2

Lab 169 first reported 0.15





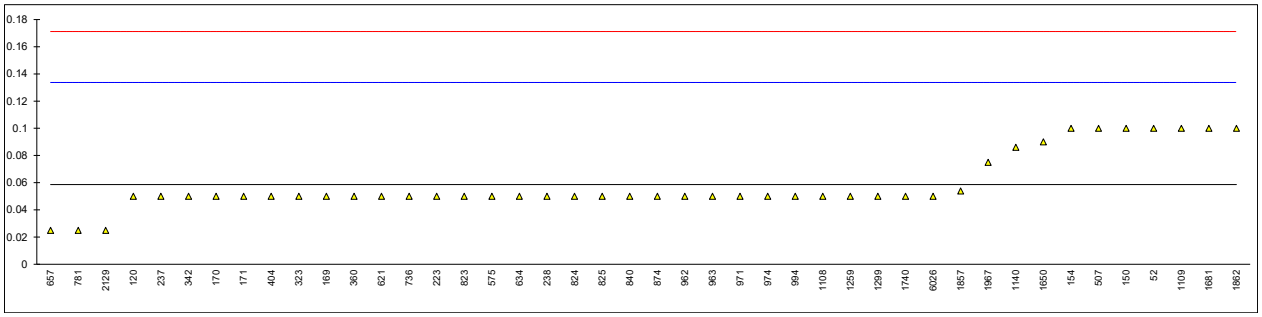
Determination of Water and Sediment on sample #22255; results in %V/V

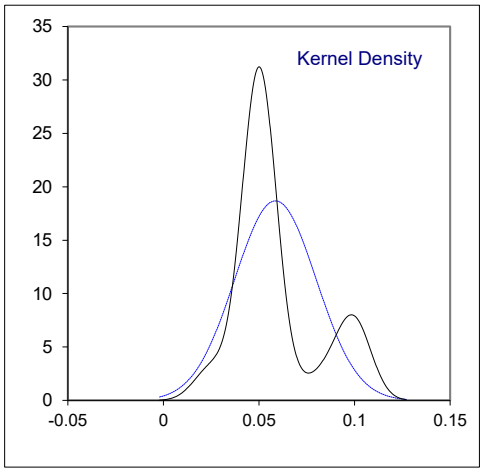
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1796	0.10		1.10	887		-----		-----
120	D1796	0.05		-0.23	962	D1796	0.05		-0.23
140		-----		-----	963	D1796	0.05		-0.23
150	D1796	0.10		1.10	971	D1796	0.05		-0.23
154	D1796	0.10		1.10	974	D1796	0.05		-0.23
159		-----		-----	994	D1796	0.05		-0.23
169	D1796	0.05		-0.23	995		-----		-----
170	D1796	0.05		-0.23	996		-----		-----
171	D1796	0.05		-0.23	997		-----		-----
175		-----		-----	1011		-----		-----
212		-----		-----	1016		-----		-----
223	D1796	0.05		-0.23	1026		-----		-----
225		-----		-----	1039		-----		-----
228		-----		-----	1040		-----		-----
231		-----		-----	1065		-----		-----
235		-----		-----	1066		-----		-----
237	D1796	0.05		-0.23	1108	D1796	0.05	C	-0.23
238	D1796	0.05		-0.23	1109	D1796	0.1		1.10
253		-----		-----	1121		-----		-----
256		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
309		-----		-----	1140	D1796	0.086		0.73
311		-----		-----	1167		-----		-----
313		-----		-----	1191		-----		-----
323	D1796	0.05		-0.23	1212		-----		-----
328		-----		-----	1218		-----		-----
333		-----		-----	1259	ISO3734	0.05		-0.23
334		-----		-----	1299	D1796	0.05		-0.23
339		-----		-----	1320		-----		-----
342	D1796	0.05		-0.23	1353		-----		-----
349		-----		-----	1356		-----		-----
351		-----		-----	1381		-----		-----
360	D1796	0.05		-0.23	1397		-----		-----
372		-----		-----	1402		-----		-----
381		-----		-----	1431		-----		-----
391		-----		-----	1444		-----		-----
404	D1796	0.05		-0.23	1510		-----		-----
445		-----		-----	1544		-----		-----
447		-----		-----	1554		-----		-----
455		-----		-----	1575	D1796	<0.05		-----
467		-----		-----	1585		-----		-----
480		-----		-----	1586		-----		-----
507	D1796	0.10		1.10	1631		-----		-----
541	D1796	<0.1		-----	1648		-----		-----
551		-----		-----	1650	D1796	0.09		0.84
575	D1796	0.05		-0.23	1669		-----		-----
621	D1796	0.05		-0.23	1681	D1796	0.10		1.10
631		-----		-----	1720		-----		-----
634	D1796	0.05		-0.23	1740	ISO3734	0.05		-0.23
657	D1796	0.025		-0.90	1753		-----		-----
704		-----		-----	1776		-----		-----
710		-----		-----	1796		-----		-----
736	D1796	0.05		-0.23	1833		-----		-----
752		-----		-----	1854		-----		-----
753		-----		-----	1857		0.054		-0.12
778		-----		-----	1862	D1796	0.10		1.10
779		-----		-----	1881		-----		-----
781	D1796	0.025		-0.90	1906		-----		-----
785		-----		-----	1942		-----		-----
798		-----		-----	1943		-----		-----
823	ISO3734	0.05		-0.23	1950		-----		-----
824	D1796	0.05		-0.23	1967	D1796	0.075		0.44
825	D1796	0.05		-0.23	1995		-----		-----
840	D1796	0.05		-0.23	2129	ISO3734	0.025		-0.90
872		-----		-----	2146		-----		-----
873		-----		-----	6024		-----		-----
874	D1796	0.05		-0.23	6026	D1796	0.05		-0.23
875		-----		-----	6054		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6075		-----		-----	6404		-----		-----
6092		-----		-----	6406		-----		-----
6112		-----		-----	6438		-----		-----
6142		-----		-----	6447		-----		-----
6266		-----		-----	6494		-----		-----
6319		-----		-----	6497		-----		-----
6373		-----		-----					

normality	suspect
n	44
outliers	0
mean (n)	0.0586
st.dev. (n)	0.02137
R(calc.)	0.0598
st.dev.(D1796:22)	0.03750
R(D1796:22)	0.1050

Lab 1108 first reported 0.2





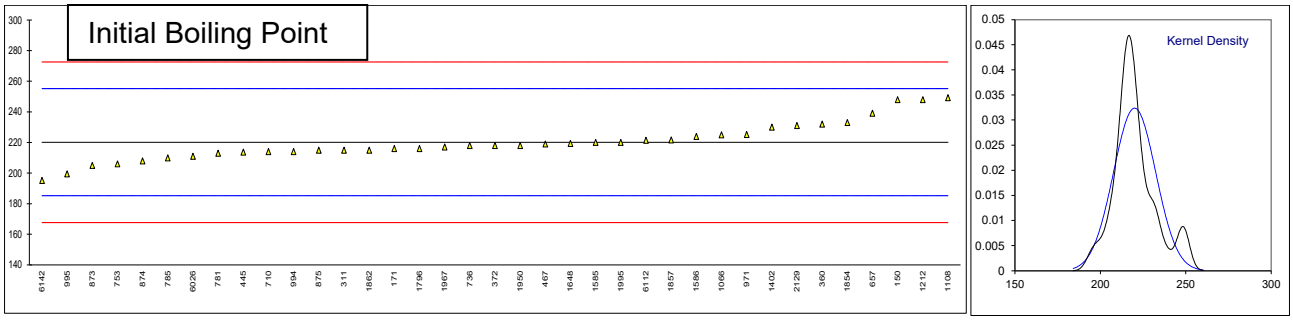
Vacuum Distillation at 10 mmHg but reported as AET on sample #22255; results in °C

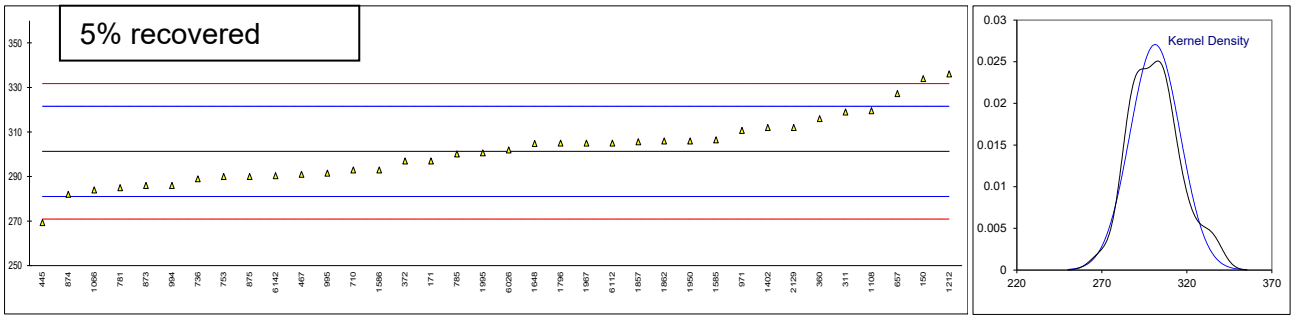
lab	method	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
52		-----	-----	-----	-----	-----	-----	-----	-----
120		-----	-----	-----	-----	-----	-----	-----	-----
140		-----	-----	-----	-----	-----	-----	-----	-----
150	D1160	248	334	393	422	440	460	516	594 C,R(1)
154		-----	-----	-----	-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----	-----	-----	-----
169		-----	-----	-----	-----	-----	-----	-----	-----
170		-----	-----	-----	-----	-----	-----	-----	-----
171	D1160	216	297	374	418	436	459	504	509
175		-----	-----	-----	-----	-----	-----	-----	-----
212		-----	-----	-----	-----	-----	-----	-----	-----
223		-----	-----	-----	-----	-----	-----	-----	-----
225		-----	-----	-----	-----	-----	-----	-----	-----
228		-----	-----	-----	-----	-----	-----	-----	-----
231		-----	-----	-----	-----	-----	-----	-----	-----
235		-----	-----	-----	-----	-----	-----	-----	-----
237		-----	-----	-----	-----	-----	-----	-----	-----
238		-----	-----	-----	-----	-----	-----	-----	-----
253		-----	-----	-----	-----	-----	-----	-----	-----
256		-----	-----	-----	-----	-----	-----	-----	-----
273		-----	-----	-----	-----	-----	-----	-----	-----
309		-----	-----	-----	-----	-----	-----	-----	-----
311	D1160	215	319	384	421	439	465	-----	515
313		-----	-----	-----	-----	-----	-----	-----	-----
323		-----	-----	-----	-----	-----	-----	-----	-----
328		-----	-----	-----	-----	-----	-----	-----	-----
333		-----	-----	-----	-----	-----	-----	-----	-----
334		-----	-----	-----	-----	-----	-----	-----	-----
339		-----	-----	-----	-----	-----	-----	-----	-----
342		-----	-----	-----	-----	-----	-----	-----	-----
349		-----	-----	-----	-----	-----	-----	-----	-----
351		-----	-----	-----	-----	-----	-----	-----	-----
360	D1160	232	316	381	421	440	461	510	520
372	D1160	218	297	379	411	427	453	512	522
381		-----	-----	-----	-----	-----	-----	-----	-----
391		-----	-----	-----	-----	-----	-----	-----	-----
404		-----	-----	-----	-----	-----	-----	-----	-----
445	D1160	213.7	269.3	307.0 R(1)	365.5 R(1)	400.9 R(1)	441.2	494.5	508.6
447		-----	-----	-----	-----	-----	-----	-----	-----
455		-----	-----	-----	-----	-----	-----	-----	-----
467	D1160	219	291	375	416	433	455	498	498
480		-----	-----	-----	-----	-----	-----	-----	-----
507		-----	-----	-----	-----	-----	-----	-----	-----
541		-----	-----	-----	-----	-----	-----	-----	-----
551		-----	-----	-----	-----	-----	-----	-----	-----
575		-----	-----	-----	-----	-----	-----	-----	-----
621		-----	-----	-----	-----	-----	-----	-----	-----
631		-----	-----	-----	-----	-----	-----	-----	-----
634		-----	-----	-----	-----	-----	-----	-----	-----
657	D1160	239.1	327.3	384.2	419.0	435.4	464.0	520.0	529.0
704		-----	-----	-----	-----	-----	-----	-----	-----
710	D1160	214	293	370	415	432	455	499.3	517
736	D1160	218	289	363	411	432	456	501	516
752		-----	-----	-----	-----	-----	-----	-----	-----
753	D1160	206	290	372	418	435	456	496	496
778		-----	-----	-----	-----	-----	-----	-----	-----
779		-----	-----	-----	-----	-----	-----	-----	-----
781	D1160	213	285	360	418	435	456	495	501
785	D1160	210.0	300.2	380.5	414.6	435.4	455.8	494.2	-----
798		-----	-----	-----	-----	-----	-----	-----	-----
823		-----	-----	-----	-----	-----	-----	-----	-----
824		-----	-----	-----	-----	-----	-----	-----	-----
825		-----	-----	-----	-----	-----	-----	-----	-----
840		-----	-----	-----	-----	-----	-----	-----	-----
872		-----	-----	-----	-----	-----	-----	-----	-----
873	D1160	205	286	358	413	431	452	491	502
874	D1160	208	282	359	417	435	454	488	499
875	D1160	215	290	360	416	435	456	494	501
887		-----	-----	-----	-----	-----	-----	-----	-----
962		-----	-----	-----	-----	-----	-----	-----	-----
963		-----	-----	-----	-----	-----	-----	-----	-----
971	D1160	225.2	310.7	374.8	417.8	436.4	457.0	507.3	511.4
974		-----	-----	-----	-----	-----	-----	-----	-----
994	D1160	214.0	286.0	368.0	417.0	434.0	459.0	502.0	516.0
995	D1160	199.5	291.5	368.0	415.0	432.0	452.0	501.0	503.0

