Results of Proficiency Test
Fuel Oil
January 2016

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Authors: ing. A.S. Noordman – de Neef
Correctors: dr. R.G. Visser & ing L. Sweere

Report: iis16F01

April 2016

CONTENTS

Appendices:

1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies organizes a proficiency test for Fuel Oil every year. In the annual proficiency testing program of 2015/2016, it was decided to continue the round robin for the analyses of Fuel Oil in accordance with the latest applicable version of the specification ISO 8217:2012.
In this interlaboratory study 229 laboratories in 72 different countries registered for participation. See appendix 2 for the number of participants per country. In this report, the results of the 2016 interlaboratory study on Fuel Oil 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 organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. Depending on the registration it was decided to send one bottle of 1L Fuel Oil (labelled #16001), one bottle of 0.1L Fuel Oil (labelled #16002) specifically prepared for metal determinations, one bottle of 0.5L Fuel Oil (labelled #16003) specifically obtained for Bromine Number and p-Value determinations and/or one bottle of 0.1L Fuel Oil Blend, (bottle 35% filled and labelled #16004) and one bottle of 0.1L Fuel Oil (labelled #16005) specifically for Compatibility and Cleanliness determinations.
Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (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% confidentiallity of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by means of questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol can be downloaded from the 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 this proficiency test five different samples were prepared; a regular Fuel Oil, a Fuel Oil positive on metals, a sample for Bromine Number and p-Value and two samples for Compatibility and Cleanliness.
From 400 litre Fuel Oil, obtained from a refinery in The Netherlands, 306 amber glass bottles of 1L were filled after heating to 60°C and homogenisation. The homogeneity of the subsamples #16001 was checked by determination of density at 15°C in accordance with ISO12185 on 16 stratified randomly selected samples. The lowest density test result was 1008.6 kg/m^3 and the highest density test result was 1008.8 kg/m^3. The repeatability of the density test results was calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density at 15°C in kg/m^3
r (observed)	0.18
reference test method	ISO12185:96
0.3 * R (ref. test method)	0.45

Table 1: evaluation of the repeatability of test results of subsamples #16001

The calculated repeatability for Density was in agreement with 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples of #16001 was assumed.

For Subsample #16002, 50 kg of another batch of Fuel Oil was spiked with Calcium (approx. 20 mg/kg), Phosphorus (approx. 15 mg/kg) and Zinc (approx. 17 mg/kg). From the batch after heating to 60°C and homogenisation, 192 plastic bottles of 0.1L were filled and labelled #16002.
The homogeneity of the subsamples was checked by determination of Phosphorus in accordance with IP501 and density at 15°C in accordance with ISO12185 on 8 stratified randomly selected samples.

	Phosphorus in mg/kg	Density at 15°C in kg/m^3
Sample #16002-1	15.8	1.0064
Sample #16002-2	15.6	1.0064
Sample #16002-3	15.4	1.0065
Sample #16002-4	15.4	1.0065
Sample #16002-5	15.9	1.0064
Sample #16002-6	15.3	1.0065
Sample #16002-7	15.6	1.0064
Sample #16002-8	15.5	1.0064

Table 2: homogeneity test results of subsamples #16002

From the test results of table 2, the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibilities in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Phosphorus in mg/kg	Density at 15°C in kg/m^3
r (observed)	0.6	0.14
reference test method	IP501:05	ISO12185:96
0.3 * R (ref. test method)	1.7	0.45

Table 3: evaluation of the repeatabilities of subsamples #16002

The calculated repeatabilities for Phosphorus and Density were respectively in agreement with 0.3 times the corresponding reproducibilities of IP501:05 and ISO12185:96. Therefore, homogeneity of the subsamples of #16002 was assumed.

For Subsample #16003, 45 litre Fuel Oil was obtained from a refinery in Saudi Arabia. From the batch, after heating to 60°C and homogenisation, 83 amber glass bottles of 0.5L were filled and labelled #16003. The homogeneity of the subsamples #16003 was checked by determination of density at 15°C in accordance with ISO12185 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
Sample #16003-1	948.9
Sample #16003-2	948.9
Sample #16003-3	948.9
Sample #16003-4	948.0
Sample #16003-5	948.9
Sample #16003-6	948.9
Sample #16003-7	948.9
Sample #16003-8	948.9

Table 4: homogeneity test results of subsamples #16003

From the test results of table 2, the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibilities in agreement with the procedure of ISO 13528, Annex B2 in the next table:

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

Table 5: evaluation of the repeatability of the test results of subsamples #16003

The calculated repeatability for Density was in agreement with 0.3 times the corresponding reproducibilities of ISO12185:96. Therefore, homogeneity of the subsamples of #16003 was assumed.

Subsamples #16004 and #16005 were obtained from one of the participating laboratories. From a Fuel Oil Blend 50 amber glass bottles of 0.1L were filled after homogenisation with 35g product and labelled #16004. From another Fuel Oil Blend 50 amber glass bottles of 0.1L were filled after homogenisation and labelled #16005. The homogeneities of the subsamples #16004 and #16005 were not checked by e.g. determination of density at 15°C as this is not

relevant for the Cleanliness/Compatibility Determinations; instead a fit for use had been performed.
Depending on the registration of the participant; one bottle of 1L, labelled #16001, one bottle of 0.1L, labelled #16002, one bottle of 0.5L, labelled #16003 and/or a set of one bottle of 0.1L, labelled #16004 and one bottle of 0.1L, labelled #16005 was sent to each of the participating laboratories on January 13, 2016.

2.5 STABILITY OF THE SAMPLES

The stability of Fuel Oil, packed in the amber glass and plastic bottles was checked. The material has been found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were asked to determine:

On sample #16001: Acid Number, API Gravity, Ash Content, Asphaltenes, Calculated Carbon Aromaticity Index (CCAI), Carbon Residue – Micro Method, Conradson Carbon Residue, Density at 15°C, Flash Point PMcc, Heat of Combustion (Gross and Net), Kinematic Viscosity (at 50°C and 100°C), Viscosity Stabinger (at 50°C and 100°C), Nitrogen Content, Pour Point (Lower, Upper and Automated), Sediments by Extraction, Total Sediment (by Hot filtration, Accelerated and Potential), Total Sulphur Content, Water by Distillation, Water and Sediment, Distillation (IBP, 5% - 50% recovered and FBP), and Total Carbon, Hydrogen and Nitrogen (CHN-analyzer).

On sample #16002: Aluminium, Silicon, Sum of Aluminium and Silicon, Iron, Nickel, Sodium, Vanadium, Calcium, Phosphorus and Zinc content.

On Sample #16003: Bromine Number on distillate <360°C AET and p-Value.

On Samples #16004/#16005: Compatibility (both samples mixed) and Cleanliness rating.

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

3 RESULTS

During 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 raw data of these tests (no reanalysis). Additional or corrected test results are used for data analysis and the original test results are placed under the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

Statistical calculations were performed as described in the report 'i.i.s. Interlaboratory Studies-Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). For the statistical evaluation the *unrounded* (when available) test results 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. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the test results should be used with due care.

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

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

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

3.2 GRAPHICS

In order to visualise 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 an "x". Accepted data are represented as a triangle. Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated

using a target standard deviation. This results in an evaluation independent of the variation of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility od a former iis proficiency test could be used.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate whether the reported test result is fit-for-use.

The z-scores were calculated in accordance with:

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

The $z_{(target)}$ scores are listed in the test result tables in appendix 1.
Absolute values for z<2 are very common and absolute values for z>3 are very rare.
The usual interpretation of z-scores is as follows:

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

4 EVALUATION

In this proficiency test major problems were encountered with the dispatch of the samples. Several laboratories in Australia, China, France, Iran, Malaysia, Turkmenistan, Russia, Senegal, Spain, United States of America received the samples late or not at all. Fortunate most of them were able to report via our WEB entry tool before closure.
For sample #16001, in total, three participants did not report any test results and twelve participants reported the test results after the final reporting date. For sample #16002, in total fifteen participants did not report any test results and ten participants reported the test results after the final reporting date. For sample #16003, in total nine participants did not report any test results and two participants reported the test results after the final reporting date. For samples #16004/#16005, in total seven participants did not report any test results and five participants reported the test results after the final reporting date.
Not all laboratories were able to report all analyses requested. Finally, 226 participants reported in total 4787 numerical test results. Observed were 115 statistically outlying test results, which is 2.4 %. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal in interlaboratory testen.

4.1 EVALUATION PER SAMPLE AND PER TEST

In this section, the test results are discussed per sample and per test. The test methods, which are used by the different laboratories, are taken into account for explaining the observed differences when possible and applicable. These test methods are also listed in the tables together with the reported test results. The abbreviations, used in these tables, are listed in appendix 3.
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). If

applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D189:06(2014)). In the test results tables of appendix 1 only the test method number and year of adoption or revision (e.g. D189:06) will be used.
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.

Sample #16001

Acid Number: This determination was problematic for some participants. Eight statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D664A:11a.

API Gravity: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1298:12b.

Ash: This determination was very problematic at an ash content of 0.031 %M/M. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with requirements of ISO6245:01.

Asphaltenes: This determination was problematic for some participants. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of IP143:04.

Calculated Carbon Aromaticity Index: This determination was not problematic. Two statistical outliers were observed and four other test results were excluded from the statistical evaluation as these test results probably contained a calculation error. However, the calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ISO8217:12.

Carbon Residue Micro Method: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in agreement with the requirements of ISO10370:14.

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

Density at 15°C: This determination was problematic for some participants. Four statistical outliers were observed. However, 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 problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO2719:02.

HOC Gross: This determination of the Gross Heat of Combustion was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D240:14.

HOC Net: This determination of the Net Heat of Combustion was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the outliers is not in agreement with the requirements of ASTM D240:14.

Kin. Visc. at 50°C: This determination was problematic for some participants. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3104:94.

Kin. Visc. at100°C: This determination was problematic for some participants. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO3104:94.

Vis Stab.at 50°C and 100°C: The test method ASTM D7042 is intended for Newtonian flow behaviour liquids (see §1.2 in ASTM D7042) and therefore it may not be suitable for Fuel Oil. This means that the precision data mentioned in D7042 may not be applicable for Fuel Oil. Therefore no significant conclusions were drawn. However, the mean values and calculated reproducibility for the Stabinger Viscosity (50°C and 100°C) do not differ significantly from the respectively statistical values for the Kinematic Viscosity (50°C and 100°C). Furthermore, when the calculated reproducibilities are compared to the calculated reproducibility of the 2015 Fuel Oil PT (iis15F01) the reproducibility of the 2016 PT did improve.

Nitrogen: This determination was problematic. One statistical outlier was observed and six other test results were excluded as the reported test method is not meant for Fuel Oil. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D5762:12. When the test results of ASTM D5762 volumetric and gravimetric methods were evaluated separately, the calculated reproducibility of the volumetric test results was smaller than the calculated reproducibility of the gravimetric test results; this finding is the opposite to the 2015 Fuel Oil PT (iis15F01) findings.

Pour Point Lower: This determination was problematic. One statistical outlier was observed and five other test results were excluded as the reported test result for lower PP is higher than the test result for upper PP, which is in principle not possible. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ISO3016:94. Rounding to 3 degrees acc. ISO3016:94 may (partly) explain the large variation.

Pour Point Upper: This determination was problematic. No statistical outliers were observed, but five test results were excluded as the reported test result for upper PP is lower than the test result for lower PP, which is in principle not possible. The calculated reproducibility after rejection of the suspect data is not in agreement with ISO3016:94. Rounding to 3 degrees acc. ISO3016:94 may (partly) explain the large variation.

Pour Point Automated: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with ASTM D5950:14. The large variation may (partly) be explained by possible problems with the detector sensitivity or by not following the test method properly (see Note 8 in ASTM D5950:14).

Sediment by Extraction: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D473:07(2012).

Sediment by hot filtration: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of IP375:11.

Total sediment (Accelerated): This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with IP390:11. IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870 (App. X1).

Total sediment (Potential): This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with IP390:11. IP390:11 is identical to ISO10307-2:09) and technically equivalent to ASTM D4870 (App. X1).

Total Sulphur: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO 8754:03.

Water by distillation: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D95:13e1.

Water and Sediment: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1796:11e1.
Some participants remarked that their laboratory reported their test results in %V/V according to ASTM D1796:11e1. In the WEB entry tool the unit was given as %M/M. Since the density of the sample is approx 1 kg/L the unit was changed to %V/V without further calculations.

Vacuum Distillation: This determination may be problematic. In total thirteen statistical outliers were observed and six other test results were excluded as the other reported test results of this lab were marked as statistical outliers The calculated reproducibility after rejection of the suspect data is in agreement for IBP, 5% and 30% recovered and FBP with the requirements of ASTM D1160:15. The calculated reproducibilities for 10%, 20%, 40%, 50% recovered are not in agreement with the requirements of ASTM D1160:15.

CHN-Analyzer: This determination was not problematic for Carbon and Hydrogen, but it was for Nitrogen. One statistical outlier was observed for Carbon. The other two test results of the same participant for Hydrogen and Nitrogen are excluded as the sum of C,H and N is 100%, which is in principle not correct. The calculated reproducibilities after rejection of the suspect data for Carbon and Hydrogen are both in agreement with the requirements of ASTM D5291:10 (2015). The calculated reproducibility for Nitrogen after the rejection of suspect data is not in agreement with the requirements of ASTM D5291:10 (2015).

Sample #16002:

Aluminium: This determination may be problematic for a number of participants. Three statistical outliers were observed. The consensus value for Aluminium was below the precision range of 5-150 mg/kg mentioned in IP470:05 or in IP501:05. Therefore, no z-scores were calculated.

Silicon: This determination may be problematic for a number of participants. Two statistical outliers were observed and one other test result was excluded as the reported test result for Aluminium and total Al/Si were marked as statistical outliers. The consensus value for Silicon was below the precision range of 10-250 mg/kg mentioned in IP470:05 or in IP501:05. Therefore, no z-scores were calculated.

Total Al/Si: This determination may be problematic for a number of participants. Three statistical outliers were observed. As mentioned above the consensus values for Aluminium and Silicion were below the precision ranges mentioned in IP470:05 or in IP501:05. Therefore, no z-scores were calculated.

Iron: This determination is not problematic. One statistical outlier was observed and one other test result was excluded. For this participant more test results in these metal analyses were indicated as statistical outliers and these determinations are not independent.The calculated reproducibility after rejection of the suspect data is in good agreement with the reproducibility of IP470:05, but not in agreement with the requirements of IP501:05.

Nickel: This determination was problematic for a number of participants. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the reproducibilities of IP470:05 and IP501:05.

Sodium: This determination may be problematic for a number of participants. Two statistical outliers were observed and two other test results were excluded. For these participants more test results in these metal analyses were indicated as statistical outliers and the determinations are not independent. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the reproducibility of IP470:05, but not in agreement with the requirements of IP501:05.

Vanadium: This determination was problematic for a number of participants. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the estimated reproducibilities of IP470:05 and IP501:05.

Calcium: This determination was problematic. Eigth statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the reproducibilities of IP470:05 and IP501:05.
The average recovery of Calcium (theoretical increment of 19.6 mg Calcium/kg) may be good: “approx. 106%” (the actual blank Calcium content is unknown).

Phosphorus: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the reproducibility of IP501:05 but not in agreement with the requirements of IP500:03.
The average recovery of Phosphorus (theoretical increment of 14.8 mg Phosphorus/kg) may be good: “approx. 107%” (the actual blank Phosphorus content is unknown).

Zinc: This determination was problematic. Three statistical outliers were observed and one other test result was excluded. For this participant more test results in these metal analyses were indicated as statistical outliers and these determinations are not independent. However, the calculated reproducibility after rejection of the suspect data is not in agreement with the reproducibilities of IP470:05 or IP501:05.
The average recovery of Zinc (theoretical increment of 17.1 mg Zinc/kg) may be good: “approx 102%” (the actual blank Zinc content is unknown).

Sample #16003

Bromine Number: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D1159:07 (2012). A possible explanation for this large variation may be that not all participants have performed the distillation at sufficient reduced pressure. Several participants mentioned that the destillate quantity was critical to perform this determination; this may be another explanation for the large variation.

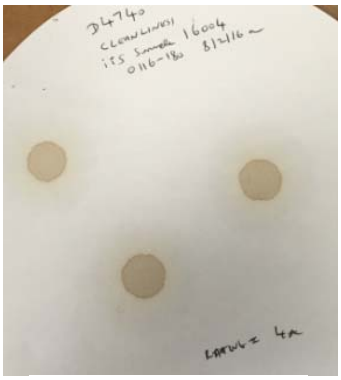
P-Value: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of target test method estimated from the repeatability.

Samples #16004 and #16005

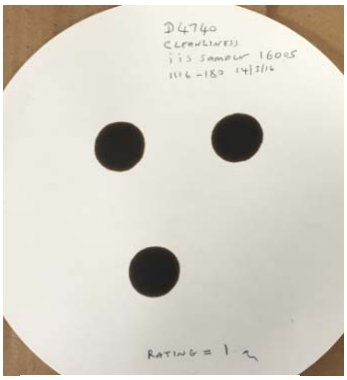
Compatibility This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D4740:04 (2014).

Cleanliness This determination was initially problematic as it was not clear in the letter of instructions which sample to use for the Cleanliness determination. This did cause some mix- up in the test results. Remarkably, only one participant consulted iis which sample to use for the cleanliness.
Therefore the participants were asked by e-mail which sample was used for the Cleanliness determination. Participants were asked to perform the cleanliness determination on sample #16005, if sample #16004 was used initially. Also participants were requested to send photographs of the spots on the filters and this was helpful to understand the reported test results. It appeared that this determination was problematic in case of a positive test result (see sample #16004). The pictures showed a very straightforward view on the results; see below the pictures of one of the participants. All pictures of other participants were very similar.
One test result was excluded. This participant reported the compatibility rating test result as cleanliness result. It was remarkable to see that five participants had mixed up the sample codes. They reported to have used

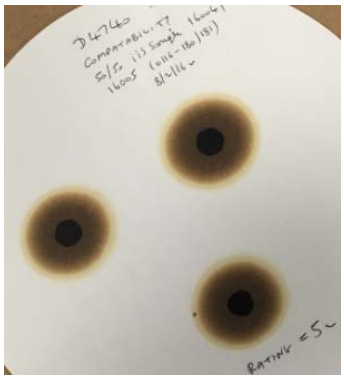
sample #16004 for the Cleanliness but the pictures and rating clearly indicated that the test result was obtained from sample #16005 and visa versa. The z-scores were not calculated as the reported test results are classes and have no numerical meaning.



Cleanliness #16004



Cleanliness #16005



Compatibility #16004/#16005

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

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameters	unit	n	average	2.8 * sd	R (lit)
Acid Number	mg KOH/g	105	0.087	0.106	0.153
API Gravity		126	8.64	0.19	0.50
Ash Content	%M/M	174	0.031	0.010	0.005
Asphaltenes	%M/M	117	7.60	1.64	1.52
Calc. Carbon Aromaticity Index		107	863.8	1.3	2.3
Carbon Residue, Micro Method	%M/M	143	15.53	0.99	1.53
Conradson Carbon Residue	%M/M	68	15.53	1.98	2.44
Density at 15°C	kg/m^3	202	1009.0	1.5	1.5
Flash Point PMcc	°C	204	91.9	7.1	6.0
Heat of Combustion, Gross	MJ/kg	112	41.84	0.50	0.40
Heat of Combustion, Net	MJ/kg	94	39.64	0.46	0.40
Kinematic Viscosity at 50°C	mm^2/s	178	722.8	39.4	53.5
Kinematic Viscosity at 100°C	mm^2/s	140	47.5	2.4	2.2
Stabinger Viscosity at 50°C	mm^2/s	20	721.8	37.8	unknown
Stabinger Viscosity at 100°C	mm^2/s	22	47.3	2.3	unknown

Parameters	unit	n	average	2.8 * sd	R (lit)
Nitrogen Content	µg/g	43	3725	1543	1001
Pour Point, Lower	°C	85	4.7	7.9	6.6
Pour Point, Upper	°C	144	6.6	8.5	6.6
Pour Point (automated)	°C	32	2.7	10.0	6.1
Sediment by Extraction	%M/M	134	0.015	0.018	0.037
Total Sediment (Hot Filtration)	%M/M	108	0.015	0.019	0.036
Total Sediment (Accelerated)	%M/M	96	0.017	0.017	0.038
Total Sediment (Potential)	%M/M	102	0.018	0.021	0.039
Total Sulphur Content	%M/M	206	3.61	0.26	0.31
Water by Distillation	%V/V	144	0.05	0.06	0.20
Water and Sediment	%V/V	51	0.05	0.08	0.11
Distillation at 10mmHg calculated to 760 mmHg					
Initial Boiling Point	°C	47	184.8	34.0	49.5
5% recovered	°C	46	271.0	29.9	27.7
10% recovered	°C	47	328.3	30.1	23.3
20% recovered	°C	48	412.7	23.3	20.1
30% recovered	°C	47	459.7	17.1	16.4
40% recovered	°C	46	492.6	17.2	14.2
50% recovered	°C	39	515.4	18.2	14.2
Final Boiling Point	°C	40	526.2	19.0	26.9
CHN analyser					
Total Carbon	%M/M	40	85.5	1.6	2.4
Total Hydrogen	%M/M	39	10.15	0.66	0.74
Total Nitrogen	%M/M	30	0.444	0.176	0.102

Table 6: summary of test results on Fuel Oil sample #16001

Parameters	unit	n	average	2.8 * sd	R (lit)
Aluminium as Al	mg/kg	97	2.07	3.43	(1.28)
Silicon as Si	mg/kg	99	3.38	5.98	(3.14)
Total Aluminium+Silicon	mg/kg	90	5.40	8.21	(3.39)
Iron as Fe	mg/kg	107	20.82	6.93	11.67
Nickel as Ni	mg/kg	113	31.26	10.27	15.49
Sodium as Na	mg/kg	120	10.52	5.41	5.35
Vanadium as V	mg/kg	124	116.8	29.5	35.2
Calcium as Ca	mg/kg	105	20.70	7.30	6.09
Phosphorous as P	mg/kg	84	15.89	5.14	5.84
Zinc as Zn	mg/kg	111	17.51	5.75	4.97

Table 7: summary of test results on Fuel Oil sample #16002

Results between brackets; mean value under range of the precision of the reference test method.

Parameters	unit	n	average	2.8 * sd	R (lit)
Bromine Number	g Br_2/100g	41	13.59	6.24	4.48
p-Value		39	1.85	0.33	0.60

Table 8: summary of test results on Fuel Oil sample #16003

Parameters	unit	n	average	2.8 * sd	R (lit)
Compatibility	rating	39	5	n.a.	1
Cleanliness #16004	rating	11	4	n.a.	1
Cleanliness #16005	rating	32	1	n.a.	1

Table 9: summary of test results on Fuel Oil samples #16004 and #16005

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

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

	January 2016	January 2015	January 2014	January 2013
Number of reporting labs	226	207	200	188
Number of results reported	4787	4048	3835	3261
Statistical outliers	115	130	112	98
Percentage outliers	2.4%	3.2%	2.9%	3.2%

Table 10: comparison with previous proficiency tests

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

Determination	January 2016	January 2015	January 2014	January 2013
Acid Number	+	++	+	+/-
API Gravity	++	++	++	++
Ash Content	-	--	--	--
Asphaltenes	+/-	-	+	+/-
Calc. Carbon Aromaticity Index	+	+	+	++
Carbon Residue, Micro Method	+	++	+/-	-
Conradson Carbon Residue	+	+	+	+/-
Density at 15 °C	+/-	+/-	+	-
Flash Point PMcc	-	-	+/-	-
Heat of Combustion Gross	-	--	+	+/-
Heat of Combustion Net	-	--	+	+/-
Kinematic Viscosity at 50 °C	+	++	+	+
Kinematic Viscosity at 100 °C	+/-	-	-	-
Nitrogen	-	--	-	-
Pour Point Lower	-	-	-	-
Pour Point Upper	-	-	-	-
Pour Point (automated)	-	--	-	-
Sediments by Extraction	++	++	+	+
Total Sediment (Hot Filtration)	++	++	+	n.e
Total Sediment (Accelerated)	++	++	++	++
Total Sediment (Potential)	++	++	++	++
Total Sulphur	+	--	+/-	-

Determination	January 2016	January 2015	January 2014	January 2013
Water by Distillation	++	++	++	+
Water and Sediment	+	+/-	+	+/-
Distillation at 10mmHg to AET	+/-	+/-	+/-	+
Total Carbon	+	+	+	+
Total Hydrogen	+	++	+	+
Total Nitrogen	-	--	-	-
Aluminium as Al	n.e.	+/-	-	--
Silicon as Si	n.e.	+	-	--
Total Aluminium/Silicon	n.e.	+	-	--
Iron as Fe	+	++	-	n.e
Nickel as Ni	+	++	+	++
Sodium as Na	+/-	+	-	--
Vanadium as V	+	++	++	++
Calcium as Ca	-	--	-	n.e
Phosphorous as P	+	++	+	n.e
Zinc as Zn	-	-	+/-	n.e
Bromine Number	-	+/-	n.e.	n.e.
p-Value	++	+/-	n.e.	n.e.
Compatibility	n.e.	n.e.	n.e.	n.e.
Cleanliness	n.e.	n.e.	n.e.	n.e.

Table 11: comparison determinations against the reference test method

The performance of the determinations against the requirements of the respective reference method is listed in the above table. 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

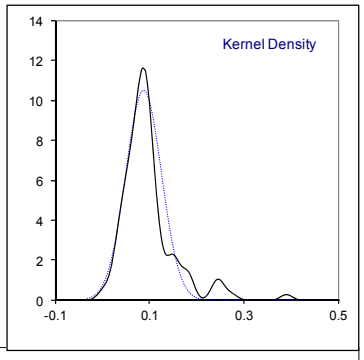
APPENDIX 1

Determination of Acid Number on sample #16001; results in mg KOH/g

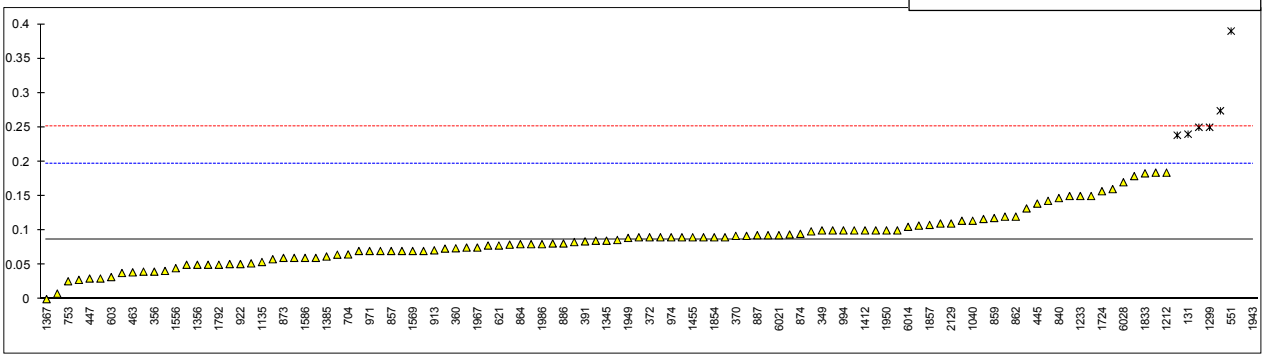
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664	<0.01		-----	634		-----		-----
62	D664	<0.1		-----	657	D664	0.09		0.05
90		-----		-----	663	D664	0.184		1.77
92		-----		-----	671		-----		-----
120	D664	0.09		0.05	704	D664	0.065		-0.40
131	D664	0.24	R(0.05)	2.80	705	D664	0.052		-0.64
132	D664	0.25	R(0.05)	2.98	732		-----		-----
133		-----		-----	750	D664	0.040		-0.86
140	D664	0.16		1.33	753	D664	0.026		-1.11
150	D664	<0.10		-----	759		-----		-----
154		-----		-----	781	D664	0.078		-0.16
158	D664	0.132		0.82	784	D664	0.081		-0.11
159	D664	0.07		-0.31	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823	D664	0.05		-0.68
171		-----		-----	824	D664	0.086		-0.02
175		-----		-----	840	D664	0.147		1.10
194		-----		-----	851		-----		-----
212		-----		-----	855	D664	0.08		-0.13
221		-----		-----	857	D664	0.07		-0.31
224	D974	0.028		-1.08	858	D664	0.15		1.15
225		-----		-----	859	D664	0.118		0.57
228		-----		-----	862	D664	0.12		0.60
230	D664	0.008		-1.44	863	D664	<0.1		-----
237	D664	<0.1		-----	864	D664	0.08		-0.13
238		-----		-----	865	D664	0.12		0.60
252		-----		-----	866	D664	<0.1		-----
253		-----		-----	867	D664	<0.1		-----
254		-----		-----	873	D664	0.06		-0.49
256		-----		-----	874	D664	0.095		0.15
273		-----		-----	875	D664	0.10		0.24
311	D664	<0.10		-----	886	D664	0.081		-0.11
313		-----		-----	887	D664	0.093		0.11
323	D664	0.11		0.42	902	D664	0.0793		-0.14
331	D664	0.051		-0.66	904		-----		-----
333		-----		-----	912	D664	0.0647		-0.41
334		-----		-----	913	D664	0.071		-0.29
336	D664	<0.10		-----	922	D664	0.051		-0.66
337		-----		-----	962		-----		-----
340	D664	<0.1		-----	963	D664	0.075		-0.22
342	D664	0.07		-0.31	971	D664	0.070		-0.31
343	D664	<0.05		-----	974	D664	0.09		0.05
349	D664	0.1		0.24	982		-----		-----
351		-----		-----	994	D664	0.10		0.24
353		-----		-----	995	D664	0.083		-0.07
356	D664	0.04		-0.86	996		-----		-----
360	D664	0.074		-0.24	997		-----		-----
370	D664	0.092		0.09	1011	D664	0.114		0.49
372	D664	0.09		0.05	1016	D664	0.10		0.24
391	D664	0.084		-0.05	1019		-----		-----
398		-----		-----	1040	ISO6619	0.114		0.49
399		-----		-----	1059		-----		-----
440		-----		-----	1065	D664	0.058		-0.53
444		-----		-----	1066		-----		-----
445	D664	0.139		0.95	1082		-----		-----
447	D664	0.03		-1.04	1109	D664	0.680	R(0.01)	10.83
463	D664	0.039		-0.88	1121		-----		-----
494	D664	0.093		0.11	1126		-----		-----
507		-----		-----	1134	D664	0.09		0.05
511		-----		-----	1135	D664	0.054		-0.60
529		-----		-----	1161	D664	0.041		-0.84
541		-----		-----	1167		-----		-----
551	D664	0.39	R(0.01)	5.54	1177		-----		-----
557	D664	0.116564		0.54	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	D664	0.184		1.77
603	D664	0.0321		-1.00	1229		-----		-----
604		-----		-----	1233	D664	0.15		1.15
605	D664	0.085		-0.04	1259	D664	0.274	C,R(0.05)	3.42
607		-----		-----	1264	D664	0.179		1.68
608	D664	0.0735		-0.25	1266		-----		-----
621	D664	0.078		-0.16	1275		-----		-----
631	D664	0.038		-0.89	1281		-----		-----
633		-----		-----	1299	D664	0.25	R(0.05)	2.98

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D664	0.2384	R(0.05)	2.77	1810		-----		-----
1345	D664	0.085		-0.04	1811		-----		-----
1347		-----		-----	1813	D664	0.03		-1.04
1348	D664	0.07		-0.31	1832		-----		-----
1356	D664	0.05		-0.68	1833	D664	0.183		1.75
1365	D664	0.06		-0.49	1849		-----		-----
1367	IP177	0.0		-1.59	1854	D664	0.09		0.05
1381		-----		-----	1857	D664	0.108		0.38
1385	D664	0.062		-0.46	1862	D664	0.092		0.09
1389		-----		-----	1881	D664	0.09		0.05
1402	D664	0.05		-0.68	1906		-----		-----
1404	D664	0.15		1.15	1936		-----		-----
1412	D664	0.10		0.24	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455	D664	0.09		0.05	1943	ISO6618	1.74	R(0.01)	30.20
1459		-----		-----	1949	D664	0.089		0.04
1510		-----		-----	1950	D664	0.10		0.24
1520	D664	0.143		1.02	1956		-----		-----
1556	D664	0.045		-0.77	1962		-----		-----
1569	D664	0.07		-0.31	1964		-----		-----
1583		-----		-----	1967	D664	0.075		-0.22
1585	D664	0.094		0.13	1986	D664	0.08		-0.13
1586	D664	0.06		-0.49	1995		-----		-----
1613		-----		-----	2129	D664	0.11		0.42
1631		-----		-----	6004		-----		-----
1643	D664	0.107		0.37	6013	D664	0.100		0.24
1648		-----		-----	6014	D664	0.1052		0.33
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720	D664	0.06	C	-0.49	6021	D664	0.093		0.11
1724	D664	0.157		1.28	6024		-----		-----
1740	D664	0.10		0.24	6025		-----		-----
1763		-----		-----	6026		-----		-----
1772		-----		-----	6028	D664	0.17	C	1.52
1782	D664	0.07		-0.31	6038		-----		-----
1784	D664	0.09		0.05	6039		-----		-----
1792	D664	0.050		-0.68	7003		-----		-----
1796	D664	0.0986		0.21	7017		-----		-----
1807		-----		-----					

normality	OK
n	105
outliers	8
mean (n)	0.0870
st.dev. (n)	0.03788
R(calc.)	0.1061
R(D664:11a)	0.1533



Lab 1259 first reported 0.502
Lab 1720 first reported 0.64
Lab 6028 first reported 0.17



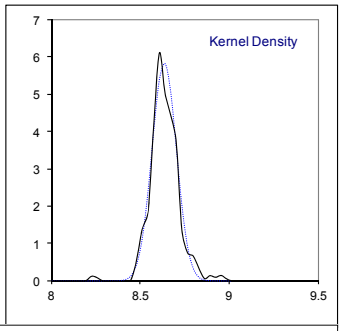
Determination of API Gravity on sample #16001

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	8.58		-0.32	634		-----		-----
62	D4052	8.6		-0.21	657	D4052	8.66		0.13
90	D4052	8.73		0.52	663	D4052	8.68		0.24
92		-----		-----	671	D287	8.7		0.35
120	D4052	8.6		-0.21	704	D1250	8.64		0.02
131	D4052	8.57		-0.37	705	D1298	8.57		-0.37
132	D4052	8.64		0.02	732	ISO12185	8.59		-0.26
133	D4052	8.7		0.35	750	D1298	8.7		0.35
140	D4052	8.7		0.35	753	D1298	8.636		0.00
150	D287	8.7		0.35	759	D1298	8.608		-0.16
154	D4052	8.6		-0.21	781	D1298	8.6		-0.21
158	D287	8.6		-0.21	784	D1298	8.60		-0.21
159	D4052	8.6		-0.21	785		-----		-----
168	D4052	8.7		0.35	791		-----		-----
169	D1298	8.6		-0.21	823	D4052	8.6		-0.21
171	D4052	8.62		-0.09	824	D4052	8.7		0.35
175	D4052	8.7		0.35	840	ISO12185	8.74		0.58
194	D4052	8.6		-0.21	851		-----		-----
212		-----		-----	855	ISO12185	8.62		-0.09
221		-----		-----	857	ISO12185	8.65		0.07
224	D1298	8.75		0.63	858	D1298	8.62		-0.09
225	Calc.	8.73		0.52	859	D1298	8.67		0.19
228		-----		-----	862	D287	8.62		-0.09
230		-----		-----	863	ISO12185	8.66		0.13
237	D4052	8.59		-0.26	864	ISO12185	8.68		0.24
238	D1298	8.64		0.02	865	D1298	8.66		0.13
252		-----		-----	866	ISO12185	8.69		0.30
253	D4052	8.78		0.80	867	ISO12185	8.7		0.35
254		-----		-----	873		-----		-----
256	D1298	8.6		-0.21	874	D4052	8.5		-0.77
273		-----		-----	875		-----		-----
311		-----		-----	886	D4052	1.0095	R(0.01)	-42.71
313		-----		-----	887		-----		-----
323	D4052	8.6		-0.21	902	D4052	8.62		-0.09
331	ISO12185	8.610		-0.15	904	D4052	8.68		0.24
333		-----		-----	912	D287	8.51		-0.71
334		-----		-----	913	D287	8.50		-0.77
336		-----		-----	922	D4052	8.71		0.41
337		-----		-----	962		-----		-----
340		-----		-----	963	D1298	8.67		0.19
342		-----		-----	971	D4052	8.71		0.41
343	D4052	8.52		-0.65	974	Calc.	8.78		0.80
349		-----		-----	982	D1298	8.68		0.24
351		-----		-----	994	D1250	8.58		-0.32
353		-----		-----	995	D4052	8.6		-0.21
356	D4052	8.65		0.07	996		-----		-----
360	ISO12185	8.62		-0.09	997	D4052	8.57		-0.37
370		-----		-----	1011		-----		-----
372	D4052	8.67		0.19	1016		-----		-----
391	ISO12185	8.71		0.41	1019		-----		-----
398	ISO12185	8.678		0.23	1040		-----		-----
399	D1298	8.65		0.07	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445		-----		-----	1082		-----		-----
447	D4052	8.7		0.35	1109	D4052	8.82		1.03
463	INH-11.5.3	8.68		0.24	1121	D4052	8.61		-0.15
494	D4052	8.57		-0.37	1126		-----		-----
507	D4052	8.62		-0.09	1134	D4052	8.70		0.35
511	D4052	8.55		-0.49	1135	D4052	8.68		0.24
529	D4052	8.51		-0.71	1161	D287	8.96	R(0.01)	1.81
541	D4052	8.6		-0.21	1167		-----		-----
551	D4052	8.60		-0.21	1177		-----		-----
557	D1250	8.52		-0.65	1191		-----		-----
558		-----		-----	1205		-----		-----
562	D1298	8.9	R(0.05)	1.47	1212		-----		-----
603	D1298	8.52		-0.65	1229		-----		-----
604	D4052	8.57		-0.37	1233		-----		-----
605	D4052	8.57		-0.37	1259	D1298	8.64		0.02
607		-----		-----	1264	D4052	8.63		-0.04
608	D4052	8.24	R(0.01)	-2.22	1266	D1298	8.824		1.05
621	D4052	8.76		0.69	1275		-----		-----
631	D1298	8.57		-0.37	1281		-----		-----
633		-----		-----	1299		-----		-----

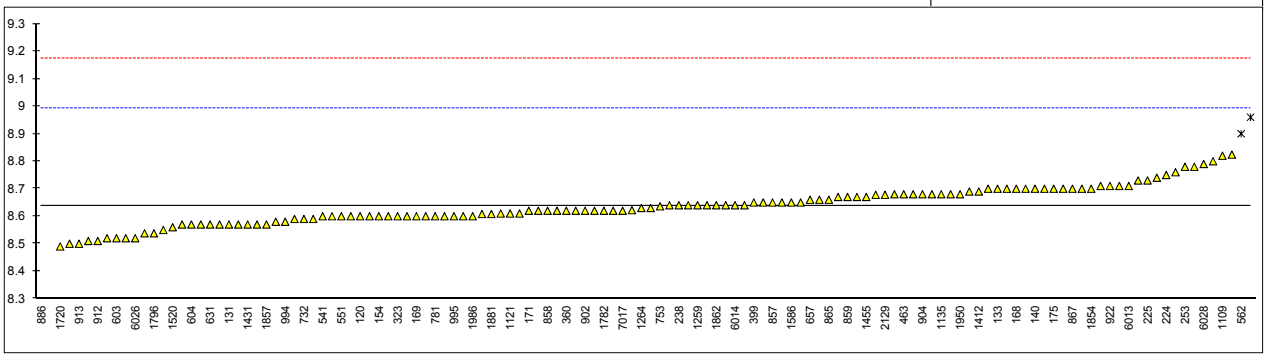
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D4052	8.650		0.07	1810		-----		-----
1345	D4052	8.63		-0.04	1811		-----		-----
1347		-----		-----	1813		-----		-----
1348		-----		-----	1832		-----		-----
1356		-----		-----	1833		-----		-----
1365	D4052	8.62		-0.09	1849		-----		-----
1367		-----		-----	1854	D1298	8.7		0.35
1381		-----		-----	1857	D4052	8.57		-0.37
1385		-----		-----	1862	D4052	8.64		0.02
1389		-----		-----	1881	D4052	8.608		-0.16
1402	D4052	8.59		-0.26	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412	D4052	8.69		0.30	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431	ISO12185	8.57		-0.37	1942	D1298	8.8		0.91
1455	D4052	8.67		0.19	1943		-----		-----
1459		-----		-----	1949	D4052	8.68		0.24
1510		-----		-----	1950	D4052	8.68		0.24
1520	D4052	8.560		-0.43	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583		-----		-----	1967	D1298	8.622		-0.08
1585	D1298	8.538		-0.55	1986	D1298	8.60		-0.21
1586	D4052	8.65		0.07	1995		-----		-----
1613	D4052	8.64		0.02	2129	D4052Calc.	8.678		0.23
1631		-----		-----	6004	D4052	8.64		0.02
1643		-----		-----	6013	D1298	8.71		0.41
1648		-----		-----	6014	D1298	8.64		0.02
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020	D4052	8.62		-0.09
1720	D4052	8.49		-0.82	6021	D4052	8.64		0.02
1724		-----		-----	6024	D4052	8.65		0.07
1740		-----		-----	6025	D1298	8.61		-0.15
1763		-----		-----	6026	D1298	8.52		-0.65
1772		-----		-----	6028	ISO12185	8.79		0.86
1782	D4052	8.62		-0.09	6038		-----		-----
1784	ISO12185	8.6		-0.21	6039		-----		-----
1792	ISO12185	8.57		-0.37	7003		-----		-----
1796	D4052	8.538		-0.55	7017	D1298	8.62		-0.09
1807		-----		-----					

normality	OK
n	126
outliers	4
mean (n)	8.637
st.dev. (n)	0.0683
R(calc.)	0.191
R(D1298:12b)	0.500