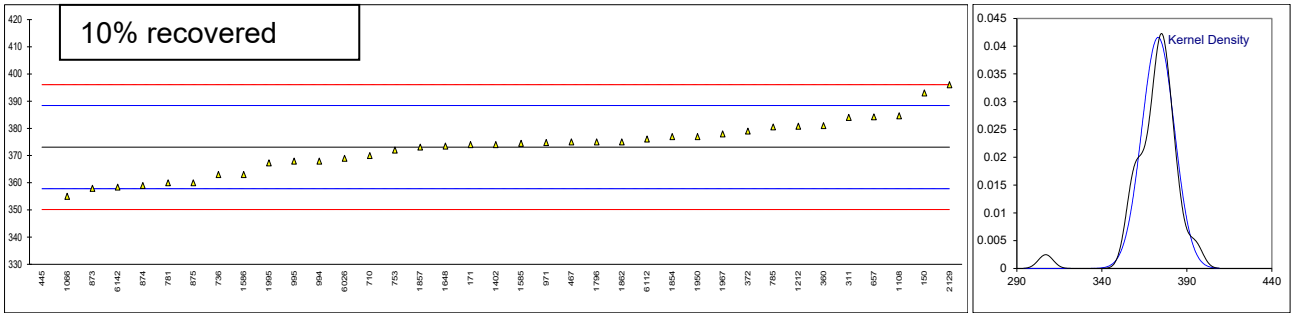
lab	method	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
996		-----	-----	-----	-----	-----	-----	-----	-----
997		-----	-----	-----	-----	-----	-----	-----	-----
1011		-----	-----	-----	-----	-----	-----	-----	-----
1016		-----	-----	-----	-----	-----	-----	-----	-----
1026		-----	-----	-----	-----	-----	-----	-----	-----
1039		-----	-----	-----	-----	-----	-----	-----	-----
1040		-----	-----	-----	-----	-----	-----	-----	-----
1065		-----	-----	-----	-----	-----	-----	-----	-----
1066		225	284	355	410	428	450	494	507
1108	D1160	249.3	319.6	384.6	425.0	441.9	463.9	516.4	----- W
1109		-----	-----	-----	-----	-----	-----	-----	-----
1121		-----	-----	-----	-----	-----	-----	-----	-----
1126		-----	-----	-----	-----	-----	-----	-----	-----
1134		-----	-----	-----	-----	-----	-----	-----	-----
1140		-----	-----	-----	-----	-----	-----	-----	-----
1167		-----	-----	-----	-----	-----	-----	-----	-----
1191		-----	-----	-----	-----	-----	-----	-----	-----
1212	D1160	248.0	336.1	380.8	416.5	434.3	455.0	502.6	549.9
1218		-----	-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----	-----
1299		-----	-----	-----	-----	-----	-----	-----	-----
1320		-----	-----	-----	-----	-----	-----	-----	-----
1353		-----	-----	-----	-----	-----	-----	-----	-----
1356		-----	-----	-----	-----	-----	-----	-----	-----
1381		-----	-----	-----	-----	-----	-----	-----	-----
1397		-----	-----	-----	-----	-----	-----	-----	-----
1402		230	312	374	412	433	455	507	527
1431		-----	-----	-----	-----	-----	-----	-----	-----
1444		-----	-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----	-----
1544		-----	-----	-----	-----	-----	-----	-----	-----
1554		-----	-----	-----	-----	-----	-----	-----	-----
1575		-----	-----	-----	-----	-----	-----	-----	-----
1585	D1160	220.0	306.5	374.5	415.3	433.4	458.4	509.1	515.0
1586	D1160	224	293	363	410	426	444	483	488
1631		-----	-----	-----	-----	-----	-----	-----	-----
1648		219.4	304.8	373.5	418.2	435.9	459.0	505.5	509.2
1650		-----	-----	-----	-----	-----	-----	-----	-----
1669		-----	-----	-----	-----	-----	-----	-----	-----
1681		-----	-----	-----	-----	-----	-----	-----	-----
1720		-----	-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----	-----
1753		-----	-----	-----	-----	-----	-----	-----	-----
1776		-----	-----	-----	-----	-----	-----	-----	-----
1796	D1160	216	305	375	418	434	456	503	514
1833		-----	-----	-----	-----	-----	-----	-----	-----
1854	D1160	233	-----	377	420	438	460	510	-----
1857	D1160	221.6	305.6	373.1	417.1	433.7	455.6	501.6	511.1
1862	D1160	215	306	375	417	431	452	504	512
1881		-----	-----	-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----	-----	-----
1942		-----	-----	-----	-----	-----	-----	-----	-----
1943		-----	-----	-----	-----	-----	-----	-----	-----
1950	D1160	218	306	377	419	436	455	501	514
1967	D1160	217	305	378	419	437	457	501	511
1995	D1160	220.0	300.6	367.3	416.5	434.1	460.0	519.6	542.3
2129	D1160	231	312	396	436 C,R(1)	453 C,R(1)	471	503	525
2146		-----	-----	-----	-----	-----	-----	-----	-----
6024		-----	-----	-----	-----	-----	-----	-----	-----
6026	D1160	211	302	369	410	431	450	496	510
6054		-----	-----	-----	-----	-----	-----	-----	-----
6075		-----	-----	-----	-----	-----	-----	-----	-----
6092		-----	-----	-----	-----	-----	-----	-----	-----
6112	D1160	221.4	305.0	376.1	418.0	434.2	457.0	505.4	509.1
6142		195.2	290.4	358.4	404	425.8	451.8	505.4	733.2 R(1)
6266		-----	-----	-----	-----	-----	-----	-----	-----
6319		-----	-----	-----	-----	-----	-----	-----	-----
6373		-----	-----	-----	-----	-----	-----	-----	-----
6404		-----	-----	-----	-----	-----	-----	-----	-----
6406		-----	-----	-----	-----	-----	-----	-----	-----
6438		-----	-----	-----	-----	-----	-----	-----	-----
6447		-----	-----	-----	-----	-----	-----	-----	-----
6494		-----	-----	-----	-----	-----	-----	-----	-----
6497		-----	-----	-----	-----	-----	-----	-----	-----

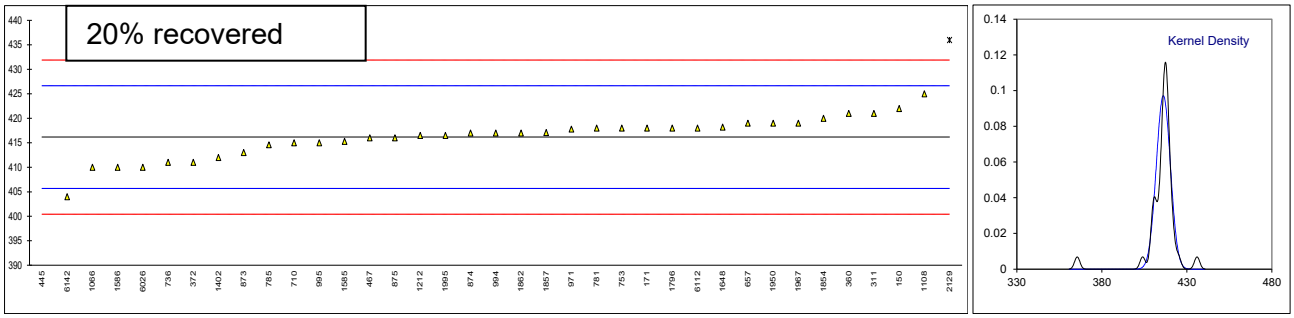
	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
normality	OK	OK	OK	suspect	OK	not OK	OK	suspect
n	37	36	36	35	35	37	36	32
outliers	0	0	1	2	2	0	0	2
mean (n)	220.09	301.32	373.08	416.17	434.01	456.15	502.52	512.77
st.dev. (n)	12.325	14.750	9.589	4.106	3.708	5.424	8.411	12.641
R(calc.)	34.51	41.30	26.85	11.50	10.38	15.19	23.55	35.39
st.dev.(D1160:18)	17.500	10.143	7.642	5.243	4.413	5.500	6.225	9.643
R(D1160:18)	49	28.40	21.40	14.68	12.36	15.40	17.43	27

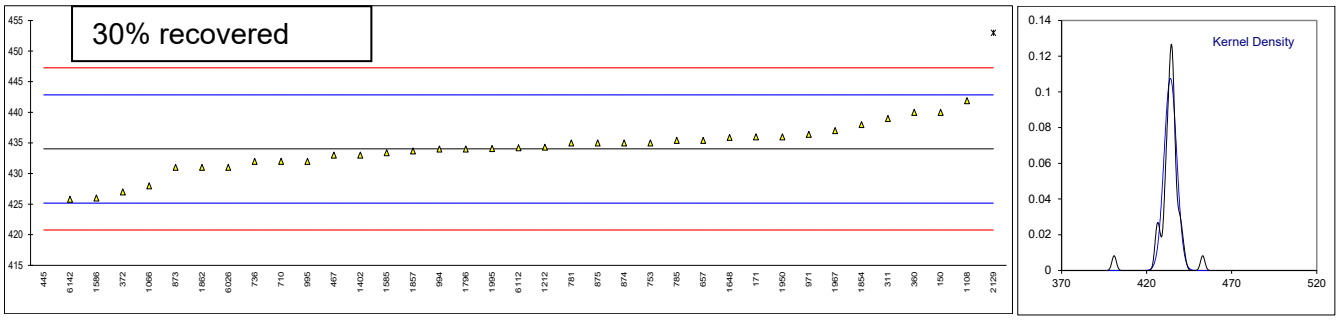
Lab 150 first reported 588
Lab 1108 test result for FBP withdrawn, reported 561.6
Lab 2129 first reported 434 for 20% recovered and 450 for 30% recovered

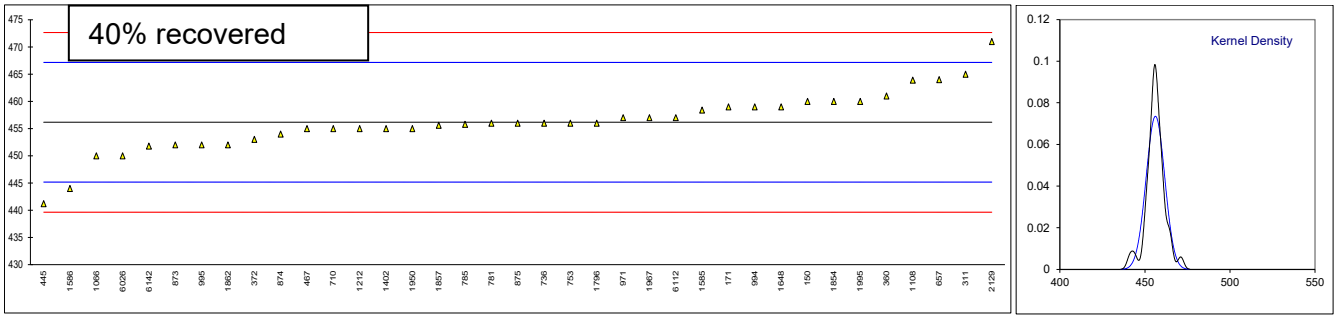


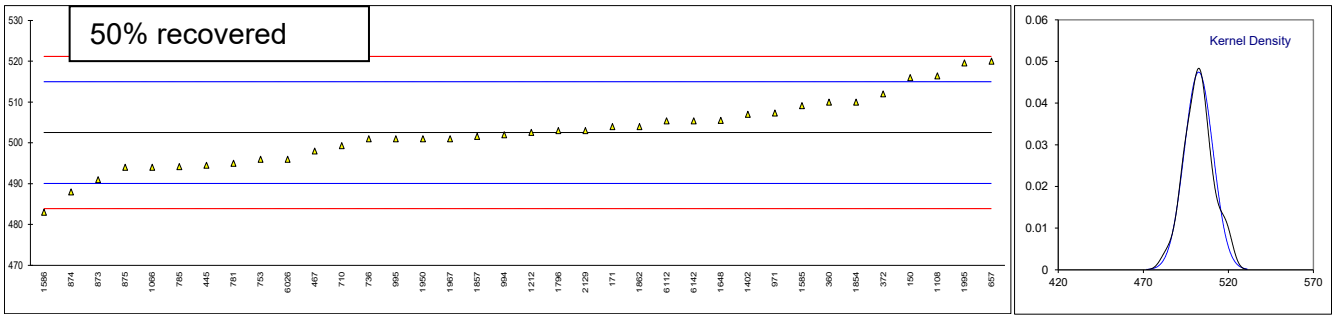


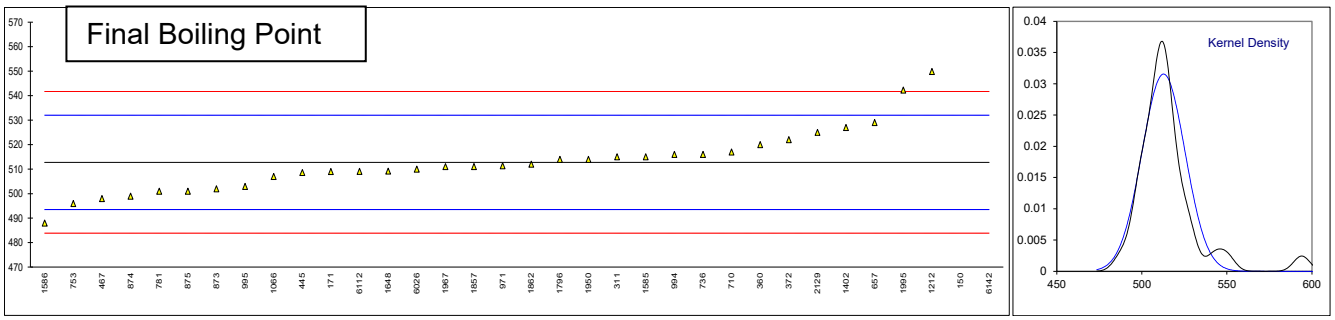





30% recovered
Kernel Density


40% recovered
Kernel Density


50% recovered
Kernel Density


Final Boiling Point
Kernel Density

z-scores of Vacuum Distillation at 10 mmHg but reported as AET on sample #22255

lab	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
52	-----	-----	-----	-----	-----	-----	-----	-----
120	-----	-----	-----	-----	-----	-----	-----	-----
140	-----	-----	-----	-----	-----	-----	-----	-----
150	1.59	3.22	2.61	1.11	1.36	0.70	2.16	8.42
154	-----	-----	-----	-----	-----	-----	-----	-----
159	-----	-----	-----	-----	-----	-----	-----	-----
169	-----	-----	-----	-----	-----	-----	-----	-----
170	-----	-----	-----	-----	-----	-----	-----	-----
171	-0.23	-0.43	0.12	0.35	0.45	0.52	0.24	-0.39
175	-----	-----	-----	-----	-----	-----	-----	-----
212	-----	-----	-----	-----	-----	-----	-----	-----
223	-----	-----	-----	-----	-----	-----	-----	-----
225	-----	-----	-----	-----	-----	-----	-----	-----
228	-----	-----	-----	-----	-----	-----	-----	-----
231	-----	-----	-----	-----	-----	-----	-----	-----
235	-----	-----	-----	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
253	-----	-----	-----	-----	-----	-----	-----	-----
256	-----	-----	-----	-----	-----	-----	-----	-----
273	-----	-----	-----	-----	-----	-----	-----	-----
309	-----	-----	-----	-----	-----	-----	-----	-----
311	-0.29	1.74	1.43	0.92	1.13	1.61	-----	0.23
313	-----	-----	-----	-----	-----	-----	-----	-----
323	-----	-----	-----	-----	-----	-----	-----	-----
328	-----	-----	-----	-----	-----	-----	-----	-----
333	-----	-----	-----	-----	-----	-----	-----	-----
334	-----	-----	-----	-----	-----	-----	-----	-----
339	-----	-----	-----	-----	-----	-----	-----	-----
342	-----	-----	-----	-----	-----	-----	-----	-----
349	-----	-----	-----	-----	-----	-----	-----	-----
351	-----	-----	-----	-----	-----	-----	-----	-----
360	0.68	1.45	1.04	0.92	1.36	0.88	1.20	0.75
372	-0.12	-0.43	0.77	-0.99	-1.59	-0.57	1.52	0.96
381	-----	-----	-----	-----	-----	-----	-----	-----
391	-----	-----	-----	-----	-----	-----	-----	-----
404	-----	-----	-----	-----	-----	-----	-----	-----
445	-0.37	-3.16	-8.65	-9.67	-7.50	-2.72	-1.29	-0.43
447	-----	-----	-----	-----	-----	-----	-----	-----
455	-----	-----	-----	-----	-----	-----	-----	-----
467	-0.06	-1.02	0.25	-0.03	-0.23	-0.21	-0.73	-1.53
480	-----	-----	-----	-----	-----	-----	-----	-----
507	-----	-----	-----	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----	-----	-----	-----
551	-----	-----	-----	-----	-----	-----	-----	-----
575	-----	-----	-----	-----	-----	-----	-----	-----
621	-----	-----	-----	-----	-----	-----	-----	-----
631	-----	-----	-----	-----	-----	-----	-----	-----
634	-----	-----	-----	-----	-----	-----	-----	-----
657	1.09	2.56	1.46	0.54	0.31	1.43	2.81	1.68
704	-----	-----	-----	-----	-----	-----	-----	-----
710	-0.35	-0.82	-0.40	-0.22	-0.46	-0.21	-0.52	0.44
736	-0.12	-1.21	-1.32	-0.99	-0.46	-0.03	-0.24	0.34
752	-----	-----	-----	-----	-----	-----	-----	-----
753	-0.81	-1.12	-0.14	0.35	0.22	-0.03	-1.05	-1.74
778	-----	-----	-----	-----	-----	-----	-----	-----
779	-----	-----	-----	-----	-----	-----	-----	-----
781	-0.41	-1.61	-1.71	0.35	0.22	-0.03	-1.21	-1.22
785	-0.58	-0.11	0.97	-0.30	0.31	-0.06	-1.34	-----
798	-----	-----	-----	-----	-----	-----	-----	-----
823	-----	-----	-----	-----	-----	-----	-----	-----
824	-----	-----	-----	-----	-----	-----	-----	-----
825	-----	-----	-----	-----	-----	-----	-----	-----
840	-----	-----	-----	-----	-----	-----	-----	-----
872	-----	-----	-----	-----	-----	-----	-----	-----
873	-0.86	-1.51	-1.97	-0.60	-0.68	-0.76	-1.85	-1.12
874	-0.69	-1.90	-1.84	0.16	0.22	-0.39	-2.33	-1.43
875	-0.29	-1.12	-1.71	-0.03	0.22	-0.03	-1.37	-1.22
887	-----	-----	-----	-----	-----	-----	-----	-----
962	-----	-----	-----	-----	-----	-----	-----	-----
963	-----	-----	-----	-----	-----	-----	-----	-----
971	0.29	0.92	0.23	0.31	0.54	0.15	0.77	-0.14
974	-----	-----	-----	-----	-----	-----	-----	-----
994	-0.35	-1.51	-0.66	0.16	0.00	0.52	-0.08	0.34
995	-1.18	-0.97	-0.66	-0.22	-0.46	-0.76	-0.24	-1.01