Compare R(D4052:15)=0.133



Lab 886 reported Specific Gravity as API Gravity

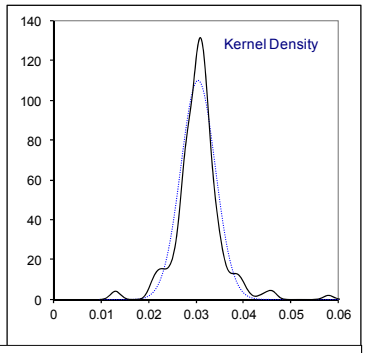


Determination of Ash on sample #16001; results in %M/M

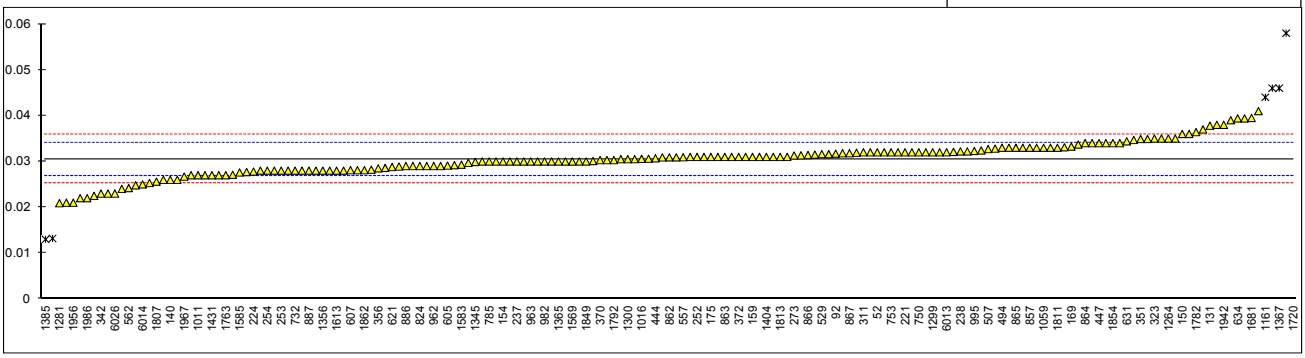
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	0.032		0.84	634	D482	0.0394	C	4.99
62	D482	0.035		2.52	657	D482	0.030		-0.28
90	D482	0.0305		0.00	663		-----		-----
92	D482	0.0317		0.68	671		-----		-----
120	ISO6245	0.031		0.28	704	ISO6245	0.0340		1.96
131	D482	0.0378		4.09	705	ISO6245	0.0331		1.46
132	ISO6245	0.0289		-0.89	732	D482	0.028		-1.40
133	D482	0.039		4.76	750	D482	0.032		0.84
140	ISO6245	0.026		-2.52	753	D482	0.032		0.84
150	D482	0.036		3.08	759		-----		-----
154	D482	0.030		-0.28	781	ISO6245	0.033		1.40
158		-----		-----	784	D482	0.032		0.84
159	D482	0.031		0.28	785	D482	0.030		-0.28
168	D482	0.031		0.28	791		-----		-----
169	D482	0.03324		1.54	823	ISO6245	0.023		-4.20
171	ISO6245	0.027		-1.96	824	ISO6245	0.029		-0.84
175	D482	0.031		0.28	840	ISO6245	0.0318		0.73
194	D482	0.028		-1.40	851	ISO6245	0.028		-1.40
212		0.031		0.28	855	D482	0.033		1.40
221	D482	0.032		0.84	857	D482	0.033		1.40
224	D482	0.0278		-1.51	858	D482	0.032		0.84
225	D482	0.032		0.84	859	D482	0.033		1.40
228	D482	0.0132	R(0.01)	-9.68	862	ISO6245	0.0309		0.23
230	ISO6245	0.0322		0.96	863	D482	0.031		0.28
237	D482	0.030	C	-0.28	864	D482	0.034		1.96
238	D482	0.0322		0.96	865	D482	0.033		1.40
252	D482	0.031		0.28	866	ISO6245	0.0314		0.51
253	D482	0.028		-1.40	867	D482	0.0318		0.73
254	D482	0.028		-1.40	873	D482	0.031		0.28
256	D482	0.03		-0.28	874	D482	0.030		-0.28
273	D482	0.0313		0.45	875	D482	0.028		-1.40
311	ISO6245	0.032		0.84	886	D482	0.029		-0.84
313		-----		-----	887	D482	0.028		-1.40
323	ISO6245	0.035		2.52	902	D482	0.032		0.84
331	ISO6245	0.0324		1.07	904	D482	0.031		0.28
333		-----		-----	912	ISO6245	0.0349		2.47
334		-----		-----	913	ISO6245	0.0297		-0.44
336		-----		-----	922	D482	0.026		-2.52
337		-----		-----	962	D482	0.029		-0.84
340		-----		-----	963	ISO6245	0.030		-0.28
342	ISO6245	0.023		-4.20	971	ISO6245	0.030		-0.28
343	ISO6245	0.0347		2.36	974	D482	0.029		-0.84
349		-----		-----	982	D482	0.030		-0.28
351	ISO6245	0.0349		2.47	994	D482	0.028		-1.40
353		-----		-----	995	D482	0.0323		1.01
356	D482	0.0285		-1.12	996		-----		-----
360		-----		-----	997		-----		-----
370	D482	0.0303		-0.11	1011	ISO6245	0.027		-1.96
372	ISO6245	0.031		0.28	1016	D482	0.030565		0.04
391	D482	0.028		-1.40	1019	ISO6245	0.0281		-1.34
398	ISO6245	0.0316		0.62	1040	ISO6245	0.027		-1.96
399	D482	0.030		-0.28	1059	ISO6245	0.033		1.40
440		-----		-----	1065	D482	0.058	C,R(0.01)	15.40
444	D482	0.0307		0.12	1066		-----		-----
445	IP4	0.026		-2.52	1082		-----		-----
447	IP4	0.034		1.96	1109	D482	0.0301		-0.22
463	ISO6245	0.03089		0.22	1121	IP4	0.030		-0.28
494	ISO6245	0.033		1.40	1126		-----		-----
507	ISO6245	0.0327		1.24	1134	IP4	0.046	R(0.05)	8.68
511		-----		-----	1135	ISO6245	0.0410		5.88
529	D482	0.0316		0.62	1161	ISO6245	0.044	R(0.05)	7.56
541	ISO6245	0.029		-0.84	1167	ISO6245	0.0309		0.23
551	ISO6245	0.029		-0.84	1177		-----		-----
557	D482	0.0309296		0.24	1191		-----		-----
558		-----		-----	1205		-----		-----
562	D482	0.0242		-3.52	1212		-----		-----
603	D482	0.0271		-1.90	1229		-----		-----
604		-----		-----	1233	ISO6245	0.032		0.84
605	D482	0.0291		-0.78	1259		-----	W	-----
607	D482	0.0281		-1.34	1264	D482	0.0350		2.52
608	D482	0.022		-4.76	1266	ISO6245	0.024	C	-3.64
621	D482	0.0288		-0.95	1275	IP4	0.0310		0.28
631	D482	0.0344		2.19	1281	ISO6245	0.0209	C	-5.37
633	D482	0.038		4.20	1299	D482	0.032		0.84

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO6245	0.0305		0.00	1810		-----		-----
1345	D482	0.0299		-0.33	1811	ISO6245	0.033	C	1.40
1347	D482	0.0305		0.00	1813	D482	0.031		0.28
1348	D482	0.0277		-1.56	1832	ISO6245	0.0300		-0.28
1356	ISO6245	0.028	C	-1.40	1833	ISO6245	0.028		-1.40
1365	D480	0.030		-0.28	1849	ISO6245	0.030		-0.28
1367	IP4	0.046	R(0.05)	8.68	1854	ISO6245	0.034		1.96
1381	ISO6245	0.0319		0.79	1857		-----		-----
1385	D482	0.013	R(0.01)	-9.80	1862	ISO6245	0.0281		-1.34
1389	D482	0.0321		0.90	1881	ISO6245	0.031		0.28
1402	IP4	0.028		-1.40	1906		-----		-----
1404	ISO6245	0.031		0.28	1936		-----		-----
1412	D482	0.030		-0.28	1937		-----		-----
1428	ISO6245	0.0303		-0.11	1938		-----		-----
1431	D482	0.027		-1.96	1942	D482	0.038		4.20
1455	ISO6245	0.036		3.08	1943	ISO6245	0.037		3.64
1459		-----		-----	1949	ISO6245	0.0340		1.96
1510	IP4	0.021		-5.32	1950	D482	0.0282		-1.28
1520	ISO6245	0.03135		0.48	1956	ISO6245	0.021		-5.32
1556	ISO6245	0.0270		-1.96	1962		-----		-----
1569	ISO6245	0.03		-0.28	1964		-----		-----
1583	ISO6245	0.0293		-0.67	1967	ISO6245	0.0267		-2.12
1585	D482	0.0276		-1.62	1986	D482	0.022	C	-4.76
1586	D482	0.034		1.96	1995		-----		-----
1613	D482	0.028		-1.40	2129	ISO6245	0.0328		1.29
1631	ISO6245	0.035		2.52	6004		-----		-----
1643	D482	0.0286	C	-1.06	6013	ISO6245	0.0320		0.84
1648	ISO6245	0.0248	C	-3.19	6014	ISO6245	0.025		-3.08
1650	ISO6245	0.0315		0.56	6016		-----		-----
1681	ISO6245	0.0395		5.04	6020	ISO6245	0.0292		-0.72
1720	D482	0.087	C,R(0.01)	31.64	6021	ISO6245	0.0306		0.06
1724	D482	0.032		0.84	6024	ISO6245	0.0394		4.99
1740	ISO6245	0.033		1.40	6025	ISO6245	0.0253		-2.91
1763	ISO6245	0.0270		-1.96	6026	D482	0.023		-4.20
1772		-----		-----	6028		-----		-----
1782	D482	0.0364		3.31	6038		-----		-----
1784	ISO6245	0.031		0.28	6039		-----		-----
1792	ISO6245	0.0303		-0.11	7003		-----		-----
1796	ISO6245	0.0225		-4.48	7017	D482	0.0337		1.80
1807	ISO6245	0.0256		-2.74					

normality	OK
n	174
outliers	7
mean (n)	0.0305
st.dev. (n)	0.00363
R(calc.)	0.0102
R(ISO6245:01)	0.0050



Lab 237 first reported 0.043
Lab 634 first reported 0.0524
Lab 1065 first reported 0.048
Lab 1259 first reported 0.0211
Lab 1266 first reported 0.014
Lab 1281 first reported 0.0126
Lab 1356 first reported 0.048
Lab 1643 first reported 0.0456
Lab 1648 first reported 0.0408
Lab 1720 first reported 0.116
Lab 1811 first reported 0.040
Lab 1986 first reported 0.0215

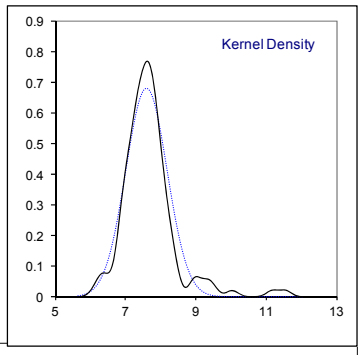


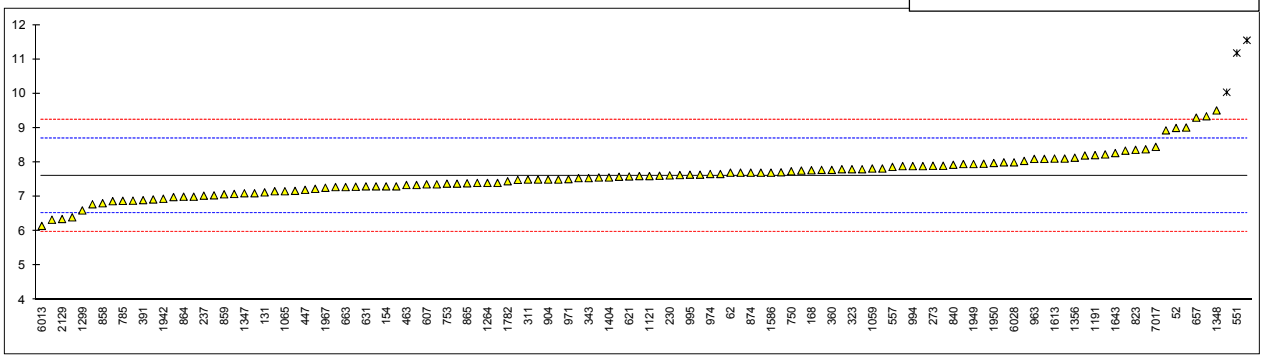
Determination of Asphaltenes on sample #16001; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP143	9.0		2.58	634		-----		-----
62	IP143	7.7		0.19	657	IP143	9.3		3.13
90	IP143	7.78		0.33	663	IP143	7.28		-0.59
92		-----		-----	671		-----		-----
120	D3279	7.3		-0.55	704	IP143	7.49		-0.20
131	IP143	7.1259		-0.87	705	IP143	7.36		-0.44
132	D6560	6.884		-1.32	732		-----		-----
133	D6560	7.7		0.19	750	IP143	7.74		0.26
140		-----		-----	753	IP143	7.38		-0.40
150	IP143	7.6		0.00	759		-----		-----
154	D6560	7.3		-0.55	781	IP143	7.38		-0.40
158		-----		-----	784	IP143	7.54		-0.11
159	D6560	7.4		-0.37	785	D6560	6.88		-1.33
168	D6560	7.77		0.31	791		-----		-----
169		-----		-----	823	D6560	8.364		1.41
171		-----		-----	824		-----		-----
175		-----		-----	840	IP143	7.93		0.61
194		-----		-----	851		-----		-----
212		-----		-----	855	IP143	7.23		-0.68
221	D6560	7.8		0.37	857	IP143	7.29		-0.57
224		-----		-----	858	IP143	6.81		-1.45
225	D6560	7.16		-0.81	859	D6560	7.07		-0.98
228		-----		-----	862	IP143	6.92		-1.25
230	IP143	7.62		0.04	863	IP143	7.63		0.06
237	D6560	7.03		-1.05	864	IP143	7.0		-1.10
238		-----		-----	865	IP143	7.39		-0.39
252		-----		-----	866	IP143	7.58		-0.04
253		-----		-----	867	IP143	7.61		0.02
254		-----		-----	873	IP143	7.89		0.54
256	IP143	7.5		-0.18	874	IP143	7.70		0.19
273	D6560	7.9		0.55	875		-----		-----
311	IP143	7.5		-0.18	886		-----		-----
313		-----		-----	887		-----		-----
323	IP143	7.8		0.37	902		-----		-----
331		-----		-----	904	IP143	7.5		-0.18
333		-----		-----	912		-----		-----
334	IP143	7.0		-1.10	913		-----		-----
336		-----		-----	922		-----		-----
337		-----		-----	962		-----		-----
340	IP143	6.33		-2.34	963	IP143	8.10		0.92
342		-----		-----	971	IP143	7.51		-0.16
343	IP143	7.54		-0.11	974	IP143	7.66		0.11
349		-----		-----	982		-----		-----
351		-----		-----	994	IP143	7.89		0.54
353		-----		-----	995	IP143	7.64		0.07
356	IP143	7.04		-1.03	996		-----		-----
360	IP143	7.78		0.33	997		-----		-----
370	IP143	7.34		-0.48	1011		-----		-----
372	IP143	7.3		-0.55	1016		-----		-----
391	IP143	6.9		-1.29	1019		-----		-----
398	IP143	7.95		0.65	1040		-----		-----
399		-----		-----	1059	IP143	7.82		0.41
440		-----		-----	1065	IP143	7.16		-0.81
444		-----		-----	1066		-----		-----
445	IP143	8.0		0.74	1082	D6560	7.56		-0.07
447	IP143	7.2		-0.74	1109		-----		-----
463	IP143	7.34		-0.48	1121	IP143	7.6		0.00
494	IP143	6.87		-1.34	1126		-----		-----
507	IP143	7.28		-0.59	1134	IP143	9.013		2.60
511	D6560	7.71		0.20	1135	IP143	10.04	R(0.01)	4.50
529		-----		-----	1161		-----		-----
541	IP143	6.4		-2.21	1167		-----		-----
551	IP143	11.18	R(0.01)	6.60	1177		-----		-----
557	IP143	7.86634		0.49	1191	D6560	8.21		1.12
558		-----		-----	1205		-----		-----
562		-----		-----	1212	IP143	8.38		1.44
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605	IP143	7.76		0.30	1259	IP143	7.959		0.66
607	IP143	7.36		-0.44	1264	IP143	7.40		-0.37
608		-----		-----	1266		-----		-----
621	IP143	7.59		-0.02	1275		-----		-----
631	IP143	7.3		-0.55	1281		-----		-----
633		-----		-----	1299	IP143	6.6		-1.84

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	IP143	6.78		-1.51	1810		-----		-----
1345	IP143	7.66		0.11	1811		-----		-----
1347	IP143	7.10		-0.92	1813		-----		-----
1348	IP143	9.51		3.52	1832		-----		-----
1356	D6560	8.135		0.99	1833	IP143	8.2		1.11
1365	IP143	8.93		2.45	1849		-----		-----
1367		-----		-----	1854	IP143	8.34		1.36
1381		-----		-----	1857	IP143	7.9		0.55
1385	IP143	9.34		3.21	1862	IP143	6.99		-1.12
1389	IP143	8.042		0.82	1881	IP143	8.11		0.94
1402	IP143	7.1		-0.92	1906		-----		-----
1404		7.56		-0.07	1936		-----		-----
1412	D6560	7.64		0.07	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431	D6560	8.23		1.16	1942	IP143	6.94		-1.21
1455	IP143	7.17		-0.79	1943		-----		-----
1459		-----		-----	1949	IP143	7.95		0.65
1510		-----		-----	1950	D6560	7.98		0.70
1520	IP143	7.89		0.54	1956		-----		-----
1556	IP143	11.55	R(0.01)	7.28	1962		-----		-----
1569	IP143	7.7		0.19	1964		-----		-----
1583		-----		-----	1967	IP143	7.26		-0.63
1585	IP143	7.82		0.41	1986	IP143	7.5		-0.18
1586	IP143	7.7		0.19	1995		-----		-----
1613	D6560	8.11		0.94	2129	IP143	6.35		-2.30
1631		-----		-----	6004		-----		-----
1643	D6560	8.27		1.24	6013	IP143	6.15		-2.67
1648		-----		-----	6014		-----		-----
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720	D6560	7.4		-0.37	6021	IP143	7.08		-0.96
1724		-----		-----	6024		-----		-----
1740	IP143	7.8		0.37	6025		-----		-----
1763		-----		-----	6026		-----		-----
1772		-----		-----	6028	IP143	8.00		0.74
1782	IP143	7.45		-0.28	6038		-----		-----
1784	IP143	8.1		0.92	6039		-----		-----
1792		-----		-----	7003		-----		-----
1796		-----		-----	7017	IP143	8.45		1.57
1807		-----		-----					

normality	suspect
n	117
outliers	3
mean (n)	7.599
st.dev. (n)	0.5868
R(calc.)	1.643
R(IP143:04)	1.520



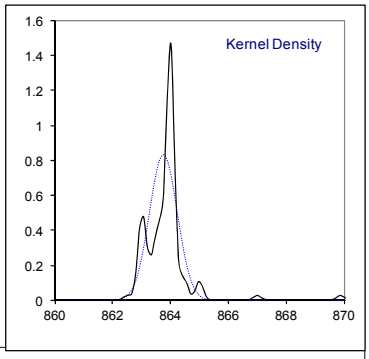


Determination of Calculated Carbon Aromaticity Index on sample #16001

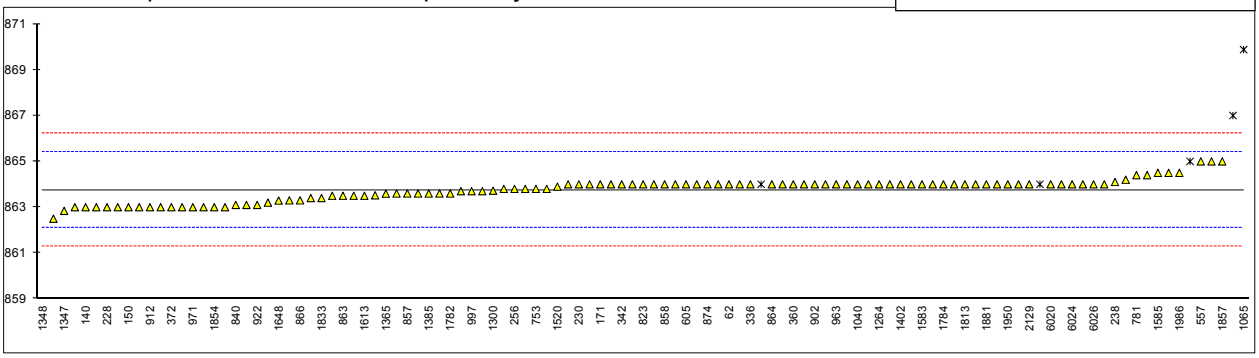
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634		-----		-----
62	ISO8217	864		0.30	657	ISO8217	863.8		0.06
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120	ISO8217	864		0.30	704	ISO8217	863.8		0.06
131	ISO8217	864		0.30	705	ISO8217	864		0.30
132	ISO8217	864		0.30	732		-----		-----
133		-----		-----	750	ISO8217	864.0		0.30
140	ISO8217	863		-0.92	753	ISO8217	863.8		0.06
150	ISO8217	863		-0.92	759		-----		-----
154		-----		-----	781	ISO8217	864.4		0.79
158		-----		-----	784	ISO8217	864		0.30
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823	ISO8217	864		0.30
171	ISO8217	864		0.30	824	ISO8217	864		0.30
175		-----		-----	840	ISO8217	863.1		-0.79
194		-----		-----	851	ISO8217	863.0		-0.92
212		863		-0.92	855	ISO8217	864		0.30
221	ISO8217	863.5		-0.31	857	ISO8217	863.6		-0.19
224		-----		-----	858	ISO8217	864		0.30
225		-----		-----	859	ISO8217	863.6		-0.19
228	ISO8217	863		-0.92	862	ISO8217	863.2		-0.67
230	ISO8217	864		0.30	863	ISO8217	863.5		-0.31
237		-----		-----	864	ISO8217	864		0.30
238	ISO8217	864.1		0.42	865	ISO8217	863.7		-0.06
252		-----		-----	866	ISO8217	863.3		-0.55
253		-----		-----	867	ISO8217	863.5		-0.31
254	ISO8217	864		0.30	873		-----		-----
256	ISO8217	863.8		0.06	874	ISO8217	864.0		0.30
273		-----		-----	875		-----		-----
311	ISO8217	863		-0.92	886		-----		-----
313		-----		-----	887		-----		-----
323		-----		-----	902	ISO8217	864		0.30
331	ISO8217	864.0		0.30	904	ISO8217	863.3		-0.55
333		-----		-----	912	ISO8217	863		-0.92
334		-----		-----	913		-----		-----
336	ISO8217	864		0.30	922	ISO8217	863.1		-0.79
337		-----		-----	962		-----		-----
340		-----		-----	963	ISO8217	864		0.30
342	ISO8217	864		0.30	971	ISO8217	863		-0.92
343		-----		-----	974	ISO8217	863		-0.92
349		-----		-----	982		-----		-----
351	ISO8217	865.00	ex, E	1.52	994	ISO8217	864		0.30
353		-----		-----	995		-----		-----
356	ISO8217	863		-0.92	996		-----		-----
360	ISO8217	864		0.30	997	ISO8217	863.7		-0.06
370		-----		-----	1011	ISO8217	864.4		0.79
372	ISO8217	863		-0.92	1016		-----		-----
391	ISO8217	863.4		-0.43	1019		-----		-----
398	ISO8217	864		0.30	1040	ISO8217	864		0.30
399		-----		-----	1059		-----		-----
440		-----		-----	1065	ISO8217	869.88	C,R(0.01)	7.46
444		-----		-----	1066		-----		-----
445		-----		-----	1082		-----		-----
447	ISO8217	864	ex, E	0.30	1109		-----		-----
463	ISO8217	863.10		-0.79	1121		-----		-----
494		-----		-----	1126		-----		-----
507	ISO8217	863.0		-0.92	1134	ISO8217	863.6		-0.19
511		-----		-----	1135	ISO8217	864		0.30
529		-----		-----	1161		-----		-----
541	ISO8217	864		0.30	1167		-----		-----
551		-----		-----	1177		-----		-----
557	ISO8217	865		1.52	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212		-----		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605	ISO8217	864		0.30	1259		-----		-----
607		-----		-----	1264	Calc.	864		0.30
608		-----		-----	1266	ISO8217	862.5		-1.53
621	ISO8217	863		-0.92	1275		-----		-----
631	ISO8217	864.2		0.54	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO8217	863.7194		-0.04	1810	ISO8217	867	R(0.01)	3.95
1345		-----		-----	1811		-----		-----
1347	ISO8217	862.84		-1.11	1813	ISO8217	864		0.30
1348	ISO8217	836	ex,E	-33.79	1832		-----		-----
1356		-----		-----	1833	ISO8217	863.4	C	-0.43
1365	ISO8217	863.59		-0.20	1849		-----		-----
1367	ISO8217	865		1.52	1854	ISO8217	863		-0.92
1381		-----		-----	1857	ISO8217	865		1.52
1385	ISO8217	863.6		-0.19	1862	ISO8217	864		0.30
1389	ISO8217	864		0.30	1881	ISO8217	864		0.30
1402	ISO8217	864		0.30	1906		-----		-----
1404		863.8		0.06	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942		863		-0.92
1455	ISO8217	864		0.30	1943		-----		-----
1459		-----		-----	1949	ISO8217	864		0.30
1510		-----		-----	1950	ISO8217	864		0.30
1520	ISO8217	863.9		0.18	1956		-----		-----
1556	ISO8217	863.52		-0.28	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583	ISO8217	864		0.30	1967	ISO8217	864		0.30
1585	ISO8217	864.5		0.91	1986	ISO8217	864.5		0.91
1586	ISO8217	863.7		-0.06	1995		-----		-----
1613	ISO8217	863.5		-0.31	2129	ISO8217	864		0.30
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013	ISO8217	864	ex,E	0.30
1648	ISO8217	863.29		-0.56	6014		-----		-----
1650		-----		-----	6016		-----		-----
1681	ISO8217	863.6		-0.19	6020	ISO8217	864		0.30
1720		-----		-----	6021	ISO8217	864		0.30
1724		-----		-----	6024	ISO8217	864		0.30
1740	ISO8217	864		0.30	6025	ISO8217	864		0.30
1763		-----		-----	6026	ISO8217	864		0.30
1772		-----		-----	6028		-----		-----
1782	ISO8217	863.6		-0.19	6038		-----		-----
1784	ISO8217	864		0.30	6039		-----		-----
1792	ISO8217	864		0.30	7003		-----		-----
1796	ISO8217	864.5		0.91	7017	ISO8217	864		0.30
1807		-----		-----					

normality	OK
n	107
outliers	2+4 ex
mean (n)	863.75
st.dev. (n)	0.480
R(calc.)	1.34
R(ISO8217:12)	2.30



Lab 351 reported value excluded, probably a calculation error
Lab 447 reported value excluded, probably a calculation error
Lab 1065 first reported 919.47
Lab 1348 reported value excluded, probably a calculation error
Lab 1833 first reported 858
Lab 6013 reported value excluded, probably a calculation error

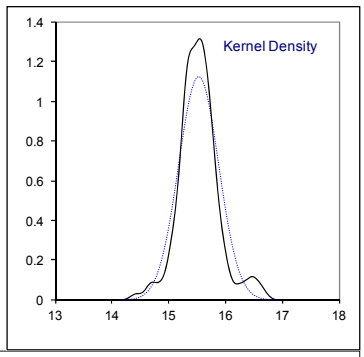


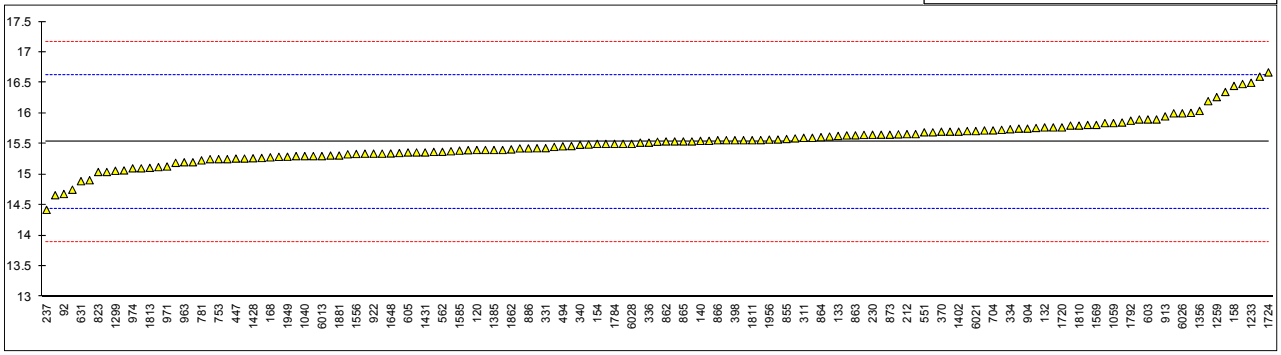
Determination of Carbon Residue Micro method on sample #16001; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	15.36		-0.31	634		-----		-----
62	D4530	16.35		1.50	657	D4530	15.56		0.05
90		-----		-----	663	D4530	15.54		0.02
92	D4530	14.68		-1.56	671	D4530	15.06578		-0.85
120	ISO10370	15.4		-0.24	704	ISO10370	15.721		0.35
131	D4530	15.5352		0.01	705		-----		-----
132	ISO10370	15.77		0.44	732		-----		-----
133	D4530	15.63		0.18	750		-----		-----
140	ISO10370	15.55		0.03	753	D4530	15.25		-0.52
150	D4530	15.7		0.31	759		-----		-----
154	D4530	15.5		-0.06	781	ISO10370	15.23		-0.55
158	D4530	16.4495		1.69	784		-----		-----
159	D4530	15.9		0.68	785	D4530	15.12		-0.75
168	D4530	15.28		-0.46	791		-----		-----
169		-----		-----	823	ISO10370	15.04		-0.90
171	ISO10370	15.31		-0.41	824	ISO10370	15.52		-0.02
175	D4530	15.3		-0.42	840		-----		-----
194		-----		-----	851	ISO10370	15.75		0.40
212		15.66		0.24	855	ISO10370	15.58		0.09
221		-----		-----	857		-----		-----
224		-----		-----	858		-----		-----
225		-----		-----	859	D4530	15.34		-0.35
228		-----		-----	862	ISO10370	15.54		0.02
230	ISO10370	15.649		0.22	863	D4530	15.64		0.20
237	D4530	14.42		-2.04	864	D4530	15.61		0.14
238		-----		-----	865	D4530	15.54		0.02
252	D4530	15.33		-0.37	866	ISO10370	15.56		0.05
253		-----		-----	867		-----		-----
254		-----		-----	873	D4530	15.65		0.22
256		-----		-----	874	D4530	15.49		-0.08
273	D4530	15.84		0.57	875	ISO10370	15.66		0.24
311	D4530	15.6		0.13	886	D4530	15.426		-0.19
313		-----		-----	887		-----		-----
323	ISO10370	15.71		0.33	902	D4530	15.9		0.68
331	ISO10370	15.430		-0.19	904	D4530	15.75		0.40
333	ISO10370	15.65		0.22	912	ISO10370	15.81		0.51
334	ISO10370	15.74		0.38	913	ISO10370	15.95		0.77
336	ISO10370	15.52		-0.02	922	D4530	15.34		-0.35
337		-----		-----	962		-----		-----
340	ISO10370	15.485		-0.08	963	ISO10370	15.20		-0.61
342	ISO10370	15.656		0.23	971	ISO10370	15.13		-0.74
343	ISO10370	15.426		-0.19	974	D4530	15.1		-0.79
349	D4530	15.56		0.05	982		-----		-----
351	ISO10370	15.288		-0.45	994		-----		-----
353		-----		-----	995		-----		-----
356	D4530	16.6		1.96	996		-----		-----
360	ISO10370	15.27		-0.48	997		-----		-----
370	D4530	15.70		0.31	1011	ISO10370	16.48		1.74
372	ISO10370	15.45		-0.15	1016		-----		-----
391	ISO10370	15.59		0.11	1019		-----		-----
398	ISO10370	15.56		0.05	1040	ISO10370	15.30		-0.42
399		-----		-----	1059	ISO10370	15.84		0.57
440		-----		-----	1065	D4530	15.5		-0.06
444		-----		-----	1066		-----		-----
445	ISO10370	15.26		-0.50	1082	ISO10370	15.34		-0.35
447	ISO10370	15.26		-0.50	1109	D4530	15.369		-0.30
463	ISO10370	15.397		-0.25	1121	IP398	15.62		0.16
494	ISO10370	15.46		-0.13	1126		-----		-----
507	ISO10370	15.35		-0.33	1134	IP398	15.465		-0.12
511		-----		-----	1135	ISO10370	15.647		0.21
529		-----		-----	1161		-----		-----
541		-----		-----	1167		-----		-----
551	ISO10370	15.69		0.29	1177		-----		-----
557		-----		-----	1191	ISO10370	15.04		-0.90
558		-----		-----	1205		-----		-----
562	D4530	15.37		-0.30	1212	ISO10370	15.690		0.29
603	D4530	15.90		0.68	1229	ISO10370	15.4		-0.24
604		-----		-----	1233	ISO10370	16.5		1.78
605	D4530	15.36		-0.31	1259	ISO10370	16.266		1.35
607	D4530	15.25		-0.52	1264	D4530	14.75		-1.43
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631	D4530	14.89		-1.18	1281		-----		-----
633		-----		-----	1299	D4530	15.06		-0.86

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO10370	16.0075		0.87	1810	ISO10370	15.80		0.49
1345		-----		-----	1811	ISO10370	15.56		0.05
1347	D4530	15.38		-0.28	1813	D4530	15.108		-0.78
1348	D4530	16.2		1.23	1832		-----		-----
1356	ISO10370	16.04		0.93	1833	D4530	15.54		0.02
1365	D4530	15.8		0.49	1849		-----		-----
1367	D4530	15.73		0.36	1854	ISO10370	15.19		-0.63
1381	ISO10370	15.429		-0.19	1857	ISO10370	15.1		-0.79
1385	D4530	15.4		-0.24	1862	ISO10370	15.41		-0.22
1389	D4530	15.572		0.07	1881	D4530	15.31		-0.41
1402	ISO10370	15.7		0.31	1906		-----		-----
1404	ISO10370	15.76		0.42	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428	ISO10370	15.265		-0.49	1938		-----		-----
1431	D4530	15.36		-0.31	1942	D4530	15.562		0.06
1455	ISO10370	15.2		-0.61	1943		-----		-----
1459		-----		-----	1949	ISO10370	15.29		-0.44
1510	D4530	15.4		-0.24	1950	D4530	15.3		-0.42
1520	ISO10370	15.77		0.44	1956	ISO10370	15.57		0.07
1556	ISO10370	15.335		-0.36	1962		-----		-----
1569	ISO10370	15.81		0.51	1964		-----		-----
1583		-----		-----	1967	D4530	15.639		0.20
1585	D4530	15.39		-0.26	1986	D4530	15.5		-0.06
1586	ISO10370	16.0		0.86	1995		-----		-----
1613	D4530	14.905		-1.15	2129	ISO10370	14.66		-1.60
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013	ISO10370	15.30		-0.42
1648	ISO10370	15.344		-0.34	6014	ISO10370	15.85		0.59
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720	D4530	15.77		0.44	6021	ISO10370	15.71		0.33
1724	D4530	16.67		2.09	6024		-----		-----
1740	ISO10370	15.6		0.13	6025		-----		-----
1763		-----		-----	6026	D4530	16.0		0.86
1772		-----		-----	6028	ISO10370	15.5		-0.06
1782	D4530	15.72		0.35	6038		-----		-----
1784	ISO10370	15.50		-0.06	6039		-----		-----
1792	ISO10370	15.88		0.64	7003		-----		-----
1796		-----		-----	7017	D4530	15.55		0.03
1807	ISO10370	15.25		-0.52					

normality	suspect
n	143
outliers	0
mean (n)	15.531
st.dev. (n)	0.3544
R(calc.)	0.992
R(ISO10370:14)	1.526



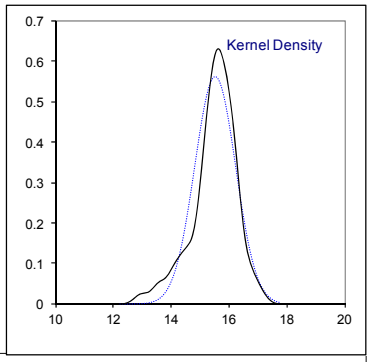


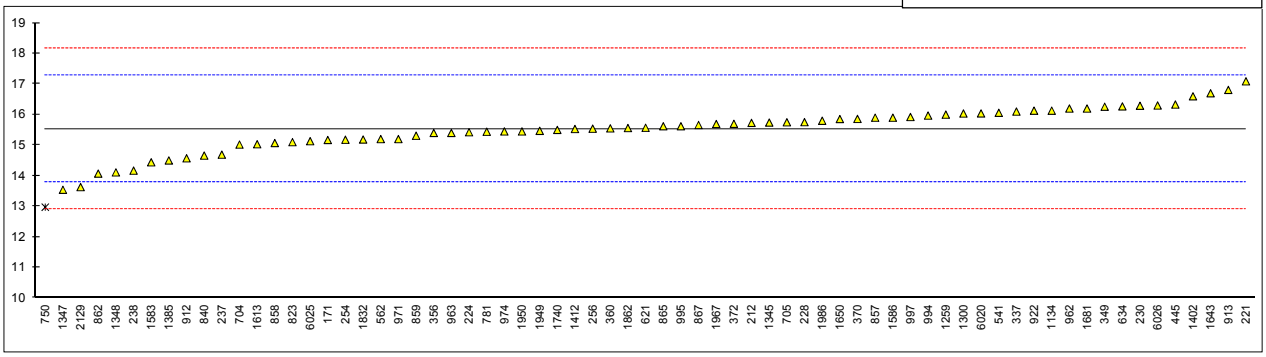
Determination of Conradson Carbon Residue on sample #16001; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634	D189	16.27		0.84
62		-----		-----	657		-----		-----
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120		-----		-----	704	D189	15.02		-0.59
131		-----		-----	705	D189	15.75		0.25
132		-----		-----	732		-----		-----
133		-----		-----	750	D189	12.97	R(0.05)	-2.94
140		-----		-----	753		-----		-----
150		-----		-----	759		-----		-----
154		-----		-----	781	D189	15.44		-0.11
158		-----		-----	784		-----		-----
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823	D189	15.1		-0.50
171	D189	15.17		-0.42	824		-----		-----
175		-----		-----	840	D189	14.66		-1.00
194		-----		-----	851		-----		-----
212		15.73		0.23	855		-----		-----
221	D189	17.09		1.78	857	D189	15.9		0.42
224	D189	15.423		-0.13	858	D189	15.07		-0.53
225		-----		-----	859	D189	15.31		-0.26
228	D189	15.7536		0.25	862	D189	14.07		-1.68
230	D189	16.291		0.87	863		-----		-----
237	D189	14.69		-0.97	864		-----		-----
238	D189	14.167		-1.57	865	D189	15.62		0.10
252		-----		-----	866		-----		-----
253		-----		-----	867	D189	15.66		0.14
254	D189	15.179		-0.41	873		-----		-----
256	D189	15.54		0.01	874		-----		-----
273		-----		-----	875		-----		-----
311		-----		-----	886		-----		-----
313		-----		-----	887		-----		-----
323		-----		-----	902		-----		-----
331		-----		-----	904		-----		-----
333		-----		-----	912	D189	14.57		-1.10
334		-----		-----	913	D189	16.81		1.46
336		-----		-----	922	D189	16.13		0.68
337	D189	16.1		0.65	962	D189	16.2		0.76
340		-----		-----	963	D189	15.40		-0.15
342		-----		-----	971	D189	15.20		-0.38
343		-----		-----	974	D189	15.45		-0.10
349	D189	16.26		0.83	982		-----		-----
351		-----		-----	994	D189	15.97		0.50
353		-----		-----	995	D189	15.62		0.10
356	D189	15.4		-0.15	996		-----		-----
360	D189	15.55		0.02	997	D189	15.9228		0.45
370	D189	15.86		0.37	1011		-----		-----
372	D189	15.7		0.19	1016		-----		-----
391		-----		-----	1019		-----		-----
398		-----		-----	1040		-----		-----
399		-----		-----	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	IP13	16.33		0.91	1082		-----		-----
447		-----		-----	1109		-----		-----
463		-----		-----	1121		-----		-----
494		-----		-----	1126		-----		-----
507	D189	16:16		-----	1134	IP13	16.13		0.68
511		-----		-----	1135		-----		-----
529		-----		-----	1161		-----		-----
541	D189	16.06		0.60	1167		-----		-----
551		-----		-----	1177		-----		-----
557		-----		-----	1191		-----		-----
558		-----		-----	1205		-----		-----
562	D189	15.20		-0.38	1212		-----		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259	D189	16.00		0.53
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621	D189	15.57		0.04	1275		-----		-----
631		-----		-----	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D189	16.0367		0.58	1810		-----		-----
1345	D189	15.74		0.24	1811		-----		-----
1347	D189	13.54		-2.28	1813		-----		-----
1348	D189	14.11		-1.63	1832	D189	15.185		-0.40
1356		-----		-----	1833		-----		-----
1365		-----		-----	1849		-----		-----
1367		-----		-----	1854		-----		-----
1381		-----		-----	1857		-----		-----
1385	D189	14.5		-1.18	1862	D189	15.56		0.03
1389		-----		-----	1881		-----		-----
1402	D189	16.6		1.22	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412	D189	15.53		0.00	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455		-----		-----	1943		-----		-----
1459		-----		-----	1949	D189	15.47		-0.07
1510		-----		-----	1950	D4530	15.45		-0.10
1520		-----		-----	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583	D189	14.44		-1.25	1967	D189	15.693		0.18
1585		-----		-----	1986	D189	15.8		0.31
1586	D189	15.9		0.42	1995		-----		-----
1613	D189	15.03		-0.58	2129	D189	13.628		-2.18
1631		-----		-----	6004		-----		-----
1643	D189	16.7		1.34	6013		-----		-----
1648		-----		-----	6014		-----		-----
1650	D189	15.856		0.37	6016		-----		-----
1681	IP13	16.20		0.76	6020	D189	16.04		0.58
1720		-----		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740	D189	15.5		-0.04	6025	D189	15.13		-0.46
1763		-----		-----	6026	D189	16.3		0.88
1772		-----		-----	6028		-----		-----
1782		-----		-----	6038		-----		-----
1784		-----		-----	6039		-----		-----
1792		-----		-----	7003		-----		-----
1796		-----		-----	7017		-----		-----
1807		-----		-----					

normality	OK
n	68
outliers	1
mean (n)	15.533
st.dev. (n)	0.7083
R(calc.)	1.983
R(D189:06)	2.444





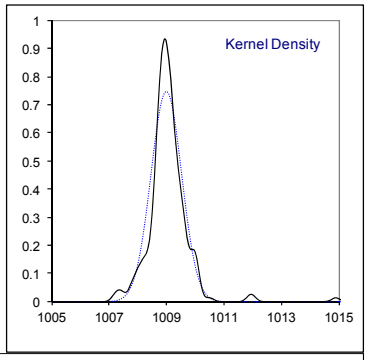
Determination of Density at 15°C on sample #16001; results in kg/m^3

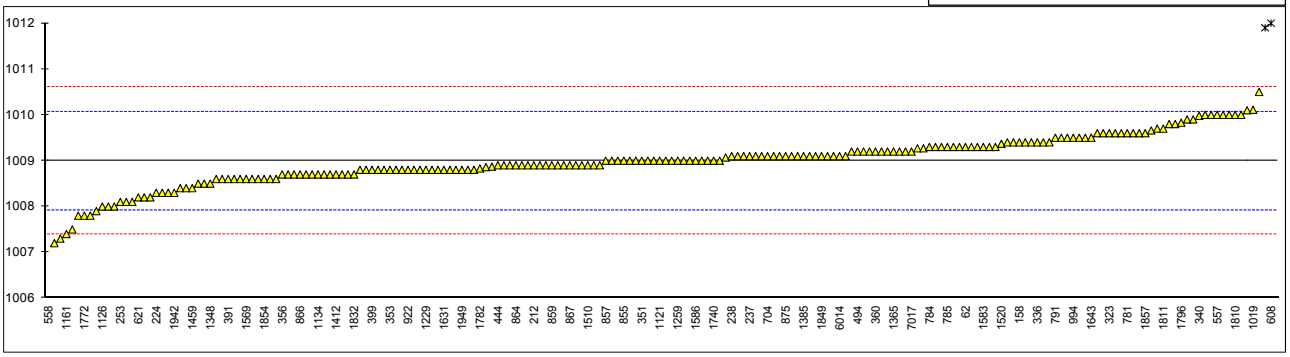
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	1009.5		0.94	634	D1298	1009.9		1.69
62	D4052	1009.3		0.57	657	D4052	1009.0		0.01
90	D4052	1008.7		-0.55	663	D4052	1008.8		-0.36
92	D4052	1008.6		-0.74	671	D1298	1008.2		-1.48
120	ISO12185	1009.4		0.76	704	ISO12185	1009.1		0.20
131	D4052	1010.1		2.06	705	D1298	1009.6		1.13
132	D4052	1009.07		0.14	732	ISO12185	1009.1		0.20
133	D4052	1009		0.01	750	D1298	1009.3		0.57
140	D4052	1009.0		0.01	753	D1298	1009.1		0.20
150	D1298	1008.7		-0.55	759	D1298	1009.3		0.57
154	D4052	1009.4		0.76	781	ISO12185	1009.6		1.13
158	D1298	1009.4		0.76	784	D1298	1009.3		0.57
159	D4052	1009.4		0.76	785	D1298	1009.3		0.57
168		-----		-----	791	D1298	1009.5		0.94
169	D1298	1009.4		0.76	823	ISO12185	1008.9		-0.18
171	ISO12185	1009.0		0.01	824	ISO12185	1008.9		-0.18
175		-----		-----	840	ISO12185	1008.40		-1.11
194	D4052	1009.3		0.57	851	ISO12185	1008.5		-0.92
212		1008.9		-0.18	855	ISO12185	1009.0		0.01
221	D4052	1008.3		-1.30	857	ISO12185	1009.0		0.01
224	D1298	1008.30		-1.30	858	D1298	1009.1		0.20
225	D4052	1008.4		-1.11	859	D4052	1008.9		-0.18
228	D1298	1008.3		-1.30	862	ISO12185	1009.0		0.01
230	ISO12185	1009.1		0.20	863	ISO12185	1008.9		-0.18
237	D4052	1009.1		0.20	864	ISO12185	1008.9		-0.18
238	D4052	1009.1		0.20	865	D1298	1008.9		-0.18
252		-----		-----	866	ISO12185	1008.7		-0.55
253	D4052	1008.1		-1.67	867	ISO12185	1008.9		-0.18
254	D1298	1009.6		1.13	873		-----		-----
256	D1298	1009.2		0.38	874	D1298	1009.3		0.57
273		-----		-----	875	ISO12185	1009.1		0.20
311	ISO12185	1008.8		-0.36	886	D4052	1008.6		-0.74
313	ISO12185	1008.9		-0.18	887		-----		-----
323	ISO12185	1009.6		1.13	902	D4052	1008.9		-0.18
331	ISO12185	1008.9		-0.18	904	D4052	1008.5		-0.92
333	ISO12185	1009.1		0.20	912	D1298	1008.7		-0.55
334	ISO12185	1009.2		0.38	913	ISO12185	1007.9		-2.04
336	ISO12185	1009.4		0.76	922	D4052	1008.8		-0.36
337	ISO12185	1010.0		1.88	962		-----		-----
340	ISO12185	1009.98		1.84	963	ISO12185	1008.9		-0.18
342	D4052	1009.66		1.24	971	ISO12185	1008.6		-0.74
343	D4052	1010		1.88	974	D1298	1008.1		-1.67
349		-----		-----	982	D1298	1008.8		-0.36
351	ISO3675	1009.00		0.01	994	ISO12185	1009.5		0.94
353	IP365	1008.8		-0.36	995	D4052	1009.1		0.20
356	D4052	1008.7		-0.55	996		-----		-----
360	ISO12185	1009.2		0.38	997	ISO12185	1009.27		0.52
370	ISO12185	1009.2		0.38	1011	ISO3675	1009.7		1.32
372	ISO12185	1008.9		-0.18	1016		-----		-----
391	ISO12185	1008.6		-0.74	1019	ISO3838	1010.11		2.08
398	ISO3675	1008.8		-0.36	1040	ISO12185	1009.6		1.13
399	D1298	1008.8		-0.36	1059	ISO12185	1007.3		-3.16
440	D4052	1009.1		0.20	1065	D1298	1014.9	C,R(0.01)	11.02
444	D4052	1008.9	C	-0.18	1066		-----		-----
445	IP365	1010.0		1.88	1082	ISO12185	1008.6		-0.74
447	IP365	1008.8		-0.36	1109	D4052	1007.5		-2.79
463	D4052	1008.80		-0.36	1121	IP365	1009.0		0.01
494	ISO12185	1009.2		0.38	1126	ISO12185	1008.0		-1.86
507	ISO12185	1008.8		-0.36	1134	IP365	1008.7		-0.55
511		-----		-----	1135	ISO12185	1008.8		-0.36
529	D4052	1010.0		1.88	1161	ISO3675	1007.4		-2.98
541	ISO12185	1009.0		0.01	1167	ISO12185	1009.0		0.01
551	D4052	1009.1		0.20	1177		-----		-----
557	D1250	1010.0		1.88	1191	ISO12185	1009.0		0.01
558	D4052	1004.43	R(0.01)	-8.52	1205		-----		-----
562	D1298	1007.2		-3.35	1212	ISO12185	1008.9		-0.18
603	D1298	1009.6		1.13	1229	ISO12185	1008.8		-0.36
604	D4052	1009.3		0.57	1233	ISO12185	1009.5		0.94
605	D1298	1009.5		0.94	1259	ISO3675	1009.0		0.01
607	D1298	1009.3		0.57	1264	D4052	1009.20		0.38
608	D4052	1012.0	R(0.01)	5.61	1266	ISO12185	1007.8		-2.23
621	D4052	1008.2		-1.48	1275	IP365	1008.7		-0.55
631	D1298	1009.6		1.13	1281	ISO12185	1010.50		2.81
633	D1298	1008.7		-0.55	1299	ISO12185	1008.8		-0.36

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D1298	1009.0		0.01	1810	ISO12185	1010.0		1.88
1345	ISO12185	1009.2		0.38	1811	ISO12185	1009.7		1.32
1347	D4052	1008.2		-1.48	1813	D4052	1009.4		0.76
1348	D4052	1008.5		-0.92	1832	ISO12185	1008.7		-0.55
1356	ISO12185	1009.0		0.01	1833	D4052	1008.8	C	-0.36
1365	D4052	1009.2	C	0.38	1849	ISO12185	1009.1		0.20
1367	D1298	1008.7		-0.55	1854	ISO12185	1008.6		-0.74
1381	ISO12185	1008.86		-0.25	1857	ISO12185	1009.6		1.13
1385	D4052	1009.1		0.20	1862	ISO12185	1009.1		0.20
1389	ISO12185	1008.87		-0.23	1881	ISO12185	1009.3		0.57
1402	ISO12185	1009.5		0.94	1906		-----		-----
1404	ISO12185	1009.1		0.20	1936	ISO12185	1008.8	C	-0.36
1412	D4052	1008.7		-0.55	1937	ISO12185	1008.9		-0.18
1428	ISO12185	1009.8		1.50	1938	ISO12185	1008.6		-0.74
1431	ISO12185	1009.27		0.52	1942	D1298	1008.3		-1.30
1455	ISO12185	1008.8		-0.36	1943	ISO3675	1007.8	C	-2.23
1459	ISO12185	1008.4		-1.11	1949	ISO12185	1008.8		-0.36
1510	IP365	1008.9		-0.18	1950	D4052	1008.8		-0.36
1520	ISO12185	1009.37		0.70	1956	ISO3675	1010		1.88
1556	ISO12185	1008.7		-0.55	1962	D1298	1008.1		-1.67
1569	ISO12185	1008.6		-0.74	1964		-----		-----
1583	ISO12185	1009.3		0.57	1967	D1298	1009.2		0.38
1585	D1298	1009.8		1.50	1986	D1298	1009.4		0.76
1586	ISO12185	1009.0		0.01	1995		-----		-----
1613	D1298	1008.7		-0.55	2129	D4052	1008.8		-0.36
1631	ISO12185	1008.8		-0.36	6004	D1298	1009.1		0.20
1643	ISO12185	1009.5		0.94	6013	D1298	1008.6		-0.74
1648	ISO12185	1008.0		-1.86	6014	D1298	1009.1		0.20
1650	ISO12185	1009.0	C	0.01	6016		-----		-----
1681	ISO12185	1008.9		-0.18	6020	ISO12185	1009.2		0.38
1720	D4052	1009.0		0.01	6021	ISO12185	1009.1		0.20
1724	D4052	1008.6	C	-0.74	6024	ISO12185	1009.0	C	0.01
1740	ISO12185	1009.0		0.01	6025	D1298	1009.3		0.57
1763		-----		-----	6026	D1298	1009.9		1.69
1772	ISO3675	1007.80		-2.23	6028	ISO12185	1008.0		-1.86
1782	D4052	1008.83		-0.31	6038		-----		-----
1784	ISO12185	1009.1		0.20	6039		-----		-----
1792	ISO12185	1009.6		1.13	7003	D4052	1011.9	C,R(0.01)	5.42
1796	ISO12185	1009.83		1.56	7017	D1298	1009.2		0.38
1807	ISO3675	1008.6		-0.74					

normality	suspect
n	202
outliers	4
mean (n)	1008.994
st.dev. (n)	0.5349
R(calc.)	1.498
R(ISO12185:96)	1.500

Lab 444 first reported 1.0089 kg/m^3
Lab 1065 first reported 1006.8
Lab 1365 reported 1.0092 kg/m^3
Lab 1650 first reported 1.0090 kg/m^3
Lab 1724 first reported 1.0086 kg/m^3
Lab 1833 first reported 1.0088 kg/m^3
Lab 1936 first reported 1.0088 kg/m^3
Lab 1943 first reported 1026.9
Lab 6024 first reported 1000.9
Lab 7003 first reported 1011.1



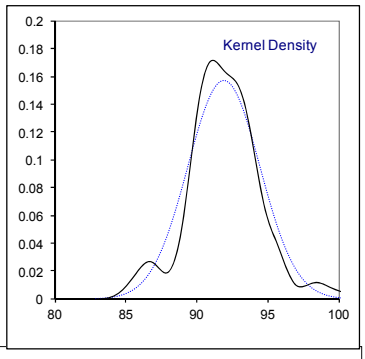


Determination of Flash Point PMcc on sample #16001; results in °C

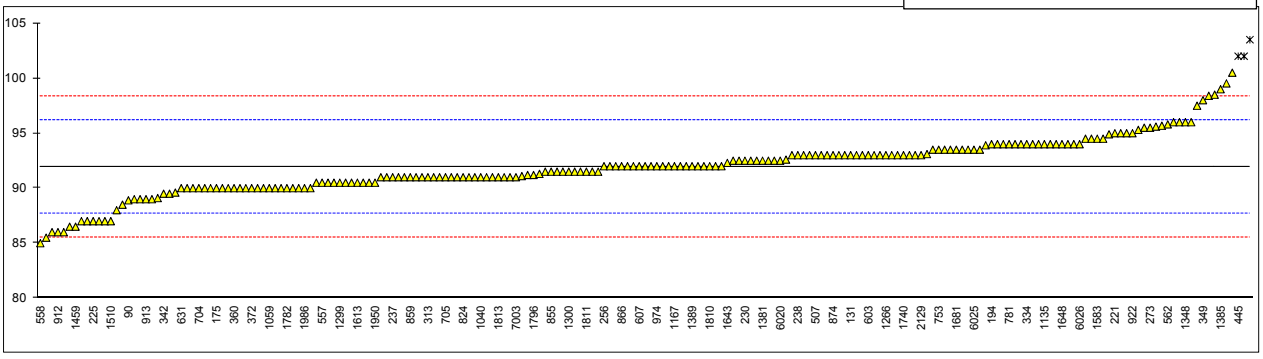
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93	90.5		-0.67	634	D93	91.0		-0.44
62	D93	87.0		-2.30	657	D93	88	C	-1.84
90	D93	88.9		-1.42	663	D93	100.5		4.00
92	D93	90.0		-0.90	671	D93	91		-0.44
120	ISO2719	93		0.50	704	ISO2719	90.0		-0.90
131	D93	93		0.50	705	ISO2719	91.0		-0.44
132	ISO2719	90.5		-0.67	732	ISO2719	94.0		0.96
133	D93	93.9		0.92	750	D93	93		0.50
140	ISO2719	89.6		-1.09	753	D93	93.5		0.73
150	D93	91.1		-0.39	759	ISO2719	96.0		1.90
154	D93	91.0		-0.44	781	ISO2719	94.0		0.96
158	D93	89.0		-1.37	784	ISO2719	93.0		0.50
159	D93	89.5		-1.14	785	D93	92.0		0.03
168	D93	90		-0.90	791	D93	92.0		0.03
169	D93	90.0		-0.90	823	ISO2719	89.0		-1.37
171	ISO2719	87.0		-2.30	824	ISO2719	91.0		-0.44
175	D93	90		-0.90	840	ISO2719	94.9		1.38
194	D93	94.0		0.96	851	ISO2719	94.5		1.20
212		92.6		0.31	855	D93	91.5		-0.20
221	D93	95		1.43	857	D93	90.0		-0.90
224	D93	93.0		0.50	858	D93	90.0		-0.90
225	D93-B	87.0		-2.30	859	ISO2719	91.0		-0.44
228	D93	91.0		-0.44	862	ISO2719	92.5		0.26
230	ISO2719	92.5		0.26	863	D93	92.0		0.03
237	D93	91.0		-0.44	864	D93	92.0		0.03
238	D93	93.0		0.50	865	D93	92.5		0.26
252		-----		-----	866	ISO2719	92.0		0.03
253	D93	91.0		-0.44	867	D93	92.0		0.03
254	D93	90.0		-0.90	873	D93	91.0		-0.44
256	D93	92.0		0.03	874	D93	93.0		0.50
273	D93	95.5		1.66	875	ISO2719	94.0		0.96
311	D93	94.0		0.96	886	D93	93.0		0.50
313	D93	91.0		-0.44	887	D93	93.0		0.50
323	ISO2719	90.0		-0.90	902	D93	91.0		-0.44
331	D93	95.0		1.43	904	D93	90.0		-0.90
333	ISO2719	91.0		-0.44	912	ISO2719	86		-2.77
334	ISO2719	94.0		0.96	913	D93	89.0		-1.37
336	ISO2719	91.0		-0.44	922	D93	95		1.43
337		-----		-----	962	D93	89.0		-1.37
340	ISO2719	91.5		-0.20	963	ISO2719	90.0		-0.90
342	ISO2719	89.5		-1.14	971	ISO2719	92.0		0.03
343	ISO2719	95.0		1.43	974	D93	92.0		0.03
349	D93	98		2.83	982	D93	91.0		-0.44
351	ISO2719	93.00		0.50	994	D93	92.0		0.03
353	IP34	92.5		0.26	995	D93	91.5		-0.20
356	D93	94.0		0.96	996		-----		-----
360	ISO2719	90.0		-0.90	997	ISO2719	91.5		-0.20
370	D93	92.5		0.26	1011	ISO2719	93.0		0.50
372	ISO2719	90.0		-0.90	1016		-----		-----
391	ISO2719	93.0		0.50	1019	ISO3679	103.5	R(0.01)	5.40
398	ISO2719	94.0		0.96	1040	ISO2719	91.0		-0.44
399	D93	91.0		-0.44	1059	ISO2719	90.0		-0.90
440	IP34	91.2		-0.34	1065	ISO2719	86.0		-2.77
444	D93	98.4		3.02	1066		-----		-----
445	IP34	102.0	R(0.05)	4.70	1082	ISO2719	93.5		0.73
447	D93	91.3		-0.30	1109	D93	90.0		-0.90
463	ISO2719	95.5		1.66	1121	IP34	87.0		-2.30
494	ISO2719	91.0		-0.44	1126	ISO2719	92.0		0.03
507	ISO2719	93.0		0.50	1134	IP34-B	85.5		-3.00
511	D93	89.1		-1.32	1135	ISO2719	94.0		0.96
529		-----		-----	1161	ISO2719	87.0		-2.30
541	ISO2719	90.0		-0.90	1167	ISO2719	92.0		0.03
551	D93	86.0		-2.77	1177		-----		-----
557	D93	90.5		-0.67	1191	ISO2719	90.5		-0.67
558	D93	85.0		-3.24	1205		-----		-----
562	D93	95.8		1.80	1212	ISO2719	92.0		0.03
603	D93	93.0		0.50	1229	ISO2719	92.0		0.03
604	D93	93.0		0.50	1233	ISO2719	90.0		-0.90
605	D93	94.0		0.96	1259	ISO2719	94.0		0.96
607	D93	92.0		0.03	1264	D93	96		1.90
608	D93	93.5		0.73	1266	ISO2719	93.0		0.50
621	D93	93.0		0.50	1275		-----		-----
631	D93	90.0		-0.90	1281	ISO2719	95.68		1.75
633	D93	95.3		1.57	1299	D93	90.5		-0.67

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO2719	91.5		-0.20	1810	ISO2719	92.0		0.03
1345	D93	91.5		-0.20	1811	ISO2719	91.5		-0.20
1347	D93	95.6		1.71	1813	D93	91.0		-0.44
1348	D93	96		1.90	1832	ISO2719	94.5		1.20
1356	ISO2719	93		0.50	1833	ISO2719	93		0.50
1365	D93-B	86.5		-2.54	1849	ISO2719	94		0.96
1367	D93	102.0	R(0.05)	4.70	1854	ISO2719	90		-0.90
1381	ISO2719	92.50		0.26	1857	ISO2719	91.5		-0.20
1385	D93	99		3.30	1862	ISO2719	91.0		-0.44
1389	D93	92.0		0.03	1881	ISO2719	92.0		0.03
1402	ISO2719	91.0		-0.44	1906		-----		-----
1404	ISO2719	92.5		0.26	1936	ISO2719	91		-0.44
1412	D93	92.0		0.03	1937	ISO2719	93		0.50
1428	ISO2719	92.5		0.26	1938		-----		-----
1431	D93	91.5		-0.20	1942	D93	92		0.03
1455	ISO2719	93.5		0.73	1943		-----		-----
1459	ISO2719	86.5		-2.54	1949	ISO2719	90.0		-0.90
1510	IP34	87.0		-2.30	1950	D93	90.5		-0.67
1520	ISO2719	94.5		1.20	1956		98.5		3.06
1556	ISO2719	90.5		-0.67	1962	D93	93.1		0.54
1569	ISO2719	96.0		1.90	1964		-----		-----
1583	ISO2719	94.5		1.20	1967	D93	93.5		0.73
1585	D93	90.5		-0.67	1986	ISO2719	90.0		-0.90
1586	ISO2719	92.0		0.03	1995		-----		-----
1613	D93-B	90.5		-0.67	2129	ISO2719	93.0		0.50
1631	ISO2719	94.0		0.96	6004		-----		-----
1643	D93	92.3		0.17	6013	ISO2719	91.5		-0.20
1648	ISO2719	94.0		0.96	6014	ISO2719	90		-0.90
1650		-----		-----	6016		-----		-----
1681	ISO2719	93.5		0.73	6020	ISO2719	92.5		0.26
1720	D93	91.0	C	-0.44	6021	ISO2719	93.5		0.73
1724	D93	93		0.50	6024		-----		-----
1740	ISO2719	93		0.50	6025	ISO2719	93.5		0.73
1763		-----		-----	6026	D93	94.0		0.96
1772	ISO2719	99.53	C	3.54	6028	ISO2719	93.5		0.73
1782	D93	90.0		-0.90	6038	ISO2719	97.5		2.60
1784	ISO2719	90.5		-0.67	6039		-----		-----
1792	ISO2719	90.5		-0.67	7003	D93-A	91.0		-0.44
1796	ISO2719	91.2		-0.34	7017	D93	88.5		-1.60
1807	ISO2719	94.0		0.96					

normality	suspect
n	204
outliers	3
mean (n)	91.934
st.dev. (n)	2.5375
R(calc.)	7.105
R(ISO2719:02)	6.000



Lab 657 first reported 85
Lab 1720 first reported 101
Lab 1772 first reported 99.5



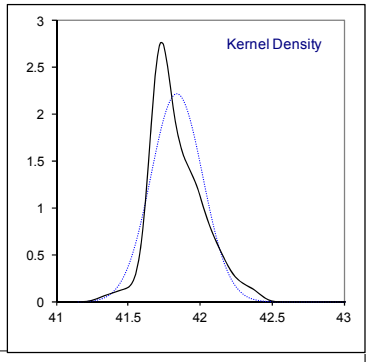
Determination of Heat of Combustion Gross on sample #16001; results in MJ/kg

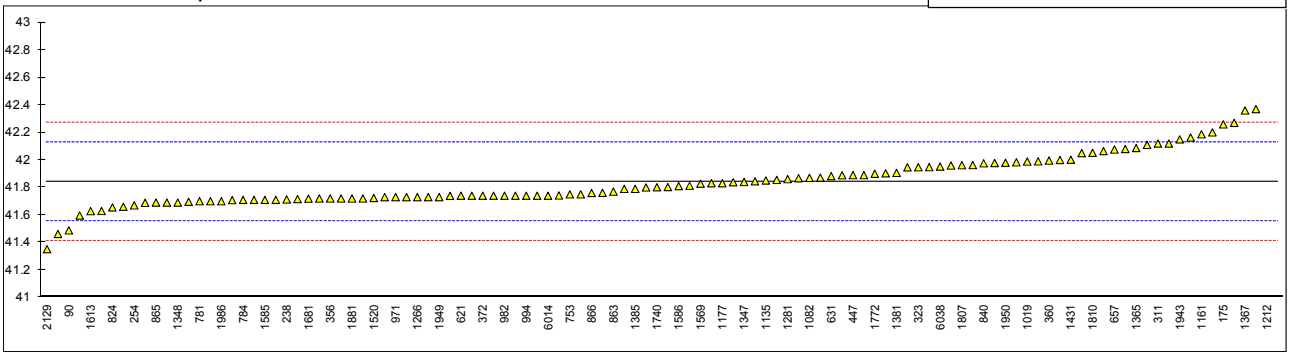
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634	D240	41.9466		0.73
62		-----		-----	657	D240	42.0763		1.64
90	D240	41.488		-2.48	663		-----		-----
92	D240	41.462		-2.66	671	D240	45.97	C,R(0.01)	28.89
120	D240	41.71		-0.93	704		-----		-----
131	D240	42.1634		2.25	705	D4868	41.72		-0.86
132	D240	41.8673		0.17	732	D4868	41.761		-0.57
133		-----		-----	750		-----		-----
140		-----		-----	753	D4868	41.75		-0.65
150		-----		-----	759		-----		-----
154		-----		-----	781	D4868	41.70		-1.00
158		-----		-----	784	D4868	41.71		-0.93
159	D240	41.696		-1.03	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823	D240	41.948		0.74
171	D240	41.890		0.33	824	D240	41.655		-1.31
175	D240	42.259		2.91	840	D240	41.976		0.93
194		-----		-----	851	D4868	41.74		-0.72
212		-----		-----	855	D4868	41.889		0.32
221	D4868	41.72		-0.86	857		-----		-----
224		-----		-----	858	D4868	41.73		-0.79
225		-----		-----	859	ISO8217	41.99		1.03
228	D4868	41.831		-0.08	862		-----		-----
230	D4868	41.75		-0.65	863	D4868	41.77		-0.51
237	D4868	41.742		-0.70	864	D4868	41.79		-0.37
238	D4868	41.713		-0.91	865	D4868	41.69		-1.07
252		-----		-----	866	D4868	41.76		-0.58
253		-----		-----	867	D4868	41.74		-0.72
254	D4868	41.67		-1.21	873		-----		-----
256	D4868	41.70		-1.00	874		-----		-----
273		-----		-----	875		-----		-----
311	D240	42.120		1.94	886		-----		-----
313		-----		-----	887		-----		-----
323	D240	41.947		0.73	902		-----		-----
331	D240	42.05		1.45	904		-----		-----
333	D240	42.370		3.69	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922	D240	42.0651		1.56
337		-----		-----	962		-----		-----
340	INH-07030	41.845		0.02	963	D4868	41.73		-0.79
342		-----		-----	971	D4868	41.73		-0.79
343	D240	41.855		0.09	974	D4868	41.74		-0.72
349		-----		-----	982	D4868	41.740		-0.72
351	D4868	41.963		0.84	994	D4868	41.74		-0.72
353		-----		-----	995		-----		-----
356	D4868	41.72		-0.86	996		-----		-----
360	D240	41.996	E	1.07	997		-----		-----
370		-----		-----	1011		-----		-----
372	D4868	41.74		-0.72	1016		-----		-----
391		-----		-----	1019	D4809	41.989		1.02
398		-----		-----	1040		-----		-----
399		-----		-----	1059	DIN51900	42.201	C	2.51
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	D240	42.080		1.66	1082	D240	41.8703		0.19
447	D240	41.890		0.33	1109		-----		-----
463		-----		-----	1121		-----		-----
494		-----		-----	1126		-----		-----
507		-----		-----	1134		-----		-----
511		-----		-----	1135	D240	41.851		0.06
529		-----		-----	1161	D240	42.187		2.41
541		-----		-----	1167	DIN51900	42.11		1.87
551		-----		-----	1177	DIN51900	41.831		-0.08
557	D4868	41.629		-1.50	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	D240	43.368	R(0.01)	10.68
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259		41.69		-1.07
607	D240	41.739		-0.73	1264	D240	42.12		1.94
608		-----		-----	1266	D4868	41.73		-0.79
621	D4868	41.74		-0.72	1275		-----		-----
631	D240	41.8824		0.28	1281	D240	41.861		0.13
633		-----		-----	1299	D240	41.803		-0.28

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D240	41.708		-0.94	1810	D240	42.052		1.47
1345	D4868	41.716		-0.89	1811	D240	41.71		-0.93
1347	D4868	41.84		-0.02	1813		-----		-----
1348	D4868	41.69		-1.07	1832		-----		-----
1356		-----		-----	1833		-----		-----
1365	D240	42.0871		1.71	1849		-----		-----
1367	D240	42.360		3.62	1854	D240	41.872		0.21
1381	D240	41.9063		0.45	1857		-----		-----
1385	D4868	41.79		-0.37	1862		-----		-----
1389		-----		-----	1881	D4868	41.720		-0.86
1402	D240	41.596	C	-1.73	1906	D4809	41.96		0.82
1404		-----		-----	1936		-----		-----
1412	D4868	41.73		-0.79	1937		-----		-----
1428	D240	42.27		2.99	1938		-----		-----
1431	D240	42.002		1.12	1942	D240	41.813		-0.21
1455		-----		-----	1943	DIN51900	42.15		2.15
1459		-----		-----	1949	D4868	41.730		-0.79
1510	D240	42.00	C	1.10	1950	D4868	41.980		0.96
1520	D4868	41.724		-0.83	1956		-----		-----
1556	D4868	41.8		-0.30	1962	D240	41.6883		-1.08
1569	D240	41.8275		-0.11	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585	D4868	41.710		-0.93	1986	D4868	41.700		-1.00
1586	D240	41.810		-0.23	1995		-----		-----
1613	D240	41.628		-1.50	2129	D240	41.3514	C	-3.44
1631		-----		-----	6004		-----		-----
1643	D240	41.838		-0.03	6013		-----		-----
1648		-----		-----	6014	D4868	41.74		-0.72
1650	D4868	41.74	C	-0.72	6016		-----		-----
1681	D4868	41.719		-0.87	6020		-----		-----
1720		-----		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740	D240	41.802		-0.28	6025		-----		-----
1763	ISO1928	41.983		0.98	6026	D4868	41.720		-0.86
1772	INH-3965	41.90		0.40	6028		-----		-----
1782	D240	41.978	C	0.95	6038	PN-C-04062	41.952		0.77
1784	D240	41.903		0.42	6039		-----		-----
1792		-----		-----	7003		-----		-----
1796		-----		-----	7017	D4868	41.66		-1.28
1807	D240	41.962		0.84					

normality	OK
n	112
outliers	2
mean (n)	41.8426
st.dev. (n)	0.17972
R(calc.)	0.5032
R(D240:14)	0.4000

Lab 360 marked with E, cannot recalculate acc to:
Qn=Qg – 0.2122 * H-content (acc to ASTM D240)
Lab 372 reported; range mentioned in ASTM D4868 750-1000 kg/m^3,
but received Density=1008.9 kg/m^3
Lab 671 first reported 45.97 as Heat and Combustion (Net)
Lab 1059 first reported 42201, an error in unit
Lab 1402 first reported 9935 kcal/kg
Lab 1510 first reported the net value as gross
Lab 1650 first reported 50.37
Lab 1782 first reported 42.280
Lab 2129 first reported 41.3095





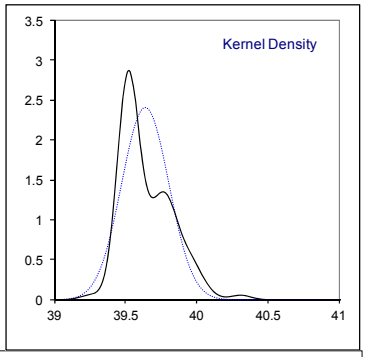
Determination of Heat of Combustion Net on sample #16001; results in MJ/kg

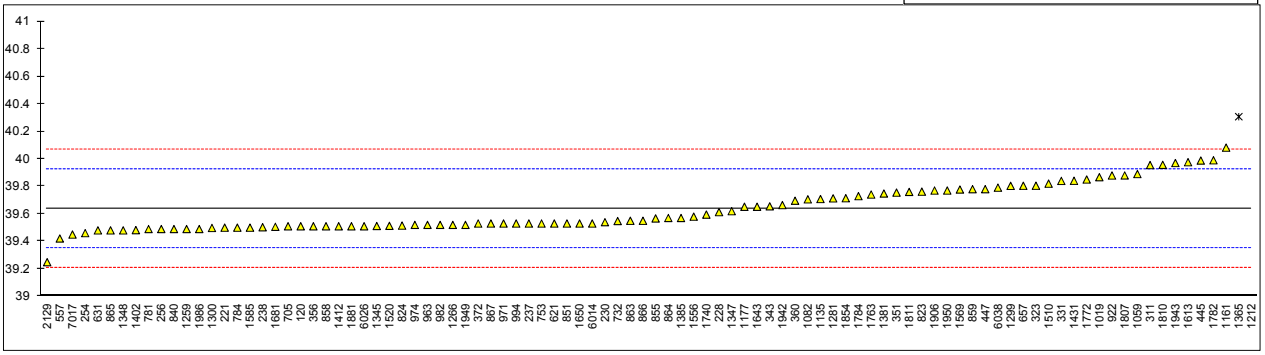
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634		-----		-----
62		-----		-----	657	D240	39.8046		1.18
90		-----		-----	663		-----		-----
92		-----		-----	671		-----	C	-----
120	D240	39.51		-0.88	704		-----		-----
131		-----		-----	705	D4868	39.51		-0.88
132		-----		-----	732	D4868	39.548		-0.62
133		-----		-----	750		-----		-----
140		-----		-----	753	D4868	39.53		-0.74
150		-----		-----	759		-----		-----
154		-----		-----	781	D4868	39.49		-1.02
158		-----		-----	784	D4868	39.50		-0.95
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823	D240	39.762		0.88
171		-----		-----	824	D240	39.515		-0.85
175		-----		-----	840	D4868	39.490		-1.02
194		-----		-----	851	D4868	39.53		-0.74
212		-----		-----	855	D4868	39.567		-0.48
221	D4868	39.50		-0.95	857		-----		-----
224		-----		-----	858	D4868	39.51		-0.88
225		-----		-----	859	ISO8217	39.78		1.01
228	D4868	39.613		-0.16	862		-----		-----
230	D4868	39.54		-0.67	863	D4868	39.55		-0.60
237	D4868	39.53		-0.74	864	D4868	39.57		-0.46
238	D4868	39.503		-0.93	865	D4868	39.48		-1.09
252		-----		-----	866	D4868	39.55		-0.60
253		-----		-----	867	D4868	39.53		-0.74
254	D4868	39.46		-1.23	873		-----		-----
256	D4868	39.49		-1.02	874		-----		-----
273		-----		-----	875		-----		-----
311	D240	39.955		2.23	886		-----		-----
313		-----		-----	887		-----		-----
323	D240	39.805		1.18	902		-----		-----
331	D240	39.84		1.43	904		-----		-----
333		-----		-----	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922	D240	39.8794		1.70
337		-----		-----	962		-----		-----
340		-----		-----	963	D4868	39.52		-0.81
342		-----		-----	971	D4868	39.53		-0.74
343	D240	39.655		0.13	974	D4868	39.52		-0.81
349		-----		-----	982	D4868	39.520		-0.81
351	D4868	39.755		0.83	994	D4868	39.53		-0.74
353		-----		-----	995		-----		-----
356	D4868	39.51		-0.88	996		-----		-----
360	D240	39.696	E	0.42	997		-----		-----
370		-----		-----	1011		-----		-----
372	D4868	39.53		-0.74	1016		-----		-----
391		-----		-----	1019	D4809	39.867		1.62
398		-----		-----	1040		-----		-----
399		-----		-----	1059	DIN51900	39.890	C	1.78
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	D240	39.988		2.46	1082	D240	39.7059		0.49
447	D240	39.780		1.01	1109		-----		-----
463		-----		-----	1121		-----		-----
494		-----		-----	1126		-----		-----
507		-----		-----	1134		-----		-----
511		-----		-----	1135	D240	39.708		0.50
529		-----		-----	1161	D240	40.082		3.12
541		-----		-----	1167		-----		-----
551		-----		-----	1177	DIN51900	39.652		0.11
557	D4868	39.421		-1.51	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	D240	41.204	R(0.01)	10.98
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259		39.49		-1.02
607		-----		-----	1264		-----		-----
608		-----		-----	1266	D4868	39.52		-0.81
621	D4868	39.53		-0.74	1275		-----		-----
631	D4868	39.480		-1.09	1281	D240	39.713		0.54
633		-----		-----	1299	D240	39.804		1.18

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D240	39.4978		-0.97	1810	D240	39.957		2.25
1345	D4868	39.512		-0.87	1811	D240	39.76		0.87
1347	D4868	39.62		-0.11	1813		-----		-----
1348	D4868	39.48		-1.09	1832		-----		-----
1356		-----		-----	1833		-----		-----
1365	D240	40.307	R(0.05)	4.70	1849		-----		-----
1367		-----		-----	1854	D240	39.714		0.55
1381	D240	39.7483		0.79	1857		-----		-----
1385	D4868	39.57		-0.46	1862		-----		-----
1389		-----		-----	1881	D4868	39.510		-0.88
1402	D240	39.482	C	-1.08	1906	D4809	39.77		0.94
1404		-----		-----	1936		-----		-----
1412	D4868	39.51		-0.88	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431	D240	39.841		1.43	1942	D240	39.664		0.20
1455		-----		-----	1943	DIN51900	39.97		2.34
1459		-----		-----	1949	D4868	39.520		-0.81
1510	D240	39.82	C	1.29	1950	D4868	39.770		0.94
1520	D4868	39.513		-0.86	1956		-----		-----
1556	D4868	39.58		-0.39	1962		-----		-----
1569	D240	39.7775		0.99	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585	D4868	39.500		-0.95	1986	D4868	39.490		-1.02
1586		-----		-----	1995		-----		-----
1613	D240	39.976		2.38	2129	D240	39.249	C	-2.71
1631		-----		-----	6004		-----		-----
1643	D240	39.652		0.11	6013		-----		-----
1648		-----		-----	6014	D4868	39.53		-0.74
1650	D4868	39.53	C	-0.74	6016		-----		-----
1681	D4868	39.506		-0.91	6020		-----		-----
1720		-----		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740	D240	39.595		-0.29	6025		-----		-----
1763	ISO1928	39.741		0.73	6026	D4868	39.510		-0.88
1772	INH-3965	39.85		1.50	6028		-----		-----
1782	D240	39.990		2.48	6038	PN-C-04062	39.791		1.08
1784	D240	39.729		0.65	6039		-----		-----
1792		-----		-----	7003		-----		-----
1796		-----		-----	7017	D4868	39.45		-1.30
1807	D240	39.880		1.71					

normality	OK
n	94
outliers	2
mean (n)	39.6361
st.dev. (n)	0.16567
R(calc.)	0.4639
R(D240:14)	0.4000

Lab 360 marked with E, cannot recalculate;
Qn=Qg – 0.2122 * H-content (acc to ASTM D240)
Lab 372 reported; range mentioned in ASTM D4868 750-1000 kg/m^3, but received Density=1008.9 kg/m^3
Lab 671 first reported 45.97 as Net value
Lab 1059 first reported 39890, due to an error in unit
Lab 1402 first reported 9430 kcal/kg
Lab 1510 first reported the gross value for net
Lab 1650 first reported 45.08
Lab 2129 first reported 39.1409