lab	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
996	-----	-----	-----	-----	-----	-----	-----	-----
997	-----	-----	-----	-----	-----	-----	-----	-----
1011	-----	-----	-----	-----	-----	-----	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1026	-----	-----	-----	-----	-----	-----	-----	-----
1039	-----	-----	-----	-----	-----	-----	-----	-----
1040	-----	-----	-----	-----	-----	-----	-----	-----
1065	-----	-----	-----	-----	-----	-----	-----	-----
1066	0.28	-1.71	-2.37	-1.18	-1.36	-1.12	-1.37	-0.60
1108	1.67	1.80	1.51	1.68	1.79	1.41	2.23	-----
1109	-----	-----	-----	-----	-----	-----	-----	-----
1121	-----	-----	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	-----	-----	-----
1134	-----	-----	-----	-----	-----	-----	-----	-----
1140	-----	-----	-----	-----	-----	-----	-----	-----
1167	-----	-----	-----	-----	-----	-----	-----	-----
1191	-----	-----	-----	-----	-----	-----	-----	-----
1212	1.59	3.43	1.01	0.06	0.06	-0.21	0.01	3.85
1218	-----	-----	-----	-----	-----	-----	-----	-----
1259	-----	-----	-----	-----	-----	-----	-----	-----
1299	-----	-----	-----	-----	-----	-----	-----	-----
1320	-----	-----	-----	-----	-----	-----	-----	-----
1353	-----	-----	-----	-----	-----	-----	-----	-----
1356	-----	-----	-----	-----	-----	-----	-----	-----
1381	-----	-----	-----	-----	-----	-----	-----	-----
1397	-----	-----	-----	-----	-----	-----	-----	-----
1402	0.57	1.05	0.12	-0.80	-0.23	-0.21	0.72	1.48
1431	-----	-----	-----	-----	-----	-----	-----	-----
1444	-----	-----	-----	-----	-----	-----	-----	-----
1510	-----	-----	-----	-----	-----	-----	-----	-----
1544	-----	-----	-----	-----	-----	-----	-----	-----
1554	-----	-----	-----	-----	-----	-----	-----	-----
1575	-----	-----	-----	-----	-----	-----	-----	-----
1585	-0.01	0.51	0.19	-0.17	-0.14	0.41	1.06	0.23
1586	0.22	-0.82	-1.32	-1.18	-1.82	-2.21	-3.14	-2.57
1631	-----	-----	-----	-----	-----	-----	-----	-----
1648	-0.04	0.34	0.06	0.39	0.43	0.52	0.48	-0.37
1650	-----	-----	-----	-----	-----	-----	-----	-----
1669	-----	-----	-----	-----	-----	-----	-----	-----
1681	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----	-----	-----	-----
1753	-----	-----	-----	-----	-----	-----	-----	-----
1776	-----	-----	-----	-----	-----	-----	-----	-----
1796	-0.23	0.36	0.25	0.35	0.00	-0.03	0.08	0.13
1833	-----	-----	-----	-----	-----	-----	-----	-----
1854	0.74	-----	0.51	0.73	0.90	0.70	1.20	-----
1857	0.09	0.42	0.00	0.18	-0.07	-0.10	-0.15	-0.17
1862	-0.29	0.46	0.25	0.16	-0.68	-0.76	0.24	-0.08
1881	-----	-----	-----	-----	-----	-----	-----	-----
1906	-----	-----	-----	-----	-----	-----	-----	-----
1942	-----	-----	-----	-----	-----	-----	-----	-----
1943	-----	-----	-----	-----	-----	-----	-----	-----
1950	-0.12	0.46	0.51	0.54	0.45	-0.21	-0.24	0.13
1967	-0.18	0.36	0.64	0.54	0.68	0.15	-0.24	-0.18
1995	-0.01	-0.07	-0.76	0.06	0.02	0.70	2.74	3.06
2129	0.62	1.05	3.00	3.78	4.30	2.70	0.08	1.27
2146	-----	-----	-----	-----	-----	-----	-----	-----
6024	-----	-----	-----	-----	-----	-----	-----	-----
6026	-0.52	0.07	-0.53	-1.18	-0.68	-1.12	-1.05	-0.29
6054	-----	-----	-----	-----	-----	-----	-----	-----
6075	-----	-----	-----	-----	-----	-----	-----	-----
6092	-----	-----	-----	-----	-----	-----	-----	-----
6112	0.07	0.36	0.40	0.35	0.04	0.15	0.46	-0.38
6142	-1.42	-1.08	-1.92	-2.32	-1.86	-0.79	0.46	22.86
6266	-----	-----	-----	-----	-----	-----	-----	-----
6319	-----	-----	-----	-----	-----	-----	-----	-----
6373	-----	-----	-----	-----	-----	-----	-----	-----
6404	-----	-----	-----	-----	-----	-----	-----	-----
6406	-----	-----	-----	-----	-----	-----	-----	-----
6438	-----	-----	-----	-----	-----	-----	-----	-----
6447	-----	-----	-----	-----	-----	-----	-----	-----
6494	-----	-----	-----	-----	-----	-----	-----	-----
6497	-----	-----	-----	-----	-----	-----	-----	-----

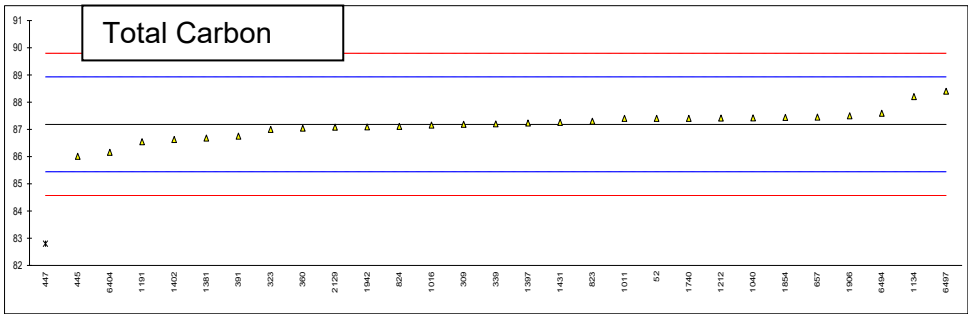
Determination of Total Carbon, Hydrogen and Nitrogen on sample #22255; results in %M/M

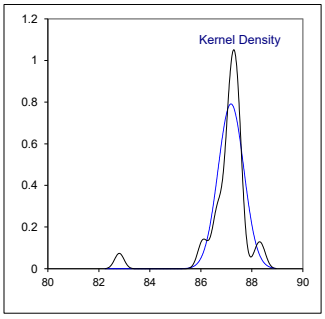
lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
52	D5291-B	87.4		0.25	11.5		-0.08	-----		-----
120		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D5291-C	>87.0		-----	11.6		0.28	-----		-----
154		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171		-----		-----	-----		-----	-----		-----
175		-----		-----	-----		-----	-----		-----
212		-----		-----	-----		-----	-----		-----
223		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
228		-----		-----	-----		-----	-----		-----
231		-----		-----	-----		-----	-----		-----
235		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
253		-----		-----	-----		-----	-----		-----
256		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
309	D5291-C	87.185		0.01	11.405		-0.42	0.38		0.83
311		-----		-----	-----		-----	-----		-----
313		-----		-----	-----		-----	-----		-----
323	D5291-C	87.0		-0.21	11.5		-0.08	0.39	C	1.11
328		-----		-----	-----		-----	-----		-----
333	D5291-A	>87		-----	11.81		1.03	0.39		1.11
334		-----		-----	-----		-----	-----		-----
339	D5291-D	87.2		0.02	11.45		-0.26	0.36		0.26
342		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
351		-----		-----	-----		-----	-----		-----
360	D5291-A	87.04		-0.16	11.55		0.10	0.36		0.26
372		-----		-----	-----		-----	-----		-----
381		-----		-----	-----		-----	-----		-----
391	D5291-A	86.75		-0.49	11.60		0.28	0.37		0.55
404		-----		-----	-----		-----	-----		-----
445	D5291-C	86.01		-1.34	11.45		-0.26	0.30		-1.43
447		82.8	G(0.01)	-5.02	10.8	DG(0.05)	-2.57	4.7	G(0.01)	122.50
455		-----		-----	-----		-----	-----		-----
467		-----		-----	-----		-----	-----		-----
480		-----		-----	-----		-----	-----		-----
507		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
551		-----		-----	-----		-----	-----		-----
575		-----		-----	-----		-----	-----		-----
621		-----		-----	-----		-----	-----		-----
631		-----		-----	-----		-----	-----		-----
634		-----		-----	-----		-----	-----		-----
657	D5291-D	87.45		0.31	11.71		0.67	0.38		0.83
704		-----		-----	-----		-----	-----		-----
710		-----		-----	-----		-----	-----		-----
736		-----		-----	-----		-----	-----		-----
752		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
778		-----		-----	-----		-----	-----		-----
779		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
823	D5291-D	87.3		0.14	11.4		-0.43	0.4		1.39
824	D5291-D	87.11		-0.08	11.56		0.14	0.37		0.55
825		-----		-----	-----		-----	-----		-----
840		-----		-----	-----		-----	-----		-----
872		-----		-----	-----		-----	-----		-----
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
887		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
971		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----

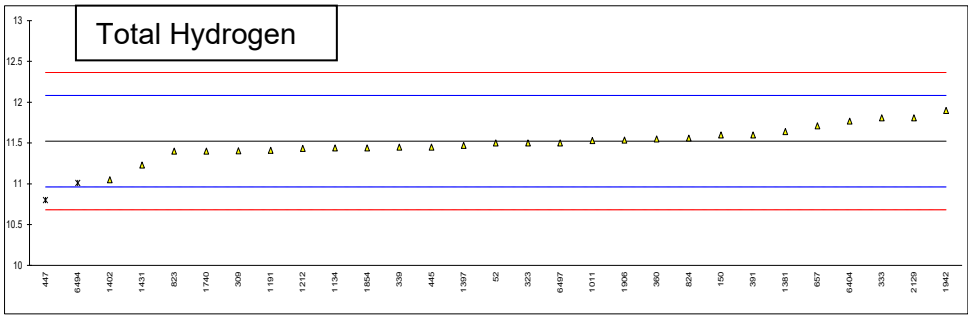
lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
996		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
1011	D5291-A	87.40		0.25	11.53		0.03	0.32		-0.86
1016	D5291-A	87.16		-0.02	-----		-----	0.331		-0.55
1026		-----		-----	-----		-----	-----		-----
1039		-----		-----	-----		-----	-----		-----
1040	D7662	87.42		0.27	-----		-----	-----		-----
1065		-----		-----	-----		-----	-----		-----
1066		-----		-----	-----		-----	-----		-----
1108		-----		-----	-----		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1121		-----		-----	-----		-----	-----		-----
1126		-----		-----	-----		-----	-----		-----
1134	D5291-D	88.208		1.18	11.44		-0.29	0.28		-1.99
1140		-----		-----	-----		-----	-----		-----
1167		-----		-----	-----		-----	-----		-----
1191	D5291-A	86.545		-0.73	11.41		-0.40	0.319		-0.89
1212	D5291-D	87.416		0.27	11.434		-0.31	0.303		-1.34
1218		-----		-----	-----		-----	-----		-----
1259		-----		-----	-----		-----	-----		-----
1299		-----		-----	-----		-----	-----		-----
1320		-----		-----	-----		-----	0.36		0.26
1353		-----		-----	-----		-----	-----		-----
1356		-----		-----	-----		-----	-----		-----
1381	D5291-A	86.68		-0.57	11.64		0.42	-----		-----
1397		87.23		0.06	11.47		-0.19	0.34		-0.30
1402	D5291-C	86.63		-0.63	11.05		-1.68	-----		-----
1431		87.26		0.09	11.23		-1.04	0.38		0.83
1444		-----		-----	-----		-----	-----		-----
1510		-----		-----	-----		-----	-----		-----
1544		-----		-----	-----		-----	-----		-----
1554		-----		-----	-----		-----	-----		-----
1575		-----		-----	-----		-----	-----		-----
1585		-----		-----	-----		-----	-----		-----
1586		-----		-----	-----		-----	-----		-----
1631		-----		-----	-----		-----	-----		-----
1648		-----		-----	-----		-----	-----		-----
1650		-----		-----	-----		-----	-----		-----
1669		-----		-----	-----		-----	-----		-----
1681		-----		-----	-----		-----	-----		-----
1720		-----		-----	-----		-----	-----		-----
1740	D5291-A	87.4		0.25	11.4		-0.43	0.40		1.39
1753		-----		-----	-----		-----	-----		-----
1776		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1833		-----		-----	-----		-----	-----		-----
1854	D5291-D	87.44		0.30	11.44		-0.29	0.39		1.11
1857		-----		-----	-----		-----	-----		-----
1862		-----		-----	-----		-----	-----		-----
1881		-----		-----	-----		-----	-----		-----
1906		87.499		0.37	11.536		0.05	0.312		-1.09
1942	D5291-D	87.09		-0.10	11.90		1.35	0.42		1.95
1943		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1995		-----		-----	-----		-----	-----		-----
2129	D5291-D	87.08		-0.12	11.81		1.03	0.36		0.26
2146		-----		-----	-----		-----	-----		-----
6024		-----		-----	-----		-----	-----		-----
6026		-----		-----	-----		-----	-----		-----
6054		-----		-----	-----		-----	-----		-----
6075		-----		-----	-----		-----	-----		-----
6092		-----		-----	-----		-----	-----		-----
6112		-----		-----	-----		-----	-----		-----
6142		-----		-----	-----		-----	-----		-----
6266		-----		-----	-----		-----	-----		-----
6319		-----		-----	-----		-----	-----		-----
6373		-----		-----	-----		-----	-----		-----
6404		86.16		-1.17	11.769	C	0.88	0.28		-1.99
6406		-----		-----	-----		-----	-----		-----
6438		-----		-----	-----		-----	-----		-----
6447		-----		-----	-----		-----	-----		-----
6494		87.59	C	0.47	11.01	DG(0.05)	-1.83	-----		-----
6497	D5291-A	88.4		1.40	11.50		-0.08	0.27		-2.27

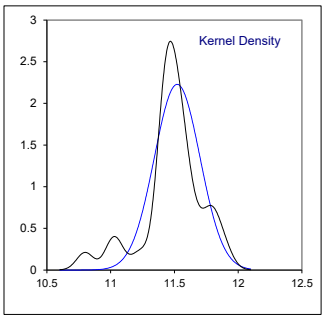
	Total C	Total H	Total N
Normality	suspect	suspect	OK
N	28	27	25
outliers	1	2	1
mean (n)	87.1805	11.5220	0.3506
st.dev. (n)	0.50417	0.17904	0.04246
R(calc.)	1.4117	0.5013	0.1189
st.dev.(D5291-D:21)	0.87210	0.28052	0.03550
R(D5291-D:21)	2.4419	0.7855	0.0994

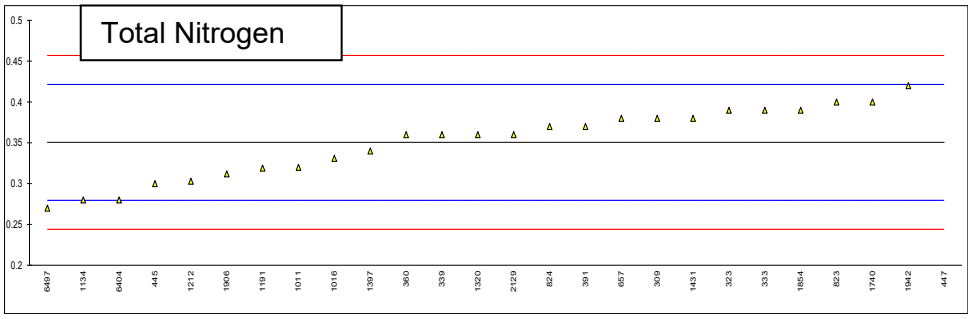
Lab 323 first reported 0.5
Lab 6404 first reported 10.16
Lab 6494 first reported 84.59

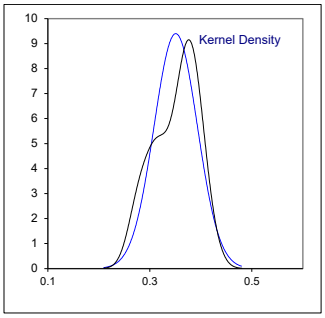










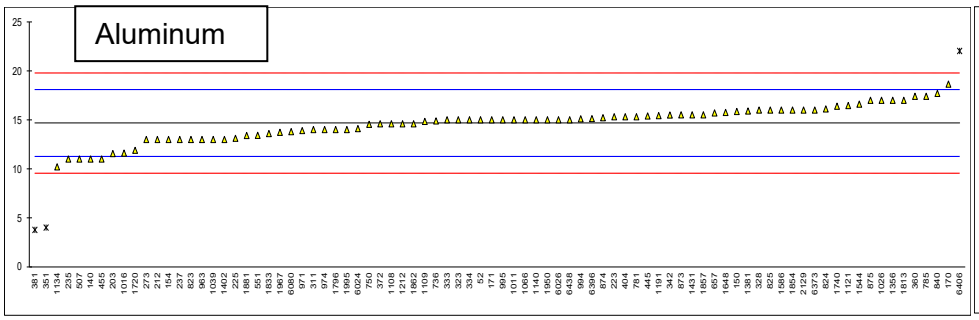


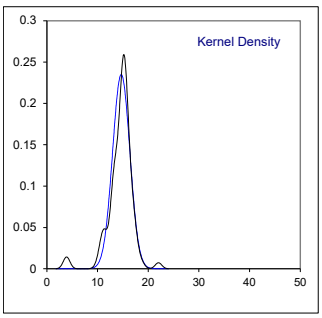
Determination of Aluminum as Al, Silicon as Si and Sum Al and Si on sample #22256; results in mg/kg

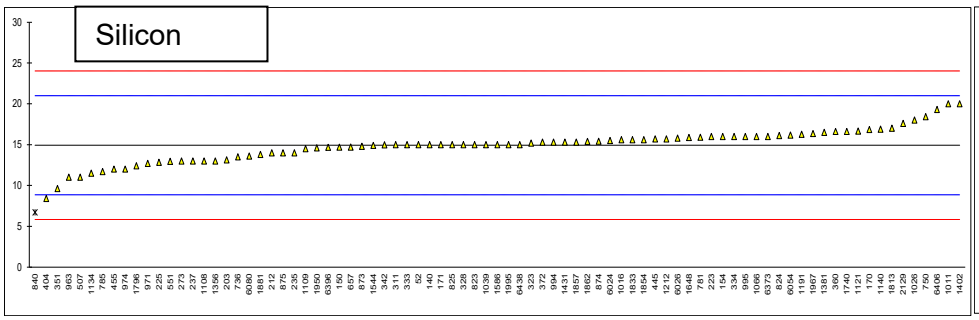
lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Al + Si	mark	z(targ)
52	IP501	15		0.19	15		0.02	30		0.09
120		-----		-----	-----		-----	-----		-----
140	IP501	11		-2.16	15		0.02	26		-1.06
150	IP501	15.85		0.69	14.69		-0.08	30.54		0.24
154	IP501	13		-0.99	16		0.35	29		-0.20
159		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170	IP501	18.64		2.32	16.84		0.63	35.48		1.66
171	IP501	15		0.19	15		0.02	29		-0.20
175		-----		-----	-----		-----	-----		-----
203	D5184	11.56		-1.83	13.13		-0.59	24.69		-1.44
212	IP501	13		-0.99	14		-0.30	27		-0.78
223	IP501	15.30		0.36	16.00		0.35	31.30		0.46
225	IP501	13.11		-0.92	12.84		-0.69	25.95		-1.08
228		-----		-----	-----		-----	-----		-----
235	IP501	11	C	-2.16	14	C	-0.30	25	C	-1.35
237	IP501	13		-0.99	13		-0.63	26		-1.06
273	IP501	13	C	-0.99	13	C	-0.63	26	C	-1.06
311	IP501	14		-0.40	15		0.02	29		-0.20
323	IP501	15		0.19	15.2	C	0.09	30.2	C	0.14
328	IP501	16		0.77	15		0.02	31		0.37
333	IP501	15		0.19	15		0.02	30		0.09
334	IP501	15		0.19	16		0.35	31		0.37
342	IP501	15.4828		0.47	14.9720		0.02	30.4548		0.22
351	IP501	4.0	C,R(0.01)	-6.27	9.63		-1.75	13.63	ex,C	-4.62
360	IP501	17.4		1.60	16.6		0.55	34.0		1.24
372	IP470	14.6		-0.05	15.3		0.12	29.9		0.06
381	D7691	3.76	R(0.01)	-6.41	-----		-----	-----		-----
404	IP470	15.30		0.36	8.41		-2.15	23.71		-1.72
445	IP501	15.4		0.42	15.7		0.26	31.1		0.40
447		-----		-----	-----		-----	-----		-----
455	IP501	11		-2.16	12		-0.96	-----		-----
467		-----		-----	-----		-----	-----		-----
507	IP501	11.0		-2.16	11.0		-1.29	22.0		-2.21
541		-----		-----	-----		-----	-----		-----
551	IP501	13.41		-0.74	12.94		-0.65	26.35		-0.96
631		-----		-----	-----		-----	-----		-----
634		-----		-----	-----		-----	-----		-----
657	IP501	15.7		0.60	14.7		-0.07	30.4		0.20
704		-----		-----	-----		-----	-----		-----
736	IP470	14.88		0.12	13.51		-0.47	28.39		-0.38
750	IP470	14.55		-0.08	18.43		1.16	32.98		0.94
781	IP501	15.3		0.36	15.9		0.32	31.2		0.43
785	IP470	17.4		1.60	11.7		-1.06	29.1		-0.17
798		-----		-----	-----		-----	-----		-----
823	IP501	13		-0.99	15		0.02	28		-0.49
824	IP501	16.1		0.83	16.1		0.39	32.2		0.72
825	IP501	16		0.77	15		0.02	31		0.37
840	IP501	17.7		1.77	6.7	R(0.01)	-2.71	24.4	ex	-1.52
873	IP470	15.5		0.48	14.8		-0.04	30.3		0.17
874	IP501	15.21		0.31	15.41		0.16	30.62		0.27
875	IP501	17		1.36	14		-0.30	31		0.37
963	IP501	13		-0.99	11		-1.29	24		-1.64
971	IP501	13.9		-0.46	12.7		-0.73	27.1		-0.75
974	IP501	14		-0.40	12		-0.96	26		-1.06
994	IP501	15.1		0.25	15.3		0.12	30.4		0.20
995	IP470	15		0.19	16		0.35	-----		-----
1011	ISO10478	15		0.19	20		1.67	35		1.52
1016		11.6		-1.81	15.6		0.22	-----		-----
1026	IP501	17		1.36	18		1.01	35		1.52
1039	IP501	13		-0.99	15		0.02	28		-0.49
1065		-----		-----	-----		-----	-----		-----
1066	IP501	15		0.19	16		0.35	31		0.37
1108	IP470	14.6		-0.05	13.0		-0.63	27.6	C	-0.60
1109	IP470	14.84		0.09	14.50		-0.14	-----		-----
1121	IP501	16.46		1.04	16.67		0.58	33.13		0.99
1134	IP501	10.2		-2.63	11.5		-1.13	21.7		-2.30
1140	IP501	15.0		0.19	16.9		0.65	31.9		0.63
1191	ISO10478	15.42		0.43	16.265		0.44	31.685		0.57
1212	IP501	14.6		-0.05	15.7		0.26	30.3		0.17
1299		-----		-----	-----		-----	-----		-----
1356	ISO10478	17		1.36	13		-0.63	30		0.09
1381	ISO10478	15.9		0.72	16.5		0.52	32.4		0.78
1402	IP501	13		-0.99	20		1.67	33		0.95
1431	IP501	15.5		0.48	15.3		0.12	30.8		0.32

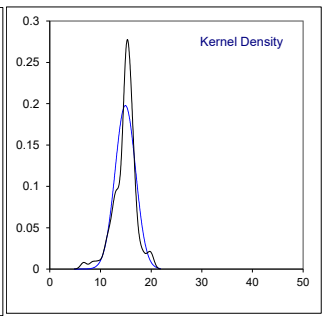
lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Al + Si	mark	z(targ)
1544	IP470	16.6		1.13	14.9		-0.01	31.6		0.55
1586	IP470	16		0.77	15		0.02	31		0.37
1648	IP501	15.76		0.63	15.87		0.31	31.63		0.56
1650		-----		-----	-----		-----	-----		-----
1720	D5708	11.890		-1.64	-----		-----	-----		-----
1740	ISO10478	16.4		1.01	16.6		0.55	33.0		0.95
1776		-----		-----	-----		-----	-----		-----
1796	IP470	14.0		-0.40	12.4		-0.83	26.4		-0.95
1813	IP501	17		1.36	17		0.68	34		1.24
1833	IP501	13.6		-0.63	15.6		0.22	29.2		-0.14
1854	IP501	16.0		0.77	15.6		0.22	31.6		0.55
1857	IP501	15.5		0.48	15.3		0.12	30.8		0.32
1862	IP501	14.6		-0.05	15.4		0.16	30.0		0.09
1881	IP470	13.4		-0.75	13.8		-0.37	27.2		-0.72
1950	IP470	15.0		0.19	14.6		-0.11	29.6		-0.03
1967	IP470	13.74		-0.55	16.36		0.47	30.10		0.12
1995	IP501	14		-0.40	15		0.02	29		-0.20
2129	IP470	16.0		0.77	17.6		0.88	33.6		1.12
6024	IP470	14.1		-0.34	15.5		0.19	29.6		-0.03
6026	IP470	15.0		0.19	15.8		0.29	30.8		0.32
6052		-----		-----	-----		-----	-----		-----
6054		-----		-----	16.1692		0.41	-----		-----
6075		-----		-----	-----		-----	-----		-----
6080	IP501	13.8		-0.52	13.6		-0.44	27.4		-0.66
6092		-----		-----	-----		-----	-----		-----
6142		-----		-----	-----		-----	-----		-----
6195		-----		-----	-----		-----	-----		-----
6373	IP501	16		0.77	16		0.35	32		0.66
6396	IP501	15.12		0.26	14.66		-0.09	29.78		0.02
6406	IP501	22.037	R(0.01)	4.32	19.304		1.44	41.341	ex	3.35
6438	IP501	15		0.19	15		0.02	30		0.09
	normality	OK			suspect			OK		
	n	81			82			75		
	outliers	3			1			0 +3ex		
	mean (n)	14.68			14.92			29.70		
	st.dev. (n)	1.697			2.016			2.894		
	R(calc.)	4.75			5.65			8.10		
	st.dev.(IP470:05)	1.705			3.032			3.478		
	R(IP470:05)	4.77			8.49			9.74		
Compare										
	R(IP501:05R19)	4.95			4.95			7.00		

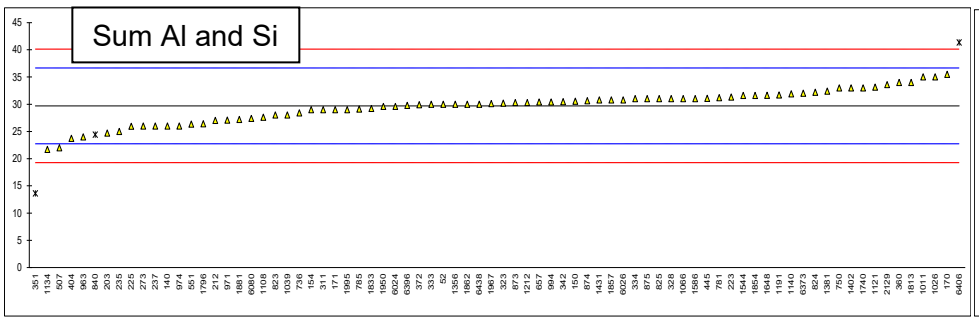
Lab 235 first reported 43, 54 and 97 respectively
Lab 273 first reported 10, 10 and 20 respectively
Lab 323 first reported 21 for Si but did not adjust the sum for Al and Si; reported 36 for sum Al and Si
Lab 351 first reported 9.15 and 18.78 respectively. Test result for sum Al and Si is excluded from statistical evaluation because of the statistical outlier at Al determination
Lab 840 test result sum Al and Si is excluded from statistical evaluation because of the statistical outlier at Si determination
Lab 1108 first reported 17.6
Lab 6406 test result sum Al and Si is excluded from statistical evaluation because of the statistical outlier at Al determination

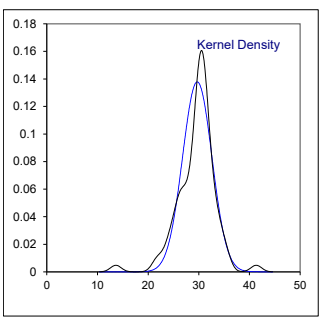

Aluminum


Kernel Density


Silicon


Kernel Density


Sum Al and Si

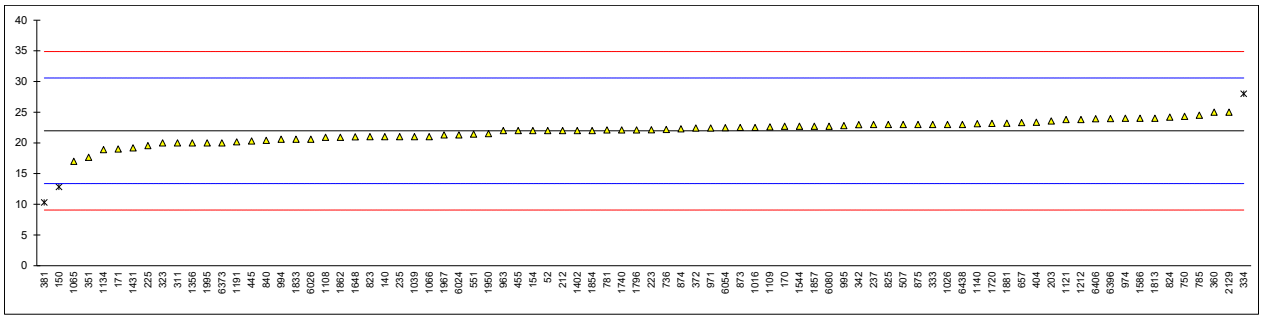

Kernel Density

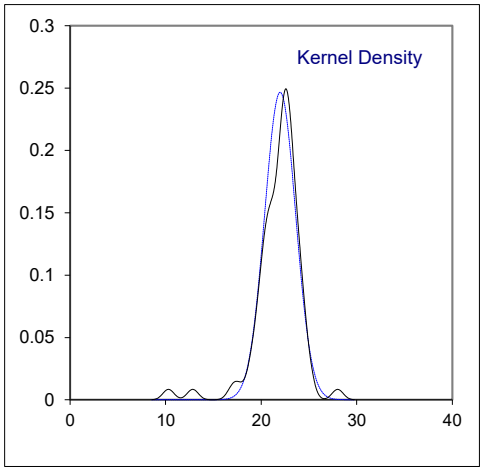
Determination of Iron as Fe on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	22		0.00	
120		-----		-----	
140	IP501	21		-0.23	
150	IP501	12.83	C,R(0.01)	-2.13	first reported 32.73
154	IP501	22		0.00	
159		-----		-----	
169		-----		-----	
170	IP501	22.69		0.16	
171	IP501	19		-0.69	
175		-----		-----	
203	D5863	23.58		0.37	
212	IP501	22		0.00	
223	IP501	22.11		0.03	
225	IP501	19.55		-0.57	
228		-----		-----	
235	IP501	21	C	-0.23	first reported 80
237	IP501	23		0.24	
273		-----		-----	
311	IP501	20		-0.46	
323	IP501	20		-0.46	
328		-----		-----	
333	IP501	23		0.24	
334	IP501	28	R(0.05)	1.40	
342	IP501	22.9591		0.23	
351	IP501	17.64		-1.01	
360	IP501	25.0		0.70	
372	IP470	22.4		0.10	
381	D5185	10.29	R(0.01)	-2.72	
404	IP470	23.36		0.32	
445	IP501	20.3		-0.39	
447		-----		-----	
455	IP501	22		0.00	
467		-----		-----	
507	IP501	23.0		0.24	
541		-----		-----	
551	IP501	21.43		-0.13	
631		-----		-----	
634		-----		-----	
657	IP501	23.3		0.31	
704		-----		-----	
736	IP470	22.20		0.05	
750	IP470	24.33		0.54	
781	IP501	22.1		0.03	
785	IP470	24.5		0.58	
798		-----		-----	
823	IP501	21		-0.23	
824	IP501	24.2		0.51	
825	IP501	23		0.24	
840	IP501	20.4		-0.37	
873	IP470	22.5		0.12	
874	IP501	22.30		0.07	
875	IP501	23		0.24	
963	IP501	22		0.00	
971	IP501	22.4		0.10	
974	IP501	24		0.47	
994	IP501	20.6		-0.32	
995	IP470	22.8		0.19	
1011		-----		-----	
1016		22.5		0.12	
1026	IP501	23		0.24	
1039	IP501	21		-0.23	
1065	IP470	17		-1.16	
1066	IP501	21		-0.23	
1108	IP470	20.9		-0.25	
1109	IP470	22.61		0.15	
1121	IP501	23.8		0.42	
1134	IP501	18.9		-0.72	
1140	IP501	23.1		0.26	
1191	ISO10478Mod.	20.15		-0.43	
1212	IP501	23.8		0.42	
1299		-----		-----	
1356	IP501	20		-0.46	
1381		-----		-----	
1402	IP501	22		0.00	
1431	IP501	19.2		-0.65	