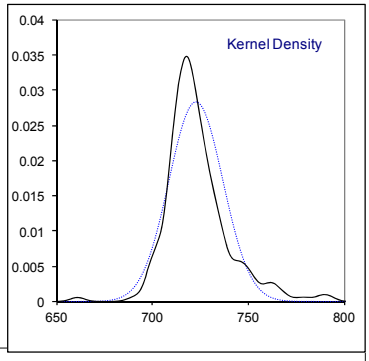


Determination of Kinematic Viscosity at 50°C on sample #16001; results in mm^2/s

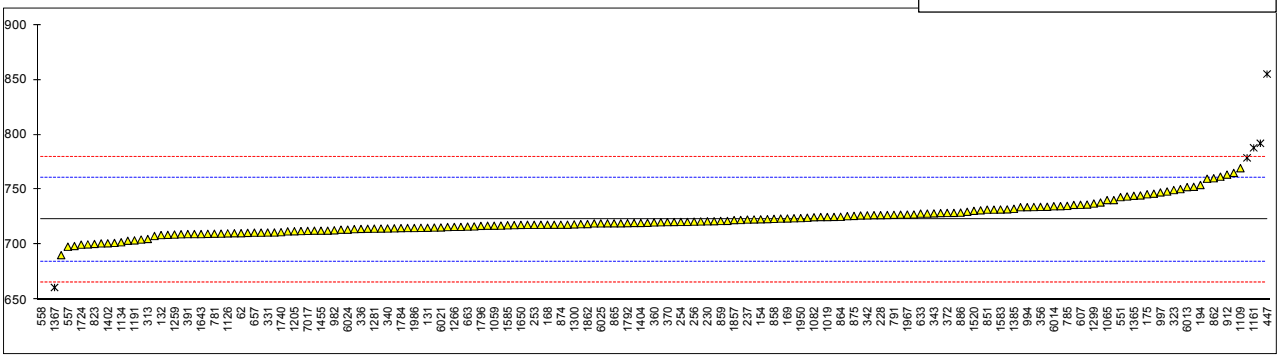
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	704.6		-0.95	634	D445	724.0		0.06
62	D445	710.4		-0.65	657	D445	710.9		-0.62
90	D445	717.73		-0.26	663	D445	716.38		-0.33
92	D445	716.536		-0.33	671	D445	731.8		0.47
120	ISO3104	718.0		-0.25	704	ISO3104	719.39		-0.18
131	D445	715.3		-0.39	705	ISO3104	715.25		-0.39
132	ISO3104	708.66		-0.74	732	D445	744.7		1.15
133	D445	722.4		-0.02	750	D445	719.3		-0.18
140	ISO3104	759.9		1.94	753	D445	718.02		-0.25
150	D445	715.5		-0.38	759	ISO3104	714.604		-0.43
154	D445	723.0		0.01	781	ISO3104	709.9		-0.67
158	D445	731.16		0.44	784	ISO3104	722.9		0.01
159	D445	765.2		2.22	785	D445	735.19		0.65
168	D445	718.05		-0.25	791	D445	727.1		0.23
169	D445	723.78		0.05	823	ISO3104	700.6		-1.16
171	ISO3104	726.8		0.21	824	ISO3104	725.9		0.16
175	D445	745.8		1.21	840	ISO3104	720.54		-0.12
194	D445	754.2		1.65	851	ISO3104	731.8		0.47
212		736.1		0.70	855	D445	726.5		0.20
221	D445	718.6		-0.22	857	D445	725.1		0.12
224		-----		-----	858	D445	723.4		0.03
225	D445	736.4		0.71	859	D445	721.5		-0.07
228	D445	726.82		0.21	862	ISO3104	760.33		1.97
230	ISO3104	721.19		-0.08	863	D445	727.4		0.24
237	D445	722.779		0.00	864	D445	725.31		0.13
238		-----		-----	865	D445	719.4		-0.18
252		-----		-----	866	ISO3104	727.23		0.23
253	D445	718.0		-0.25	867	D445	726.9		0.22
254	D445	720.6		-0.11	873	D445	725.21		0.13
256	D445	720.9		-0.10	874	D445	718.08		-0.25
273	D445	734.2		0.60	875	D445	726.1		0.17
311	D445	724.4		0.09	886	D445	729.1		0.33
313	D445	705.1		-0.93	887	D445	718.1		-0.24
323	ISO3104	749.6		1.40	902	D445	701.1		-1.13
331	ISO3104	711.00		-0.62	904	D445	709.8		-0.68
333	ISO3104	714.8		-0.42	912	ISO3104	763.65		2.14
334	ISO3104	709.6		-0.69	913	D445	761.78		2.04
336	ISO3104	714.3		-0.44	922	D445	750.5		1.45
337		-----		-----	962	D445	708.9		-0.73
340	ISO3104	714.70		-0.42	963	ISO3104	709.45		-0.70
342	ISO3104	726.6		0.20	971	ISO3104	717.20		-0.29
343	ISO3104	728.39		0.29	974	D445	728.2		0.28
349		-----		-----	982	D445	713.0		-0.51
351	ISO3104	721.25		-0.08	994	D445	734.08		0.59
353		-----		-----	995	D445	740.5		0.93
356	D445	734.3		0.60	996		-----		-----
360	ISO3104	720.21		-0.13	997	ISO3104	747.4779		1.29
370	D445	720.46		-0.12	1011	ISO3104	719.8		-0.16
372	ISO3104	728.8		0.32	1016		-----		-----
391	ISO3104	709.6		-0.69	1019	ISO3104	725.1		0.12
398	ISO3104	709.97		-0.67	1040	ISO3104	714.43		-0.44
399	D445	710.34		-0.65	1059	ISO3104	717.2		-0.29
440		-----		-----	1065	D445	740.46		0.93
444		-----		-----	1066		-----		-----
445	IP71	700.2		-1.18	1082	ISO3104	724.89		0.11
447	D445	855.1	R(0.01)	6.93	1109	D445	769.49		2.45
463	ISO3104	752.55		1.56	1121	IP71	690.42		-1.69
494	ISO3104	792.11	R(0.01)	3.63	1126	ISO3104	710.24		-0.66
507	ISO3104	746.30		1.23	1134	IP71	702.12718		-1.08
511		-----		-----	1135	ISO3104	712.03		-0.56
529		-----		-----	1161	ISO3104	788.0	R(0.01)	3.41
541	ISO3104	716.0		-0.35	1167		-----		-----
551	D445	743.2		1.07	1177		-----		-----
557	D445	698.1054		-1.29	1191	ISO3104	703.84		-0.99
558	D445	591.2	R(0.01)	-6.89	1205	ISO3104	712.133		-0.56
562	D445	707.83		-0.78	1212		-----		-----
603	D445	734.418		0.61	1229	ISO3104	698.7		-1.26
604	D445	732.057		0.49	1233	ISO3104	723.2		0.02
605	D445	735.0		0.64	1259	ISO3104	709.16		-0.71
607	D445	736.2		0.70	1264	D445	703.5		-1.01
608	D445	738.29		0.81	1266	ISO3104	716.1		-0.35
621	D445	715.1		-0.40	1275		-----		-----
631	D445	728.85		0.32	1281	ISO3104	714.522		-0.43
633	D445	728.2		0.28	1299	D445	737.4		0.77

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO3104	718.386		-0.23	1810		-----		-----
1345		-----		-----	1811		-----		-----
1347	D445	723.67		0.05	1813	D445	710.9		-0.62
1348	D445	721.57		-0.06	1832	ISO3104	714.086		-0.45
1356	ISO3104	721.1		-0.09	1833		-----		-----
1365	D445	744.39		1.13	1849		-----		-----
1367	IP71	661.0	R(0.01)	-3.23	1854	ISO3104	712.3		-0.55
1381	ISO3104	720.35		-0.13	1857	ISO3104	722.3		-0.02
1385	D445	732.6		0.51	1862	ISO3104	718.7		-0.21
1389	D445	711.01		-0.62	1881	ISO3104	713.6		-0.48
1402	ISO3104	701.2		-1.13	1906		-----		-----
1404	ISO3104	719.7		-0.16	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428	ISO3104	716.1		-0.35	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455	ISO3104	712.7		-0.53	1943		-----		-----
1459		-----		-----	1949	ISO3104	718.05		-0.25
1510	D445	743.8		1.10	1950	D445	724.1		0.07
1520	ISO3104	730.75		0.42	1956	ISO3104	778.9	R(0.05)	2.94
1556	ISO3104	710.69		-0.63	1962	D445	729.8369		0.37
1569		-----		-----	1964		-----		-----
1583	ISO3104	731.92		0.48	1967	D445	727.287		0.24
1585	D445	717.60		-0.27	1986	ISO3104	715.1		-0.40
1586	D445	719.4		-0.18	1995		-----		-----
1613	D445	712.665		-0.53	2129	ISO3104	701.535		-1.11
1631		-----		-----	6004	D445	728.7		0.31
1643	D445	709.6		-0.69	6013	ISO3104	752.3		1.55
1648	D445	719.68		-0.16	6014	D445	734.9	C	0.63
1650	ISO3104	717.95		-0.25	6016		-----		-----
1681	ISO3104	717.31		-0.29	6020	ISO3104	712.7		-0.53
1720		-----		-----	6021	ISO3104	715.58		-0.38
1724	D445	699.99		-1.19	6024	ISO3104	713.6		-0.48
1740	ISO3104	711.3		-0.60	6025	ISO3104	719.3		-0.18
1763		-----		-----	6026	D445	734.0		0.59
1772	ISO3104	616.66735	C,R(0.01)	-5.55	6028	ISO3104	748.3		1.34
1782	D445	720.6		-0.11	6038		-----		-----
1784	ISO3104	715.0		-0.41	6039		-----		-----
1792	ISO3104	719.54		-0.17	7003		-----		-----
1796	ISO3104	717.04		-0.30	7017	D445	712.47		-0.54
1807		-----		-----					

normality	suspect
n	178
outliers	7
mean (n)	722.775
st.dev. (n)	14.0707
R(calc.)	39.398
R(ISO3104:94)	53.485



Lab 1772 first reported 616.66
Lab 6014 first reported 720.58

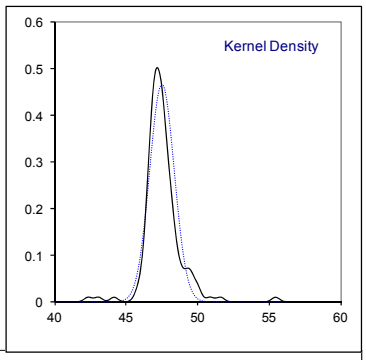


Determination of Kinematic Viscosity at 100°C on sample #16001; results in mm^2/s

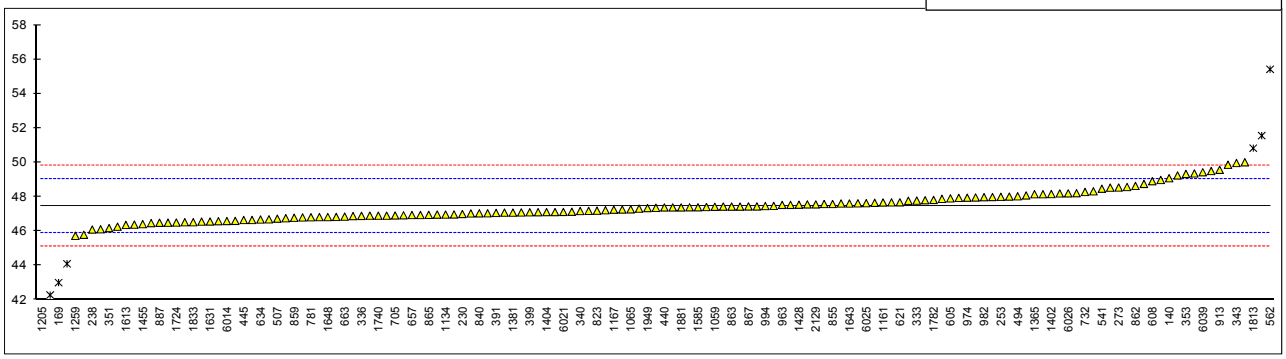
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634	D445	46.68		-0.98
62		-----		-----	657	D445	46.94		-0.65
90		-----		-----	663	D445	46.846		-0.77
92		-----		-----	671		-----		-----
120		-----		-----	704	ISO3104	47.557		0.13
131	D445	47.43		-0.03	705	ISO3104	46.914		-0.68
132		-----		-----	732	D445	48.28		1.04
133		-----		-----	750	D445	48.32		1.09
140	ISO3104	49.08		2.05	753	D445	46.830		-0.79
150	D445	47.43		-0.03	759		-----		-----
154		-----		-----	781	ISO3104	46.81		-0.82
158		-----		-----	784	ISO3104	47.58		0.16
159		-----		-----	785	D445	46.11		-1.70
168		-----		-----	791		-----		-----
169	D445	43.006	R(0.01)	-5.62	823	ISO3104	47.19		-0.34
171	ISO3104	46.58		-1.11	824	ISO3104	47.44		-0.02
175		-----		-----	840	ISO3104	47.038		-0.53
194		-----		-----	851		-----		-----
212		-----		-----	855	ISO3104	47.58		0.16
221		-----		-----	857	D445	47.08		-0.48
224		-----		-----	858	D445	47.22		-0.30
225		-----		-----	859	D445	46.78		-0.85
228	D445	48.013		0.70	862	ISO3104	48.634		1.49
230	ISO3104	46.9997		-0.58	863	D445	47.43		-0.03
237	D445	46.9256		-0.67	864	D445	46.973		-0.61
238	D445	46.097		-1.72	865	D445	46.95		-0.64
252		-----		-----	866	ISO3104	47.403		-0.07
253	D445	48.0		0.69	867	D445	47.44		-0.02
254		-----		-----	873	D445	46.754		-0.89
256		-----		-----	874	D445	46.90		-0.70
273	D445	48.54	C	1.37	875		-----		-----
311		-----		-----	886	D445	47.65		0.24
313	D445	46.82		-0.80	887	D445	46.49		-1.22
323	ISO3104	48.98		1.92	902		-----		-----
331	ISO3104	46.60		-1.08	904	D445	48.57		1.41
333	ISO3104	47.78		0.41	912	ISO3104	50.01		3.22
334	ISO3104	46.65		-1.02	913	D445	49.57		2.67
336	ISO3104	46.89		-0.72	922		-----		-----
337		-----		-----	962	D445	48.21		0.95
340	ISO3104	47.170		-0.36	963	ISO3104	47.53		0.09
342		-----		-----	971	ISO3104	47.61		0.19
343	ISO3104	49.966	C	3.17	974	D445	47.95		0.62
349		-----		-----	982	D445	47.980		0.66
351	ISO3104	46.180		-1.61	994	D445	47.46		0.00
353	IP71	49.331		2.37	995	D445	48.15		0.88
356	D445	47.62		0.21	996		-----		-----
360	ISO3104	47.390		-0.08	997	ISO3104	47.9879		0.67
370	D445	46.965		-0.62	1011	ISO3104	46.38		-1.36
372	ISO3104	47.26		-0.25	1016		-----		-----
391	ISO3104	47.06		-0.50	1019	ISO3104	45.79		-2.10
398	ISO3104	48.75		1.63	1040		-----		-----
399	D445	47.10		-0.45	1059	ISO3104	47.42		-0.05
440	D445	47.38181		-0.09	1065	D445	47.27		-0.24
444		-----		-----	1066		-----		-----
445	IP71	46.65		-1.02	1082	ISO3104	49.865		3.04
447	D445	51.56	R(0.01)	5.18	1109	D445	49.359		2.40
463	ISO3104	48.195		0.93	1121		-----		-----
494	ISO3104	48.03		0.72	1126		-----		-----
507	ISO3104	46.730		-0.92	1134	IP71	46.9654852		-0.62
511		-----		-----	1135	ISO3104	46.261		-1.51
529		-----		-----	1161	ISO3104	47.67		0.27
541	ISO3104	48.47		1.28	1167	ISO3104	47.25		-0.26
551		-----		-----	1177		-----		-----
557	D445	47.1032		-0.45	1191	ISO3104	46.47		-1.25
558		-----		-----	1205	ISO3104	34.839	R(0.01)	-15.93
562	D445	55.42	C,R(0.01)	10.05	1212		-----		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605	D445	47.91		0.57	1259	ISO3104	45.730		-2.18
607		-----		-----	1264		-----		-----
608	D445	48.91		1.83	1266		-----		-----
621	D445	47.68		0.28	1275		-----		-----
631	D445	47.935		0.60	1281		-----		-----
633		-----		-----	1299	D445	46.52		-1.18

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO3104	48.5342		1.36	1810		-----		-----
1345		-----		-----	1811		-----		-----
1347		-----		-----	1813	D445	50.83	R(0.05)	4.26
1348		-----		-----	1832		-----		-----
1356		-----		-----	1833	ISO3104	46.52		-1.18
1365	D445	48.1499		0.88	1849	ISO3104	46.8		-0.83
1367	IP71	49.5		2.58	1854		47.96		0.64
1381	ISO3104	47.080		-0.48	1857	ISO3104	46.90		-0.70
1385		-----		-----	1862	ISO3104	47.77		0.40
1389	D445	47.532		0.10	1881	ISO3104	47.382		-0.09
1402	ISO3104	48.16		0.89	1906		-----		-----
1404	ISO3104	47.11		-0.44	1936	ISO3104	47.13		-0.41
1412	D445	46.94		-0.65	1937	ISO3104	47.11		-0.44
1428	ISO3104	47.54		0.11	1938	ISO3104	47.032		-0.54
1431		-----		-----	1942		-----		-----
1455	ISO3104	46.41		-1.32	1943		-----		-----
1459		-----		-----	1949	ISO3104	47.343		-0.14
1510	D445	44.10	R(0.05)	-4.24	1950	D445	47.88		0.53
1520	ISO3104	47.382		-0.09	1956	ISO3104	48.08		0.79
1556	ISO3104	46.559		-1.13	1962		-----		-----
1569	D445	47.04		-0.53	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585	D445	47.390		-0.08	1986	ISO3104	47.47		0.02
1586	D445	47.8		0.43	1995		-----		-----
1613	D445	46.364		-1.38	2129	ISO3104	47.558		0.13
1631	ISO3104	46.56		-1.13	6004		-----		-----
1643	D445	47.61		0.19	6013	ISO3104	46.69		-0.97
1648	D445	46.82		-0.80	6014	D445	46.59	C	-1.09
1650	ISO3104	47.090		-0.46	6016		-----		-----
1681	ISO3104	46.493		-1.22	6020	ISO3104	47.18		-0.35
1720		-----		-----	6021	ISO3104	47.121		-0.42
1724	D445	46.50		-1.21	6024	ISO3104	47.36		-0.12
1740	ISO3104	46.9		-0.70	6025	ISO3104	47.63		0.22
1763		-----		-----	6026	D445	48.20		0.94
1772	ISO3104	42.28324	C,R(0.01)	-6.53	6028		-----		-----
1782	D445	47.82		0.46	6038		-----		-----
1784	ISO3104	46.88		-0.73	6039	ISO3104	49.43		2.49
1792	ISO3104	47.675		0.28	7003		-----		-----
1796		-----		-----	7017	D445	49.243		2.25
1807	ISO3104	47.31		-0.19					

normality	OK
n	140
outliers	7
mean (n)	47.457
st.dev. (n)	0.8583
R(calc.)	2.403
R(ISO3104:94)	2.218



Lab 273 first reported 43.97
Lab 343 first reported 51.679
Lab 562 first reported 52.54
Lab 1772 first reported 42.28
Lab 6014 first reported 46.587

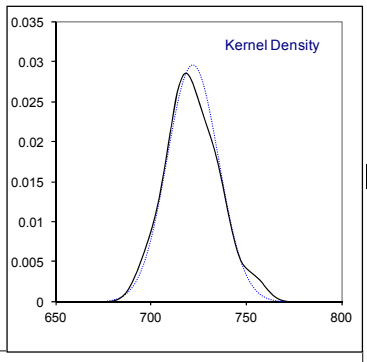


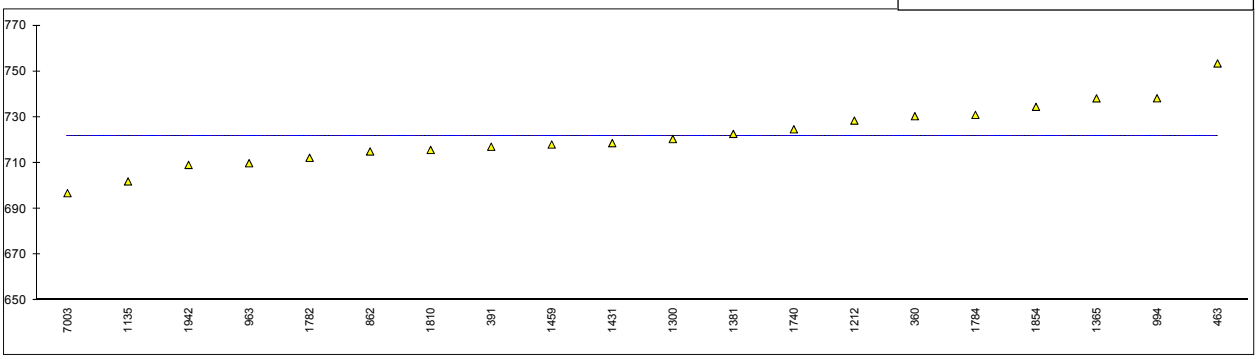
Determination of Viscosity Stabinger at 50°C on sample #16001; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634		-----		-----
62		-----		-----	657		-----		-----
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120		-----		-----	704		-----		-----
131		-----		-----	705		-----		-----
132		-----		-----	732		-----		-----
133		-----		-----	750		-----		-----
140		-----		-----	753		-----		-----
150		-----		-----	759		-----		-----
154		-----		-----	781		-----		-----
158		-----		-----	784		-----		-----
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823		-----		-----
171		-----		-----	824		-----		-----
175		-----		-----	840		-----		-----
194		-----		-----	851		-----		-----
212		-----		-----	855		-----		-----
221		-----		-----	857		-----		-----
224		-----		-----	858		-----		-----
225		-----		-----	859		-----		-----
228		-----		-----	862	D7042	715.03		-----
230		-----		-----	863		-----		-----
237		-----		-----	864		-----		-----
238		-----		-----	865		-----		-----
252		-----		-----	866		-----		-----
253		-----		-----	867		-----		-----
254		-----		-----	873		-----		-----
256		-----		-----	874		-----		-----
273		-----		-----	875		-----		-----
311		-----		-----	886		-----		-----
313		-----		-----	887		-----		-----
323		-----		-----	902		-----		-----
331		-----		-----	904		-----		-----
333		-----		-----	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922		-----		-----
337		-----		-----	962		-----		-----
340		-----		-----	963	D7042	709.9		-----
342		-----		-----	971		-----		-----
343		-----		-----	974		-----		-----
349		-----		-----	982		-----		-----
351		-----		-----	994	D7042	738.24		-----
353		-----		-----	995		-----		-----
356		-----		-----	996		-----		-----
360	D7042	730.41		-----	997		-----		-----
370		-----		-----	1011		-----		-----
372		-----		-----	1016		-----		-----
391	D7042	717.1		-----	1019		-----		-----
398		-----		-----	1040		-----		-----
399		-----		-----	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445		-----		-----	1082		-----		-----
447		-----		-----	1109		-----		-----
463	D7042	753.45		-----	1121		-----		-----
494		-----		-----	1126		-----		-----
507		-----		-----	1134		-----		-----
511		-----		-----	1135	D7042	701.96		-----
529		-----		-----	1161		-----		-----
541		-----		-----	1167		-----		-----
551		-----		-----	1177		-----		-----
557		-----		-----	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	D7042	728.50		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259		-----		-----
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631		-----		-----	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D7042	720.445		-----	1810	D7042	715.7		-----
1345		-----		-----	1811		-----		-----
1347		-----		-----	1813		-----		-----
1348		-----		-----	1832		-----		-----
1356		-----		-----	1833		-----		-----
1365	D7042	738.205		-----	1849		-----		-----
1367		-----		-----	1854	D7042	734.5		-----
1381	D7042	722.70		-----	1857		-----		-----
1385		-----		-----	1862		-----		-----
1389		-----		-----	1881		-----		-----
1402		-----		-----	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431	D7042	718.67		-----	1942	D7042	709.16		-----
1455		-----		-----	1943		-----		-----
1459	D7042	718.06		-----	1949		-----		-----
1510		-----		-----	1950		-----		-----
1520		-----		-----	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585		-----		-----	1986		-----		-----
1586		-----		-----	1995		-----		-----
1613		-----		-----	2129		-----		-----
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013		-----		-----
1648		-----		-----	6014		-----		-----
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720		-----		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740	D7042	724.7		-----	6025		-----		-----
1763		-----		-----	6026		-----		-----
1772		-----		-----	6028		-----		-----
1782	D7042	712.27		-----	6038		-----		-----
1784	D7042	731.0		-----	6039		-----		-----
1792		-----		-----	7003	D7042	696.83		-----
1796		-----		-----	7017		-----		-----
1807		-----		-----					

	normality	OK	
	n	20	
	outliers	0	
	mean (n)	721.842	
	st.dev. (n)	13.4855	
	R(calc.)	37.760	
	R(D7042:14)	n.a.	Compare R(iis15F01) =43.940



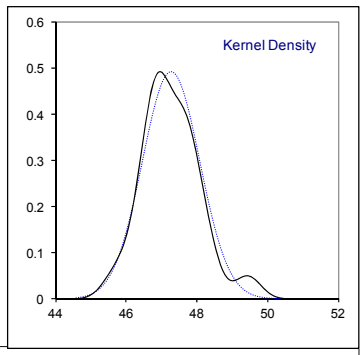


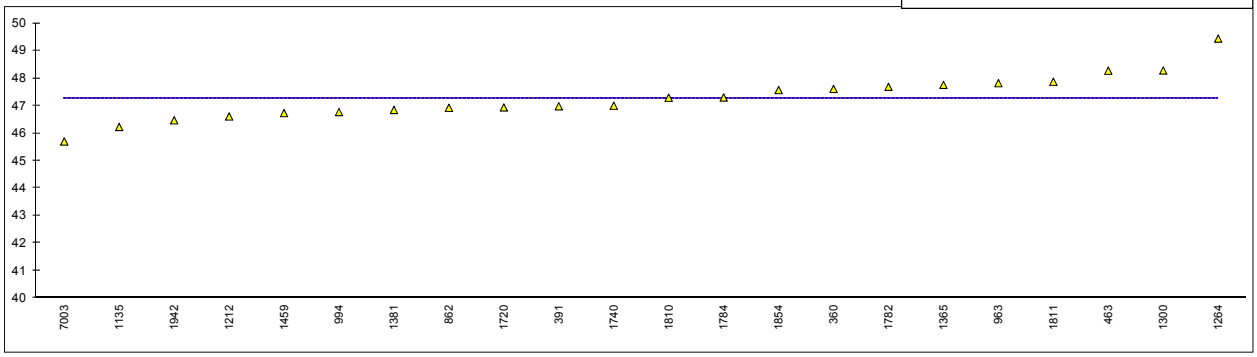
Determination of Viscosity Stabinger at 100°C on sample #16001; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634		-----		-----
62		-----		-----	657		-----		-----
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120		-----		-----	704		-----		-----
131		-----		-----	705		-----		-----
132		-----		-----	732		-----		-----
133		-----		-----	750		-----		-----
140		-----		-----	753		-----		-----
150		-----		-----	759		-----		-----
154		-----		-----	781		-----		-----
158		-----		-----	784		-----		-----
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823		-----		-----
171		-----		-----	824		-----		-----
175		-----		-----	840		-----		-----
194		-----		-----	851		-----		-----
212		-----		-----	855		-----		-----
221		-----		-----	857		-----		-----
224		-----		-----	858		-----		-----
225		-----		-----	859		-----		-----
228		-----		-----	862	D7042	46.924		-----
230		-----		-----	863		-----		-----
237		-----		-----	864		-----		-----
238		-----		-----	865		-----		-----
252		-----		-----	866		-----		-----
253		-----		-----	867		-----		-----
254		-----		-----	873		-----		-----
256		-----		-----	874		-----		-----
273		-----		-----	875		-----		-----
311		-----		-----	886		-----		-----
313		-----		-----	887		-----		-----
323		-----		-----	902		-----		-----
331		-----		-----	904		-----		-----
333		-----		-----	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922		-----		-----
337		-----		-----	962		-----		-----
340		-----		-----	963	D7042	47.82		-----
342		-----		-----	971		-----		-----
343		-----		-----	974		-----		-----
349		-----		-----	982		-----		-----
351		-----		-----	994	D7042	46.77		-----
353		-----		-----	995		-----		-----
356		-----		-----	996		-----		-----
360	D7042	47.610		-----	997		-----		-----
370		-----		-----	1011		-----		-----
372		-----		-----	1016		-----		-----
391	D7042	46.98		-----	1019		-----		-----
398		-----		-----	1040		-----		-----
399		-----		-----	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445		-----		-----	1082		-----		-----
447		-----		-----	1109		-----		-----
463	D7042	48.275		-----	1121		-----		-----
494		-----		-----	1126		-----		-----
507		-----		-----	1134		-----		-----
511		-----		-----	1135	D7042	46.227		-----
529		-----		-----	1161		-----		-----
541		-----		-----	1167		-----		-----
551		-----		-----	1177		-----		-----
557		-----		-----	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	D7042	46.608		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259		-----		-----
607		-----		-----	1264	D7042	49.44		-----
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631		-----		-----	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D7042	48.282		-----	1810	D7042	47.29		-----
1345		-----		-----	1811	D7042	47.872		-----
1347		-----		-----	1813		-----		-----
1348		-----		-----	1832		-----		-----
1356		-----		-----	1833		-----		-----
1365	D7042	47.759		-----	1849		-----		-----
1367		-----		-----	1854	D7042	47.57		-----
1381	D7042	46.846		-----	1857		-----		-----
1385		-----		-----	1862		-----		-----
1389		-----		-----	1881		-----		-----
1402		-----		-----	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942	D7042	46.47		-----
1455		-----		-----	1943		-----		-----
1459	D7042	46.73		-----	1949		-----		-----
1510		-----		-----	1950		-----		-----
1520		-----		-----	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585		-----		-----	1986		-----		-----
1586		-----		-----	1995		-----		-----
1613		-----		-----	2129		-----		-----
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013		-----		-----
1648		-----		-----	6014		-----		-----
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720	D7042	46.937		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740	D7042	47.0		-----	6025		-----		-----
1763		-----		-----	6026		-----		-----
1772		-----		-----	6028		-----		-----
1782	D7042	47.688		-----	6038		-----		-----
1784	D7042	47.30		-----	6039		-----		-----
1792		-----		-----	7003	D7042	45.699		-----
1796		-----		-----	7017		-----		-----
1807		-----		-----					

normality	suspect	
n	22	
outliers	0	
mean (n)	47.277	
st.dev. (n)	0.8098	
R(calc.)	2.267	
R(D7042:14)	n.a.	Compare R(iis15F01) = 4.010



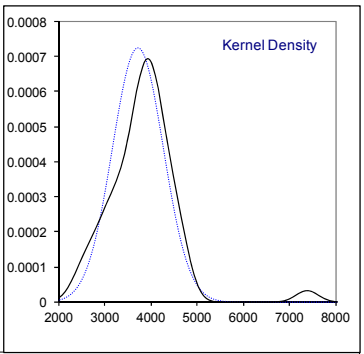


Determination of Nitrogen on sample #16001; results in µg/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	3820	ex	0.27	634		-----		-----
62		-----		-----	657	D5762 Gravimetric	3500		-0.63
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120		-----		-----	704	D5762 Volumetric	4225		1.40
131	D5762 Gravimetric	4138.87		1.16	705		-----		-----
132		-----		-----	732		-----		-----
133		-----		-----	750		-----		-----
140	D5762 Gravimetric	7391	R(0.01)	10.26	753		-----		-----
150	D5762 Volumetric	3340		-1.08	759		-----		-----
154		-----		-----	781	D5762 Volumetric	3493		-0.65
158	D5762 Volumetric	2875.1		-2.38	784		-----		-----
159	D5762 Gravimetric	2583		-3.20	785		-----		-----
168		-----		-----	791		-----		-----
169		-----		-----	823	D5762 Volumetric	3678		-0.13
171	D5762 Volumetric	3625		-0.28	824		3990		0.74
175		-----		-----	840	D3228	4043	C	0.89
194		-----		-----	851		-----		-----
212		-----		-----	855		-----		-----
221		-----		-----	857		-----		-----
224		-----		-----	858		-----		-----
225		-----		-----	859		-----		-----
228		-----		-----	862	D5762 Gravimetric	2740		-2.76
230		-----		-----	863	D4629	3130	ex	-1.66
237		-----		-----	864		-----		-----
238		-----		-----	865		-----		-----
252		-----		-----	866		-----		-----
253		-----		-----	867		-----		-----
254		-----		-----	873		-----		-----
256		-----		-----	874		-----		-----
273		-----		-----	875	D5762 Gravimetric	3877		0.43
311	D5762 Volumetric	3900		0.49	886		-----		-----
313		-----		-----	887		-----		-----
323	D5762 Volumetric	3117		-1.70	902		-----		-----
331		-----		-----	904		-----		-----
333	D5762 Volumetric	3743		0.05	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922		-----		-----
337		-----		-----	962		-----		-----
340		-----		-----	963		-----		-----
342		-----		-----	971		-----		-----
343		-----		-----	974		-----		-----
349		-----		-----	982		-----		-----
351		-----		-----	994	D5762 Gravimetric	4055		0.92
353		-----		-----	995		-----		-----
356		-----		-----	996		-----		-----
360		-----		-----	997		-----		-----
370		-----		-----	1011		-----		-----
372	D5762 Volumetric	4000		0.77	1016	D5762 Volumetric	4440		2.00
391		-----		-----	1019		-----		-----
398		-----		-----	1040		-----		-----
399		-----		-----	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	D5762 Gravimetric	4210		1.36	1082		-----		-----
447		-----		-----	1109	D4629	4465	ex	2.07
463	D5762 Gravimetric	4168		1.24	1121		-----		-----
494	D5762 Volumetric	4359.5		1.78	1126		-----		-----
507		-----		-----	1134	D5762 Volumetric	4400.6		1.89
511		-----		-----	1135	D5762 Gravimetric	3783.3		0.16
529		-----		-----	1161		-----		-----
541		-----		-----	1167		-----		-----
551		-----		-----	1177		-----		-----
557	D3228	3848.259		0.35	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	D3228	4100		1.05
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259	D5762 Gravimetric	3100		-1.75
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631		-----		-----	1281		-----		-----
633		-----		-----	1299		-----		-----

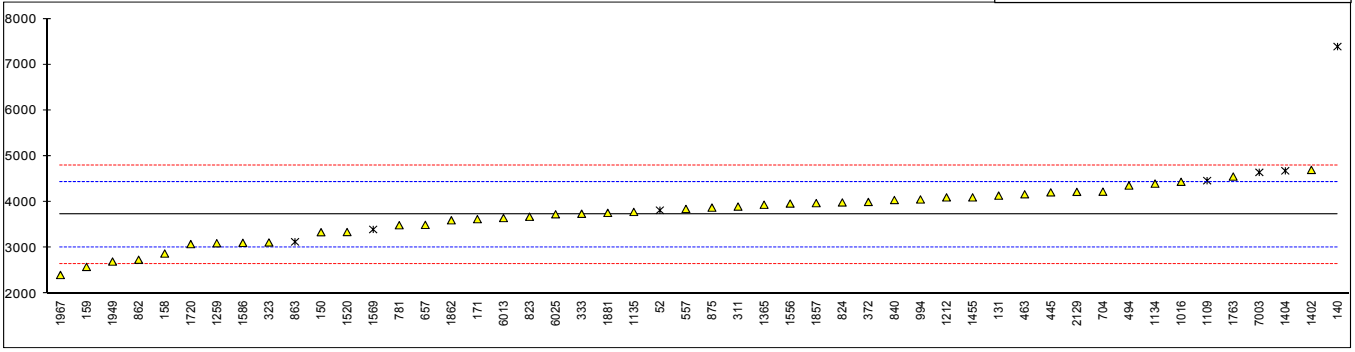
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300		-----		-----	1810		-----		-----
1345		-----		-----	1811		-----		-----
1347		-----		-----	1813		-----		-----
1348		-----		-----	1832		-----		-----
1356		-----		-----	1833		-----		-----
1365	D5762 Volumetric	3940		0.60	1849		-----		-----
1367		-----		-----	1854		-----		-----
1381		-----		-----	1857	D5762 Volumetric	3975		0.70
1385		-----		-----	1862	D5762 Volumetric	3600		-0.35
1389		-----		-----	1881	D5762 Volumetric	3762		0.10
1402	D5762 Gravimetric	4700		2.73	1906		-----		-----
1404	D4629	4680	ex	2.67	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455	D5762 Gravimetric	4100		1.05	1943		-----		-----
1459		-----		-----	1949	D5762 Volumetric	2700		-2.87
1510		-----		-----	1950		-----		-----
1520	D5762 Volumetric	3344.1		-1.07	1956		-----		-----
1556	D5762 Volumetric	3966		0.67	1962		-----		-----
1569	D4629	3400.3	ex	-0.91	1964		-----		-----
1583		-----		-----	1967	D5762 Gravimetric	2406.5		-3.69
1585		-----		-----	1986		-----		-----
1586	D5762 Gravimetric	3108		-1.73	1995		-----		-----
1613		-----		-----	2129	D3228	4221		1.39
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013	D5762 Gravimetric	3650		-0.21
1648		-----		-----	6014		-----		-----
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720	D5762 Volumetric	3080.0		-1.80	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740		-----		-----	6025	D5762 Volumetric	3731		0.02
1763		4555		2.32	6026		-----		-----
1772		-----		-----	6028		-----		-----
1782		-----		-----	6038		-----		-----
1784		-----		-----	6039		-----		-----
1792		-----		-----	7003	D4629	4646	ex	2.58
1796		-----		-----	7017		-----		-----
1807		-----		-----					

		Results of Volumetric only	Results of Gravimetric only
normality	OK	OK	OK
n	43	22	15
outliers	1+6ex	0	1
mean (n)	3724.91	3695.20	3607.98
st.dev. (n)	551.201	478.545	679.517
R(calc.)	1543.36	1339.93	1902.65
R(D5762:12)	1000.55	982.92	959.72



Lab 159 reported 2583 %M/M
Lab 840 first reported 6043

The reported results of labs 52, 863, 1109, 1404, 1569 and 7003 are excluded, as the reported method is not meant for Fuel Oil.

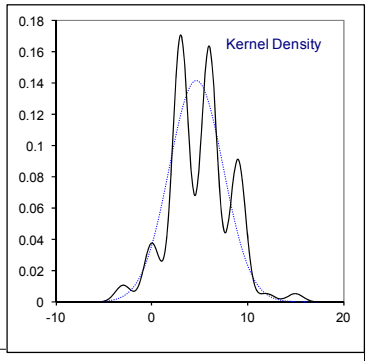


Determination of Pour Point (Lower) on sample #16001; results in °C

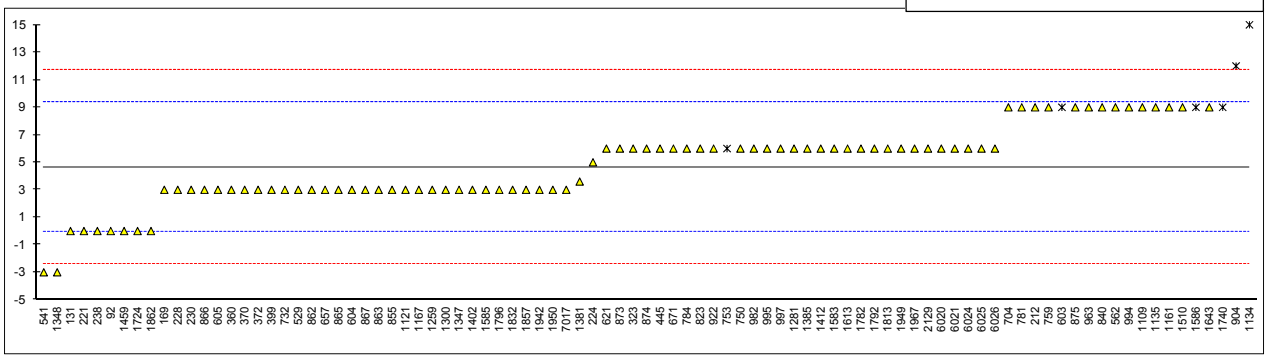
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634		-----		-----
62		-----		-----	657	D97	3		-0.70
90		-----		-----	663		-----		-----
92	D97	0		-1.98	671	D97	6		0.57
120		-----		-----	704	D97	9		1.85
131	D97	0		-1.98	705		-----		-----
132		-----		-----	732	D97	3		-0.70
133		-----		-----	750	D97	6		0.57
140		-----		-----	753	D97	6	ex	0.57
150		-----		-----	759	ISO3016	9		1.85
154		-----		-----	781	ISO3016	9		1.85
158		-----		-----	784	ISO3016	6		0.57
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169	D97	3		-0.70	823	ISO3016	6		0.57
171		-----		-----	824		-----		-----
175		-----		-----	840	ISO3016	9		1.85
194		-----		-----	851		-----		-----
212		9		1.85	855	D97	3		-0.70
221	D97	0		-1.98	857		-----		-----
224	D97	5		0.15	858		-----		-----
225		-----		-----	859		-----		-----
228	D97	3		-0.70	862	ISO3016	3		-0.70
230	ISO3016	3		-0.70	863	D97	3		-0.70
237		-----		-----	864		-----		-----
238	D97	0		-1.98	865	D97	3		-0.70
252		-----		-----	866	ISO3016	3		-0.70
253		-----		-----	867	D97	3		-0.70
254		-----		-----	873	D97	6		0.57
256		-----		-----	874	D97	6		0.57
273		-----		-----	875	D97	9		1.85
311		-----		-----	886		-----		-----
313		-----		-----	887		-----		-----
323	ISO3016	6		0.57	902		-----		-----
331		-----		-----	904	D97	12	R(0.05)	3.12
333		-----		-----	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922	D97	6		0.57
337		-----		-----	962		-----		-----
340		-----		-----	963	ISO3016	9		1.85
342		-----		-----	971		-----		-----
343		-----		-----	974		-----		-----
349		-----		-----	982	D97	6		0.57
351		-----		-----	994	D97	9		1.85
353		-----		-----	995	D97	6		0.57
356		-----		-----	996		-----		-----
360	ISO3016	3		-0.70	997	ISO3016	6		0.57
370	D97	3		-0.70	1011		-----		-----
372	ISO3016	3		-0.70	1016		-----		-----
391		-----		-----	1019		-----		-----
398		-----		-----	1040		-----		-----
399	D97	3		-0.70	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	D97	6		0.57	1082		-----		-----
447		-----		-----	1109	D97	9		1.85
463		-----		-----	1121	IP15	3		-0.70
494		-----		-----	1126		-----		-----
507		-----		-----	1134	IP15	15	ex	4.40
511		-----		-----	1135	ISO3016	9		1.85
529	D97	3		-0.70	1161	ISO3016	9		1.85
541	ISO3016	-3		-3.25	1167	ISO3016	3		-0.70
551		-----		-----	1177		-----		-----
557		-----		-----	1191		-----		-----
558		-----		-----	1205		-----		-----
562	D97	9	C	1.85	1212		-----		-----
603	D97	9	ex	1.85	1229		-----		-----
604	D97	3		-0.70	1233		-----		-----
605	D97	3		-0.70	1259	ISO3016	3		-0.70
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621	D97	6.0		0.57	1275		-----		-----
631		-----		-----	1281	ISO3016	6.0		0.57
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO3016	3.0		-0.70	1810		-----		-----
1345		-----		-----	1811		-----		-----
1347	D97	3		-0.70	1813	D97	6		0.57
1348	D97	-3		-3.25	1832	ISO3016	3		-0.70
1356		-----		-----	1833		-----		-----
1365		-----		-----	1849		-----		-----
1367		-----		-----	1854		-----		-----
1381	ISO3016	3.6		-0.45	1857	ISO3016	3		-0.70
1385	D97	6		0.57	1862	ISO3016	0		-1.98
1389		-----		-----	1881		-----		-----
1402	ISO3016	3		-0.70	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412	D97	6		0.57	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942	D97	3		-0.70
1455		-----		-----	1943		-----		-----
1459	ISO3016	0	C	-1.98	1949	ISO3016	6		0.57
1510	D97	9		1.85	1950	D97	3		-0.70
1520		-----		-----	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583	ISO3016	6		0.57	1967	D97	6		0.57
1585	D97	3		-0.70	1986		-----		-----
1586	D97	9	ex	1.85	1995		-----		-----
1613	D97	6		0.57	2129	ISO3016	6		0.57
1631		-----		-----	6004		-----		-----
1643	D97	9		1.85	6013		-----		-----
1648		-----		-----	6014		-----		-----
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020	ISO3016	6		0.57
1720		-----		-----	6021	ISO3016	6		0.57
1724	D97	0		-1.98	6024	ISO3016	6		0.57
1740	ISO3016	9	ex	1.85	6025	ISO3016	6		0.57
1763		-----		-----	6026	D97	6		0.57
1772		-----		-----	6028		-----		-----
1782	D97	6		0.57	6038		-----		-----
1784		-----		-----	6039		-----		-----
1792	ISO3016	6		0.57	7003		-----		-----
1796	ISO3016	3		-0.70	7017	D97	3		-0.70
1807		-----		-----					

normality	OK
n	85
outliers	1+5 ex
mean (n)	4.65
st.dev. (n)	2.828
R(calc.)	7.92
R(ISO3016:94)	6.59



Lab 904 reported value wrongly, did not perform this test
Lab 562 first reported 12
Lab 1459 first reported -21
Labs 603, 753,1134, 1586, 1740; reported values are excluded;
Pour Point lower> Pour Point upper

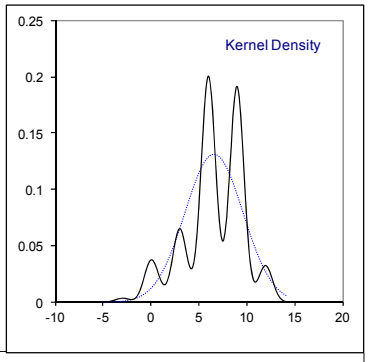


Determination of Pour Point (Upper) on sample #16001; results in °C

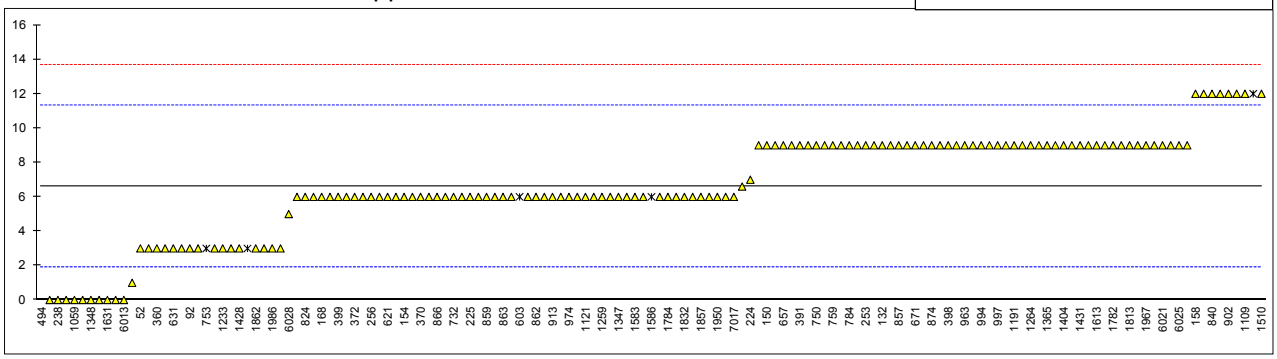
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	3		-1.53	634		-----		-----
62		-----		-----	657	D97	9		1.02
90	D97	6		-0.25	663	D97	6		-0.25
92	D97	3		-1.53	671	D97	9		1.02
120	ISO3016	9		1.02	704	D97	9		1.02
131	D97	3		-1.53	705	ISO3016	6		-0.25
132	ISO3016	9		1.02	732	D97	6		-0.25
133	D97	9		1.02	750	D97	9	C	1.02
140		-----		-----	753	D97	3	ex	-1.53
150	D97	9		1.02	759	ISO3016	9		1.02
154	D97	6		-0.25	781	ISO3016	9		1.02
158	D97	12		2.30	784	ISO3016	9		1.02
159	D97	9		1.02	785		-----		-----
168	D97	6		-0.25	791		-----		-----
169		-----		-----	823	ISO3016	6		-0.25
171	D97	9	C	1.02	824	ISO3016	6		-0.25
175		-----		-----	840	ISO3016	12		2.30
194	D97	12		2.30	851	ISO3016	6		-0.25
212		-----		-----	855	ISO3016	6		-0.25
221	D97	3		-1.53	857	D97	9		1.02
224	D97	7		0.17	858	D97	9		1.02
225	D97	6		-0.25	859	D97	6		-0.25
228		-----		-----	862	ISO3016	6		-0.25
230	ISO3016	3		-1.53	863	D97	6		-0.25
237	D97	9		1.02	864		-----		-----
238	D97	0		-2.80	865	D97	6		-0.25
252	D97	6		-0.25	866	ISO3016	6		-0.25
253	D97	9		1.02	867	D97	6		-0.25
254	D97	3		-1.53	873	D97	9		1.02
256	D97	6		-0.25	874	D97	9		1.02
273		-----		-----	875	D97	9		1.02
311		-----		-----	886		-----		-----
313		-----		-----	887		-----		-----
323	ISO3016	6		-0.25	902	D97	12		2.30
331		-----		-----	904	D97	12		2.30
333		-----		-----	912	ISO3016	6		-0.25
334	ISO3016	0		-2.80	913	D97	6		-0.25
336		-----		-----	922	D97	9		1.02
337		-----		-----	962		-----		-----
340		-----		-----	963	ISO3016	9		1.02
342	ISO3016	6		-0.25	971	ISO3016	6		-0.25
343		-----		-----	974	D97	6		-0.25
349		-----		-----	982	D97	9		1.02
351		-----		-----	994	D97	9		1.02
353		-----		-----	995	D97	9		1.02
356	D97	6		-0.25	996		-----		-----
360	ISO3016	3		-1.53	997	ISO3016	9		1.02
370	D97	6		-0.25	1011	D97	6		-0.25
372	ISO3016	6		-0.25	1016		-----		-----
391	ISO3016	9		1.02	1019		-----		-----
398	ISO3016	9		1.02	1040		-----		-----
399	D97	6		-0.25	1059	ISO3016	0		-2.80
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	D97	6		-0.25	1082		-----		-----
447	ISO3016	12		2.30	1109	D97	12		2.30
463		-----		-----	1121	IP15	6		-0.25
494	ISO3016	-3		-4.08	1126		-----		-----
507	ISO3016	9		1.02	1134	IP15	12	ex	2.30
511		-----		-----	1135	ISO3016	9		1.02
529	D97	3		-1.53	1161		-----		-----
541	ISO3016	0		-2.80	1167	ISO3016	6		-0.25
551		-----		-----	1177		-----		-----
557		-----		-----	1191	ISO3016	9		1.02
558		-----		-----	1205		-----		-----
562	D97	9		1.02	1212	ISO3016	9		1.02
603	D97	6	ex	-0.25	1229	ISO3016	0		-2.80
604	D97	6		-0.25	1233	ISO3016	3		-1.53
605	D97	6		-0.25	1259	ISO3016	6		-0.25
607		-----		-----	1264	D97	9		1.02
608		-----		-----	1266		-----		-----
621	D97	6.0		-0.25	1275		-----		-----
631	D97	3		-1.53	1281		-----		-----
633		-----		-----	1299	D97	3.0		-1.53

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	ISO3016	6.0		-0.25	1810		-----		-----
1345	D97	9.0		1.02	1811		-----		-----
1347	D97	6		-0.25	1813	D97	9		1.02
1348	D97	0		-2.80	1832	ISO3016	6		-0.25
1356		-----		-----	1833		-----		-----
1365	D97	9		1.02	1849	ISO3016	1		-2.38
1367	D97	0		-2.80	1854	ISO3016	6		-0.25
1381	ISO3016	6.6		0.00	1857	ISO3016	6		-0.25
1385	D97	9		1.02	1862	ISO3016	3		-1.53
1389	D97	6		-0.25	1881	ISO3016	3		-1.53
1402		-----		-----	1906		-----		-----
1404	ISO3016	9		1.02	1936		-----		-----
1412	D97	9		1.02	1937		-----		-----
1428	ISO3016	3		-1.53	1938		-----		-----
1431	D97	9		1.02	1942	D97	6		-0.25
1455		-----		-----	1943		-----		-----
1459		-----		-----	1949	ISO3016	9		1.02
1510	D97	12		2.30	1950	D97	6		-0.25
1520	ISO3016	9		1.02	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583	ISO3016	6		-0.25	1967	D97	9		1.02
1585	D97	6		-0.25	1986	ISO3016	3		-1.53
1586	D97	6	ex	-0.25	1995		-----		-----
1613	D97	9		1.02	2129	ISO3016	9		1.02
1631	ISO3016	0.0		-2.80	6004		-----		-----
1643		-----		-----	6013	ISO3016	0		-2.80
1648		-----		-----	6014	ISO3016	3		-1.53
1650		-----		-----	6016		-----		-----
1681	ISO3016	6.0		-0.25	6020	ISO3016	6		-0.25
1720	D97	9	C	1.02	6021	ISO3016	9		1.02
1724		-----		-----	6024	ISO3016	9		1.02
1740	ISO3016	3	ex	-1.53	6025	ISO3016	9		1.02
1763		-----		-----	6026	D97	9		1.02
1772		-----		-----	6028	D97	5	C	-0.68
1782	D97	9		1.02	6038		-----		-----
1784	ISO3016	6		-0.25	6039		-----		-----
1792	ISO3016	9		1.02	7003		-----		-----
1796	ISO3016	6		-0.25	7017	D97	6		-0.25
1807	ISO3016	0		-2.80					

normality	OK
n	144
outliers	0+5 ex
mean (n)	6.59
st.dev. (n)	3.046
R(calc.)	8.53
R(ISO3016:94)	6.59



Lab 171 first reported -9
Lab 750 first reported 18
Lab 1720 first reported 18
Lab 6028 first reported 15
Labs 603, 753,1134, 1586, 1740; reported values are excluded;
Pour Point lower> Pour Point upper

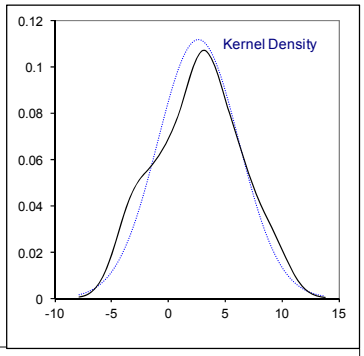


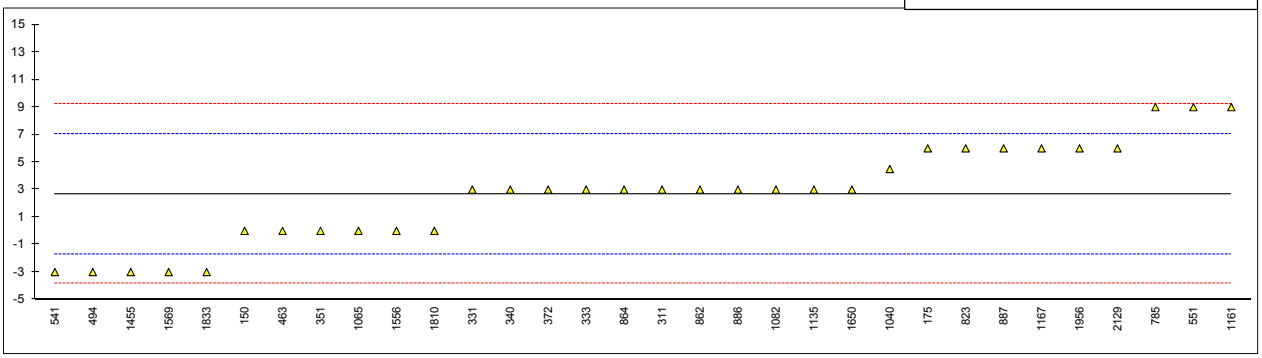
Determination of Pour Point (Automated) on sample #16001; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	634		-----		-----
62		-----		-----	657		-----		-----
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120		-----		-----	704		-----		-----
131		-----		-----	705		-----		-----
132		-----		-----	732		-----		-----
133		-----		-----	750		-----		-----
140		-----		-----	753		-----		-----
150	D5950	0		-1.23	759		-----		-----
154		-----		-----	781		-----		-----
158		-----		-----	784		-----		-----
159		-----		-----	785	D6749	9		2.90
168		-----		-----	791		-----		-----
169		-----		-----	823	D5950	6		1.53
171		-----		-----	824		-----		-----
175	D5950	6		1.53	840		-----		-----
194		-----		-----	851		-----		-----
212		-----		-----	855		-----		-----
221		-----		-----	857		-----		-----
224		-----		-----	858		-----		-----
225		-----		-----	859		-----		-----
228		-----		-----	862	D5950	3		0.15
230		-----		-----	863		-----		-----
237		-----		-----	864	D5950	3		0.15
238		-----		-----	865		-----		-----
252		-----		-----	866		-----		-----
253		-----		-----	867		-----		-----
254		-----		-----	873		-----		-----
256		-----		-----	874		-----		-----
273		-----		-----	875		-----		-----
311	D5950	3		0.15	886	D5950	3		0.15
313		-----		-----	887	D6749	6		1.53
323		-----		-----	902		-----		-----
331	D5950	3		0.15	904		-----		-----
333	D5950	3		0.15	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922		-----		-----
337		-----		-----	962		-----		-----
340	D5950	3		0.15	963		-----		-----
342		-----		-----	971		-----		-----
343		-----		-----	974		-----		-----
349		-----		-----	982		-----		-----
351	D6749	0.0		-1.23	994		-----		-----
353		-----		-----	995		-----		-----
356		-----		-----	996		-----		-----
360		-----		-----	997		-----		-----
370		-----		-----	1011		-----		-----
372	D5950	3		0.15	1016		-----		-----
391		-----		-----	1019		-----		-----
398		-----		-----	1040	D5950	4.5		0.84
399		-----		-----	1059		-----		-----
440		-----		-----	1065	D5950	0		-1.23
444		-----		-----	1066		-----		-----
445		-----		-----	1082	D5950	3		0.15
447		-----		-----	1109		-----		-----
463	D6892	0		-1.23	1121		-----		-----
494	D5950	-3		-2.60	1126		-----		-----
507		-----		-----	1134		-----		-----
511		-----		-----	1135	D5950	3		0.15
529		-----		-----	1161	D6749	9		2.90
541	D5950	-3		-2.60	1167	D6749	6		1.53
551	D5950	9		2.90	1177		-----		-----
557		-----		-----	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212		-----		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605		-----		-----	1259		-----		-----
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631		-----		-----	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300		-----		-----	1810	D5950	0.0		-1.23
1345		-----		-----	1811		-----		-----
1347		-----		-----	1813		-----		-----
1348		-----		-----	1832		-----		-----
1356		-----		-----	1833	D5950	-3		-2.60
1365		-----		-----	1849		-----		-----
1367		-----		-----	1854		-----		-----
1381		-----		-----	1857		-----		-----
1385		-----		-----	1862		-----		-----
1389		-----		-----	1881		-----		-----
1402		-----		-----	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455	D5950	-3		-2.60	1943		-----		-----
1459		-----		-----	1949		-----		-----
1510		-----		-----	1950		-----		-----
1520		-----		-----	1956		6		1.53
1556	ISO3016	0		-1.23	1962		-----		-----
1569	D5950	-3		-2.60	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585		-----		-----	1986		-----		-----
1586		-----		-----	1995		-----		-----
1613		-----		-----	2129	D5950	6		1.53
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013		-----		-----
1648		-----		-----	6014		-----		-----
1650	D5950	3		0.15	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720		-----		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740		-----		-----	6025		-----		-----
1763		-----		-----	6026		-----		-----
1772		-----		-----	6028		-----		-----
1782		-----		-----	6038		-----		-----
1784		-----		-----	6039		-----		-----
1792		-----		-----	7003		-----		-----
1796		-----		-----	7017		-----		-----
1807		-----		-----					

normality	OK
n	32
outliers	0
mean (n)	2.67
st.dev. (n)	3.569
R(calc.)	9.9924
R(D5950:14)	6.10



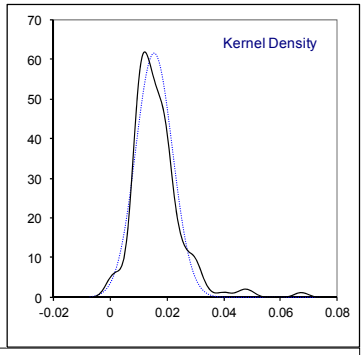


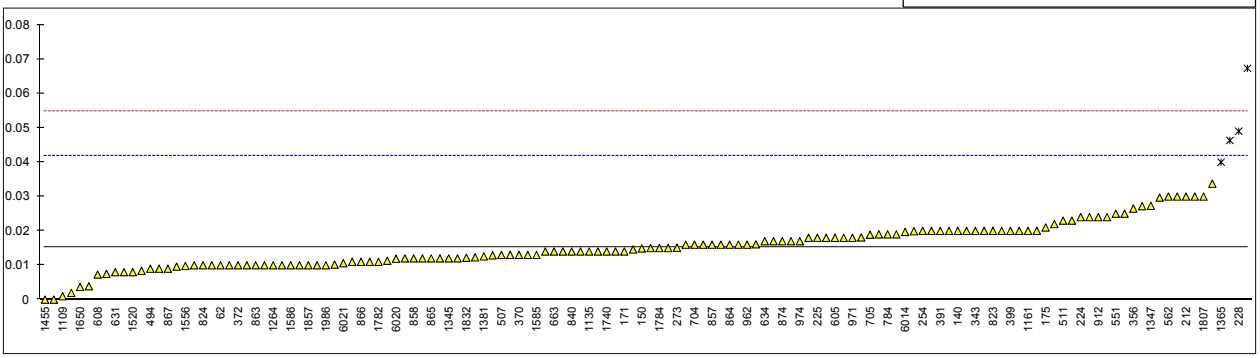
Determination of Sediment by Extraction on sample #16001; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D473	0.019		0.27	634	D473	0.017		0.12
62	D473	0.01		-0.41	657	D473	0.02		0.35
90	D473	0.014		-0.10	663	D473	0.014		-0.10
92	D473	0.014		-0.10	671	D473	0.04632	R(0.01)	2.35
120	D473	0.01		-0.41	704	D473	0.016		0.05
131	D473	0.02		0.35	705	D473	0.0189		0.27
132	D473	0.0096		-0.44	732	D473	0.016		0.05
133	D473	0.016		0.05	750	D473	0.02		0.35
140	D473	0.02		0.35	753	D473	0.023		0.58
150	D473	0.0149		-0.04	759	D473	0.010		-0.41
154	D473	0.018		0.20	781	D473	0.009		-0.48
158	D473	0.017		0.12	784	D473	0.019		0.27
159		-----		-----	785	D473	0.012		-0.26
168	D473	0.018		0.20	791	D473	0.01		-0.41
169		-----		-----	823	D473	0.02		0.35
171	D473	0.01402		-0.10	824	D473	0.01		-0.41
175	D473	0.021		0.43	840	D473	0.014		-0.10
194		-----		-----	851		-----		-----
212	D473	0.03		1.11	855	D473	0.012		-0.26
221	D473	0.016		0.05	857	D473	0.016		0.05
224	D473	0.024		0.65	858	D473	0.012		-0.26
225	D473	0.018		0.20	859		-----		-----
228	D473	0.049	R(0.01)	2.55	862	D473	0.008		-0.56
230		-----		-----	863	D473	0.01		-0.41
237		-----		-----	864	D473	0.016		0.05
238	D473	0.0161		0.05	865	D473	0.012		-0.26
252	D473	0.024		0.65	866	D473	0.011		-0.33
253		-----		-----	867	D473	0.009		-0.48
254	D473	0.02		0.35	873	D473	0.010		-0.41
256	D473	0.03		1.11	874	D473	0.017		0.12
273	D473	0.0151		-0.02	875	D473	0.016		0.05
311	D473	<0.01		-----	886		-----		-----
313		-----		-----	887		-----		-----
323	D473	0.02		0.35	902	D473	0.014		-0.10
331		-----		-----	904	D473	0.017		0.12
333		-----		-----	912	D473	0.024		0.65
334		-----		-----	913	D473	0.022		0.50
336		-----		-----	922	D473	0.011		-0.33
337		-----		-----	962	D473	0.016		0.05
340	D473	<0.01		-----	963	D473	0.019		0.27
342		-----		-----	971	D473	0.018		0.20
343	D473	0.02		0.35	974	D473	0.017		0.12
349		-----		-----	982	D473	0.020		0.35
351		-----		-----	994	D473	0.015		-0.03
353		-----		-----	995	D473	0.012		-0.26
356	D473	0.0265		0.84	996		-----		-----
360	D473	0.011		-0.33	997		-----		-----
370	D473	0.013		-0.18	1011		-----		-----
372	D473	0.01		-0.41	1016		-----		-----
391	D473	0.02		0.35	1019		-----		-----
398	ISO3735	0.01		-0.41	1040		-----		-----
399	D473	0.020		0.35	1059	ISO3735	0.00196		-1.02
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	D473	<0.005		-----	1082		-----		-----
447	D473	0.02		0.35	1109	D473	0.001		-1.09
463	D473	0.0075		-0.60	1121	IP53	0.024		0.65
494	D473	0.009		-0.48	1126		-----		-----
507	D473	0.013		-0.18	1134	IP53	0.0673	R(0.01)	3.94
511	D473	0.023		0.58	1135	D473	0.014		-0.10
529		-----		-----	1161	ISO3735	0.02		0.35
541	D473	<0.01		-----	1167		-----		-----
551	D473	0.025		0.73	1177		-----		-----
557	D473	0.0337357		1.39	1191		-----		-----
558		-----		-----	1205		-----		-----
562	D473	0.03		1.11	1212		-----		-----
603	D473	0.018		0.20	1229		-----		-----
604		-----		-----	1233		-----		-----
605	D473	0.018		0.20	1259		-----		-----
607	D473	0.0297		1.09	1264	D473	0.01		-0.41
608	D473	0.0073		-0.61	1266		-----		-----
621	D473	0.013		-0.18	1275		-----		-----
631	D473	0.008		-0.56	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)
1300	D473	0.0102		-0.39
1345	D473	0.012		-0.26
1347	D473	0.0273		0.90
1348	D473	0.01		-0.41
1356		-----		-----
1365	D473	0.04	R(0.05)	1.87
1367		-----		-----
1381	ISO3735	0.0126		-0.21
1385	D473	0.013		-0.18
1389		-----		-----
1402	D473	0.03		1.11
1404		-----		-----
1412	D473	0.014		-0.10
1428	D473	0.0272		0.90
1431		-----		-----
1455	D473	0		-1.17
1459		-----		-----
1510	D473	0.00		-1.17
1520	D473	0.008		-0.56
1556	ISO3735	0.0098		-0.42
1569		-----		-----
1583		-----		-----
1585	D473	0.013		-0.18
1586	D473	0.01		-0.41
1613	D473	0.025		0.73
1631		-----		-----
1643	D473	0.0181		0.21
1648		-----		-----
1650	D473	0.0037		-0.89
1681		-----		-----
1720		-----		-----
1724		-----		-----
1740	D473	0.014		-0.10
1763		-----		-----
1772		-----		-----
1782	D473	0.011		-0.33
1784	D473	0.015		-0.03
1792	D473	0.010		-0.41
1796	D473	0.0146		-0.06
1807	D473	0.03		1.11
1810		-----		-----
1811		-----		-----
1813		-----		-----
1832	ISO3735	0.0122		-0.24
1833	D473	0.015		-0.03
1849		-----		-----
1854	D473	0.0199		0.34
1857	D473	0.01		-0.41
1862	D473	0.0123		-0.23
1881	D473	0.01		-0.41
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1942		-----		-----
1943		-----		-----
1949	D473	0.012		-0.26
1950	D473	0.014		-0.10
1956		-----		-----
1962		-----		-----
1964		-----		-----
1967	D473	0.0113		-0.31
1986	D473	0.01		-0.41
1995		-----		-----
2129	D473	0.0039		-0.87
6004		-----		-----
6013	ISO3735	0.02		0.35
6014	D473	0.0197		0.33
6016		-----		-----
6020	D473	0.0119		-0.26
6021	D473	0.0106		-0.36
6024		-----		-----
6025	D473	0.0129		-0.19
6026	D473	0.0084		-0.53
6028		-----		-----
6038		-----		-----
6039		-----		-----
7003		-----		-----
7017		-----		-----

normality	OK
n	134
outliers	4
mean (n)	0.0154
st.dev. (n)	0.00648
R(calc.)	0.0181
R(D473:07)	0.0369





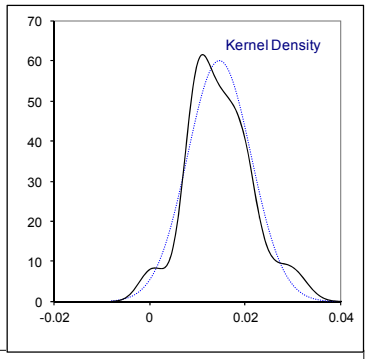
Determination of Total Sediment by hot filtration of sample #16001; results in %M/M

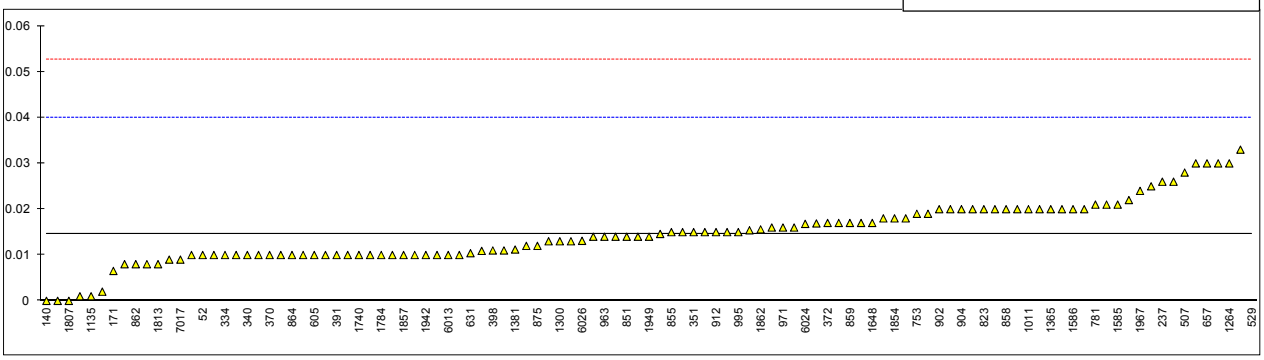
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4870	0.01		-0.37	634		-----		-----
62		-----		-----	657	IP375	0.03		1.21
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120	ISO10307-1	0.02		0.42	704	IP375	0.025		0.82
131		-----		-----	705	IP375	0.014		-0.05
132	ISO10307-1	0.001		-1.07	732		-----		-----
133		-----		-----	750	IP375	0.01		-0.37
140	IP375	0		-1.15	753	IP375	0.019		0.34
150		-----		-----	759		-----		-----
154		-----		-----	781	IP375	0.021		0.50
158		-----		-----	784		-----		-----
159		-----		-----	785	IP375	0.01		-0.37
168		-----		-----	791		-----		-----
169		-----		-----	823	ISO10307-1	0.02		0.42
171	IP375	0.00653		-0.64	824	ISO10307-1	0.017		0.19
175		-----		-----	840	ISO10307-1	0.015		0.03
194		-----		-----	851	ISO10307-1	0.014		-0.05
212	ISO10307-1	0.02		0.42	855	D4870	0.015		0.03
221		-----		-----	857		-----		-----
224		-----		-----	858	D4870	0.020		0.42
225		-----		-----	859	ISO10307-1	0.017		0.19
228		-----		-----	862	D4870	0.008		-0.52
230	ISO10307-1	0.014		-0.05	863	D4870	0.01		-0.37
237	D4870	0.026		0.89	864	ISO10307-1	0.010		-0.37
238		-----		-----	865	IP375	0.015		0.03
252		-----		-----	866	ISO10307-1	0.01		-0.37
253		-----		-----	867	D4870	0.008		-0.52
254		-----		-----	873	IP375	0.012		-0.21
256		-----		-----	874	IP375	0.013		-0.13
273		-----		-----	875	IP375	0.012		-0.21
311	IP375	<0.01		-----	886		-----		-----
313		-----		-----	887		-----		-----
323	IP375	0.02		0.42	902	IP375	0.02		0.42
331		-----		-----	904	IP375	0.02		0.42
333		-----		-----	912	ISO10307-1	0.015		0.03
334	IP375	0.01		-0.37	913	ISO10307-1	0.016		0.11
336	IP375	0.01		-0.37	922	ISO10307-1	0.010		-0.37
337		-----		-----	962		-----		-----
340	ISO10307-1	0.01		-0.37	963	IP375	0.014		-0.05
342	ISO10307-1	0.00		-1.15	971	IP375	0.016		0.11
343	ISO10307-1	<0.01		-----	974		-----		-----
349		-----		-----	982		-----		-----
351	ISO10307-1	0.015		0.03	994	IP375	0.02		0.42
353		-----		-----	995	D4870	0.015		0.03
356	ISO10307-1	0.026		0.89	996		-----		-----
360	IP375	0.015		0.03	997		-----		-----
370	IP375	0.010		-0.37	1011	ISO10307-1	0.020		0.42
372	IP375	0.017		0.19	1016		-----		-----
391	ISO10307-1	0.01		-0.37	1019		-----		-----
398	ISO10307-1	0.011		-0.29	1040		-----		-----
399	IP375	0.03		1.21	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	IP375	<0.01		-----	1082	ISO10307-1	0.022		0.58
447		-----		-----	1109		-----		-----
463	ISO10307-1	<0.01		-----	1121	IP375	0.002		-1.00
494	IP375	0.010		-0.37	1126		-----		-----
507	IP375	0.028		1.05	1134	IP375	0.033		1.45
511		-----		-----	1135	ISO10307-1	0.001		-1.07
529	IP375	0.083	R(0.01)	5.38	1161	ISO10307-1	0.02		0.42
541		-----		-----	1167	ISO10307-1	0.008		-0.52
551		-----		-----	1177		-----		-----
557		-----		-----	1191	ISO10307-1	0.017		0.19
558		-----		-----	1205		-----		-----
562		-----		-----	1212	ISO10307-1	0.011		-0.29
603		-----		-----	1229	ISO10307-1	0.03		1.21
604		-----		-----	1233		-----		-----
605	IP375	0.01		-0.37	1259		-----		-----
607		-----		-----	1264	IP375	0.03		1.21
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631	IP375	0.0104		-0.33	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)
1300	IP375	0.013		-0.13
1345	IP375	0.014		-0.05
1347		-----		-----
1348		-----		-----
1356		-----		-----
1365	IP375	0.02		0.42
1367		-----		-----
1381	ISO10307-1	0.0112		-0.27
1385		-----		-----
1389	IP375	0.019		0.34
1402	IP375	0.01		-0.37
1404	ISO10307-1	0.02		0.42
1412	IP375	0.013		-0.13
1428	ISO10307-1	0.018		0.26
1431		-----		-----
1455	ISO10307-1	<0.01		-----
1459		-----		-----
1510		-----		-----
1520	IP375	0.021		0.50
1556		-----		-----
1569		-----		-----
1583		-----		-----
1585	IP375	0.021		0.50
1586	ISO10307-1	0.02		0.42
1613	D4870	0.020		0.42
1631		-----		-----
1643		-----		-----
1648	ISO10307-1	0.017		0.19
1650		-----		-----
1681	ISO10307-1	0.016		0.11
1720		-----		-----
1724		-----		-----
1740	ISO10307-1	0.010		-0.37
1763		-----		-----
1772		-----		-----
1782	ISO10307-1	0.01		-0.37
1784	ISO10307-1	0.010		-0.37
1792	IP375	0.009		-0.44
1796	IP375	0.0109		-0.29
1807	D4870	0.00		-1.15

lab	method	value	mark	z(targ)
1810		-----		-----
1811	IP375	0.010		-0.37
1813	D4870	0.008		-0.52
1832		-----		-----
1833		-----		-----
1849		-----		-----
1854	IP375	0.018		0.26
1857	ISO10307-1	0.01		-0.37
1862	IP375	0.0156		0.08
1881	IP375	0.01		-0.37
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1942	D4870	0.01		-0.37
1943		-----		-----
1949	IP375	0.014		-0.05
1950	IP375	0.0146		0.00
1956		-----		-----
1962		-----		-----
1964		-----		-----
1967	IP375	0.0240		0.74
1986	ISO10307-1	0.01		-0.37
1995		-----		-----
2129	IP375	0.0154		0.06
6004		-----		-----
6013	ISO10307-1	0.01		-0.37
6014	ISO10307-1	0.01		-0.37
6016		-----		-----
6020		-----		-----
6021	IP375	0.0169		0.18
6024	IP375	0.0168		0.17
6025	IP375	0.0180		0.26
6026	IP375	0.0131		-0.12
6028		-----		-----
6038		-----		-----
6039		-----		-----
7003		-----		-----
7017	IP375	0.009		-0.44

normality	OK
n	108
outliers	1
mean (n)	0.0146
st.dev. (n)	0.00664
R(calc.)	0.0186
R(IP375:11)	0.0356



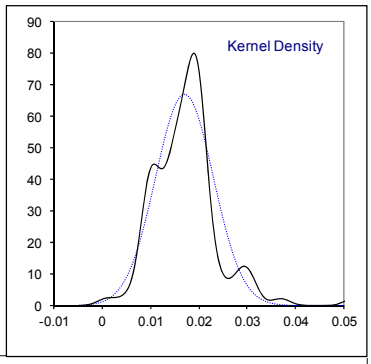


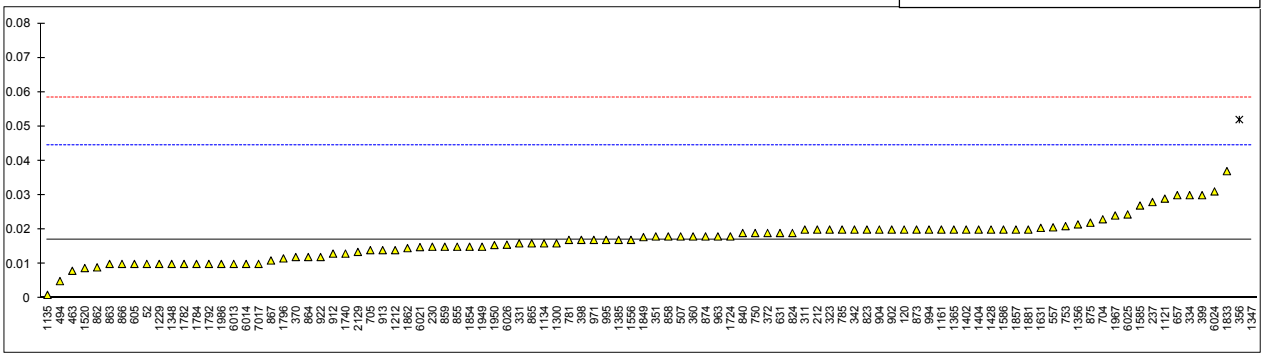
Determination of Total Sediment (Accelerated) of sample #16001; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	ISO10307-2	0.01		-0.52	634		-----		-----
62		-----		-----	657	IP390	0.03		0.94
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120	ISO10307-2	0.02		0.21	704	IP390	0.023		0.43
131		-----		-----	705	IP390	0.014		-0.23
132	ISO10307-2	<0.001		-----	732		-----		-----
133		-----		-----	750	IP390	0.019		0.14
140		-----		-----	753	IP390	0.021		0.28
150		-----		-----	759		-----		-----
154		-----		-----	781	IP390	0.017		-0.01
158		-----		-----	784		-----		-----
159		-----		-----	785	IP390	0.02		0.21
168		-----		-----	791		-----		-----
169		-----		-----	823	ISO10307-2	0.02		0.21
171		-----		-----	824	ISO10307-2	0.019		0.14
175		-----		-----	840	ISO10307-2	0.019		0.14
194		-----		-----	851		-----		-----
212	ISO10307-2	0.02		0.21	855	IP390	0.015		-0.15
221		-----		-----	857		-----		-----
224		-----		-----	858	ISO10307-2	0.018		0.07
225		-----		-----	859	ISO10307-2	0.015		-0.15
228		-----		-----	862	ISO10307-2	0.009		-0.59
230	ISO10307-2	0.015		-0.15	863	IP390	0.01		-0.52
237	D4870	0.028		0.79	864	ISO10307-2	0.012		-0.37
238		-----		-----	865	IP390	0.016		-0.08
252		-----		-----	866	ISO10307-2	0.01		-0.52
253		-----		-----	867	IP390	0.011		-0.44
254		-----		-----	873	IP390	0.020		0.21
256		-----		-----	874	IP390	0.018		0.07
273		-----		-----	875	IP390	0.022		0.36
311	IP390	0.02		0.21	886		-----		-----
313		-----		-----	887		-----		-----
323	IP390	0.02		0.21	902	IP390	0.02		0.21
331	ISO10307-2	0.0160		-0.08	904	IP390	0.02		0.21
333		-----		-----	912	ISO10307-2	0.013		-0.30
334	IP390	0.03		0.94	913	ISO10307-2	0.014		-0.23
336		-----		-----	922	ISO10307-2	0.012		-0.37
337		-----		-----	962		-----		-----
340		-----		-----	963	IP390	0.018		0.07
342	ISO10307-2	0.02		0.21	971	IP390	0.017		-0.01
343	ISO10307-2	<0.01		-----	974		-----		-----
349		-----		-----	982		-----		-----
351	ISO10307-2	0.018		0.07	994	IP390	0.02		0.21
353		-----		-----	995	IP390	0.017		-0.01
356	ISO10307-2	0.052	R(0.01)	2.54	996		-----		-----
360	IP390	0.018		0.07	997		-----		-----
370	IP390	0.012		-0.37	1011		-----		-----
372	IP390	0.019		0.14	1016		-----		-----
391		-----		-----	1019		-----		-----
398	ISO10307-2	0.017		-0.01	1040		-----		-----
399	IP390	0.03		0.94	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	IP390	<0.01		-----	1082		-----		-----
447		-----		-----	1109		-----		-----
463	ISO10307-2	0.008		-0.66	1121	IP390	0.029		0.87
494	IP390	0.005		-0.88	1126		-----		-----
507	IP390	0.018		0.07	1134	IP390	0.016		-0.08
511		-----		-----	1135	ISO10307-2	0.001		-1.17
529		-----		-----	1161	ISO10307-2	0.02		0.21
541		-----		-----	1167		-----		-----
551		-----		-----	1177		-----		-----
557	D4870	0.0206555		0.26	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212	ISO10307-2	0.014		-0.23
603		-----		-----	1229	ISO10307-2	0.01		-0.52
604		-----		-----	1233		-----		-----
605	IP390	0.01		-0.52	1259		-----		-----
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631	IP390	0.019		0.14	1281		-----		-----
633		-----		-----	1299		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	IP390	0.016		-0.08	1810		-----		-----
1345		-----		-----	1811		-----		-----
1347	D4870	0.090	R(0.01)	5.31	1813		-----		-----
1348	D4870	0.01		-0.52	1832		-----		-----
1356	ISO10307-2	0.0215		0.32	1833	ISO10307-2	0.037		1.45
1365	IP390	0.02		0.21	1849	ISO10307-2	0.0178		0.05
1367		-----		-----	1854	ISO10307-2	0.015		-0.15
1381		-----		-----	1857	ISO10307-2	0.02		0.21
1385	D4870	0.017		-0.01	1862	IP390	0.0146		-0.18
1389		-----		-----	1881	IP390	0.02		0.21
1402	IP390	0.02		0.21	1906		-----		-----
1404	ISO10307-2	0.02		0.21	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428	ISO10307-2	0.020		0.21	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455	ISO10307-2	<0.01		-----	1943		-----		-----
1459		-----		-----	1949	IP390	0.015		-0.15
1510		-----		-----	1950	IP390	0.0155		-0.12
1520	IP390	0.0088		-0.60	1956		-----		-----
1556	ISO10307-2	0.017		-0.01	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583		-----		-----	1967	IP390	0.0241		0.51
1585	IP390	0.027		0.72	1986	ISO10307-2	0.01		-0.52
1586	ISO10307-2	0.02		0.21	1995		-----		-----
1613		-----		-----	2129	IP390	0.0135		-0.26
1631	ISO10307-2	0.0205		0.25	6004		-----		-----
1643		-----		-----	6013	ISO10307-2	0.01		-0.52
1648		-----		-----	6014	ISO10307-2	0.01		-0.52
1650		-----		-----	6016		-----		-----
1681		-----		-----	6020		-----		-----
1720		-----		-----	6021	IP390	0.0149		-0.16
1724	ISO10307-2	0.018		0.07	6024	IP390	0.0311		1.02
1740	ISO10307-2	0.013		-0.30	6025	IP390	0.0244		0.53
1763		-----		-----	6026	IP390	0.0156		-0.11
1772		-----		-----	6028		-----		-----
1782	ISO10307-2	0.01		-0.52	6038		-----		-----
1784	ISO10307-2	0.010		-0.52	6039		-----		-----
1792	IP390	0.010		-0.52	7003		-----		-----
1796	IP390	0.0116		-0.40	7017	IP390	0.010		-0.52
1807		-----		-----					

normality	suspect
n	96
outliers	2
mean (n)	0.0171
st.dev. (n)	0.00598
R(calc.)	0.0167
R(IP390:11)	0.0384