lab	method	value	mark	z(targ)	remarks
1544	IP470	22.7		0.17	
1586	IP470	24		0.47	
1648	IP501	20.99		-0.23	
1650		-----		-----	
1720	D5708	23.193		0.28	
1740	IP501	22.1		0.03	
1776		-----		-----	
1796	IP470	22.1		0.03	
1813	IP501	24		0.47	
1833	IP501	20.6		-0.32	
1854	IP470	22.0		0.00	
1857	IP501	22.7		0.17	
1862	IP501	20.9		-0.25	
1881	IP470	23.2		0.28	
1950	IP470	21.5		-0.11	
1967	IP470	21.29		-0.16	
1995	IP501	20		-0.46	
2129	IP470	25.0		0.70	
6024	IP470	21.3		-0.16	
6026	IP470	20.6		-0.32	
6052		-----		-----	
6054	IP501	22.4597		0.11	
6075		-----		-----	
6080	IP501	22.7		0.17	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	20		-0.46	
6396	IP501	23.96		0.46	
6406	IP501	23.944		0.46	
6438	IP501	23		0.24	

	normality	OK
	n	79
	outliers	3
	mean (n)	21.99
	st.dev. (n)	1.617
	R(calc.)	4.53
	st.dev.(IP470:05)	4.304
	R(IP470:05)	12.05
Compare		
	R(IP501:05R19)	5.13



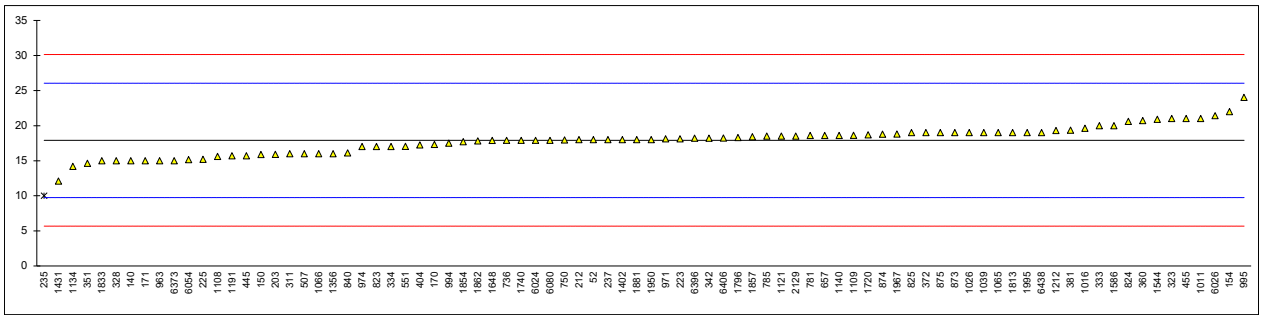


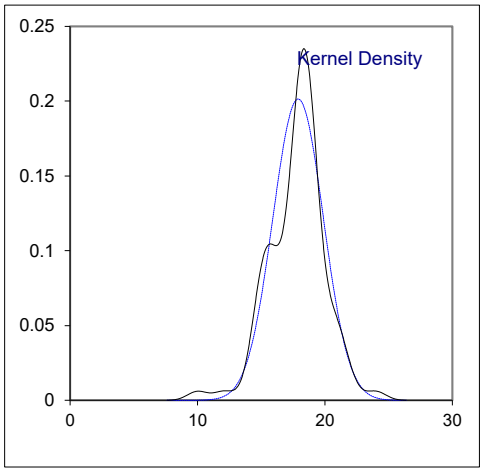
Determination of Nickel as Ni on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	18		0.02	
120		-----		-----	
140	IP501	15		-0.71	
150	IP501	15.88		-0.50	
154	IP501	22		1.01	
159		-----		-----	
169		-----		-----	
170	IP501	17.30		-0.15	
171	IP501	15		-0.71	
175		-----		-----	
203	D5863	15.91		-0.49	
212	IP501	18		0.02	
223	IP501	18.11		0.05	
225	IP501	15.19		-0.67	
228		-----		-----	
235	IP501	10	C,R(0.05)	-1.94	first reported 40
237	IP501	18		0.02	
273		-----		-----	
311	IP501	16		-0.47	
323	IP501	21		0.76	
328	IP501	15		-0.71	
333	IP501	20		0.52	
334	IP501	17		-0.22	
342	IP501	18.2176		0.08	
351	IP501	14.61		-0.81	
360	IP501	20.7		0.69	
372	IP470	19		0.27	
381	D5185	19.33		0.35	
404	IP470	17.23		-0.16	
445	IP501	15.7		-0.54	
447		-----		-----	
455	IP501	21		0.76	
467		-----		-----	
507	IP501	16.0		-0.47	
541		-----		-----	
551	IP501	17.04		-0.21	
631		-----		-----	
634		-----		-----	
657	IP501	18.6		0.17	
704		-----		-----	
736	IP470	17.89		0.00	
750	IP470	17.95		0.01	
781	IP501	18.6		0.17	
785	IP470	18.5		0.15	
798		-----		-----	
823	IP501	17		-0.22	
824	IP501	20.6		0.66	
825	IP501	19		0.27	
840	IP501	16.1		-0.44	
873	IP470	19.0		0.27	
874	IP501	18.77		0.21	
875	IP501	19		0.27	
963	IP501	15		-0.71	
971	IP501	18.1		0.05	
974	IP501	17		-0.22	
994	IP501	17.5		-0.10	
995	IP470	24		1.50	
1011	D5863-B	21		0.76	
1016		19.6		0.42	
1026	IP501	19		0.27	
1039	IP501	19		0.27	
1065	IP470	19		0.27	
1066	IP501	16		-0.47	
1108	IP470	15.6		-0.56	
1109	IP470	18.61		0.17	
1121	IP501	18.5		0.15	
1134	IP501	14.2		-0.91	
1140	IP501	18.6		0.17	
1191	ISO10478Mod.	15.69		-0.54	
1212	IP501	19.3		0.34	
1299		-----		-----	
1356	IP501	16		-0.47	
1381		-----		-----	
1402	IP501	18		0.02	

lab	method	value	mark	z(targ)	remarks
1431	IP501	12.1		-1.42	
1544	IP470	20.9		0.74	
1586	IP470	20		0.52	
1648	IP501	17.88		0.00	
1650		-----		-----	
1720	D5708	18.683		0.19	
1740	IP501	17.9		0.00	
1776		-----		-----	
1796	IP470	18.3		0.10	
1813	IP501	19		0.27	
1833	IP501	14.99		-0.71	
1854	IP501	17.7		-0.05	
1857	IP501	18.4		0.12	
1862	IP501	17.8		-0.02	
1881	IP470	18.0		0.02	
1950	IP470	18.0		0.02	
1967	IP470	18.81		0.22	
1995	IP501	19		0.27	
2129	IP470	18.5		0.15	
6024	IP470	17.9		0.00	
6026	IP470	21.4		0.86	
6052		-----		-----	
6054	IP501	15.1498		-0.68	
6075		-----		-----	
6080	IP501	17.9		0.00	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	15		-0.71	
6396	IP501	18.21		0.08	
6406	IP501	18.225		0.08	
6438	IP501	19		0.27	

	normality	OK
	n	83
	outliers	1
	mean (n)	17.90
	st.dev. (n)	1.981
	R(calc.)	5.55
	st.dev.(IP470:05)	4.072
	R(IP470:05)	11.40
Compare		
	R(IP501:05R19)	8.22



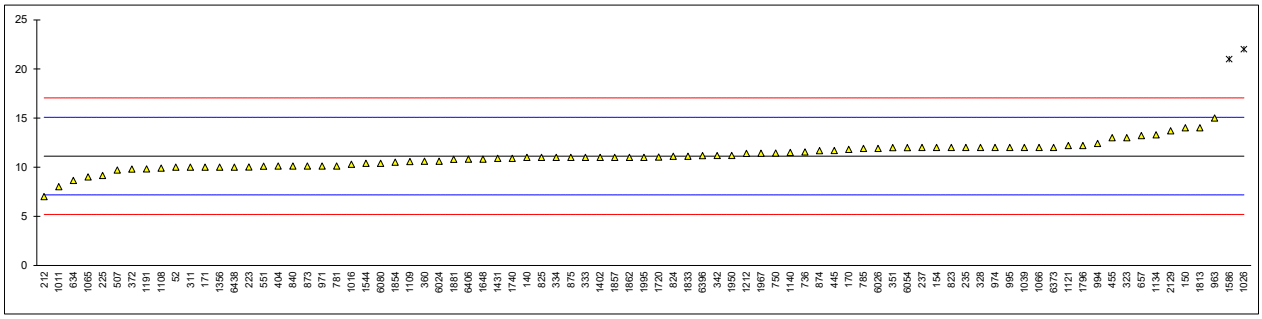


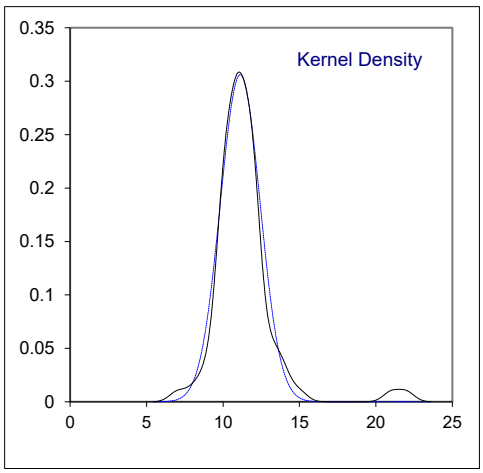
Determination of Sodium as Na on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	10		-0.57	
120		-----		-----	
140	IP501	11		-0.06	
150	IP501	14		1.45	
154	IP501	12		0.44	
159		-----		-----	
169		-----		-----	
170	IP501	11.795		0.34	
171	IP501	10		-0.57	
175		-----		-----	
203		-----		-----	
212	IP501	7		-2.09	
223	IP501	10.02		-0.56	
225	IP501	9.15		-1.00	
228		-----		-----	
235	IP501	12	C	0.44	first reported 46
237	IP501	12		0.44	
273		-----		-----	
311	IP501	10		-0.57	
323	IP501	13		0.95	
328	IP501	12		0.44	
333	IP501	11		-0.06	
334	IP501	11		-0.06	
342	IP501	11.1754		0.02	
351	IP501	11.98		0.43	
360	IP501	10.6		-0.27	
372	IP470	9.8		-0.67	
381		-----		-----	
404	IP470	10.1		-0.52	
445	IP501	11.7		0.29	
447		-----		-----	
455	IP501	13		0.95	
467		-----		-----	
507	IP501	9.7		-0.72	
541		-----		-----	
551	IP501	10.09		-0.52	
631		-----		-----	
634	D5863	8.64		-1.26	
657	IP501	13.2		1.05	
704		-----		-----	
736	IP470	11.55		0.21	
750	IP470	11.44		0.16	
781	IP501	10.1		-0.52	
785	IP470	11.9		0.39	
798		-----		-----	
823	IP501	12		0.44	
824	IP501	11.1		-0.01	
825	IP501	11		-0.06	
840	IP501	10.1		-0.52	
873	IP470	10.1		-0.52	
874	IP501	11.68		0.28	
875	IP501	11		-0.06	
963	IP501	15		1.96	
971	IP501	10.1		-0.52	
974	IP501	12		0.44	
994	IP501	12.4		0.64	
995	IP470	12		0.44	
1011	D5863-B	8		-1.58	
1016		10.29		-0.42	
1026	IP501	22	R(0.01)	5.51	
1039	IP501	12		0.44	
1065	IP470	9		-1.08	
1066	IP501	12		0.44	
1108	IP470	9.9		-0.62	
1109	IP470	10.58		-0.28	
1121	IP501	12.2		0.54	
1134	IP501	13.3		1.10	
1140	IP501	11.5		0.19	
1191	ISO10478Mod.	9.82		-0.66	
1212	IP501	11.4		0.14	
1299		-----		-----	
1356	IP501	10		-0.57	
1381		-----		-----	
1402	IP501	11		-0.06	
1431	IP501	10.9		-0.11	

lab	method	value	mark	z(targ)	remarks
1544	IP470	10.4		-0.37	
1586	IP470	21	R(0.01)	5.00	
1648	IP501	10.82		-0.16	
1650		-----		-----	
1720	D5708	11.030		-0.05	
1740	IP501	10.9		-0.11	
1776		-----		-----	
1796	IP470	12.2		0.54	
1813	IP501	14		1.45	
1833	IP501	11.11		-0.01	
1854	IP501	10.5		-0.32	
1857	IP501	11.0		-0.06	
1862	IP501	11.0		-0.06	
1881	IP470	10.8		-0.17	
1950	IP470	11.2		0.04	
1967	IP470	11.42		0.15	
1995	IP501	11		-0.06	
2129	IP470	13.7		1.30	
6024	IP470	10.6		-0.27	
6026	IP470	11.9		0.39	
6052		-----		-----	
6054	IP501	11.9804		0.43	
6075		-----		-----	
6080	IP501	10.4		-0.37	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	12		0.44	
6396	IP501	11.17		0.02	
6406	IP501	10.815		-0.16	
6438	IP501	10		-0.57	

	normality	suspect
	n	81
	outliers	2
	mean (n)	11.13
	st.dev. (n)	1.304
	R(calc.)	3.65
	st.dev.(IP470:05)	1.975
	R(IP470:05)	5.53
Compare		
	R(IP501:05R19)	4.01