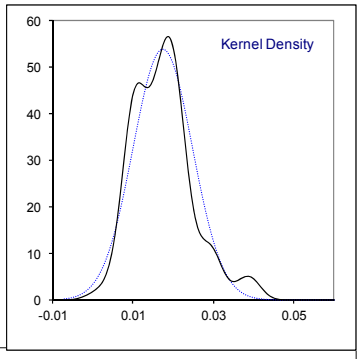


Determination of Total Sediment (Potential) of sample #16001; results in %M/M

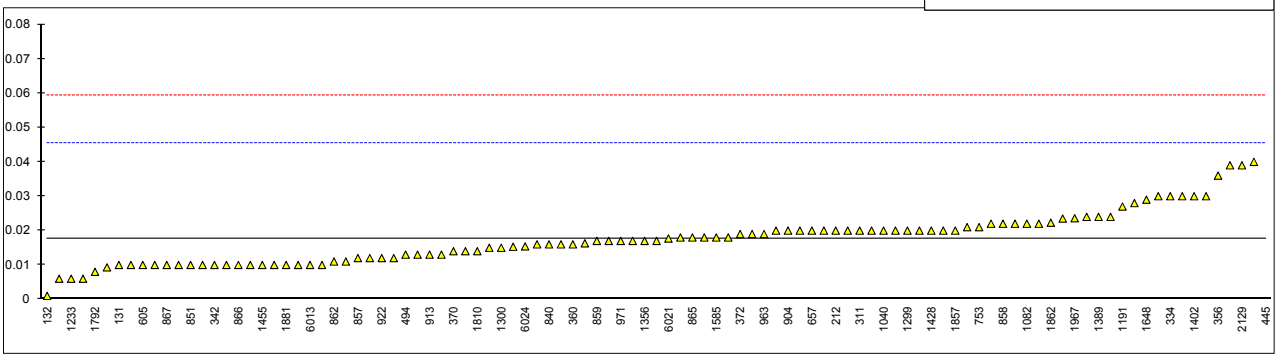
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	ISO10307-2	0.01		-0.54	634		-----		-----
62		-----		-----	657	IP390	0.02		0.18
90		-----		-----	663		-----		-----
92		-----		-----	671		-----		-----
120	ISO10307-2	0.02		0.18	704	IP390	0.016		-0.11
131	D4870	0.01		-0.54	705	IP390	0.016		-0.11
132	ISO10307-2	0.001		-1.19	732		-----		-----
133		-----		-----	750	IP390	0.01		-0.54
140		-----		-----	753	IP390	0.021		0.25
150		-----		-----	759		-----		-----
154		-----		-----	781	IP390	0.017		-0.04
158		-----		-----	784		-----		-----
159		-----		-----	785	IP390	0.01		-0.54
168		-----		-----	791		-----		-----
169		-----		-----	823	ISO10307-2	0.02		0.18
171		-----		-----	824	ISO10307-2	0.018		0.03
175		-----		-----	840	ISO10307-2	0.016		-0.11
194		-----		-----	851	ISO10307-2	0.010		-0.54
212	ISO10307-2	0.02		0.18	855	ISO10307-2	0.015		-0.18
221		-----		-----	857	ISO10307-2	0.012		-0.40
224		-----		-----	858	ISO10307-2	0.022		0.32
225		-----		-----	859	ISO10307-2	0.017		-0.04
228		-----		-----	862	ISO10307-2	0.011		-0.47
230	ISO10307-2	0.022		0.32	863	ISO10307-2	0.01		-0.54
237	D4870	0.028		0.75	864	ISO10307-2	0.013		-0.33
238		-----		-----	865	IP390	0.018		0.03
252		-----		-----	866	ISO10307-2	0.01		-0.54
253		-----		-----	867	IP390	0.010		-0.54
254		-----		-----	873	IP390	0.021		0.25
256		-----		-----	874	IP390	0.019		0.10
273	IP390	0.006		-0.83	875	IP390	0.022		0.32
311	IP390	0.02		0.18	886		-----		-----
313		-----		-----	887		-----		-----
323	IP390	0.02		0.18	902	IP390	0.02		0.18
331	ISO10307-2	0.0300		0.90	904	IP390	0.02		0.18
333		-----		-----	912	ISO10307-2	0.010		-0.54
334	IP390	0.03		0.90	913	ISO10307-2	0.013		-0.33
336		-----		-----	922	ISO10307-2	0.012		-0.40
337		-----		-----	962		-----		-----
340		-----		-----	963	IP390	0.019		0.10
342	ISO10307-2	0.01		-0.54	971	IP390	0.017		-0.04
343	ISO10307-2	<0.01		-----	974		-----		-----
349		-----		-----	982		-----		-----
351	ISO10307-2	0.018		0.03	994	IP390	0.02		0.18
353		-----		-----	995	IP390	0.017		-0.04
356	ISO10307-2	0.036		1.33	996		-----		-----
360	IP390	0.016		-0.11	997		-----		-----
370	IP390	0.014		-0.25	1011		-----		-----
372	IP390	0.019		0.10	1016		-----		-----
391		-----		-----	1019		-----		-----
398	ISO10307-2	0.012		-0.40	1040	ISO10307-2	0.02		0.18
399	IP390	0.03		0.90	1059		-----		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445	IP390	0.20	R(0.01)	13.12	1082	ISO10307-2	0.022		0.32
447		-----		-----	1109		-----		-----
463	ISO10307-2	<0.01		-----	1121	IP390	0.04	C	1.61
494	IP390	0.013		-0.33	1126		-----		-----
507	IP390	0.014		-0.25	1134	IP390	0.039		1.54
511		-----		-----	1135	ISO10307-2	0.012		-0.40
529		-----		-----	1161	ISO10307-2	0.02		0.18
541		-----		-----	1167		-----		-----
551		-----		-----	1177		-----		-----
557		-----		-----	1191	ISO10307-2	0.027		0.68
558		-----		-----	1205		-----		-----
562		-----		-----	1212		-----		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233	ISO10307-2	0.006		-0.83
605	IP390	0.01		-0.54	1259		-----		-----
607		-----		-----	1264		-----		-----
608		-----		-----	1266		-----		-----
621		-----		-----	1275		-----		-----
631	IP390	0.024		0.46	1281		-----		-----
633		-----		-----	1299	ISO10307-2	0.02		0.18

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	IP390	0.015		-0.18	1810	ISO10307-2	0.014		-0.25
1345		-----		-----	1811		-----		-----
1347		-----		-----	1813		-----		-----
1348		-----		-----	1832		-----		-----
1356	ISO10307-2	0.0170		-0.04	1833		-----		-----
1365	IP390	0.02		0.18	1849		-----		-----
1367		-----		-----	1854	ISO10307-2	0.017		-0.04
1381		-----		-----	1857	ISO10307-2	0.02		0.18
1385		-----		-----	1862	IP390	0.0223		0.34
1389	IP390	0.024		0.46	1881	IP390	0.01		-0.54
1402	IP390	0.03		0.90	1906		-----		-----
1404	ISO10307-2	0.03		0.90	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428	ISO10307-2	0.020		0.18	1938		-----		-----
1431	D4870	0.01		-0.54	1942		-----		-----
1455	ISO10307-2	0.01		-0.54	1943		-----		-----
1459		-----		-----	1949	IP390	0.024		0.46
1510		-----		-----	1950	IP390	0.022		0.32
1520	IP390	0.0093		-0.59	1956		-----		-----
1556		-----		-----	1962		-----		-----
1569		-----		-----	1964		-----		-----
1583		-----		-----	1967	IP390	0.0236		0.44
1585	IP390	0.018		0.03	1986	ISO10307-2	0.01		-0.54
1586	ISO10307-2	0.02		0.18	1995		-----		-----
1613		-----		-----	2129	IP390	0.039		1.54
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013	ISO10307-2	0.01		-0.54
1648	ISO10307-2	0.029		0.82	6014	ISO10307-2	0.01		-0.54
1650		-----		-----	6016		-----		-----
1681	ISO10307-2	0.018		0.03	6020		-----		-----
1720		-----		-----	6021	IP390	0.0177		0.01
1724		-----		-----	6024	IP390	0.0154		-0.15
1740	ISO10307-2	0.013		-0.33	6025	IP390	0.0235		0.43
1763		-----		-----	6026	IP390	0.0163		-0.09
1772		-----		-----	6028		-----		-----
1782	ISO10307-2	0.01		-0.54	6038		-----		-----
1784	ISO10307-2	0.011		-0.47	6039		-----		-----
1792	IP390	0.008		-0.69	7003		-----		-----
1796	IP390	0.0153		-0.16	7017	IP390	0.006		-0.83
1807		-----		-----					

normality	suspect
n	102
outliers	1
mean (n)	0.0175
st.dev. (n)	0.00741
R(calc.)	0.0207
R(IP390:11)	0.0389



Lab 1121 first reported 0.30



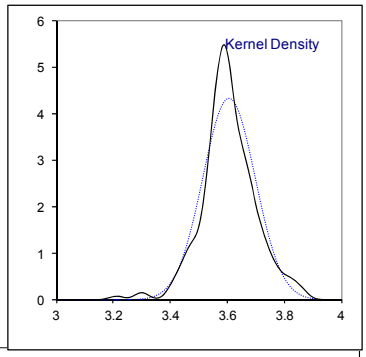
Determination of Total Sulphur on sample #16001; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4294	3.74		1.24	634	D4294	3.7299		1.15
62	D4294	3.74		1.24	657	D4294	3.54		-0.60
90	D4294	3.722		1.07	663	D4294	3.59		-0.14
92	D4294	3.828		2.05	671	D4294	3.4580		-1.35
120	D4294	3.80		1.79	704	D4294	3.545		-0.55
131	D4294	3.6873		0.75	705	D4294	3.574		-0.29
132	ISO8754	3.669		0.59	732	D4294	3.473		-1.21
133	D4294	3.66		0.50	750	D4294	3.65		0.41
140	D4294	3.67		0.60	753	D4294	3.52		-0.78
150	D4294	3.77		1.51	759	D4294	3.564		-0.38
154	D4294	3.67		0.60	781	D4294	3.57		-0.32
158	D4294	3.8629		2.37	784	D4294	3.63		0.23
159	D4294	3.68		0.69	785	D4294	3.651		0.42
168	D4294	3.71		0.96	791	D4294	3.60		-0.05
169	D4294	3.7684		1.50	823	D4294	3.572		-0.30
171	D4294	3.6932		0.81	824	ISO8754	3.65		0.41
175	D4294	3.74		1.24	840	ISO8754	3.694		0.82
194	D4294	3.66		0.50	851	ISO8754	3.48		-1.15
212	ISO8754	3.56		-0.41	855	D4294	3.588		-0.16
221	D4294	3.58		-0.23	857		-----		-----
224	D4294	3.614		0.08	858	D4294	3.586		-0.18
225	D4294	3.71		0.96	859	D4294	3.594		-0.10
228	D4294	3.40		-1.88	862	D2622	3.604		-0.01
230	ISO8754	3.570		-0.32	863	D4294	3.54		-0.60
237	D4294	3.521		-0.77	864	D4294	3.625		0.18
238	D4294	3.622		0.15	865	D4294	3.65		0.41
252		-----		-----	866	D4294	3.572		-0.30
253	D4294	3.60		-0.05	867	D4294	3.544		-0.56
254	D4294	3.74		1.24	873	D4294	3.582		-0.21
256	D4294	3.67		0.60	874	D4294	3.60		-0.05
273		-----		-----	875	D4294	3.62		0.14
311	D4294	3.65		0.41	886		-----		-----
313	D4294	3.65		0.41	887		-----		-----
323	D4294	3.57	C	-0.32	902	D4294	3.65		0.41
331	ISO8754	3.447		-1.45	904	D4294	3.69		0.78
333	D4294	3.45		-1.42	912	D4294	3.599		-0.06
334	D4294	3.60		-0.05	913	D4294	3.58		-0.23
336	D4294	3.55		-0.51	922	D4294	3.689		0.77
337	D2622	3.59		-0.14	962	D4294	3.62		0.14
340	D4294	3.71		0.96	963	D4294	3.58		-0.23
342		-----		-----	971	D4294	3.61		0.04
343	IP336	3.572		-0.30	974	D4294	3.60		-0.05
349		-----		-----	982	D4294	3.544		-0.56
351	ISO8754	3.696		0.83	994	D4294	3.53		-0.69
353		-----		-----	995	D4294	3.61		0.04
356	D4294	3.55		-0.51	996		-----		-----
360	D4294	3.60		-0.05	997	D4294	3.657		0.48
370	D4294	3.655		0.46	1011	ISO8754	3.481		-1.14
372	D4294	3.56		-0.41	1016	ISO8754	3.614		0.08
391	ISO8754	3.60		-0.05	1019	D1552	3.807		1.85
398	ISO8754	3.622		0.15	1040	ISO8754	3.487		-1.09
399	D4294	3.64		0.32	1059	ISO14596	3.68		0.69
440		-----		-----	1065	D4294	3.47		-1.24
444		-----		-----	1066		-----		-----
445	IP336	3.536		-0.64	1082	ISO8754	3.606		0.01
447	IP336	3.55		-0.51	1109	D4294	3.46		-1.33
463	D4294	3.5325		-0.67	1121	IP336	3.6667		0.56
494	D4294	3.57		-0.32	1126	in house	3.47		-1.24
507	D4294	3.731		1.16	1134	IP336	3.51426		-0.83
511	D4294	3.581		-0.22	1135	ISO8754	3.524		-0.75
529		-----		-----	1161	ISO8754	3.49		-1.06
541		-----		-----	1167	ISO8754	3.55		-0.51
551	D4294	3.859		2.33	1177	DIN51900/10304-1	3.588		-0.16
557	D4294	3.77585		1.57	1191	ISO8754	3.533		-0.66
558		-----		-----	1205	ISO14596	3.6920		0.80
562	D4294	3.768		1.50	1212	D4294	3.608		0.03
603	D4294	3.610		0.04	1229	ISO8754	3.57		-0.32
604	D4294	3.532		-0.67	1233	ISO8754	3.575		-0.28
605	D4294	3.568		-0.34	1259	ISO8754	3.685		0.73
607	D4294	3.530		-0.69	1264	D4294	3.505		-0.92
608	D4294	3.677		0.66	1266	ISO8754	3.66		0.50
621	D4294	3.582		-0.21	1275	IP336	3.416		-1.74
631	D4294	3.666		0.56	1281	in house	3.610		0.04
633		-----		-----	1299	D2622	3.21	R(0.01)	-3.63

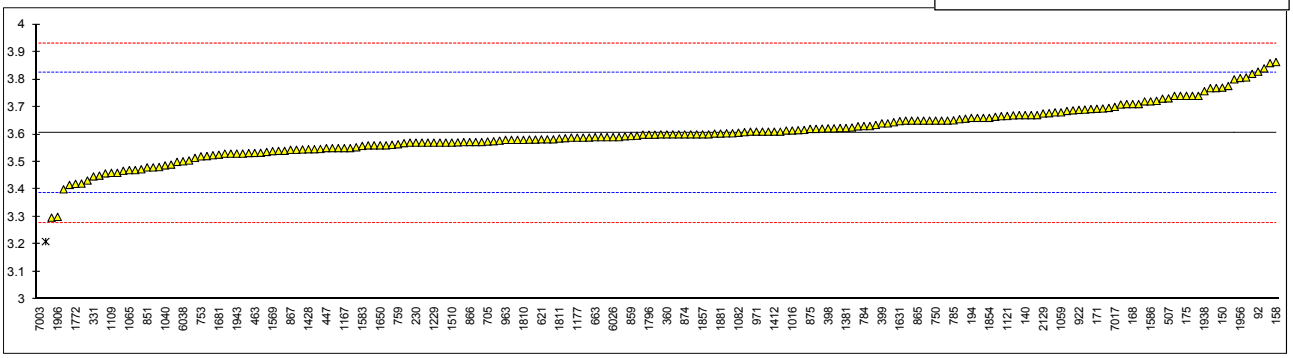
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D4294	3.644		0.36	1810	D4294	3.58		-0.23
1345	D4294	3.623		0.16	1811	D4294	3.585		-0.19
1347	D4294	3.297		-2.83	1813	D2622	3.562		-0.40
1348	D4294	3.72		1.05	1832	ISO8754	3.5469		-0.54
1356	ISO8754	3.57		-0.32	1833	ISO8754	3.63		0.23
1365	D4294	3.7085		0.95	1849	ISO8754	3.56		-0.41
1367	D4294	3.74		1.24	1854	ISO8754	3.66		0.50
1381	ISO8754	3.623		0.16	1857	D4294	3.60		-0.05
1385	D4294	3.421		-1.69	1862	D4294	3.5717		-0.31
1389	D4294	3.57		-0.32	1881	D4294	3.603		-0.02
1402	IP336	3.64		0.32	1906	D5623	3.3		-2.80
1404	ISO8754	3.82		1.97	1936	ISO8754	3.6152		0.09
1412	D4294	3.61		0.04	1937	ISO8754	3.595		-0.09
1428	ISO8754	3.546		-0.54	1938	ISO8754	3.757		1.39
1431	D4294	3.46		-1.33	1942	D4294	3.65		0.41
1455	D2622	3.50		-0.97	1943	DIN51400-2	3.53		-0.69
1459	ISO8754	3.59		-0.14	1949	D4294	3.581		-0.22
1510	IP336	3.57		-0.32	1950	D4294	3.621		0.15
1520	D4294	3.577		-0.26	1956	ISO8754	3.805		1.83
1556	ISO8754	3.432		-1.59	1962	ISO8754	3.4675		-1.26
1569	ISO8754	3.539		-0.61	1964		-----		-----
1583	D4294	3.558		-0.43	1967	D4294	3.546		-0.54
1585	D4294	3.610		0.04	1986	D4294	3.60		-0.05
1586	D4294	3.72		1.05	1995		-----		-----
1613	D4294	3.664		0.54	2129	D4294	3.676		0.65
1631	ISO8754	3.648		0.39	6004	D4294	3.5883		-0.15
1643	D1552	3.593		-0.11	6013	D2622	3.53		-0.69
1648	D4294	3.634		0.26	6014	D2622	3.55		-0.51
1650	D4294	3.56		-0.41	6016		-----		-----
1681	ISO8754	3.526		-0.73	6020	D4294	3.588		-0.16
1720	D4294	3.553	C	-0.48	6021	D4294	3.582		-0.21
1724	IP336	3.48		-1.15	6024	D4294	3.571		-0.31
1740	ISO8754	3.65		0.41	6025	D4294	3.599		-0.06
1763	ISO8754	3.603		-0.02	6026	D4294	3.59		-0.14
1772	INH-8428	3.42		-1.70	6028	ISO8754	3.6293		0.22
1782	D4294	3.604		-0.01	6038	ISO8754	3.502		-0.95
1784	ISO8754	3.67		0.60	6039	ISO8754	3.59		-0.14
1792	D4294	3.616		0.10	7003	D5453	2.1125	C,R(0.01)	-13.71
1796	D4294	3.599		-0.06	7017	D4294	3.700		0.87
1807	D4294	3.84		2.16					

normality	suspect
n	206
outliers	2
mean (n)	3.605
st.dev. (n)	0.0920
R(calc.)	0.258
R(ISO8754:03)	0.305

Compare R(D4294:10)=0.166



Lab 323 first reported 3.86
Lab 1720 first reported 3.915
Lab 7003 first reported 2.698

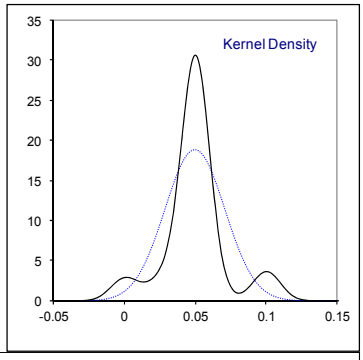


Determination of Water by distillation on sample #16001; results in %V/V

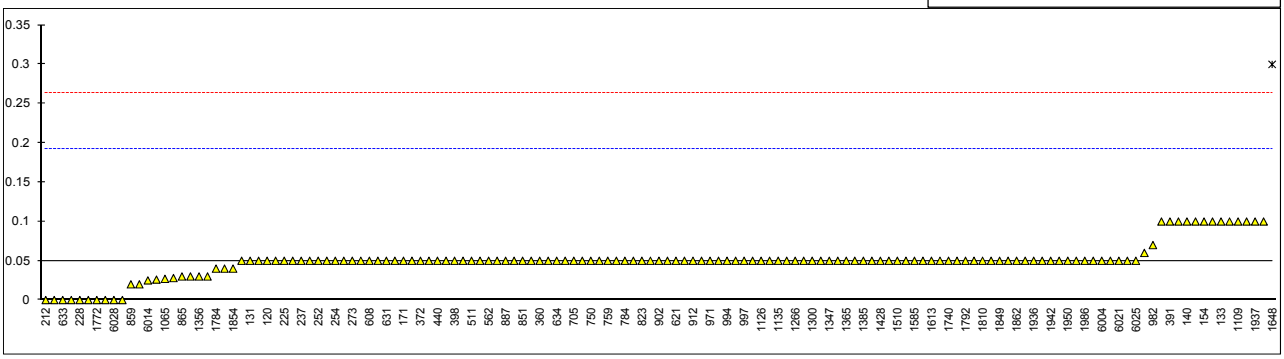
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D95	0.05		0.01	634	D95	0.05		0.01
62	D95	0.03		-0.27	657	D95	<0.05		-----
90	D95	<0.1		-----	663		-----		-----
92	D95	<0.1		-----	671	D95	<0.10		-----
120	D95	0.05		0.01	704	D95	0.05		0.01
131	D95	0.05		0.01	705	D95	0.05		0.01
132	ISO3733	<0.05		-----	732	INH-2477	0.06		0.15
133	D95	0.1		0.71	750	D95	0.05		0.01
140	D95	0.1		0.71	753	D95	0.05		0.01
150	D95	0.05		0.01	759	D95	0.05		0.01
154	D95	0.10		0.71	781	D95	0.10		0.71
158		-----		-----	784	D95	0.05		0.01
159	D95	<0.05		-----	785	D95	0.05		0.01
168	D95	0.05		0.01	791	D95	0.05		0.01
169		-----		-----	823	D95	0.05		0.01
171	D95	0.05		0.01	824	D95	0.05		0.01
175	D95	0.10		0.71	840	D95	0.05		0.01
194	D95	<0.05		-----	851	ISO3733	0.05		0.01
212	ISO3733	0.0		-0.69	855	D95	<0.05		-----
221	D95	0.10		0.71	857	D95	<0.05		-----
224		-----		-----	858	D95	<0.05		-----
225	D95	0.05		0.01	859	D95	0.02		-0.41
228	D95	0		-0.69	862	D95	<0.05		-----
230	ISO3733	<0.05		-----	863	D95	<0.05		-----
237	D95	0.05		0.01	864	D95	<0.05		-----
238	D95	0.05		0.01	865	D95	0.03		-0.27
252	D95	0.05		0.01	866	D95	<0.05		-----
253	D95	0.05		0.01	867	D95	<0.05		-----
254	D95	0.05		0.01	873	D95	0.05		0.01
256	D95	0.05		0.01	874	D95	0.05		0.01
273	D95	0.05		0.01	875	D95	0.05		0.01
311	D95	<0.05		-----	886	D95	0.05		0.01
313	D95	<0.05		-----	887	D95	0.05		0.01
323	D95	0.05		0.01	902	D95	0.05		0.01
331	D95	<0.05		-----	904	D95	0.05		0.01
333		-----		-----	912	D95	0.05		0.01
334	D95	<0.05		-----	913	D95	0.05		0.01
336		-----		-----	922	D95	<0.05		-----
337	D95	0		-0.69	962	D95	0.05		0.01
340	D95	<0.1		-----	963	D95	0.05		0.01
342	ISO3733	0		-0.69	971	D95	0.050		0.01
343	D95	<0.1		-----	974	D95	0.05		0.01
349		-----		-----	982	D95	0.07		0.29
351	ISO3733	<0.05		-----	994	D95	0.05		0.01
353		-----		-----	995	D95	0.05		0.01
356	D95	<0.10		-----	996		-----		-----
360	D95	0.05		0.01	997	D95	0.05		0.01
370	D95	0.05		0.01	1011	ISO3733	<0.10		-----
372	D95	0.05		0.01	1016		-----		-----
391	ISO3733	0.10		0.71	1019	ISO3733	<0.1		-----
398	ISO3733	0.05		0.01	1040		-----		-----
399	D95	0.05		0.01	1059	ISO3733	<0.05		-----
440	D95	0.05		0.01	1065	D95	0.027		-0.31
444	D95	<0.05		-----	1066		-----		-----
445	D95	<0.05		-----	1082		-----		-----
447	D95	0.1		0.71	1109	D95	0.10		0.71
463	D95	<0.1		-----	1121	IP74	0.05		0.01
494	D95	0.05		0.01	1126	D95	0.05		0.01
507	D95	0.05		0.01	1134	D95	0.05		0.01
511	D95	0.05		0.01	1135	ISO3733	0.05		0.01
529		-----		-----	1161	EN1428	0.1		0.71
541	D95	<0.05		-----	1167	EN1428	<0.1		-----
551	D95	<0.05		-----	1177		-----		-----
557	D95	0.10		0.71	1191		-----		-----
558		-----		-----	1205		-----		-----
562	D95	0.05		0.01	1212		-----		-----
603	D95	0.05		0.01	1229		-----		-----
604		-----		-----	1233		-----		-----
605	D95	0.05		0.01	1259	ISO3733	<0.05		-----
607	D95	0.05		0.01	1264	D95	0.05		0.01
608	D95	0.05		0.01	1266	D95	0.05		0.01
621	D95	0.05		0.01	1275	IP74	<0.10		-----
631	D95	0.05		0.01	1281	ISO3733	0.05		0.01
633	D95	0		-0.69	1299	D95	<0.1		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D95	0.05		0.01	1810	D95	0.05		0.01
1345	D95	0.05		0.01	1811		-----		-----
1347	D95	0.05		0.01	1813	D95	0.050		0.01
1348	D95	0.05		0.01	1832	ISO3733	0.04		-0.13
1356	D95	0.03		-0.27	1833		<0.1		-----
1365	D95	0.05		0.01	1849	EN1428	0.05		0.01
1367	D95	0.0		-0.69	1854	ISO3733	0.04		-0.13
1381	ISO3733	0.05		0.01	1857	D95	0.05		0.01
1385	D95	0.05		0.01	1862	D95	0.05		0.01
1389	D95	<0.1		-----	1881	D95	0.05		0.01
1402	D95	<0.05		-----	1906	D6304	0.026		-0.33
1404	D95	0.028		-0.30	1936	EN1428	0.05		0.01
1412	D95	0.05		0.01	1937	EN1428	0.1		0.71
1428	D95	0.05		0.01	1938		0.05		0.01
1431	D95	0.05		0.01	1942	D95	0.05		0.01
1455	D95	<0.1		-----	1943	ISO3733	<0.05		-----
1459	in house	<0.5		-----	1949	D95	0.05		0.01
1510	D95	0.05		0.01	1950	D95	0.05		0.01
1520	D95	<0.05		-----	1956		<0.1	C	-----
1556	D6304	0.02		-0.41	1962	D95	<0.1		-----
1569	D95	<0.1		-----	1964		-----		-----
1583	D95	0.05		0.01	1967	D95	0.05		0.01
1585	D95	0.05		0.01	1986	D95	0.05		0.01
1586	D95	0.05		0.01	1995		-----		-----
1613	D95	0.05		0.01	2129	D95	0.05		0.01
1631	EN1428	<0.1		-----	6004	D95	0.05		0.01
1643	D95	<0.1		-----	6013	D95	<0.05		-----
1648	D95	0.30	R(0.01)	3.51	6014	D95	0.025		-0.34
1650	D95	0.03		-0.27	6016		-----		-----
1681	ISO3733	<0.10		-----	6020	D95	0.05		0.01
1720		-----		-----	6021	D95	0.05		0.01
1724	D95	0.05		0.01	6024	D95	0.05		0.01
1740	ISO3733	0.05		0.01	6025	D95	0.05		0.01
1763		<0.05		-----	6026	D95	<0.05		-----
1772	ISO3733	0		-0.69	6028	D95	0.00		-0.69
1782	D95	0.05		0.01	6038	ISO3733	0.00		-0.69
1784	ISO3733	0.04		-0.13	6039		-----		-----
1792	D95	0.05		0.01	7003		-----		-----
1796	D95	0.05		0.01	7017	D95	0.10		0.71
1807	D95	0.00		-0.69					

normality	not OK
n	144
outliers	1
mean (n)	0.049
st.dev. (n)	0.0211
R(calc.)	0.059
R(D95:13e1)	0.200



Lab 631 reported that unit is %V/M as mentioned in method
Lab 1956 first reported > 0.1

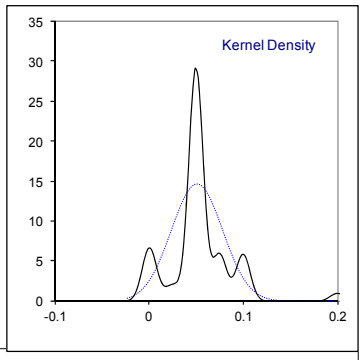


Determination of Water and Sediment on sample #16001; results in %V/V

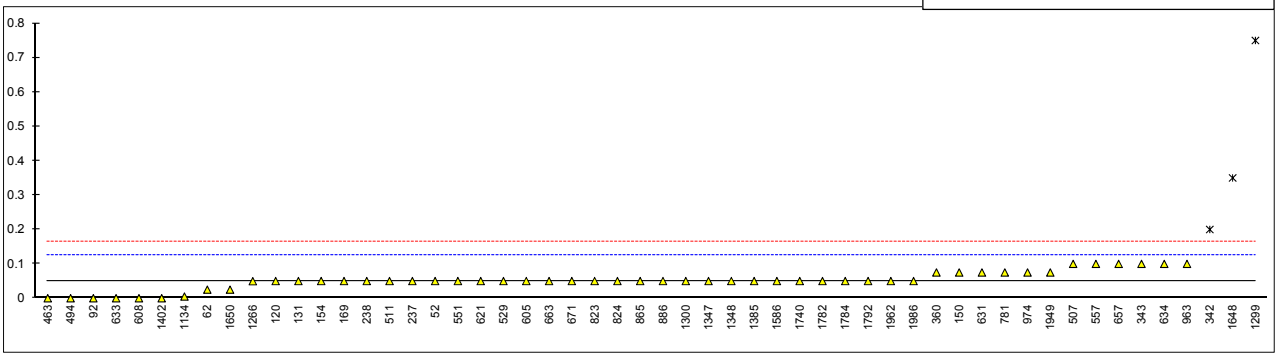
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1796	0.05		-0.03	634	D1796	0.10		1.30
62	D1796	0.025		-0.70	657	D1796	0.10		1.30
90		-----		-----	663	D1796	0.05		-0.03
92	D1796	0		-1.36	671	D1796	0.05	C	-0.03
120	D1796	0.05		-0.03	704		-----		-----
131	D1796	0.05		-0.03	705		-----		-----
132	D1796	<0.05		-----	732		-----		-----
133		-----		-----	750		-----		-----
140		-----		-----	753		-----		-----
150	D1796	0.075		0.64	759		-----		-----
154	D1796	0.05		-0.03	781	D1796	0.075		0.64
158		-----		-----	784		-----		-----
159		-----		-----	785		-----		-----
168		-----		-----	791		-----		-----
169	D1796	0.050		-0.03	823	D1796	0.05		-0.03
171		-----		-----	824	D1796	0.05		-0.03
175		-----		-----	840		-----		-----
194		-----		-----	851		-----		-----
212		-----		-----	855		-----		-----
221		-----		-----	857		-----		-----
224		-----		-----	858		-----		-----
225		-----		-----	859		-----		-----
228		-----		-----	862		-----		-----
230		-----		-----	863		-----		-----
237	D1796	0.05		-0.03	864		-----		-----
238	D1796	0.05		-0.03	865	D1796	0.05		-0.03
252		-----		-----	866		-----		-----
253		-----		-----	867		-----		-----
254		-----		-----	873		-----		-----
256		-----		-----	874		-----		-----
273		-----		-----	875		-----		-----
311		-----		-----	886	D1796	0.05		-0.03
313		-----		-----	887		-----		-----
323		-----		-----	902		-----		-----
331		-----		-----	904		-----		-----
333		-----		-----	912		-----		-----
334		-----		-----	913		-----		-----
336		-----		-----	922	D1796	<0.05		-----
337		-----		-----	962		-----		-----
340		-----		-----	963	D1796	0.10		1.30
342	D1796	0.2	R(0.01)	3.97	971		-----		-----
343	D1796	0.100		1.30	974	D1796	0.075		0.64
349		-----		-----	982		-----		-----
351		-----		-----	994		-----		-----
353		-----		-----	995		-----		-----
356		-----		-----	996		-----		-----
360	D1796	0.075		0.64	997		-----		-----
370		-----		-----	1011		-----		-----
372		-----		-----	1016		-----		-----
391		-----		-----	1019		-----		-----
398		-----		-----	1040		-----		-----
399		-----		-----	1059	ISO3734	<0.05		-----
440		-----		-----	1065		-----		-----
444		-----		-----	1066		-----		-----
445		-----		-----	1082		-----		-----
447		-----		-----	1109		-----		-----
463	D1796	0.0		-1.36	1121		-----		-----
494	D1796	0.00		-1.36	1126		-----		-----
507	D1796	0.10		1.30	1134	D1796	0.005		-1.23
511	D1796	0.05		-0.03	1135		-----		-----
529	D1796	0.05		-0.03	1161		-----		-----
541	D1796	<0.1		-----	1167		-----		-----
551	D1796	0.05		-0.03	1177		-----		-----
557	D1796	0.10		1.30	1191		-----		-----
558		-----		-----	1205		-----		-----
562		-----		-----	1212		-----		-----
603		-----		-----	1229		-----		-----
604		-----		-----	1233		-----		-----
605	D1796	0.05		-0.03	1259	ISO3734	<0.05		-----
607		-----		-----	1264		-----		-----
608	D4007	0.00		-1.36	1266	D1796	0.0496		-0.04
621	D1796	0.05		-0.03	1275		-----		-----
631	D1796	0.075		0.64	1281		-----		-----
633	D1796	0		-1.36	1299	D1796	0.75	R(0.01)	18.64

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1300	D1796	0.05		-0.03	1810		-----		-----
1345		-----		-----	1811		-----		-----
1347	D1796	0.05		-0.03	1813		-----		-----
1348	D1796	0.05		-0.03	1832		-----		-----
1356		-----		-----	1833		-----	W	-----
1365		-----		-----	1849		-----		-----
1367		-----		-----	1854		-----		-----
1381		-----		-----	1857		-----		-----
1385	D1796	0.05		-0.03	1862		-----		-----
1389	D1796	<0.025		-----	1881		-----		-----
1402	D1796	0		-1.36	1906		-----		-----
1404		-----		-----	1936		-----		-----
1412		-----		-----	1937		-----		-----
1428		-----		-----	1938		-----		-----
1431		-----		-----	1942		-----		-----
1455		-----		-----	1943		-----		-----
1459		-----		-----	1949	D1796	0.075		0.64
1510		-----		-----	1950		-----		-----
1520		-----		-----	1956		-----		-----
1556		-----		-----	1962	D1796	0.05		-0.03
1569		-----		-----	1964		-----		-----
1583		-----		-----	1967		-----		-----
1585		-----		-----	1986	D1796	0.05		-0.03
1586	D1796	0.05		-0.03	1995		-----		-----
1613	D1796	<0.05		-----	2129		-----		-----
1631		-----		-----	6004		-----		-----
1643		-----		-----	6013	D1796	<0.05		-----
1648	D1796	0.35	R(0.01)	7.97	6014	D1796	<0.05		-----
1650	D1796	0.025		-0.70	6016		-----		-----
1681	D1796	<0.025		-----	6020		-----		-----
1720		-----		-----	6021		-----		-----
1724		-----		-----	6024		-----		-----
1740	D1796	0.05		-0.03	6025		-----		-----
1763		-----		-----	6026		-----		-----
1772		-----		-----	6028		-----		-----
1782	D1796	0.05		-0.03	6038		-----		-----
1784	D1796	0.05		-0.03	6039		-----		-----
1792	D1796	0.05		-0.03	7003		-----		-----
1796		-----		-----	7017		-----		-----
1807		-----		-----					

normality	OK
n	51
outliers	3
mean (n)	0.05107
st.dev. (n)	0.027191
R(calc.)	0.07613
R(D1796:11e1)	0.10500



Lab 671 first reported 0.3
Lab 1833 first reported 0.4



Vacuum Distillation according to ASTM D1160 on sample #16001, results in °C

lab	method	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
140	D1160	**274.2**	**302.5**	351.7	428.6	471.1	502.1	*535.1 ex*	**582.0**
311	D1160	217.0	**309.2**	355.6	422.5	464.8	500.5	*533.1 ex*	**555.8**
323	D1160	208	287	338	411	458	492	521	-----
360	D1160	195	285	339	420	464	495	520	520
370	D1160	174	259	309	403 **C**	449 **C**	478 **C**	-----	-----
372	D1160	182	282	339	420	466	497	-----	-----
445	D1160	162.1	273.8	329.6	410.5	458.4	486.2	513.3	517.6
463	D1160	188	265	321	411	456	490	519	535
494	D1160	184.9	284.9	337.4	417.5	462.8	494.1	521.0	527.5
657	D1160	202.8	288.0	338.2	415.2	460.9	494.8	521.0	524.2
704	D1160	181	277	332	414	461	491	517	530
750	D1160	192	285	342	425	452	491 **C**	512 **C**	535
753	D1160	186	269	325	407	460	491	510	523
781	D1160	180	272	327	411	460	493	514	526
784	D1160	187.0	267.0	315.0	412.0	458.0	494.0	516.0	526.0
823	D1160	174.4	245.5	312.1	398.5	453.7	487.1	515.2	528.9
873	D1160	195.0	270.0	326.0	410.0	462.0	491.0	518.0	540.3
874	D1160	191	271	324	409	458	490	514	524
902	D1160	173.8	277.8	331.7	408.7	455.1	486.8	513.4	527.5
994	D1160	190.0	270.0	318.0	405.0	455.0	487.0	525.0	530.0
995	D1160	190.0	265.0	320.0	410.0	458.0	494.0	517.00	526.0
1066	D1160	188	275	329	413	458	490	517	530
1134	D1160	180	287	338	422	467	496	525	537
1135	D1160	174	269	324	409	459	491	-----	507
1212	D1160	203	278	341	421	467	499	526	535
1264	D1160	180.0	261.2	308.2	390.6	**437.5**	**468.8**	499.0	-----
1300	D1160	192.1	277.2	323.6	408.8	457.0	483.8	503.95	513.6
1412	D1160	181.0	268.0	327.0	403.0	456.0	489.0	514.0	-----
1455	D1160	195	280	335	419	466	494	520	528
1520	D1160	*185.0 ex*	*264.0 ex*	*307.0 ex*	**383.0**	**433.0**	**461.0**	-----	**467.0**
1585	D1160	168.5	272.0	330.0	420.0	468.0	499.0	524.0	534.0
1586	D1160	175	258	317	420	452	500	-----	525
1613	D1160	207.4	292.1	345.5	427.5	469.5	500.4	528.4	-----
1782	D1160	190.6	252.3	**298.1**	397.2 **C**	442.3 **C**	479.5 **C**	*491.5 ex*	519.3
1784	D1160	179.1	265.5	326.7	416.2	461.6	505.9 **C**	-----	526.0
1792	D1160	193.7	265.3	337.4	412.3	464.9	496.4	513.1	524.2
1796	D1160	168	275	332	421	469	501	506	517
1854	D1160	178	268	321	418	456	507	-----	525
1857	D1160	185.3	268.2	319.8	416.4	462.4	491.7	509.3	523.6
1862	D1160	190	270	327	413	462	491	513	527
1881	D1160	186	271	331	408	452	487	521	536
1949	D1160	181.9	284.5	336.2	421.1	463.4	495.3	520.8	529.5
1950	D1160	194.1	265.3	323.2	413.3	464.2	494.1	510.7	525
1967	D1160	182	245	310	393	448	**474**	512	520
1986	D1160	157	264	323	421	462	488	506	530
2129	D1160	171	260	326	410	459	487	509	517
6020	D1160	187	277	333	411	466	495	517	531
6021	D1160	183	267	325	410	459	490	512	529
6026		163	258	310	403	451	484	507	519
	normality	OK	OK	OK	OK	OK	OK	suspect	OK
	n	47	46	47	48	47	46	39	40
	outliers	1 +1ex	2+1ex	1+1ex	1	2	3	0+3ex	3
	mean (n)	184.84	271.03	328.32	412.66	459.70	492.62	515.41	526.23
	st.dev. (n)	12.136	10.670	10.754	8.304	6.088	6.141	6.496	6.794
	R(calc.)	33.98	29.88	30.11	23.25	17.05	17.20	18.19	19.02
	R(D1160:15)	49.45	27.66	23.31	20.10	16.40	14.15	14.15	26.89

Only laboratories that reported test results were listed.

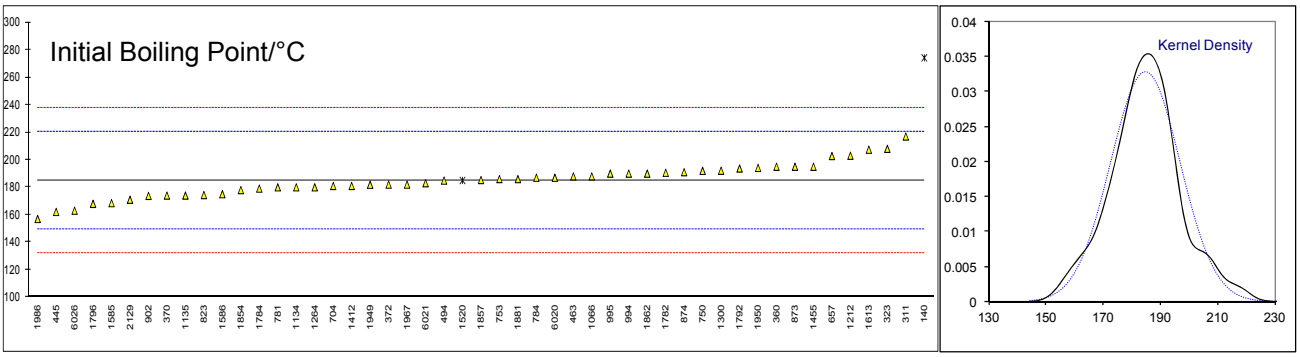
The reported results underlined and bold are statistical outliers.

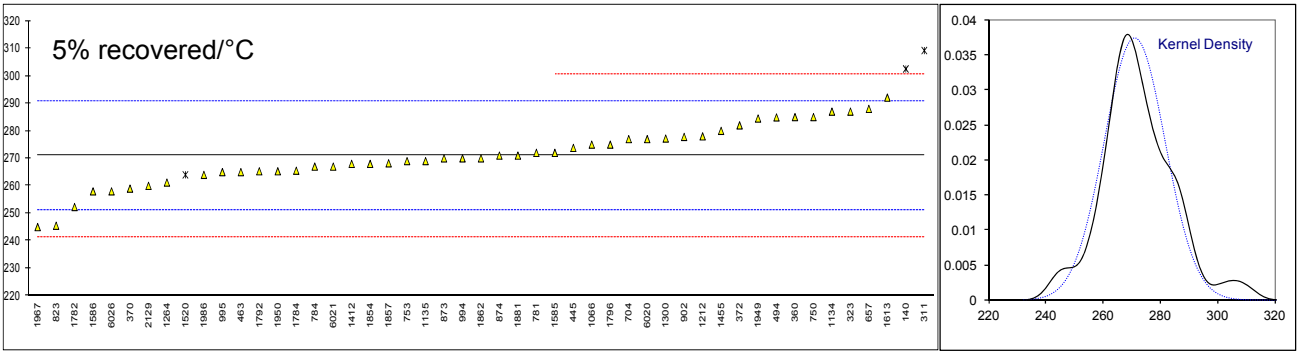
The reported results inderlined and italic are excluded for different reasons, see below

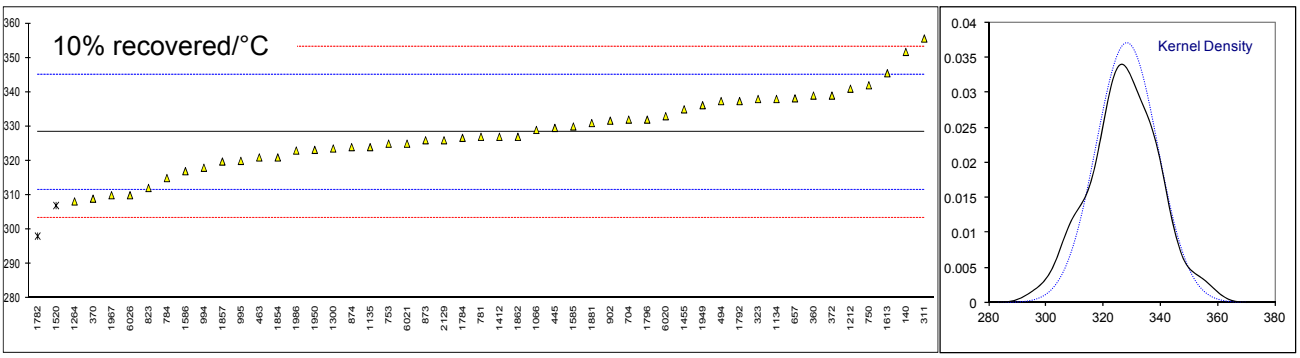
Labs 140 and 311; reported values are excluded, because 50% is related to FBP and are outlying results
Lab 311 performed distillation at 2mmHg
Lab 370 first reported respectively for 20%, 30% and 40% recovered as AET; 383, 429, 458
Lab 750 first reported respectively for 40% and 50% recovered as AET; 470, 488
Lab 1264 reported stopped distillation when flask reached 400°C
Lab 1782 first reported respectively for 20%, 30% and 40% rec. as AET; 380.7, 434.8, 468.5. Because 10% is an outlier and all other points corrected but 50% recovered not, the reported value for 50% rec. is excluded
Lab 1784 first reported for 40% recovered as AET; 511.9; reported total recovery 45%
Lab 1854 reported total recovery 46%
Lab 2129 reported stopped distillation when flask reached 400°C at 50% recovery

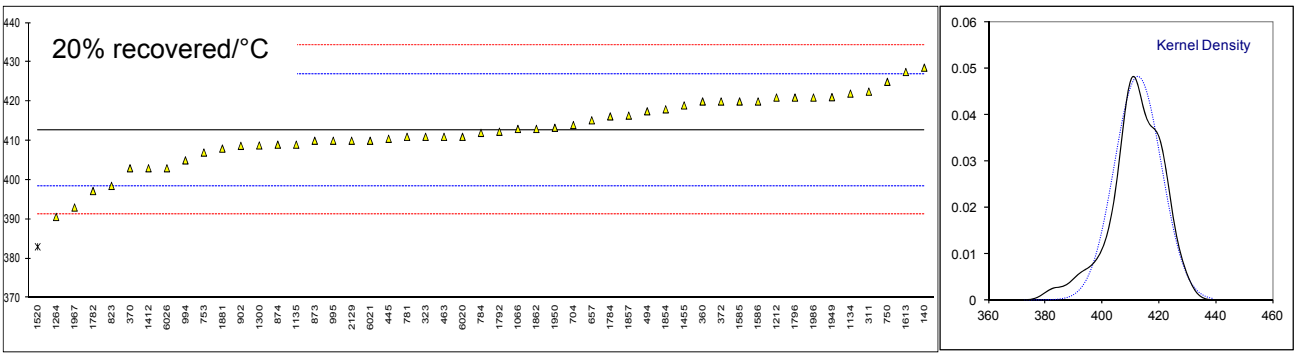
z-scores of Vacuum Distillation according to ASTM D1160 on sample #16001, results in °C

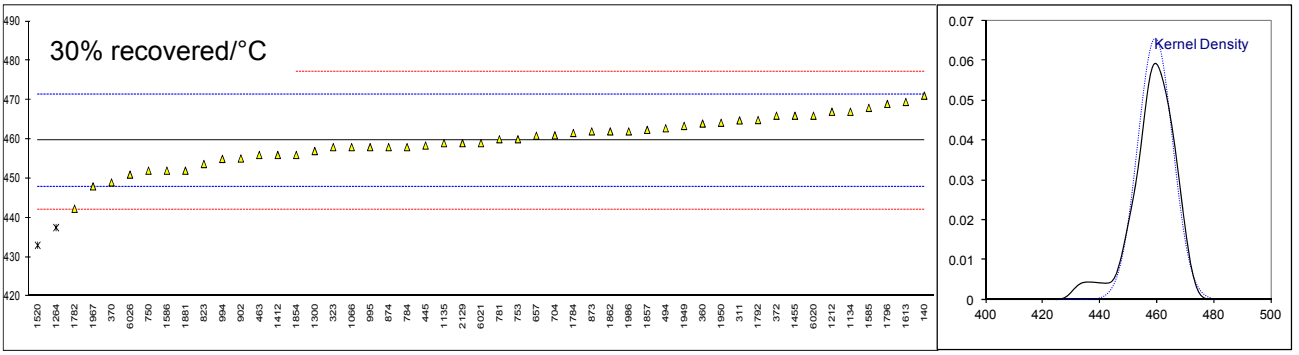
lab	method	IBP	5% rec	10% rec	20% rec	30% rec	40% rec	50% rec	FBP
140	D1160	5.06	3.18	2.81	2.22	1.95	1.88	3.90	5.81
311	D1160	1.82	3.86	3.28	1.37	0.87	1.56	3.50	3.08
323	D1160	1.31	1.62	1.16	-0.23	-0.29	-0.12	1.11	-----
360	D1160	0.58	1.41	1.28	1.02	0.73	0.47	0.91	-0.65
370	D1160	-0.61	-1.22	-2.32	-1.35	-1.83	-2.89	-----	-----
372	D1160	-0.16	1.11	1.28	1.02	1.07	0.87	-----	-----
445	D1160	-1.29	0.28	0.15	-0.30	-0.22	-1.27	-0.42	-0.90
463	D1160	0.18	-0.61	-0.88	-0.23	-0.63	-0.52	0.71	0.91
494	D1160	0.00	1.40	1.09	0.67	0.53	0.29	1.11	0.13
657	D1160	1.02	1.72	1.19	0.35	0.20	0.43	1.11	-0.21
704	D1160	-0.22	0.60	0.44	0.19	0.22	-0.32	0.31	0.39
750	D1160	0.41	1.41	1.64	1.72	-1.32	-0.32	-0.68	0.91
753	D1160	0.07	-0.21	-0.40	-0.79	0.05	-0.32	-1.07	-0.34
781	D1160	-0.27	0.10	-0.16	-0.23	0.05	0.07	-0.28	-0.02
784	D1160	0.12	-0.41	-1.60	-0.09	-0.29	0.27	0.12	-0.02
823	D1160	-0.59	-2.58	-1.95	-1.97	-1.02	-1.09	-0.04	0.28
873	D1160	0.58	-0.10	-0.28	-0.37	0.39	-0.32	0.51	1.46
874	D1160	0.35	0.00	-0.52	-0.51	-0.29	-0.52	-0.28	-0.23
902	D1160	-0.63	0.68	0.41	-0.55	-0.79	-1.15	-0.40	0.13
994	D1160	0.29	-0.10	-1.24	-1.07	-0.80	-1.11	1.90	0.39
995	D1160	0.29	-0.61	-1.00	-0.37	-0.29	0.27	0.31	-0.02
1066	D1160	0.18	0.40	0.08	0.05	-0.29	-0.52	0.31	0.39
1134	D1160	-0.27	1.62	1.16	1.30	1.25	0.67	1.90	1.12
1135	D1160	-0.61	-0.21	-0.52	-0.51	-0.12	-0.32	-----	-2.00
1212	D1160	1.03	0.70	1.52	1.16	1.25	1.26	2.09	0.91
1264	D1160	-0.27	-1.00	-2.42	-3.07	-3.79	-4.71	-3.25	-----
1300	D1160	0.41	0.62	-0.57	-0.54	-0.46	-1.75	-2.27	-1.31
1412	D1160	-0.22	-0.31	-0.16	-1.35	-0.63	-0.72	-0.28	-----
1455	D1160	0.58	0.91	0.80	0.88	1.07	0.27	0.91	0.18
1520	D1160	0.01	-0.71	-2.56	-4.13	-4.56	-6.26	-----	-6.17
1585	D1160	-0.93	0.10	0.20	1.02	1.42	1.26	1.70	0.81
1586	D1160	-0.56	-1.32	-1.36	1.02	-1.32	1.46	-----	-0.13
1613	D1160	1.28	2.13	2.06	2.07	1.67	1.54	2.57	-----
1782	D1160	0.33	-1.90	-3.63	-2.15	-2.97	-2.60	-4.73	-0.72
1784	D1160	-0.33	-0.56	-0.19	0.49	0.32	2.63	-----	-0.02
1792	D1160	0.50	-0.58	1.09	-0.05	0.89	0.75	-0.46	-0.21
1796	D1160	-0.95	0.40	0.44	1.16	1.59	1.66	-1.86	-0.96
1854		-0.39	-0.31	-0.88	0.74	-0.63	2.84	-----	-0.13
1857	D1160	0.03	-0.29	-1.02	0.52	0.46	-0.18	-1.21	-0.27
1862	D1160	0.29	-0.10	-0.16	0.05	0.39	-0.32	-0.48	0.08
1881	D1160	0.07	0.00	0.32	-0.65	-1.32	-1.11	1.11	1.02
1949	D1160	-0.17	1.36	0.95	1.18	0.63	0.53	1.07	0.34
1950	D1160	0.52	-0.58	-0.61	0.09	0.77	0.29	-0.93	-0.13
1967	D1160	-0.16	-2.64	-2.20	-2.74	-2.00	-3.69	-0.68	-0.65
1986	D1160	-1.58	-0.71	-0.64	1.16	0.39	-0.91	-1.86	0.39
2129	D1160	-0.78	-1.12	-0.28	-0.37	-0.12	-1.11	-1.27	-0.96
6020	D1160	0.12	0.60	0.56	-0.23	1.07	0.47	0.31	0.50
6021	D1160	-0.10	-0.41	-0.40	-0.37	-0.12	-0.52	-0.68	0.29
6026		-1.24	-1.32	-2.20	-1.35	-1.49	-1.71	-1.66	-0.75

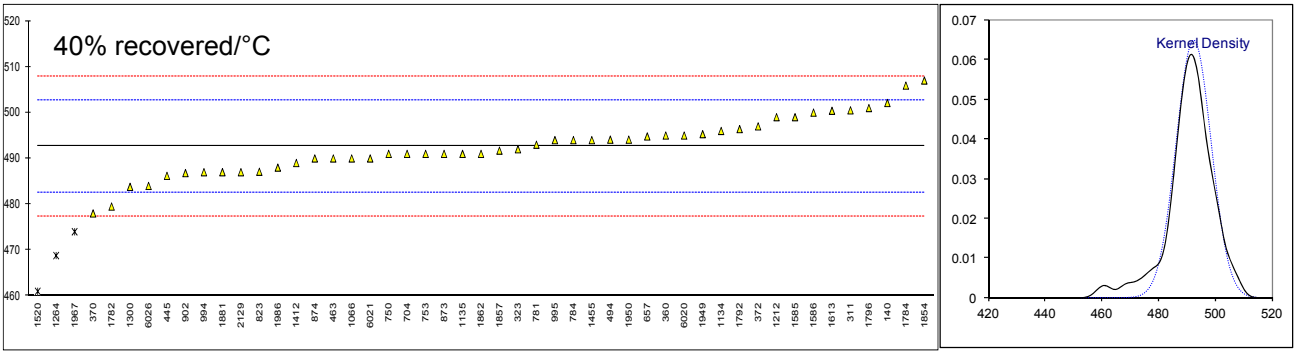

Initial Boiling Point/°C
Kernel Density

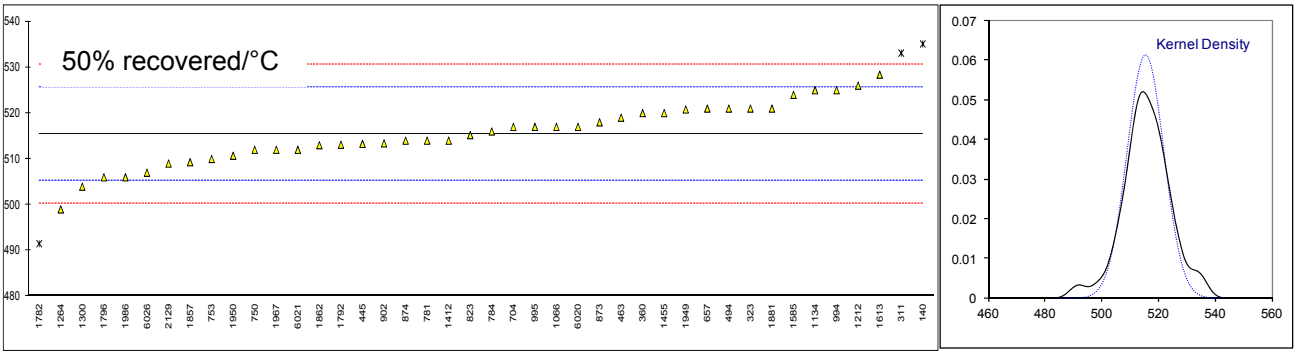

5% recovered/°C
Kernel Density

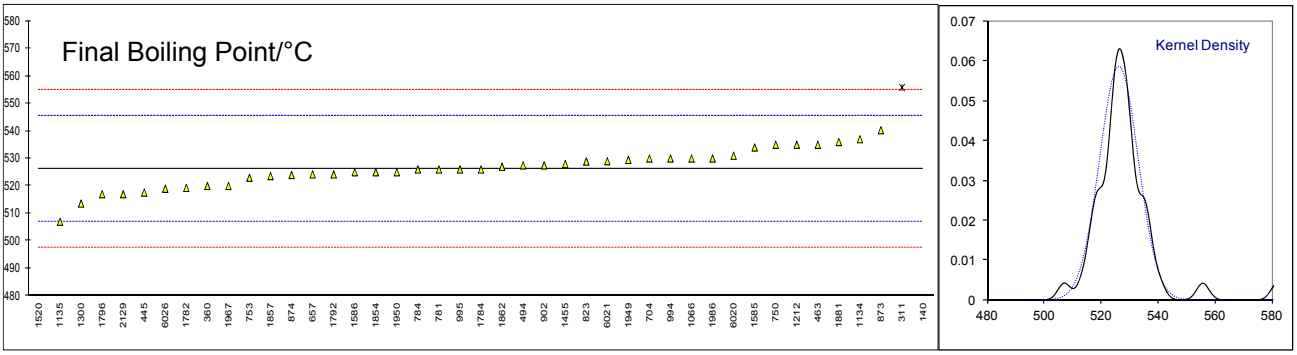

10% recovered/°C
Kernel Density


20% recovered/°C
Kernel Density


30% recovered/°C
Kernel Density


40% recovered/°C
Kernel Density


50% recovered/°C
Kernel Density

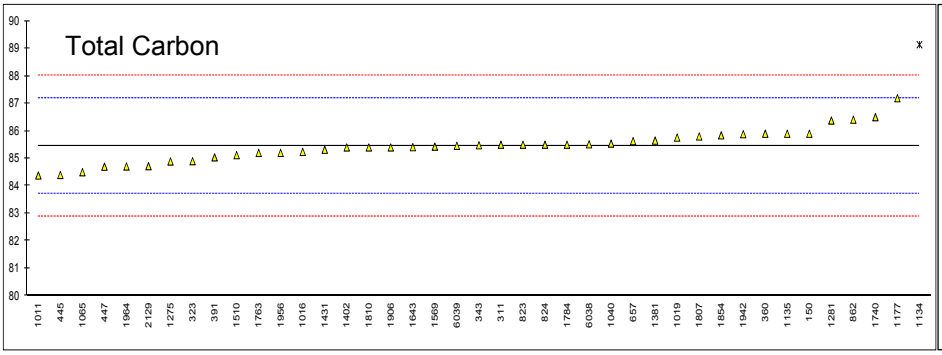

Final Boiling Point/°C
Kernel Density

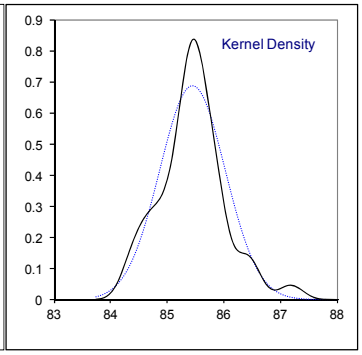
Determination of Total Carbon, Hydrogen and Nitrogen on sample #16001; results in %M/M

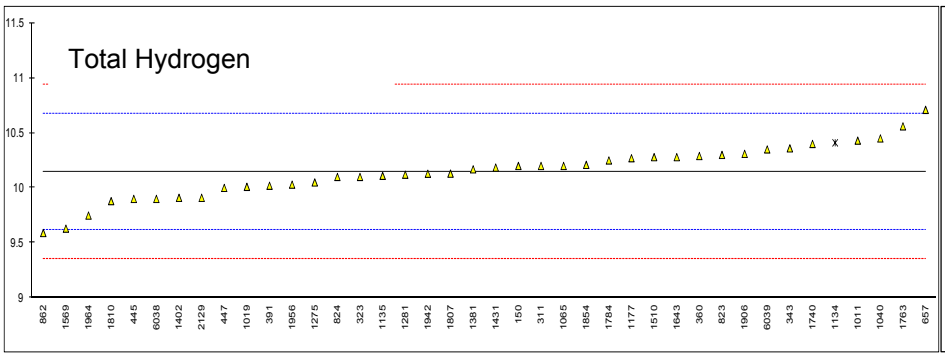
Lab	method	Total C	mark	z(targ)	Total H	mark	z(targ)	Total N	mark	z(targ)
150	D5291 - C	85.9		0.52	10.2		0.21	-----		-----
311	D5291 - A	85.5		0.06	10.2		0.21	<0.75		-----
323	D5291 - C	84.9		-0.64	10.1		-0.17	0.3	C	-3.94
343	D5291 - A	85.48		0.03	10.36		0.82	0.404		-1.09
360	D5291 - A	85.90		0.52	10.29		0.55	0.42		-0.65
391	D5291 - A	85.04		-0.48	10.02		-0.48	0.42		-0.65
445	D5291 - C	84.4		-1.22	9.9		-0.93	0.4		-1.20
447	D5291 - A	84.7		-0.87	10		-0.55	-----		-----
657	D5291 - D	85.63		0.21	10.71		2.14	0.35		-2.57
823	D5291 - D	85.5		0.06	10.3		0.59	-----		-----
824	D5291 - D	85.5		0.06	10.1		-0.17	-----		-----
862	D5291 - B	86.41		1.11	9.59		-2.11	0.46		0.45
1011	D5291 - A	84.38		-1.25	10.43		1.08	0.508		1.76
1016	D5291 - C	85.24		-0.25	-----		-----	0.479		0.97
1019	D5291 - A	85.76		0.36	10.01		-0.51	0.44		-0.10
1040	in house	85.54		0.10	10.45		1.16	0.52		2.09
1065	D5291 - D	84.5		-1.11	10.2		0.21	0.54		2.64
1134	D5291	89.14	R(0.01)	4.28	10.41	ex	1.01	0.45	ex	0.17
1135	D5291 - D	85.90		0.52	10.11		-0.13	-----		-----
1177	D5291 - D	87.19		2.02	10.27		0.47	0.46		0.45
1275	D5291 - D	84.89		-0.65	10.05		-0.36	0.49		1.27
1281	D5291 - D	86.38		1.08	10.12		-0.10	0.37		-2.02
1381		85.65		0.23	10.169		0.09	-----		-----
1402	D5291 - C	85.40		-0.06	9.91		-0.89	-----		-----
1431	D5291 - C	85.318		-0.16	10.185		0.15	0.458		0.39
1510	D5291 - D	85.12		-0.39	10.28		0.51	0.52		2.09
1569	D5291 - A	85.43		-0.03	9.63		-1.96	0.54		2.64
1643	D5291 - A	85.41		-0.05	10.28		0.51	0.41		-0.92
1740	D5291 - A	86.5		1.22	10.4		0.97	0.45		0.17
1763		85.20		-0.29	10.56		1.57	0.41		-0.92
1784	D5291 - C	85.50		0.06	10.25		0.40	0.46		0.45
1807	D5291 - C	85.8		0.40	10.13		-0.06	0.53		2.36
1810	D240	85.4		-0.06	9.88		-1.01	0.37		-2.02
1854	D5291 - C	85.84		0.45	10.21		0.25	0.45		0.17
1906	D5291 - A	85.40		-0.06	10.31		0.63	0.35		-2.57
1942	D5291 - D	85.882		0.50	10.129		-0.06	0.433		-0.29
1956	D5291 - C	85.2		-0.29	10.03		-0.44	0.38		-1.75
1964	D5291 - A	84.70778		-0.86	9.748667		-1.51	<0.6		-----
2129	D5291 - D	84.72	C	-0.85	9.91	C	-0.89	0.53		2.36
6038	D5291 - A	85.516		0.07	9.9		-0.93	-----		-----
6039	D5291 - C	85.46		0.01	10.35		0.78	0.46		0.45
	normality	suspect			OK			OK		
	n	40			39			30		
	outliers	1			0+1ex			0+1ex		
	mean (n)	85.452			10.145			0.4437		
	st.dev. (n)	0.5787			0.2342			0.06272		
	R(calc.)	1.620			0.656			0.1756		
	R(D5291:10)	2.411			0.737			0.1022		

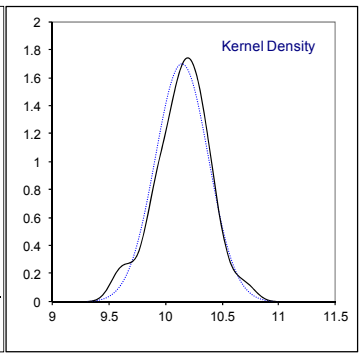
Only laboratories that reported test results were listed.

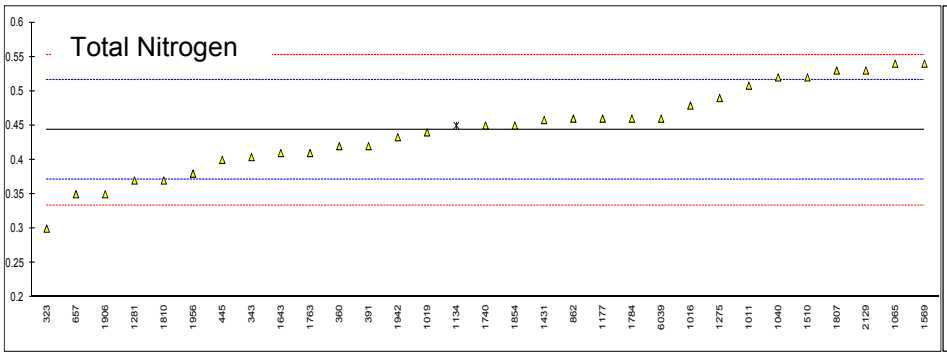
Lab 323 first reported 0.1
Lab 1134 reported values for total H and total N excluded; sum of C,H,N=100%, which is in principle not correct
Lab 2129 first reported respectively for C and H; 82.54, 10.22

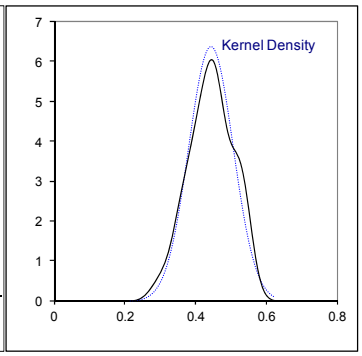

Total Carbon
90
89
88
87
86
85
84
83
82
81
80
1011 445 1065 447 1964 2129 1275 323 391 1510 1763 1956 1016 1431 1402 1810 1906 1643 1569 6039 343 311 823 824 1784 6038 1040 657 1381 1019 1807 1854 1942 360 1135 150 1281 862 1740 1177 1134


Kernel Density
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
83 84 85 86 87 88


Total Hydrogen
11.5
11
10.5
10
9.5
9
862 1569 1964 1810 445 6038 1402 2129 447 1019 391 1956 1275 824 323 1135 1281 1942 1807 1381 1431 150 311 1065 1854 1784 1177 1510 1643 360 823 1906 6039 343 1740 1134 1011 1040 1763 657


Kernel Density
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
9 9.5 10 10.5 11 11.5


Total Nitrogen
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
323 657 1906 1281 1810 1956 445 343 1643 1763 360 391 1942 1019 1134 1740 1854 1431 862 1177 1784 6039 1016 1275 1011 1040 1510 1807 2129 1065 1569


Kernel Density
7
6
5
4
3
2
1
0
0 0.2 0.4 0.6 0.8

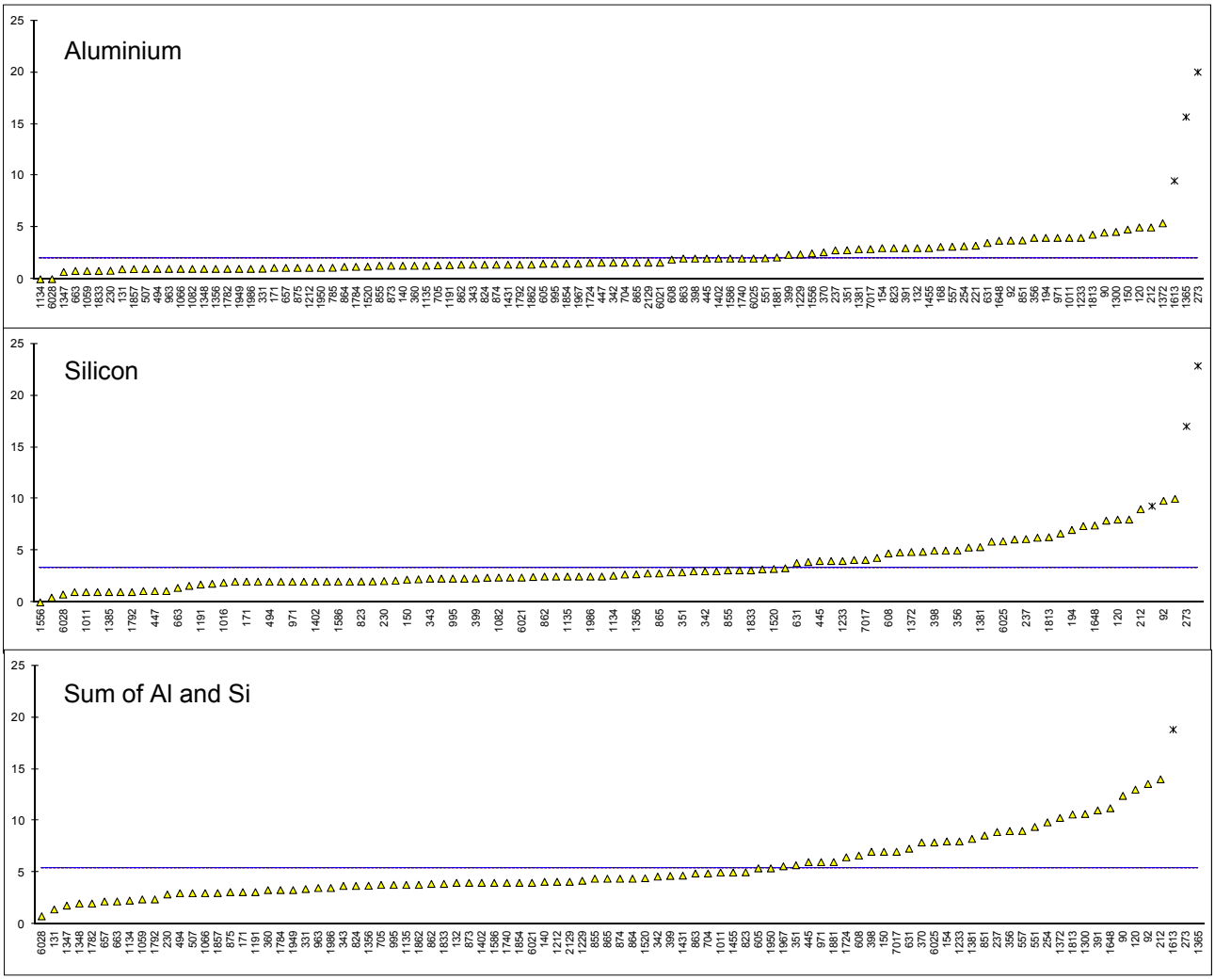
Determination of Aluminium, Silicon and total Al+Si on sample #16002; results in mg/kg

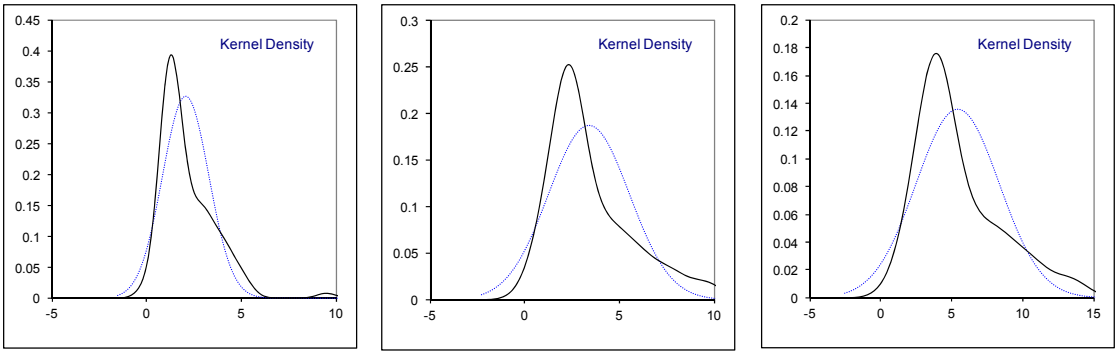
Lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Sum Al+Si	mark	z(targ)
52	IP470	<5		-----	<10		-----	<15		-----
62	IP470	<5		-----	<10		-----	<15		-----
90	D5184	4.5		-----	7.9		-----	12.4		-----
92	D5184	3.74		-----	9.81		-----	13.55		-----
120	IP501	5		-----	8		-----	13		-----
131	IP501	0.967		-----	0.462		-----	1.429		-----
132	IP470	3		-----	1		-----	4		-----
133		-----		-----	-----		-----	-----		-----
140	IP501	1.3		-----	2.8		-----	4.1		-----
150	IP501	4.8		-----	2.2		-----	7.0		-----
154	D5184	3		-----	5		-----	8		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
168	D5184	3.125		-----	6.25		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
171	IP501	1.1		-----	2.0		-----	3.1		-----
175		-----		-----	-----		-----	-----		-----
194	IP470	4		-----	7		-----	-----		-----
212	IP470	5		-----	9		-----	14		-----
221	IP470	3.24		-----	-----		-----	-----		-----
230	IP470	0.82		-----	2.06		-----	2.88		-----
237	IP501	2.794		-----	6.118		-----	8.912		-----
254	IP501	3.194		-----	6.65		-----	9.845		-----
273	IP470	20	C,R(1)	-----	17	C,R(1)	-----	37	C,R(1)	-----
311	IP501	<5		-----	<10		-----	<15		-----
323	IP501	<5		-----	<10		-----	<15		-----
331	IP501	1.014		-----	2.387		-----	3.401		-----
333	IP501	<5		-----	<10		-----	<15		-----
334	IP470	<5		-----	10		-----	<15		-----
340	IP501	<5		-----	<10		-----	<15		-----
342	IP501	1.6		-----	3.0		-----	4.6		-----
343	IP501	1.4		-----	2.3		-----	3.7		-----
351	IP501	2.8		-----	2.9		-----	5.7		-----
356	IP501	4.0		-----	5.0		-----	9.0		-----
357	IP501	<5		-----	<10		-----	<15		-----
360	IP501	1.3		-----	2.0		-----	3.3		-----
370	IP470	2.6		-----	5.3		-----	7.9		-----
372	IP470	<5		-----	<10		-----	<15		-----
391	IP501	3		-----	8		-----	11		-----
398	IP501	2		-----	5		-----	7		-----
399	IP501	2.36		-----	2.31		-----	4.67		-----
444		-----		-----	-----		-----	-----		-----
445	IP501	2		-----	4		-----	6		-----
447	IP470	1.6		-----	1.1		-----	-----		-----
463	IP470	<5		-----	<10		-----	<15		-----
494	IP501	1		-----	2		-----	3		-----
507	IP501	1		-----	2		-----	3		-----
511		-----		-----	-----		-----	-----		-----
541	IP470	<5		-----	<10		-----	<15		-----
551	IP501	2.03		-----	7.37		-----	9.40		-----
557	IP501	3.1405		-----	5.8698		-----	9.0104		-----
605	IP501	1.5		-----	4.0		-----	5.4		-----
608	IP501	1.90		-----	4.73		-----	6.63		-----
621		-----		-----	-----		-----	-----		-----
631	IP470	3.5		-----	3.8		-----	7.3		-----
657	IP501	1.1		-----	1.1		-----	2.2		-----
663	IP501	0.8		-----	1.4		-----	2.2		-----
704	IP470	1.6		-----	3.1		-----	4.9		-----
705	IP470	1.34		-----	2.46		-----	3.80		-----
781	IP501	<5		-----	<10		-----	<15		-----
785	IP470	1.11		-----	2.23		-----	-----		-----
791		-----		-----	-----		-----	-----		-----
823	IP501	3.0		-----	2.02		-----	5.02		-----
824	IP501	1.4		-----	2.3		-----	3.7		-----
840	IP501	<5		-----	<10		-----	<15		-----
851	IP501	3.75		-----	4.82		-----	8.57		-----
855	IP470	1.3		-----	3.1		-----	4.4		-----
862	IP501	1.4		-----	2.5		-----	3.9		-----
863	IP501	2.0		-----	2.9		-----	4.9		-----
864	IP501	1.2		-----	3.2		-----	4.4		-----
865	IP501	1.6		-----	2.8		-----	4.4		-----
873	IP470	1.3		-----	2.7		-----	4.0		-----
874	IP501	1.4		-----	3.0		-----	4.4		-----
875	IP501	1.1		-----	2.0		-----	3.1		-----
902	IP470	<5		-----	<10		-----	<15		-----
904	IP470	<5		-----	<10		-----	<10		-----
912		-----		-----	-----		-----	-----		-----