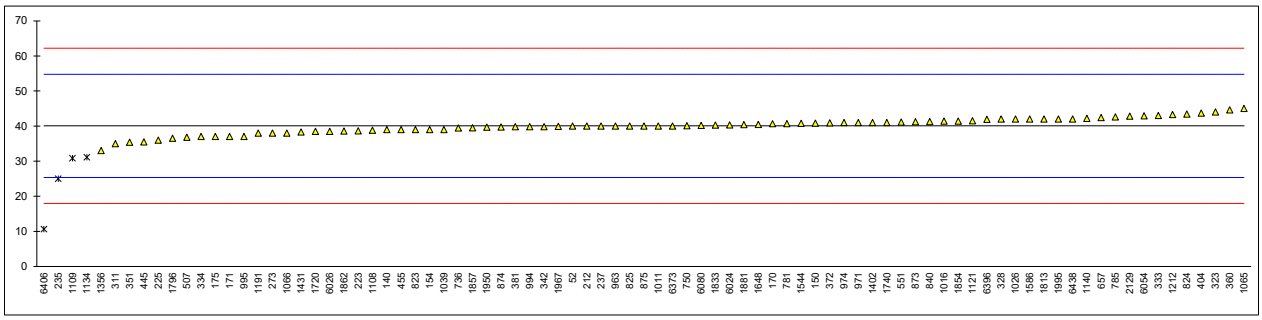


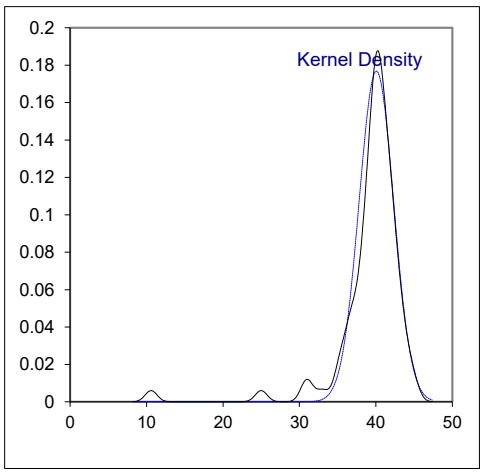
Determination of Vanadium as V on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	40		-0.01	
120		-----		-----	
140	IP501	39		-0.14	
150	IP501	40.83		0.10	
154	IP501	39		-0.14	
159		-----		-----	
169		-----		-----	
170	IP501	40.675		0.08	
171	IP501	37		-0.42	
175	D5863-B	37		-0.42	
203		-----		-----	
212	IP501	40		-0.01	
223	IP501	38.62		-0.20	
225	IP501	36.0		-0.55	
228		-----		-----	
235	IP501	25	C,R(0.01)	-2.04	first reported 97
237	IP501	40		-0.01	
273	IP501	38	C	-0.28	first reported 11
311	IP501	35		-0.69	
323	IP501	44		0.53	
328	IP501	42		0.26	
333	IP501	43		0.40	
334	IP501	37		-0.42	
342	IP501	39.8191		-0.03	
351	IP501	35.39		-0.63	
360	IP501	44.6		0.61	
372	IP470	40.9		0.11	
381	D5185	39.80		-0.04	
404	IP470	43.69		0.49	
445	IP501	35.5		-0.62	
447		-----		-----	
455	IP501	39		-0.14	
467		-----		-----	
507	IP501	36.8		-0.44	
541		-----		-----	
551	IP501	41.14		0.15	
631		-----		-----	
634		-----		-----	
657	IP501	42.4		0.32	
704		-----		-----	
736	IP470	39.44		-0.09	
750	IP470	40.12		0.01	
781	IP501	40.7		0.09	
785	IP470	42.6		0.34	
798		-----		-----	
823	IP501	39		-0.14	
824	IP501	43.4		0.45	
825	IP501	40		-0.01	
840	IP501	41.3		0.17	
873	IP470	41.2		0.15	
874	IP501	39.71		-0.05	
875	IP501	40		-0.01	
963	IP501	40		-0.01	
971	IP501	41.0		0.13	
974	IP501	41		0.13	
994	IP501	39.8		-0.04	
995	IP470	37		-0.42	
1011	D5863-B	40		-0.01	
1016		41.4		0.18	
1026	IP501	42		0.26	
1039	IP501	39		-0.14	
1065	IP470	45		0.67	
1066	IP501	38		-0.28	
1108	IP470	38.8		-0.17	
1109	IP470	30.85	R(0.05)	-1.25	
1121	IP501	41.5		0.19	
1134	IP501	31.1	R(0.05)	-1.22	
1140	IP501	42.2		0.29	
1191	ISO10478Mod.	37.975		-0.28	
1212	IP501	43.3		0.44	
1299		-----		-----	
1356	IP501	33		-0.96	
1381		-----		-----	
1402	IP501	41		0.13	
1431	IP501	38.3		-0.24	

lab	method	value	mark	z(targ)	remarks
1544	IP470	40.8		0.10	
1586	IP470	42		0.26	
1648	IP501	40.44		0.05	
1650		-----		-----	
1720	D5708	38.478		-0.22	
1740	IP501	41.0		0.13	
1776		-----		-----	
1796	IP470	36.5		-0.48	
1813	IP501	42		0.26	
1833		40.29		0.03	
1854	IP470	41.4		0.18	
1857	IP501	39.5		-0.08	
1862	IP501	38.6		-0.20	
1881	IP470	40.4		0.05	
1950	IP470	39.7		-0.05	
1967	IP470	39.89		-0.02	
1995	IP501	42		0.26	
2129	IP470	42.8		0.37	
6024	IP470	40.3		0.03	
6026	IP470	38.5		-0.21	
6052		-----		-----	
6054	IP501	42.8852		0.38	
6075		-----		-----	
6080	IP501	40.2		0.02	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	40		-0.01	
6396	IP501	41.92		0.25	
6406	IP501	10.6	R(0.01)	-4.00	
6438	IP501	42		0.26	

	normality	OK
	n	81
	outliers	4
	mean (n)	40.07
	st.dev. (n)	2.256
	R(calc.)	6.32
	st.dev.(IP470:05)	7.370
	R(IP470:05)	20.64
Compare		
	R(IP501:05R19)	15.38



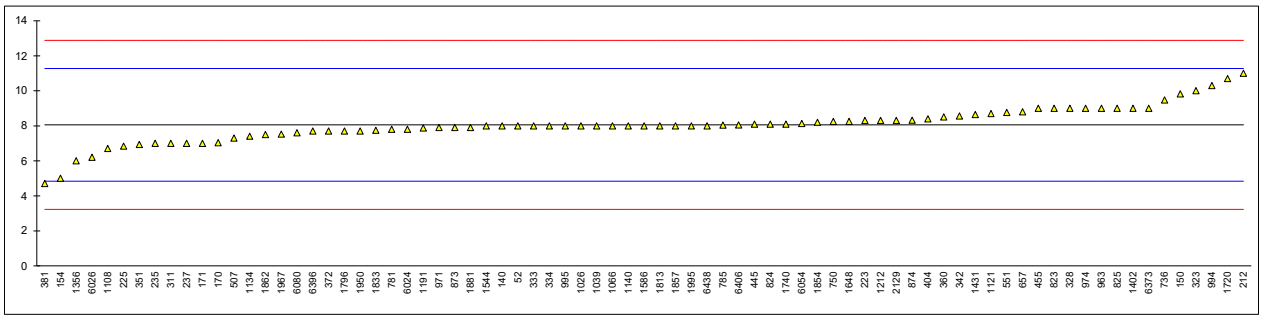


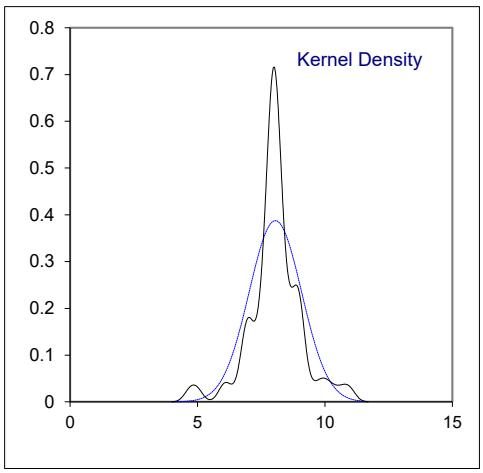
Determination of Calcium as Ca on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	8		-0.04	
120		-----		-----	
140	IP501	8		-0.04	
150	IP501	9.82		1.09	
154	IP501	5		-1.90	
159		-----		-----	
169		-----		-----	
170	IP501	7.0325		-0.64	
171	IP501	7		-0.66	
175		-----		-----	
203		-----		-----	
212	IP501	11		1.83	
223	IP501	8.30		0.15	
225	IP501	6.84		-0.76	
228		-----		-----	
235	IP501	7	C	-0.66	first reported 27
237	IP501	7		-0.66	
273		-----		-----	
311	IP501	7		-0.66	
323	IP501	10		1.21	
328	IP501	9		0.58	
333	IP501	8		-0.04	
334	IP501	8		-0.04	
342	IP501	8.5612		0.31	
351	IP501	6.93		-0.70	
360	IP501	8.5		0.27	
372	IP470	7.7		-0.22	
381	D7691	4.70		-2.09	
404	IP470	8.39		0.21	
445	IP501	8.1		0.03	
447		-----		-----	
455	IP501	9		0.58	
467		-----		-----	
507	IP501	7.3		-0.47	
541		-----		-----	
551	IP501	8.76		0.44	
631		-----		-----	
634		-----		-----	
657	IP501	8.8		0.46	
704		-----		-----	
736	IP470	9.48		0.88	
750	IP470	8.25		0.12	
781	IP501	7.8		-0.16	
785	IP470	8.04		-0.01	
798		-----		-----	
823	IP501	9		0.58	
824	IP501	8.1		0.03	
825	IP501	9		0.58	
840		-----		-----	
873	IP470	7.9		-0.10	
874	IP501	8.32		0.16	
875		-----		-----	
963	IP501	9		0.58	
971	IP501	7.9		-0.10	
974	IP501	9		0.58	
994	IP501	10.3		1.39	
995	IP470	8		-0.04	
1011		-----		-----	
1016		-----		-----	
1026	IP501	8		-0.04	
1039	IP501	8		-0.04	
1065		-----		-----	
1066	IP501	8		-0.04	
1108	IP470	6.7		-0.84	
1109		-----		-----	
1121	IP501	8.7		0.40	
1134	IP501	7.4		-0.41	
1140	IP501	8.0		-0.04	
1191	IP501	7.88		-0.11	
1212	IP501	8.3		0.15	
1299		-----		-----	
1356	IP501	6		-1.28	
1381		-----		-----	
1402	IP501	9		0.58	
1431	IP501	8.64		0.36	

lab	method	value	mark	z(targ)	remarks
1544	IP470	7.998	C	-0.04	first reported 14.5
1586	IP470	8		-0.04	
1648	IP501	8.25		0.12	
1650		-----		-----	
1720	D5708	10.698		1.64	
1740	IP501	8.1		0.03	
1776		-----		-----	
1796	IP470	7.7		-0.22	
1813	IP501	8		-0.04	
1833		7.74		-0.20	
1854	IP501	8.2		0.09	
1857	IP501	8.0		-0.04	
1862	IP501	7.5		-0.35	
1881	IP470	7.9		-0.10	
1950	IP470	7.7		-0.22	
1967	IP470	7.52		-0.33	
1995	IP501	8		-0.04	
2129	IP470	8.3		0.15	
6024	IP470	7.8		-0.16	
6026	IP470	6.2		-1.15	
6052		-----		-----	
6054	IP501	8.13025		0.04	
6075		-----		-----	
6080	IP501	7.6		-0.29	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	9		0.58	
6396	IP501	7.697		-0.22	
6406	IP501	8.05		-0.01	
6438	IP501	8		-0.04	

	normality	not OK
	n	77
	outliers	0
	mean (n)	8.06
	st.dev. (n)	1.029
	R(calc.)	2.88
	st.dev.(IP470:05)	1.610
	R(IP470:05)	4.51
Compare		
	R(IP501:05R19)	2.50



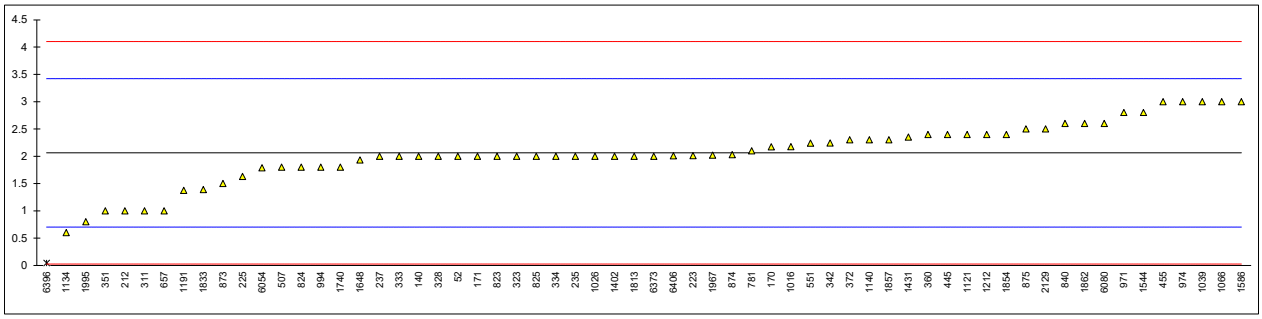


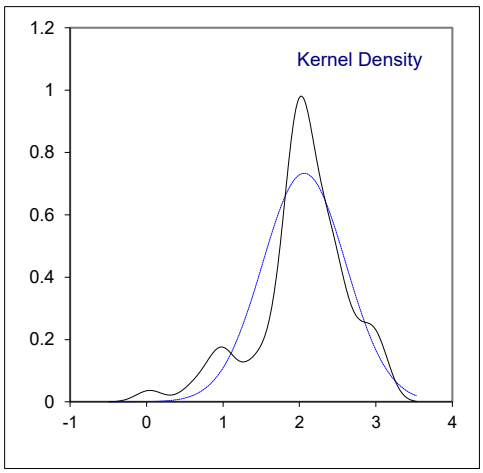
Determination of Phosphorus as P on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	2		-0.09	
120		-----		-----	
140	IP501	2		-0.09	
150	IP501	<1		-----	
154	IP501	<1		-----	
159		-----		-----	
169		-----		-----	
170	IP501	2.1735		0.16	
171	IP501	2		-0.09	
175		-----		-----	
203		-----		-----	
212	IP501	1		-1.57	
223	IP501	2.01		-0.08	
225	IP501	1.63		-0.64	
228		-----		-----	
235	IP501	2	C	-0.09	first reported 6
237	IP501	2		-0.09	
273		-----		-----	
311	IP501	1		-1.57	
323	IP501	2		-0.09	
328	IP501	2		-0.09	
333	IP501	2		-0.09	
334	IP501	2		-0.09	
342	IP501	2.2440		0.27	
351	IP501	1.0	C	-1.57	first reported 0.23
360	IP501	2.4		0.50	
372	IP500	2.3		0.35	
381		-----		-----	
404		-----		-----	
445	IP501	2.4		0.50	
447		-----		-----	
455	IP501	3		1.38	
467		-----		-----	
507	IP501	1.8		-0.39	
541		-----		-----	
551	IP501	2.24		0.26	
631		-----		-----	
634		-----		-----	
657	IP501	1		-1.57	
704		-----		-----	
736	IP501	<1		-----	
750		-----		-----	
781	IP501	2.1		0.05	
785		-----		-----	
798		-----		-----	
823	IP501	2		-0.09	
824	IP501	1.8		-0.39	
825	IP501	2		-0.09	
840	IP501	2.6		0.79	
873	IP500	1.5		-0.83	
874	IP501	2.03		-0.05	
875	IP501	2.5		0.64	
963	IP501	<1		-----	
971	IP501	2.8		1.08	
974	IP501	3		1.38	
994	IP501	1.8		-0.39	
995		-----		-----	
1011		-----		-----	
1016		2.176		0.17	
1026	IP501	2		-0.09	
1039	IP501	3		1.38	
1065		-----		-----	
1066	IP501	3		1.38	
1108		-----	W	-----	test result withdrawn, reported 8.2
1109		-----		-----	
1121	IP501	2.4		0.50	
1134	IP501	0.6		-2.16	
1140	IP501	2.3		0.35	
1191	IP501	1.375		-1.01	
1212	IP501	2.4		0.50	
1299		-----		-----	
1356	IP501	<1		-----	
1381		-----		-----	
1402	IP501	2		-0.09	
1431	IP501	2.35		0.42	

lab	method	value	mark	z(targ)	remarks
1544	IP501	2.8		1.08	
1586	IP501	3		1.38	
1648	IP501	1.93		-0.20	
1650		-----		-----	
1720		-----		-----	
1740	IP501	1.8		-0.39	
1776		-----		-----	
1796		-----		-----	
1813	IP501	2		-0.09	
1833		1.39		-0.99	
1854	IP501	2.4		0.50	
1857	IP501	2.3		0.35	
1862	IP501	2.6		0.79	
1881		-----		-----	
1950		-----		-----	
1967	IP501	2.02		-0.06	
1995	IP501	0.8		-1.86	
2129	IP500	2.5		0.64	
6024		-----		-----	
6026		-----		-----	
6052		-----		-----	
6054	IP501	1.7898		-0.40	
6075		-----		-----	
6080	IP501	2.6		0.79	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	2		-0.09	
6396	IP501	0.042	R(0.05)	-2.98	
6406	IP501	2.008		-0.08	
6438	IP501	<1		-----	

	normality	OK
	n	61
	outliers	1
	mean (n)	2.06
	st.dev. (n)	0.544
	R(calc.)	1.52
	st.dev.(IP501:05R19)	0.679
	R(IP501:05R19)	1.90
Compare		
	R(IP500:03)	1.62



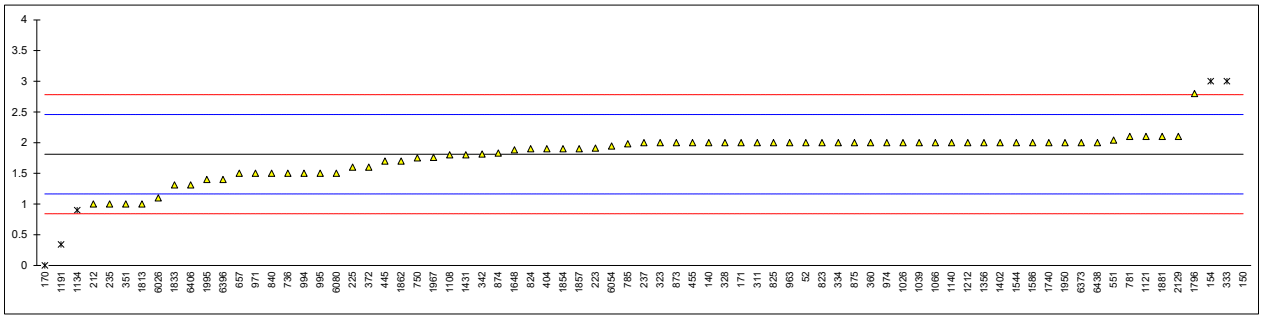


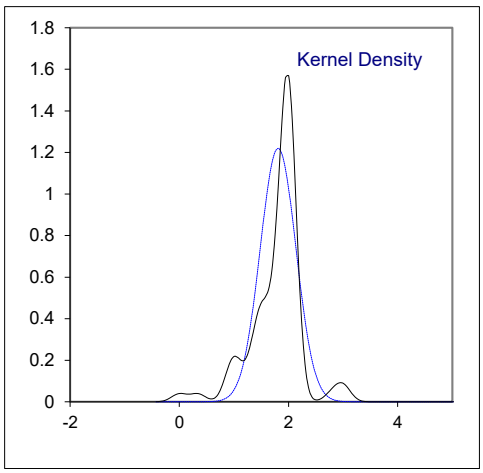
Determination of Zinc as Zn on sample #22256; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	IP501	2		0.59	
120		-----		-----	
140	IP501	2		0.59	
150	IP501	15.05	C,R(0.01)	40.95	first reported 26
154	IP501	3	R(0.05)	3.68	
159		-----		-----	
169		-----		-----	
170	IP501	0.00	R(0.01)	-5.60	
171	IP501	2		0.59	
175		-----		-----	
203		-----		-----	
212	IP501	1		-2.51	
223	IP501	1.91		0.31	
225	IP501	1.60		-0.65	
228		-----		-----	
235	IP501	1	C	-2.51	first reported 4
237	IP501	2		0.59	
273		-----		-----	
311	IP501	2		0.59	
323	IP501	2		0.59	
328	IP501	2		0.59	
333	IP501	3	R(0.05)	3.68	
334	IP501	2		0.59	
342	IP501	1.8132		0.01	
351	IP501	1.0	C	-2.51	first reported 0.196
360	IP501	2.0		0.59	
372	IP470	1.6		-0.65	
381		-----		-----	
404	IP470	1.9		0.28	
445	IP501	1.7		-0.34	
447		-----		-----	
455	IP501	2		0.59	
467		-----		-----	
507	IP501	<1	C	-----	first reported 0.59
541		-----		-----	
551	IP501	2.04		0.71	
631		-----		-----	
634		-----		-----	
657	IP501	1.5		-0.96	
704		-----		-----	
736	IP470	1.50		-0.96	
750	IP470	1.75		-0.19	
781	IP501	2.1		0.90	
785	IP470	1.98		0.52	
798		-----		-----	
823	IP501	2		0.59	
824	IP501	1.9		0.28	
825	IP501	2		0.59	
840	IP501	1.5		-0.96	
873	IP470	2.0		0.59	
874	IP501	1.83		0.06	
875	IP501	2		0.59	
963	IP501	2	C	0.59	first reported 1
971	IP501	1.5		-0.96	
974	IP501	2		0.59	
994	IP501	1.5		-0.96	
995	IP470	1.5		-0.96	
1011		-----		-----	
1016		-----		-----	
1026	IP501	2		0.59	
1039	IP501	2		0.59	
1065		-----		-----	
1066	IP501	2		0.59	
1108	IP470	1.8		-0.03	
1109		-----		-----	
1121	IP501	2.1		0.90	
1134	IP501	0.9	R(0.05)	-2.82	
1140	IP501	2.0		0.59	
1191	IP501	0.34	R(0.05)	-4.55	
1212	IP501	2.0		0.59	
1299		-----		-----	
1356	IP501	2		0.59	
1381		-----		-----	
1402	IP501	2		0.59	
1431	IP501	1.80		-0.03	

lab	method	value	mark	z(targ)	remarks
1544	IP470	2.0		0.59	
1586	IP470	2		0.59	
1648	IP501	1.88		0.21	
1650		-----		-----	
1720		-----		-----	
1740	IP501	2.0		0.59	
1776		-----		-----	
1796	IP470	2.8		3.06	
1813	IP501	1		-2.51	
1833		1.31		-1.55	
1854	IP501	1.9		0.28	
1857	IP501	1.9		0.28	
1862	IP501	1.7		-0.34	
1881	IP470	2.1		0.90	
1950	IP470	2.0		0.59	
1967	IP470	1.76		-0.16	
1995	IP501	1.4		-1.27	
2129	IP470	2.1		0.90	
6024		-----		-----	
6026	IP470	1.1		-2.20	
6052		-----		-----	
6054	IP501	1.94272		0.41	
6075		-----		-----	
6080	IP501	1.5		-0.96	
6092		-----		-----	
6142		-----		-----	
6195		-----		-----	
6373	IP501	2		0.59	
6396	IP501	1.400		-1.27	
6406	IP501	1.310		-1.55	
6438	IP501	2		0.59	

	normality	suspect
	n	69
	outliers	6
	mean (n)	1.81
	st.dev. (n)	0.327
	R(calc.)	0.92
	st.dev.(IP470:05)	0.323
	R(IP470:05)	0.91
Compare		
	R(IP501:05R19)	0.77

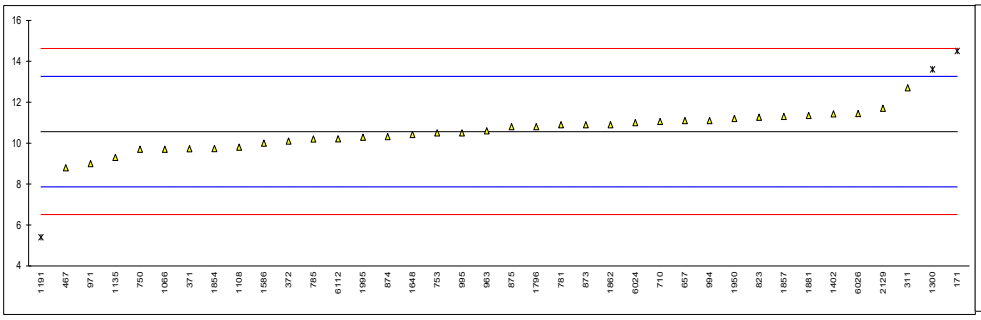


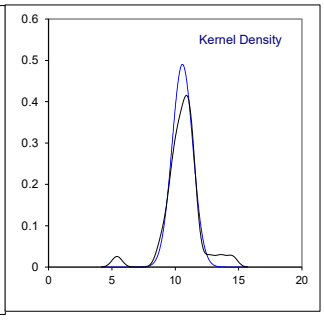


Determination of Bromine Number on distillate <360 °C AET on sample #22257; results in g Br_2/100 g

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
171	D1159	14.5	R(0.05)	2.91	
311	D1159	12.7		1.58	
323		-----		-----	
334		-----		-----	
371	D1159	9.72		-0.63	
372	D1159	10.1		-0.35	
445		-----		-----	
467	D1159	8.79		-1.31	
657	D1159	11.1		0.39	
710	D1159	11.06		0.37	
750	D1159	9.7		-0.64	
753	D1159	10.5		-0.05	
781	D1159	10.9		0.25	
785	D1159	10.2		-0.27	
798		-----		-----	
823	D1159	11.27		0.52	
873	D1159	10.9		0.25	
874	D1159	10.32		-0.18	
875	D1159	10.8		0.17	
963	D1159	10.6		0.02	
971	D1159	9.0		-1.16	
994	D1159	11.1		0.39	
995	D1159	10.5		-0.05	
1016		-----		-----	
1026		-----		-----	
1065		-----		-----	
1066	D1159	9.70		-0.64	
1108	D1159	9.8		-0.57	
1134		-----		-----	
1135	D1159	9.3		-0.94	
1191	ISO3839Mod.	5.40	R(0.01)	-3.82	
1299		-----		-----	
1300	D1159	13.602	R(0.05)	2.25	
1402	D1159	11.428		0.64	
1544		-----		-----	
1585		-----		-----	
1586	D1159	10.0		-0.42	
1648	D1159	10.42		-0.11	
1796	D1159	10.8		0.17	
1854	D1159	9.73		-0.62	
1857	D1159	11.3		0.54	
1862	D1159	10.90		0.25	
1881	D1159	11.35		0.58	
1950	D1159	11.2		0.47	
1995	D1159	10.29		-0.20	
2129	D1159	11.7		0.84	
6024	D1159	11.0		0.32	
6026	D1159	11.44		0.65	
6112	D1159	10.21		-0.26	
6195		-----		-----	
6373		-----		-----	

normality	OK
n	35
outliers	3
mean (n)	10.567
st.dev. (n)	0.8139
R(calc.)	2.279
st.dev.(D1159:07R17)	1.3520
R(D1159:07R17)	3.786

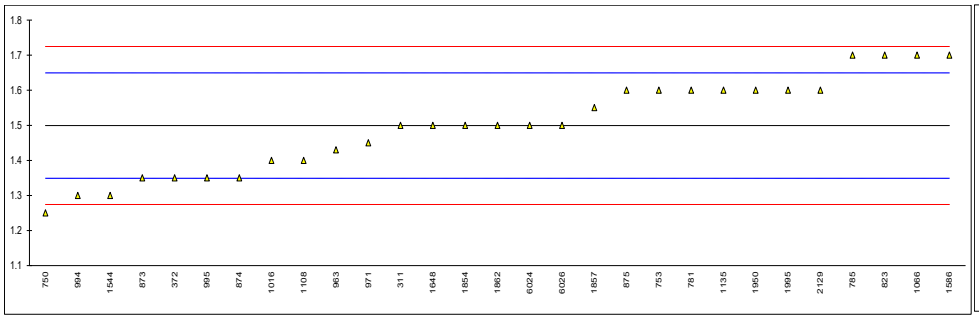


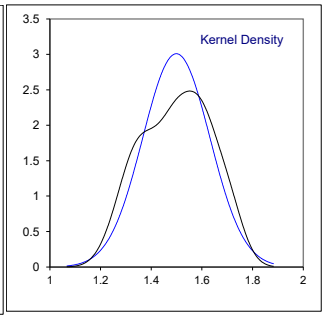


Determination of P-value SMS1600 on sample #22257

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
311	SMS1600	1.50		0.01	
323		-----		-----	
334		-----		-----	
371		-----		-----	
372	SMS1600	1.35		-1.99	
445		-----		-----	
467		-----		-----	
657	SMS1600	<1	f-?	<-6.66	possibly a false negative test result?
710		-----		-----	
750	SMS1600	1.25		-3.32	
753	SMS1600	1.6		1.34	
781	SMS1600	1.6		1.34	
785	SMS1600	1.7		2.68	
798		-----		-----	
823	SMS1600	1.7		2.68	
873	SMS1600	1.35		-1.99	
874	SMS1600	1.35		-1.99	
875	SMS1600	1.60		1.34	
963	INH-001	1.43		-0.92	
971	SMS1600	1.45		-0.66	
994	SMS1600	1.30		-2.66	
995	SMS1600	1.35		-1.99	
1016	SMS1600	1.40		-1.32	
1026		-----		-----	
1065		-----		-----	
1066	SMS1600	1.70		2.68	
1108	SMS1600	1.4	C	-1.32	first reported 2.1
1134		-----		-----	
1135	SMS1600	1.60		1.34	
1191		-----		-----	
1299		-----		-----	
1300		-----		-----	
1402		-----		-----	
1544	SMS1600	1.30		-2.66	
1585		-----		-----	
1586	SMS1600	1.70		2.68	
1648	SMS1600	1.5		0.01	
1796		-----		-----	
1854	SMS1600	1.5		0.01	
1857	SMS1600	1.55		0.68	
1862	SMS1600	1.50		0.01	
1881		-----		-----	
1950	SMS1600	1.6		1.34	
1995	SMS1600	1.6		1.34	
2129	SMS1600	1.6		1.34	
6024	SMS1600	1.50		0.01	
6026	SMS1600	1.50		0.01	
6112		-----		-----	
6195		-----		-----	
6373		-----		-----	

normality	OK
n	29
outliers	0
mean (n)	1.499
st.dev. (n)	0.1326
R(calc.)	0.371
st.dev.(SMS1600)	0.0750
R(SMS1600)	0.210





Determination of P-ratio, FR_{max} and Po D7060 on sample #22257

lab	method	P-ratio	mark	z(targ)	FR_{max}	mark	z(targ)	Po	mark	z(targ)
120		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150		-----		-----	-----		-----	-----		-----
171		-----		-----	-----		-----	-----		-----
311	D7060	1.40		-----	90		-----	126		-----
323		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
371		-----		-----	-----		-----	-----		-----
372		-----		-----	-----		-----	-----		-----
445		-----		-----	-----		-----	-----		-----
467		-----		-----	-----		-----	-----		-----
657		-----		-----	-----		-----	-----		-----
710		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
781	SMS2715	1.4		-----	36		-----	49.3		-----
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
823		-----		-----	-----		-----	-----		-----
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
971		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1026		-----		-----	-----		-----	-----		-----
1065		-----		-----	-----		-----	-----		-----
1066		-----		-----	-----		-----	-----		-----
1108		-----		-----	-----		-----	-----		-----
1134		-----		-----	-----		-----	-----		-----
1135		-----		-----	-----		-----	-----		-----
1191		-----		-----	-----		-----	-----		-----
1299		-----		-----	-----		-----	-----		-----
1300		-----		-----	-----		-----	-----		-----
1402		-----		-----	-----		-----	-----		-----
1544		-----		-----	-----		-----	-----		-----
1585		-----		-----	-----		-----	-----		-----
1586		-----		-----	-----		-----	-----		-----
1648		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1854		-----		-----	-----		-----	-----		-----
1857	SMS2715	1.70		-----	38.4		-----	65.3		-----
1862		-----		-----	-----		-----	-----		-----
1881		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1995		-----		-----	-----		-----	-----		-----
2129		-----		-----	-----		-----	-----		-----
6024		-----		-----	-----		-----	-----		-----
6026		-----		-----	-----		-----	-----		-----
6112		-----		-----	-----		-----	-----		-----
6195		-----		-----	-----		-----	-----		-----
6373		-----		-----	-----		-----	-----		-----
	normality	unknown			unknown			unknown		
	n	3			3			3		
	outliers	0			0			0		
	mean (n)	1.50			54.80			80.20		
	st.dev. (n)	0.173			30.508			40.463		
	R(calc.)	0.48			85.42			113.30		
	st.dev.(D7060:20)	unknown			(6.179)			(9.286)		
	R(D7060:20)	unknown			(17.3)			(26.0)		

Determination of P-value, Pa, Po, SE and $FR_{5/1}$ D7112 on sample #22257

lab	method	P-value	mark	Pa	mark	Po	mark	SE	mark	$FR_{5/1}$	mark
120		-----		-----		-----		-----		-----	
140		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----	
171		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----	
323		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----	
371		-----		-----		-----		-----		-----	
372		-----		-----		-----		-----		-----	
445		-----		-----		-----		-----		-----	
467		-----		-----		-----		-----		-----	
657		-----		-----		-----		-----		-----	
710		-----		-----		-----		-----		-----	
750		-----		-----		-----		-----		-----	
753		-----		-----		-----		-----		-----	
781		-----		-----		-----		-----		-----	
785		-----		-----		-----		-----		-----	
798		-----		-----		-----		-----		-----	
823		-----		-----		-----		-----		-----	
873		-----		-----		-----		-----		-----	
874		-----		-----		-----		-----		-----	
875		-----		-----		-----		-----		-----	
963		-----		-----		-----		-----		-----	
971		-----		-----		-----		-----		-----	
994		-----		-----		-----		-----		-----	
995		-----		-----		-----		-----		-----	
1016		-----		-----		-----		-----		-----	
1026		-----		-----		-----		-----		-----	
1065		-----		-----		-----		-----		-----	
1066		-----		-----		-----		-----		-----	
1108		-----		-----		-----		-----		-----	
1134		-----		-----		-----		-----		-----	
1135		-----		-----		-----		-----		-----	
1191		-----		-----		-----		-----		-----	
1299		-----		-----		-----		-----		-----	
1300		-----		-----		-----		-----		-----	
1402		-----		-----		-----		-----		-----	
1544		-----		-----		-----		-----		-----	
1585		-----		-----		-----		-----		-----	
1586		-----		-----		-----		-----		-----	
1648		-----		-----		-----		-----		-----	
1796		-----		-----		-----		-----		-----	
1854		-----		-----		-----		-----		-----	
1857		-----		-----		-----		-----		-----	
1862		-----		-----		-----		-----		-----	
1881		-----		-----		-----		-----		-----	
1950		-----		-----		-----		-----		-----	
1995		-----		-----		-----		-----		-----	
2129		-----		-----		-----		-----		-----	
6024		-----		-----		-----		-----		-----	
6026		-----		-----		-----		-----		-----	
6112		-----		-----		-----		-----		-----	
6195		-----		-----		-----		-----		-----	
6373		-----		-----		-----		-----		-----	

Determination of Separability Number D7061 on sample #22257; results in %T

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
311		-----		-----	
323		-----		-----	
334		-----		-----	
371		-----		-----	
372		-----		-----	
445		-----		-----	
467		-----		-----	
657		-----		-----	
710		-----		-----	
750		-----		-----	
753		-----		-----	
781	D7061	2.4		-----	
785		-----		-----	
798		-----		-----	
823		-----		-----	
873		-----		-----	
874		-----		-----	
875		-----		-----	
963		-----		-----	
971		-----		-----	
994		-----		-----	
995		-----		-----	
1016		-----		-----	
1026		-----		-----	
1065		-----		-----	
1066		-----		-----	
1108		-----		-----	
1134		-----		-----	
1135		-----		-----	
1191		-----		-----	
1299		-----		-----	
1300		-----		-----	
1402		-----		-----	
1544		-----		-----	
1585		-----		-----	
1586		-----		-----	
1648		-----		-----	
1796		-----		-----	
1854	D7061	6.4		-----	
1857		-----		-----	
1862		-----		-----	
1881		-----		-----	
1950		-----		-----	
1995		-----		-----	
2129		-----		-----	
6024		-----		-----	
6026		-----		-----	
6112		-----		-----	
6195		-----		-----	
6373		-----		-----	

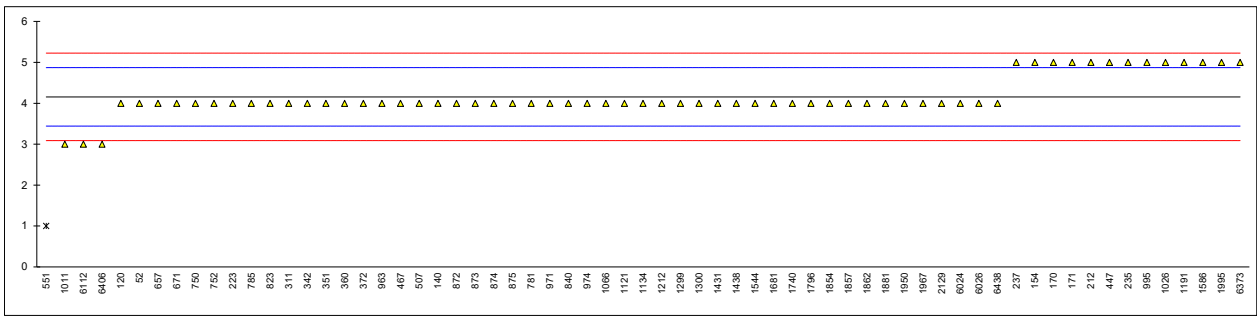
Determination of Toluene dilution ratio D7061 on sample #22257

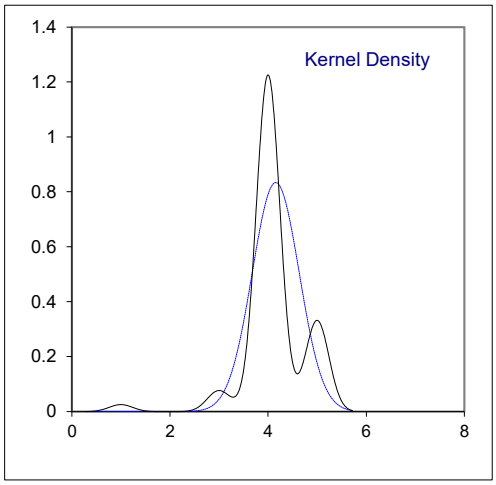
lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
311		-----		-----	
323		-----		-----	
334		-----		-----	
371		-----		-----	
372		-----		-----	
445		-----		-----	
467		-----		-----	
657		-----		-----	
710		-----		-----	
750		-----		-----	
753		-----		-----	
781	D7061	1:3		-----	
785		-----		-----	
798		-----		-----	
823		-----		-----	
873		-----		-----	
874		-----		-----	
875		-----		-----	
963		-----		-----	
971		-----		-----	
994		-----		-----	
995		-----		-----	
1016		-----		-----	
1026		-----		-----	
1065		-----		-----	
1066		-----		-----	
1108		-----		-----	
1134		-----		-----	
1135		-----		-----	
1191		-----		-----	
1299		-----		-----	
1300		-----		-----	
1402		-----		-----	
1544		-----		-----	
1585		-----		-----	
1586		-----		-----	
1648		-----		-----	
1796		-----		-----	
1854	D7061	1:3		-----	
1857		-----		-----	
1862		-----		-----	
1881		-----		-----	
1950		-----		-----	
1995		-----		-----	
2129		-----		-----	
6024		-----		-----	
6026		-----		-----	
6112		-----		-----	
6195		-----		-----	
6373		-----		-----	

Determination of Compatibility rating on sample #22258;

lab	method	value	mark	z(targ)	reference used for spot determination
52	D4740 Manual	4		-0.44	---
120	D4740 Manual	4		-0.44	Copy of the original card
140	D4740	4		-0.44	---
154	D4740 Manual	5		2.36	Original card
170	D4740	5		2.36	Reference Spot Description (ASTM D4740 Table 1)
171	D4740 Manual	5		2.36	---
212	D4740 Manual	5		2.36	---
223	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
225		-----		-----	---
228		-----		-----	---
235	D4740 Manual	5		2.36	According to Reference Spot Description (ASTM D4740 Table 1)
237	D4740 Manual	5		2.36	Copy of the original card
311	D4740 Manual	4		-0.44	---
323		-----		-----	---
342	D4740 Manual	4		-0.44	---
351	D4740 Manual	4		-0.44	---
360	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
372	D4740 Manual	4		-0.44	Original card
445		-----		-----	---
447	D4740 Manual	5		2.36	According to Reference Spot Description (ASTM D4740 Table 1)
467	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
507	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
541		-----		-----	---
551	D4740 Manual	1	R(0.01)	-8.84	Original card
657	D4740 Manual	4		-0.44	Original card
671	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
704		-----		-----	---
750	D4740	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
752	D4740	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
781	D4740 Manual	4		-0.44	Original card
785	D4740	4		-0.44	---
823	D4740 Manual	4		-0.44	Copy of the original card
840	D4740 Manual	4		-0.44	Copy of the original card
872	D4740	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
873	D4740	4		-0.44	Copy of the original card
874	D4740 Manual	4		-0.44	Original card
875	D4740	4		-0.44	---
963	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
971	D4740 Manual	4		-0.44	Original card
974	D4740 Manual	4		-0.44	---
995	D4740	5		2.36	According to Reference Spot Description (ASTM D4740 Table 1)
1011	D4740 Manual	3		-3.24	---
1026	D4740 Manual	5		2.36	According to Reference Spot Description (ASTM D4740 Table 1)
1065		-----		-----	---
1066	D4740 Manual	4		-0.44	---
1121	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
1134	D4740 Manual	4		-0.44	Original card
1191	D4740 Manual	5		2.36	---
1212	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
1299	D4740 Manual	4		-0.44	---
1300	D4740 Manual	4		-0.44	---
1431	D4740 Manual	4.0		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
1438	D4740 Auto	4		-0.44	---
1544	D4740 Manual	4.0		-0.44	---
1586	D4740 Manual	5		2.36	Copy of the original card
1681	D4740 Manual	4		-0.44	---
1740	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
1796	D4740	4		-0.44	---
1854	D4740 Manual	4		-0.44	---
1857	D4740 Manual	4		-0.44	Original card
1862	D4740	4		-0.44	Original card
1881	D4740 Manual	4		-0.44	---
1950	D4740	4		-0.44	Original card
1967	D4740 Manual	4		-0.44	According to Reference Spot Description (ASTM D4740 Table 1)
1995	D4740 Manual	5		2.36	According to Reference Spot Description (ASTM D4740 Table 1)
2129	D4740 Manual	4		-0.44	Copy of the original card
6024	D4740	4		-0.44	---
6026	D4740 Manual	4		-0.44	Acc. to Ref. Spot Descr. (ASTM D4740 Table 1) and Copy of the original card
6075		-----		-----	---
6112	D4740 Manual	3		-3.24	---
6373	D4740 Manual	5		2.36	---
6406	D4740 Manual	3		-3.24	---
6438	D4740 Manual	4		-0.44	Copy of the original card

		According to reference spot only:	(Copy of) original card only:
normality	OK	suspect	not OK
n	64	20	18
outliers	1	0	1
mean (n)	4.16	4.25	4.17
st.dev. (n)	0.479	0.444	0.383
R(calc.)	1.34	1.24	1.07
st.dev.(D4740-M:20)	0.357	0.357	0.357
R(D4740-M:20)	1	1	1





APPENDIX 2 Analytical details of the determination: Total Acid Number (ASTM D664)

lab	End point determination	Volume solvent
52	---	Inflection Point
120	60 mL	---
140	125 mL	Inflection Point
150	125 mL	Inflection Point
154	---	---
159	---	---
169	---	---
170	60 mL	Inflection Point
171	---	---
175	---	---
212	125 mL	Inflection Point
223	---	---
225	---	---
228	---	---
231	---	---
235	60 mL	Inflection Point
237	125 mL	Inflection Point
238	---	---
253	---	---
256	---	---
273	---	---
309	125 mL	Buffer End Point pH 10
311	---	---
313	---	---
323	125 mL	Inflection Point
328	---	---
333	125 mL	Buffer End Point pH 10
334	60 mL	Inflection Point
339	---	---
342	125 mL	Buffer End Point pH 10
349	---	---
351	---	---
360	60 mL	Inflection Point
372	60 mL	Inflection Point
381	---	---
391	---	---
404	125 mL	Inflection Point
445	---	---
447	125 mL	Inflection Point
455	125 mL	Inflection Point
467	125 mL	Buffer End Point pH 11
480	---	---
507	60 mL	Inflection Point
541	---	---
551	125 mL	Inflection Point
575	60 mL	Buffer End Point pH 10
621	125 mL	Inflection Point
631	---	---
634	60 mL	Inflection Point
657	125 mL	Inflection Point
704	---	---
710	---	---
736	125 mL	Inflection Point
752	60 mL	Inflection Point
753	---	---
778	---	---
779	---	---
781	125 mL	Inflection Point
785	---	---
798	---	---
823	---	---
824	125 mL	Inflection Point
825	125 mL	Buffer End Point pH 10
840	125 mL	Inflection Point
872	---	---
873	125 mL	Buffer End Point pH 11
874	125 mL	Buffer End Point pH 10
875	---	---
887	125 mL	Buffer End Point pH 10
962	---	---
963	---	---
971	125 mL	Inflection Point
974	125 mL	Inflection Point
994	125 mL	Inflection Point
995	125 mL	Inflection Point
996	---	---
997	---	---
1011	---	---
1016	---	---
1026	---	---
1039	125 mL	Inflection Point
1040	60 mL	Inflection Point
1065	---	---
1066	---	---
1108	125 mL	Inflection Point
1109	---	---
1121	125 mL	Buffer End Point pH 10
1126	---	---
1134	125 mL	Inflection Point
1140	125 mL	Inflection Point
1167	---	---
1191	---	---
1212	125 mL	Inflection Point
1218	---	---
1259	---	---
1299	60 mL	---
1320	---	---
1353	---	---
1356	60 mL	Buffer End Point pH 10
1381	---	---
1397	---	---
1402	60 mL	---
1431	60 mL	Inflection Point
1444	---	---
1510	---	---
1544	---	---
1554	---	---
1575	---	---
1585	125 mL	Inflection Point
1586	125 mL	Inflection Point
1631	---	---
1648	60 mL	Buffer End Point pH 10
1650	---	---
1669	---	---
1681	---	---
1720	60 mL	Buffer End Point pH 11
1740	60 mL	Inflection Point
1753	---	---
1776	125 mL	Buffer End Point pH 10
1796	---	---
1833	---	---
1854	125 mL	Inflection Point
1857	125 mL	Inflection Point
1862	125 mL	Inflection Point
1881	---	---
1906	---	---
1942	---	---
1943	---	---
1950	125 mL	Inflection Point
1967	125 mL	Buffer End Point pH 10
1995	125 mL	Inflection Point
2129	125 mL	Inflection Point
2146	---	---
6024	---	---
6026	125 mL	Inflection Point
6054	---	---

lab	End point determination	Volume solvent	lab	End point determination	Volume solvent
6075	---	---	6404	---	---
6092	---	---	6406	125 mL	Buffer End Point pH 11
6112	---	---	6438	125 mL	Buffer End Point pH 10
6142	---	---	6447	---	---
6266	60 mL	Inflection Point	6494	---	---
6319	---	---	6497	125 mL	Buffer End Point pH 10
6373	125 mL	Inflection Point			

APPENDIX 3

Number of participants per country

1 lab in ARGENTINA
2 labs in AUSTRALIA
1 lab in AUSTRIA
1 lab in AZERBAIJAN
3 labs in BELGIUM
1 lab in BRAZIL
3 labs in BULGARIA
1 lab in CANADA
1 lab in COLOMBIA
1 lab in COSTA RICA
2 labs in COTE D'IVOIRE
2 labs in CROATIA
1 lab in DJIBOUTI
2 labs in EGYPT
3 labs in ESTONIA
3 labs in FINLAND
4 labs in FRANCE
2 labs in GEORGIA
2 labs in GERMANY
8 labs in GREECE
1 lab in GUAM
1 lab in INDONESIA
2 labs in IRELAND
2 labs in ISRAEL
1 lab in ITALY
2 labs in KAZAKHSTAN
3 labs in KOREA, Republic of
2 labs in LATVIA
1 lab in LIBERIA
1 lab in LITHUANIA
1 lab in MALI
1 lab in MALTA
1 lab in MARTINIQUE
1 lab in MAURITIUS
1 lab in MOROCCO
10 labs in NETHERLANDS
2 labs in NIGERIA
1 lab in NORTH MACEDONIA, Republic of
1 lab in PANAMA
2 labs in PHILIPPINES
1 lab in POLAND
3 labs in PORTUGAL
3 labs in ROMANIA
20 labs in RUSSIAN FEDERATION
3 labs in SAUDI ARABIA
1 lab in SERBIA
1 lab in SINGAPORE
1 lab in SLOVAKIA
1 lab in SOUTH AFRICA
5 labs in SPAIN
1 lab in SUDAN
3 labs in SWEDEN
1 lab in TAIWAN
2 labs in TANZANIA
1 lab in TOGO
3 labs in TURKEY
2 labs in TURKMENISTAN
1 lab in UKRAINE
6 labs in UNITED ARAB EMIRATES
10 labs in UNITED KINGDOM
10 labs in UNITED STATES OF AMERICA
1 lab in VIETNAM

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)\R(1)	= outlier in Rosner's outlier test
R(0.05)\R(5)	= 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
f+?	= possibly a false positive test result?
f-?	= possibly a false negative test result?
SDS	= Safety Data Sheet

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