Lab	method	Al	mark	z(targ)	Si	mark	z(targ)	Sum Al+Si	mark	z(targ)
913		-----		-----	-----		-----	-----		-----
922	IP501	<5		-----	<10		-----	<15		-----
963	IP501	1		-----	2.5		-----	3.5		-----
971	IP501	4		-----	2		-----	6		-----
994	IP501	<5		-----	<10		-----	-----		-----
995	IP470	1.5		-----	2.3		-----	3.8		-----
1011	IP377	4		-----	1		-----	5		-----
1016		-----		-----	1.9		-----	-----		-----
1059	in house	0.8		-----	1.6		-----	2.4		-----
1066	IP501	1		-----	2		-----	3		-----
1082	ISO10478	1.0		-----	2.4		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1121		-----		-----	-----		-----	-----		-----
1126		-----		-----	-----		-----	-----		-----
1134	IP501	0		-----	2.584		-----	2.284		-----
1135	IP501	1.3		-----	2.5		-----	3.8		-----
1191	ISO10478	1.36		-----	1.73		-----	3.1		-----
1212	IP501	1.1		-----	3.0		-----	4.1		-----
1229	in house	2.4		-----	1.8		-----	4.2		-----
1233	IP501	4		-----	4		-----	8		-----
1259		-----		-----	-----		-----	-----		-----
1264		-----		-----	-----		-----	-----		-----
1299	D5184	<5		-----	<5		-----	<5		-----
1300	IP501	4.57	C	-----	6.08		-----	10.65	C	-----
1345		-----		-----	-----		-----	-----		-----
1347	in house	0.7		-----	1.1		-----	1.8		-----
1348	in house	1		-----	1		-----	2		-----
1356	IP501	1		-----	2.717		-----	3.717		-----
1365	IP470	15.67	R(0.01)	-----	22.84	R(0.01)	-----	38.51	R(0.01)	-----
1372	IP501	5.405		-----	4.864		-----	10.269		-----
1381	D5184	2.90		-----	5.34		-----	8.24		-----
1385		-----		-----	1		-----	-----		-----
1389		-----		-----	-----		-----	-----		-----
1402	IP501	2		-----	2		-----	4		-----
1404	IP470	<5		-----	<10		-----	<15		-----
1412	IP501	<5		-----	<10		-----	-----		-----
1431	in house	1.4		-----	3.3		-----	4.7		-----
1455	IP501	3	C	-----	2	C	-----	5	C	-----
1510		-----		-----	-----		-----	-----		-----
1520	IP470	1.22		-----	3.23		-----	4.45		-----
1556	IP470	2.5		-----	0		-----	-----		-----
1586	IP501	2		-----	2		-----	4		-----
1613	IP470	9.5	R(0.01)	-----	9.3	ex	-----	18.8	R(0.01)	-----
1643		-----		-----	-----		-----	-----		-----
1648	IP470	3.72		-----	7.43		-----	11.2		-----
1720		-----		-----	-----		-----	-----		-----
1724	IP501	1.58		-----	4.89		-----	6.47		-----
1740	IP501	2		-----	2		-----	4		-----
1782	IP501	1		-----	1		-----	2		-----
1784	IP501	1.2		-----	2.1		-----	3.3		-----
1792	IP501	1.4		-----	1.0		-----	2.4		-----
1810		-----		-----	-----		-----	-----		-----
1813	IP501	4.3		-----	6.3		-----	10.6		-----
1833	IP501	0.8		-----	3.1		-----	3.9		-----
1854	IP501	1.5		-----	2.5		-----	4.0		-----
1857	IP501	0.98		-----	2.03		-----	3.01		-----
1862	IP501	1.4		-----	2.4		-----	3.8		-----
1881	IP470	2.1		-----	3.9		-----	6.0		-----
1949	IP470	1.0		-----	2.3		-----	3.3		-----
1950	IP470	1.1		-----	4.3		-----	5.4		-----
1967	IP470	1.5		-----	4.1		-----	5.6		-----
1986	IP470	1		-----	2.5		-----	3.5		-----
1995		-----		-----	-----		-----	-----		-----
2129	IP470	1.6		-----	2.5		-----	4.1		-----
6013	IP470	<5		-----	<10		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6021	IP501	1.6		-----	2.4		-----	4.0		-----
6025	IP470	2.0		-----	5.9		-----	7.9		-----
6028	IP501	0.01		-----	0.760		-----	0.770		-----
7017	IP470	2.9		-----	4.1		-----	7.0		-----

normality	OK	suspect	suspect
n	97	99	90
outliers	3	2+1ex	3
mean (n)	2.07	3.38	5.40
st.dev. (n)	1.224	2.137	2.934
R(calc.)	3.43	5.98	8.21
R(IP470:05)	(1.28)	(3.14)	(3.39)
Compare R(IP501:05)	(0.70)	(1.12)	(1.32)
Range IP470 or IP501	5-150	10-250	

Lab 273 first reported for Al, Si, Sum Al+Si respectively; 8, 24, 32
Lab 1300 first reported for Al and Sum Al+Si respectively; 5.83, 11.91
Lab 1455 first reported for Al, Si, Sum Al+Si respectively; 10, 30, 40





Aluminium Silicon Sum of Al and Si

-- Empty page --

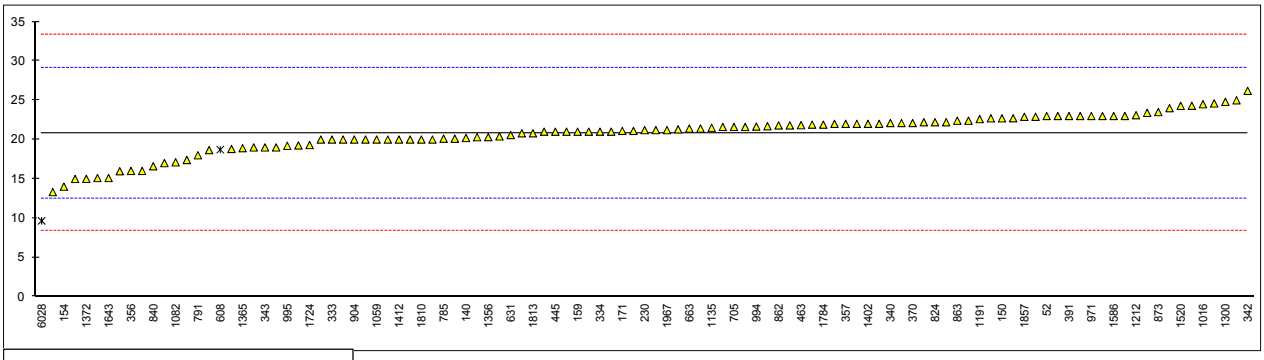
Determination of Iron on sample #16002; results in mg/kg

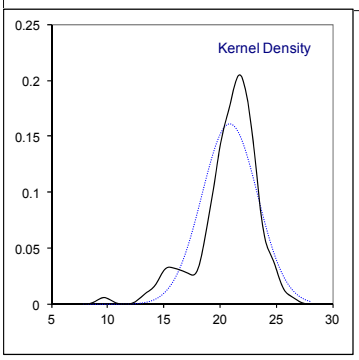
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP470	23		0.52	902	IP470	23		0.52
62	IP470	22		0.28	904	IP470	20		-0.20
90		-----		-----	912		-----		-----
92		-----		-----	913		-----		-----
120	IP501	21		0.04	922	IP501	23		0.52
131	IP501	20.11		-0.17	963	IP501	20		-0.20
132		-----		-----	971	IP501	23		0.52
133		-----		-----	994	IP501	21.65		0.20
140	IP501	20.2		-0.15	995	D5863-B	19.2		-0.39
150	IP501	22.7		0.45	1011		-----		-----
154	D5863-B	14		-1.64	1016	IP501	24.5		0.88
158		-----		-----	1059	in house	20		-0.20
159	IP501	21		0.04	1066	IP501	22		0.28
168		-----		-----	1082	D5185	17.1		-0.89
169		-----		-----	1109		-----		-----
171	IP501	21.1		0.07	1121		-----		-----
175		-----		-----	1126	IP501	21.2		0.09
194		-----		-----	1134	IP501	15.966		-1.17
212	IP470	24		0.76	1135	IP501	21.5		0.16
221		-----		-----	1191	ISO10478M	22.6		0.43
230	IP470	21.2	C	0.09	1212	IP501	23.1		0.55
237	IP501	13.31		-1.80	1229	in house	23		0.52
254		-----		-----	1233	IP501	20		-0.20
273		-----		-----	1259	in house	16		-1.16
311	IP501	19		-0.44	1264		-----		-----
323	IP501	21		0.04	1299	D5863	15.1		-1.37
331	IP501	19.25		-0.38	1300	IP501	24.8		0.95
333	IP501	20		-0.20	1345	IP470	18.66		-0.52
334	IP470	21		0.04	1347		-----		-----
340	IP501	22.1		0.31	1348		-----		-----
342	IP501	26.2		1.29	1356	IP501	20.31		-0.12
343	D5708	19		-0.44	1365	IP470	18.90		-0.46
351	IP501	20.0		-0.20	1372	D5708	14.998		-1.40
356	IP501	16.0		-1.16	1381		-----		-----
357	IP501	22		0.28	1385		-----		-----
360	IP501	22.1		0.31	1389		-----		-----
370	IP470	22.1		0.31	1402	IP501	22		0.28
372	IP470	21		0.04	1404	IP470	25		1.00
391	IP501	23		0.52	1412	IP501	20		-0.20
398		-----		-----	1431	in house	21.9		0.26
399	IP501	14.98		-1.40	1455	IP501	21	C	0.04
444		-----		-----	1510		-----		-----
445	IP501	21		0.04	1520	IP470	24.29		0.83
447		-----		-----	1556		-----		-----
463	IP470	21.83		0.24	1586	IP501	23		0.52
494	IP501	19		-0.44	1613		-----		-----
507	IP501	17		-0.92	1643	D5185	15.1		-1.37
511		-----		-----	1648	IP470	21.4		0.14
541		-----		-----	1720		-----		-----
551	IP501	22.71		0.45	1724	IP501	19.3		-0.37
557	IP501	21.5995		0.19	1740	IP501	20		-0.20
605	IP501	21.3		0.11	1782	IP501	23		0.52
608	IP501	18.71	ex	-0.51	1784	IP501	21.9		0.26
621		-----		-----	1792	IP501	21.8		0.23
631	IP470	20.57		-0.06	1810	in house	20		-0.20
657	IP501	18.8		-0.49	1813	IP501	20.8		-0.01
663	IP501	21.4		0.14	1833	IP501	22.2		0.33
704	IP470	20.0		-0.20	1854	IP501	24.3		0.83
705	IP470	21.60		0.19	1857	IP501	22.9		0.50
781	IP501	21.7		0.21	1862	IP501	22.4		0.38
785	IP470	20.11		-0.17	1881	IP470	23.4		0.62
791	IP470	18		-0.68	1949	IP470	21.6		0.19
823	IP501	17.4		-0.82	1950	IP470	22.9		0.50
824	IP501	22.2		0.33	1967	IP470	21.2		0.09
840	IP501	16.6		-1.01	1986	IP470	22		0.28
851		-----		-----	1995		-----		-----
855	IP470	20.8		-0.01	2129	IP470	21.1		0.07
862	IP501	21.8		0.23	6013	IP470	20		-0.20
863	IP501	22.4		0.38	6016		-----		-----
864	IP501	20.3		-0.13	6021	IP501	24.6		0.91
865		-----		-----	6025	IP470	20.4		-0.10
873	IP470	23.5		0.64	6028	IP501	9.652	R(0.01)	-2.68
874	IP501	22.7		0.45	7017		-----		-----
875	IP501	22.2		0.33					

normality	OK
n	107
outliers	1+1ex
mean (n)	20.822
st.dev. (n)	2.4740
R(calc.)	6.927
R(IP470:05)	11.665

Compare R(IP501:05) = 4.98

Lab 230 first reported 54.5
Lab 1455 first reported 164





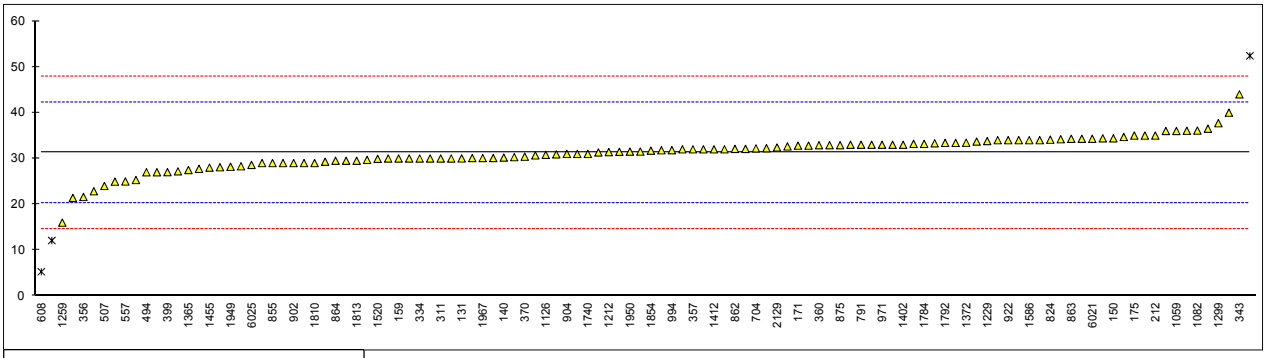
Determination of Nickel on sample #16002; results in mg/kg

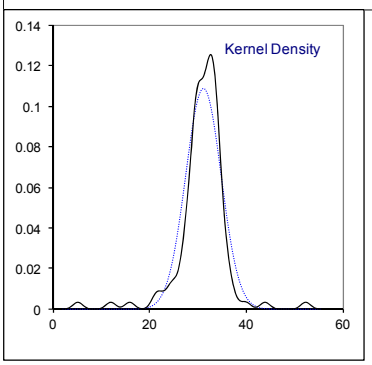
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP470	34		0.50	902	IP470	29		-0.41
62	IP470	35		0.68	904	IP470	31		-0.05
90		-----		-----	912		-----		-----
92		-----		-----	913		-----		-----
120	IP501	27		-0.77	922	IP501	34		0.50
131	IP501	30.02		-0.22	963	IP501	31		-0.05
132	IP470	33		0.32	971	IP501	33		0.32
133		-----		-----	994	IP501	31.82		0.10
140	IP501	30.2		-0.19	995	D5863-B	31.8		0.10
150	IP501	34.4		0.57	1011	D5863-B	30		-0.23
154	D5863-B	30		-0.23	1016	IP501	29.5		-0.32
158		-----		-----	1059	in house	36		0.86
159	IP501	30		-0.23	1066	IP501	33		0.32
168		-----		-----	1082	D5185	36.1		0.88
169		-----		-----	1109		-----		-----
171	IP501	32.8		0.28	1121		-----		-----
175	D5863-B	35		0.68	1126	IP501	30.8		-0.08
194		-----		-----	1134	IP501	24.954		-1.14
212	IP470	35		0.68	1135	IP501	30.3		-0.17
221		-----		-----	1191	ISO10478	29.0		-0.41
230	IP470	29.7		-0.28	1212	IP501	31.4		0.03
237	IP501	22.85		-1.52	1229	in house	33.8		0.46
254		-----		-----	1233	IP501	32		0.13
273		-----		-----	1259	in house	16		-2.76
311	IP501	30		-0.23	1264		-----		-----
323	IP501	33		0.32	1299	D5863	37.7		1.16
331	IP501	30.67		-0.11	1300	IP501	27.2		-0.73
333	IP501	29		-0.41	1345	IP470	31.46		0.04
334	IP470	30		-0.23	1347		-----		-----
340	IP501	34.4		0.57	1348		-----		-----
342	IP501	34.2		0.53	1356	IP501	27.75		-0.63
343	D5708	44		2.30	1365	IP470	27.49		-0.68
351	IP501	29.3		-0.35	1372	D5708	33.442		0.40
356	IP501	21.6		-1.74	1381		-----		-----
357	IP501	32		0.13	1385		-----		-----
360	IP501	32.9		0.30	1389		-----		-----
370	IP470	30.4		-0.15	1402	IP501	33		0.32
372	IP470	29		-0.41	1404	IP470	34		0.50
391	IP501	36		0.86	1412	IP501	32		0.13
398	IP501	30		-0.23	1431	in house	34.7		0.62
399	IP501	27.02		-0.77	1455	IP501	28	C	-0.59
444		-----		-----	1510		-----		-----
445	IP501	30		-0.23	1520	IP470	29.92		-0.24
447	IP470	52.4	R(0.01)	3.82	1556		-----		-----
463	IP470	32.24		0.18	1586	IP501	34		0.50
494	IP501	27		-0.77	1613	IP470	12.1	R(0.01)	-3.46
507	IP501	24		-1.31	1643	D5185	30.1		-0.21
511	D5863-B	36.05		0.87	1648	IP470	30.9		-0.06
541		-----		-----	1720		-----		-----
551	IP501	33.32		0.37	1724	IP501	25.3		-1.08
557	IP501	24.9863		-1.13	1740	IP501	31		-0.05
605	IP501	32.9		0.30	1782	IP501	40		1.58
608	IP501	5.28	R(0.01)	-4.69	1784	IP501	33.2		0.35
621		-----		-----	1792	IP501	33.4		0.39
631	IP470	31.51		0.05	1810	in house	29		-0.41
657	IP501	28.3		-0.53	1813	IP501	29.5		-0.32
663	IP501	32.0		0.13	1833		-----		-----
704	IP470	32.2		0.17	1854	IP501	31.7		0.08
705	IP470	32.64		0.25	1857	IP501	32.8		0.28
781	IP501	33.7		0.44	1862	IP501	33.4		0.39
785	IP470	31.32		0.01	1881	IP470	34.3		0.55
791	IP470	33		0.32	1949	IP470	28.2		-0.55
823	IP501	28.1		-0.57	1950	IP470	31.5		0.04
824	IP501	34.1		0.51	1967	IP470	30.1		-0.21
840	IP501	36.5		0.95	1986	IP470	34		0.50
851		-----		-----	1995		-----		-----
855	IP470	29.0		-0.41	2129	IP470	32.4		0.21
862	IP501	32.1		0.15	6013	IP470	32		0.13
863	IP501	34.3		0.55	6016		-----		-----
864	IP501	29.5		-0.32	6021	IP501	34.3		0.55
865		-----		-----	6025	IP470	28.6		-0.48
873	IP470	32.1		0.15	6028	IP501	21.40		-1.78
874	IP501	33.2		0.35	7017	IP470	30.1		-0.21
875	IP501	32.9		0.30					

normality	not OK
n	113
outliers	3
mean (n)	31.255
st.dev. (n)	3.6677
R(calc.)	10.270
R(IP470:05)	15.492

Compare R(IP501:05) =11.17

Lab 1455 first reported 26





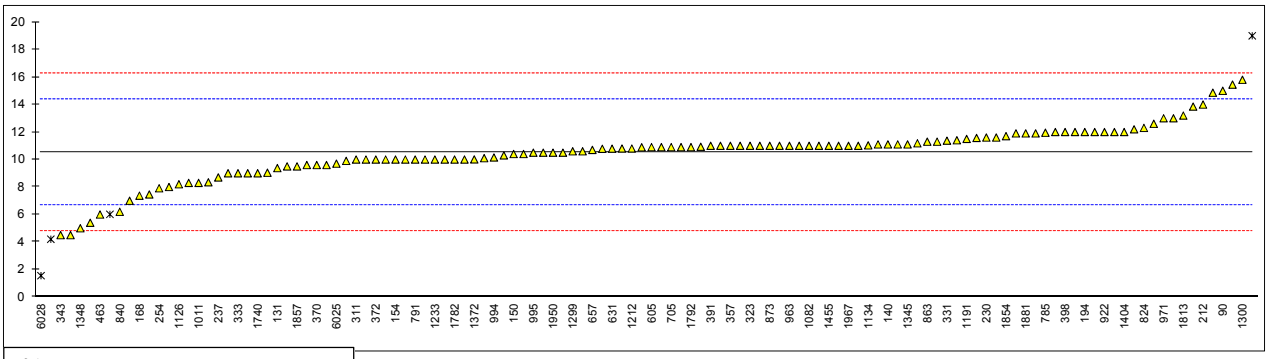
Determination of Sodium on sample #16002; results in mg/kg

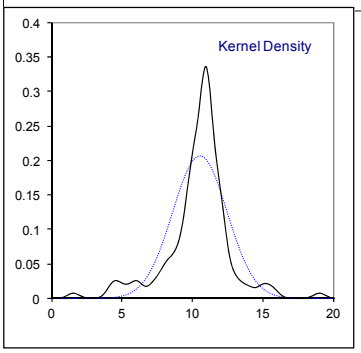
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP470	8.3		-1.16	902	IP470	10		-0.27
62	IP470	11		0.25	904	IP470	9		-0.80
90	D5863	15		2.34	912		-----		-----
92		-----		-----	913		-----		-----
120	IP501	19	R(0.01)	4.44	922	IP501	12		0.77
131	IP501	9.376		-0.60	963	IP501	11		0.25
132	IP470	12		0.77	971	IP501	13		1.30
133		-----		-----	994	IP501	10.15		-0.19
140	IP501	11.1		0.30	995	IP470	10.5		-0.01
150	IP501	10.4		-0.06	1011	D5863-B	8.3		-1.16
154	D5863	10		-0.27	1016	IP501	10.4		-0.06
158		-----		-----	1059		-----		-----
159	IP501	9		-0.80	1066	IP501	11		0.25
168	D5863	7.37		-1.65	1082	D5185	11.0		0.25
169		-----		-----	1109		-----		-----
171	IP501	12.0		0.77	1121		-----		-----
175		-----		-----	1126	IP501	8.2		-1.22
194	IP470	12		0.77	1134	IP501	11.032		0.27
212	IP470	14		1.82	1135	IP501	10.5		-0.01
221	IP470	10.78		0.14	1191	ISO10478	11.5		0.51
230	IP470	11.6		0.56	1212	IP501	10.8		0.15
237	IP501	8.697		-0.96	1229	in house	13		1.30
254	IP501	7.908		-1.37	1233	IP501	10		-0.27
273		-----		-----	1259		-----		-----
311	IP501	10		-0.27	1264		-----		-----
323	IP501	11		0.25	1299	D5863	10.6		0.04
331	IP501	11.37		0.44	1300	IP501	15.80		2.76
333	IP501	9		-0.80	1345	IP470	11.10		0.30
334	IP470	10		-0.27	1347	in house	4.5		-3.15
340	IP501	10.3		-0.12	1348	in house	5		-2.89
342	IP501	9.5		-0.53	1356	IP501	8.345		-1.14
343	IP501	4.5		-3.15	1365	IP470	10.93		0.21
351	IP501	12.6		1.09	1372	IP501	10.009		-0.27
356	IP501	9.6		-0.48	1381		-----		-----
357	IP501	11		0.25	1385	in house	7		-1.84
360	IP501	11.1		0.30	1389		-----		-----
370	IP470	9.6		-0.48	1402	IP501	12		0.77
372	IP470	10		-0.27	1404	IP470	12		0.77
391	IP501	11		0.25	1412	IP501	11		0.25
398	IP501	12		0.77	1431	in house	10.9		0.20
399	IP501	15.45		2.58	1455	IP501	11	C	0.25
444		-----		-----	1510		-----		-----
445	IP501	10		-0.27	1520	IP470	10.89		0.19
447	IP470	5.4		-2.68	1556	IP470	11.9		0.72
463	IP470	6.0	C	-2.37	1586	IP501	10		-0.27
494	IP501	8		-1.32	1613	IP470	4.2	ex	-3.31
507	IP501	10		-0.27	1643	D5185	9.04		-0.78
511	D5863-B	13.85		1.74	1648	IP470	7.46		-1.60
541	IP470	12		0.77	1720		-----		-----
551	IP501	11.18		0.34	1724	IP501	11.4		0.46
557	IP501	14.8606		2.27	1740	IP501	9		-0.80
605	IP501	10.9		0.20	1782	IP501	10		-0.27
608	IP501	6.01	ex	-2.36	1784	IP501	10.6		0.04
621		-----		-----	1792	IP501	10.9		0.20
631	IP470	10.79		0.14	1810		-----		-----
657	IP501	10.7		0.09	1813	IP501	13.2		1.40
663	IP501	10.9		0.20	1833	IP501	11.6		0.56
704	IP470	11.0		0.25	1854	IP501	11.7		0.62
705	IP470	10.90		0.20	1857	IP501	9.5		-0.53
781	IP501	10.1		-0.22	1862	IP501	11.0		0.25
785	IP470	11.95		0.75	1881	IP470	11.9		0.72
791	IP470	10		-0.27	1949	IP470	9.6		-0.48
823	IP501	11.57		0.55	1950	IP470	10.5		-0.01
824	IP501	12.3		0.93	1967	IP470	11.0		0.25
840	IP501	6.2		-2.26	1986	IP470	11		0.25
851		-----		-----	1995		-----		-----
855	IP470	10.8		0.15	2129	IP470	11.9		0.72
862	IP501	11.1		0.30	6013	IP470	10	C	-0.27
863	IP501	11.3		0.41	6016		-----		-----
864	IP501	12.2		0.88	6021	IP501	10.5		-0.01
865	IP501	11.0		0.25	6025	IP470	9.7		-0.43
873	IP470	11.0		0.25	6028	IP501	1.55	C,R(0.01)	-4.70
874	IP501	11.3		0.41	7017	IP470	9.9		-0.33
875	IP501	11.0		0.25					

normality	not OK
n	120
outliers	2+2ex
mean (n)	10.522
st.dev. (n)	1.9309
R(calc.)	5.407
R(IP470:05)	5.348

Compare R(IP501:05) = 3.89

Lab 463 first reported 4.14
Lab 1455 first reported 18
Lab 6013 first reported 17
Lab 6028 first reported 3.55





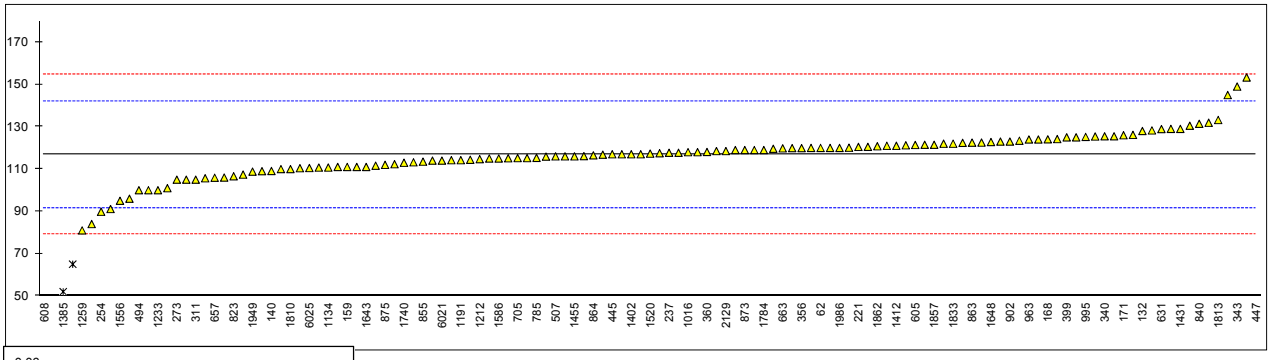
Determination of Vanadium on sample #16002; results in mg/kg

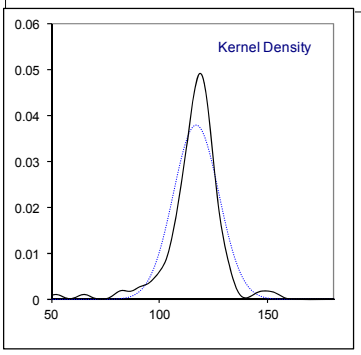
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP470	123		0.50	902	IP470	123		0.50
62	IP470	120		0.26	904	IP470	125		0.66
90	D5863	145		2.24	912		-----		-----
92	D5863-B	153.3		2.90	913		-----		-----
120	IP501	110		-0.54	922	IP501	122		0.42
131	IP501	120.5		0.30	963	IP501	124		0.58
132	IP470	128		0.89	971	IP501	120		0.26
133		-----		-----	994	IP501	124.18		0.59
140	IP501	109.1		-0.61	995	D5863-B	125.2		0.67
150	IP501	125.5		0.69	1011	D5863-B	96		-1.65
154	D5863-B	120		0.26	1016	IP501	118		0.10
158		-----		-----	1059	in house	114		-0.22
159	IP501	111		-0.46	1066	IP501	119		0.18
168	D5863-B	124.06		0.58	1082	D5185	130.5		1.09
169		-----		-----	1109		-----		-----
171	IP501	126.0		0.73	1121		-----		-----
175	D5863-B	116		-0.06	1126	IP501	115.9		-0.07
194		-----		-----	1134	IP501	110.72		-0.48
212	IP470	109		-0.62	1135	IP501	112.3		-0.35
221	IP470	120.47		0.30	1191	ISO10478M	114.2		-0.20
230	IP470	105.0		-0.93	1212	IP501	114.7		-0.16
237	IP501	117.7		0.07	1229	in house	111.6		-0.41
254	IP501	89.821		-2.14	1233	IP501	100		-1.33
273	IP470	105		-0.93	1259	in house	81		-2.84
311	IP501	105		-0.93	1264		-----		-----
323	IP501	119		0.18	1299	D5863	125.4		0.69
331	IP501	121.24		0.36	1300	IP501	126.16		0.75
333	IP501	121		0.34	1345	IP470	122.54		0.46
334	IP470	100		-1.33	1347	in house	91.1		-2.04
340	IP501	125.5		0.69	1348	in house	65	R(0.01)	-4.11
342	IP501	115.1		-0.13	1356	IP501	105.65		-0.88
343	D5708	149		2.56	1365	IP470	107.38		-0.75
351	IP501	117.5		0.06	1372	D5708	121.500		0.38
356	IP501	119.9		0.25	1381		-----		-----
357	IP501	115		-0.14	1385	in house	52	R(0.01)	-5.15
360	IP501	118.1		0.11	1389		-----		-----
370	IP470	110.4		-0.51	1402	IP501	117		0.02
372	IP470	111		-0.46	1404	IP407	84		-2.60
391	IP501	129		0.97	1412	IP501	121		0.34
398	IP501	119.9		0.25	1431	in house	129		0.97
399	IP501	125.00		0.66	1455	IP501	116	C	-0.06
444		-----		-----	1510		-----		-----
445	IP501	117		0.02	1520	IP470	117.31		0.04
447	IP470	225.0	R(0.01)	8.60	1556	ISO10478	95		-1.73
463	IP470	116.12		-0.05	1586	IP501	115		-0.14
494	IP501	100		-1.33	1613	D5863	23.9	R(0.01)	-7.38
507	IP501	116		-0.06	1643	D5185	111		-0.46
511		-----		-----	1648	IP470	122.8		0.48
541	IP470	111		-0.46	1720		-----		-----
551	IP501	128.29		0.92	1724	IP501	119.6		0.23
557	IP501	100.9685		-1.26	1740	IP501	113		-0.30
605	IP501	121.4		0.37	1782	IP501	124		0.58
608	IP501	21.16	R(0.01)	-7.60	1784	IP501	119		0.18
621		-----		-----	1792	IP501	118.0		0.10
631	D5863-A	128.92		0.97	1810	in house	110		-0.54
657	IP501	105.9		-0.86	1813	IP501	133.2		1.31
663	IP501	119.8		0.24	1833	IP501	122		0.42
704	IP470	122.4		0.45	1854	IP501	114.4		-0.19
705	IP470	115.2		-0.12	1857	IP501	121.5		0.38
781	IP501	115.2		-0.12	1862	IP501	120.8		0.32
785	IP470	115.31		-0.12	1881	IP470	120.1		0.27
791	IP470	117		0.02	1949	IP470	108.8		-0.63
823	IP501	106.6		-0.81	1950	IP470	118.5		0.14
824	IP501	123.4		0.53	1967	IP470	117.7		0.07
840	IP501	131.4		1.16	1986	IP470	120		0.26
851	IP501	131.9		1.20	1995		-----		-----
855	IP470	113.5		-0.26	2129	IP470	118.5		0.14
862	IP501	113.2		-0.28	6013	IP470	106		-0.86
863	IP501	122.5		0.46	6016		-----		-----
864	IP501	116.5		-0.02	6021	IP501	114.0		-0.22
865	IP501	114.2		-0.20	6025	IP470	110.5		-0.50
873	IP470	119.0		0.18	6028	IP501	117.00		0.02
874	IP501	116.8		0.00	7017	IP470	110.7		-0.48
875	IP501	112		-0.38					

normality	not OK
n	124
outliers	5
mean (n)	116.758
st.dev. (n)	10.5244
R(calc.)	29.468
R(IP470:05)	35.226

Compare R(IP501:05) = 29.218

Lab 1455 first reported 115



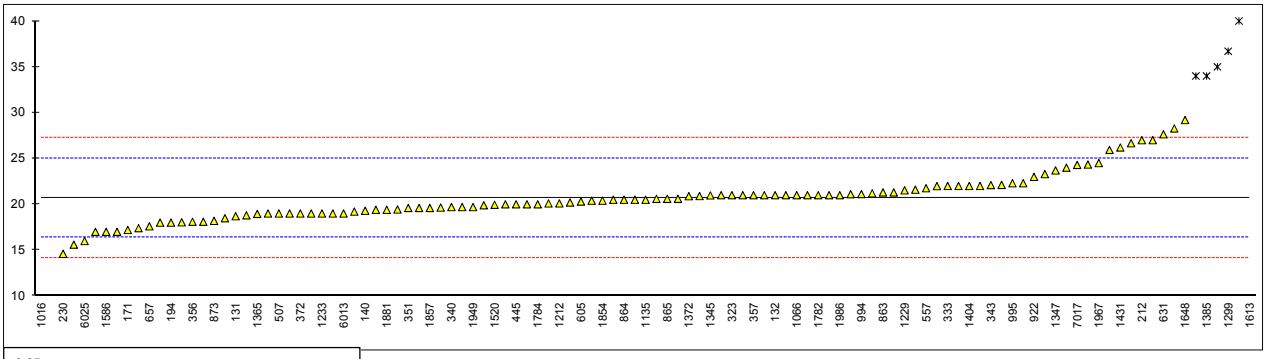


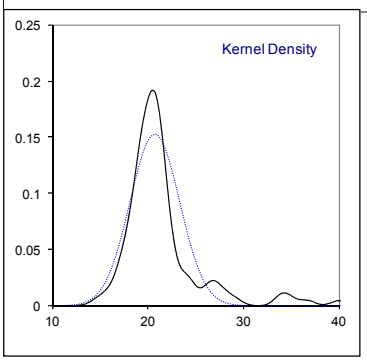
Determination of Calcium on sample #16002; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP470	21		0.14	902	IP470	20		-0.32
62	IP470	19		-0.78	904	IP470	22		0.60
90		-----		-----	912		-----		-----
92		-----		-----	913		-----		-----
120	IP501	21		0.14	922	IP501	23		1.06
131	IP501	18.70		-0.92	963	IP501	19		-0.78
132	IP470	21		0.14	971	IP501	21		0.14
133		-----		-----	994	IP501	21.12		0.19
140	IP501	19.3		-0.65	995	D5863-B	22.3		0.73
150	IP501	20.4		-0.14	1011		-----		-----
154		-----		-----	1016	IP501	0.8	R(0.01)	-9.15
158		-----		-----	1059	in house	34	R(0.01)	6.12
159	IP501	18		-1.24	1066	IP501	21		0.14
168		-----		-----	1082	D5185	21.2		0.23
169		-----		-----	1109		-----		-----
171	IP501	17.2		-1.61	1121		-----		-----
175		-----		-----	1126	IP501	19.4		-0.60
194	IP470	18		-1.24	1134	IP501	19.436		-0.58
212	IP470	27		2.90	1135	IP501	20.5		-0.09
221		-----		-----	1191		-----		-----
230	IP470	14.6		-2.81	1212	IP501	20.1		-0.28
237	IP501	18.04		-1.22	1229	in house	21.53		0.38
254		-----		-----	1233	IP501	19		-0.78
273		-----		-----	1259		-----		-----
311	IP501	19		-0.78	1264		-----		-----
323	IP501	21		0.14	1299	IP470	36.7	R(0.01)	7.36
331	IP501	21.99		0.59	1300	IP501	26.67		2.74
333	IP501	22		0.60	1345	IP470	20.97		0.12
334	IP470	21		0.14	1347	in house	23.7		1.38
340	IP501	19.7		-0.46	1348	in house	40	R(0.01)	8.88
342	IP501	21.1		0.18	1356	IP501	18.485		-1.02
343	IP501	22.1		0.64	1365	IP470	18.955		-0.80
351	IP501	19.6		-0.51	1372	IP501	20.887		0.08
356	IP501	18.1		-1.20	1381		-----		-----
357	IP501	21		0.14	1385	in house	34	R(0.01)	6.12
360	IP501	20.6		-0.05	1389		-----		-----
370		-----		-----	1402	IP501	21		0.14
372	IP470	19		-0.78	1404	IP470	22		0.60
391	IP501	35	R(0.01)	6.58	1412	IP501	22		0.60
398	IP501	27		2.90	1431	in house	26.2		2.53
399	IP501	28.28		3.49	1455	IP501	20	C	-0.32
444		-----		-----	1510		-----		-----
445	IP501	20		-0.32	1520	IP470	19.95		-0.35
447		-----		-----	1556	INH-1129	19	C	-0.78
463	IP470	19.65		-0.48	1586	IP501	17		-1.70
494	IP501	17		-1.70	1613	D5863	82.2	R(0.01)	28.28
507	IP501	19		-0.78	1643	D5185	20.6		-0.05
511		-----		-----	1648	IP470	29.2		3.91
541		-----		-----	1720		-----		-----
551	IP501	25.94		2.41	1724	IP501	22.3		0.73
557	IP501	21.7547		0.48	1740	IP501	17		-1.70
605	IP501	20.3		-0.19	1782	IP501	21		0.14
608	IP501	4.68	R(0.01)	-7.37	1784	IP501	20.0		-0.32
621		-----		-----	1792	IP501	21.6		0.41
631	IP470	27.64		3.19	1810		-----		-----
657	IP501	17.6		-1.43	1813	IP501	15.6		-2.35
663	IP501	19.6		-0.51	1833	IP501	21		0.14
704	IP470	20.5		-0.09	1854	IP501	20.4		-0.14
705	IP470	19.21		-0.69	1857	IP501	19.6		-0.51
781	IP470	21.3		0.27	1862	IP501	19.7		-0.46
785	IP470	24.34		1.67	1881	IP470	19.4		-0.60
791		-----		-----	1949	IP470	19.7		-0.46
823	IP501	17.4		-1.52	1950	IP470	18.8		-0.88
824	IP501	20.5		-0.09	1967	IP470	24.5		1.75
840	IP501	20.1		-0.28	1986	IP470	21		0.14
851	IP501	22.12		0.65	1995		-----		-----
855	IP470	20.9		0.09	2129	IP470	23.3		1.19
862	IP501	20.2		-0.23	6013	IP470	19		-0.78
863	IP501	21.3		0.27	6016		-----		-----
864	IP501	20.5		-0.09	6021	IP501	18.1		-1.20
865	IP501	20.6		-0.05	6025	IP470	16.0		-2.16
873	IP470	18.2		-1.15	6028		-----		-----
874	IP501	19.9		-0.37	7017	IP470	24.3		1.65
875	IP501	24.0		1.52					

normality	suspect	
n	105	
outliers	8	Spike
mean (n)	20.703	19.6 (Recovery approx.106%)
st.dev. (n)	2.6067	
R(calc.)	7.299	
R(IP470:05)	6.088	Compare R(IP501:05) = 4.62

Lab 1455 first reported 33
Lab 1556 first reported 1



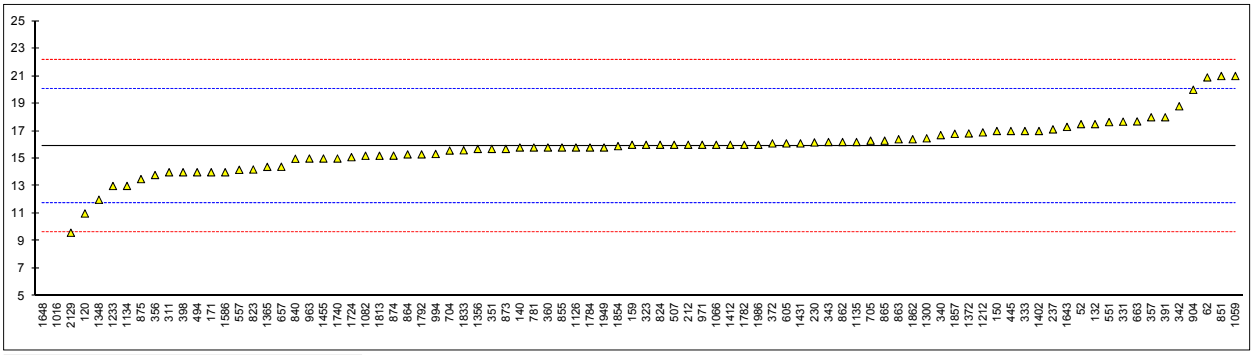


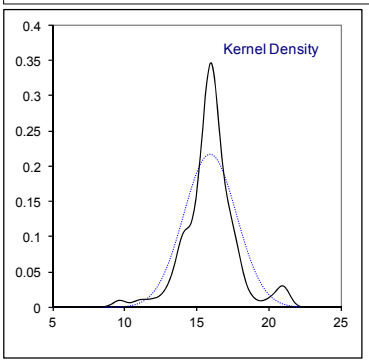
Determination of Phosphorus on sample #16002; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP500	17.5		0.77	902		-----		-----
62	IP500	20.9		2.40	904	IP500	20		1.97
90		-----		-----	912		-----		-----
92		-----		-----	913		-----		-----
120	IP501	11		-2.34	922		-----		-----
131		-----		-----	963	IP501	15		-0.43
132	IP500	17.5		0.77	971	IP501	16		0.05
133		-----		-----	994	IP501	15.33		-0.27
140	IP501	15.8		-0.04	995		-----		-----
150	IP501	17	C	0.53	1011		-----		-----
154		-----		-----	1016	IP501	1.0	R(0.01)	-7.14
158		-----		-----	1059	in house	21		2.45
159	IP501	16		0.05	1066	IP501	16		0.05
168		-----		-----	1082	D5185	15.2		-0.33
169		-----		-----	1109		-----		-----
171	IP501	14.0		-0.91	1121		-----		-----
175		-----		-----	1126	IP501	15.8		-0.04
194		-----		-----	1134	IP501	13.006		-1.38
212	IP500	16		0.05	1135	IP501	16.2		0.15
221		-----		-----	1191		-----		-----
230	IP500	16.17		0.13	1212	IP501	16.9		0.48
237	IP501	17.12		0.59	1229		-----		-----
254		-----		-----	1233	IP501	13		-1.39
273		-----		-----	1259		-----		-----
311	IP501	14		-0.91	1264		-----		-----
323	IP501	16		0.05	1299		-----		-----
331	IP501	17.68		0.86	1300	IP501	16.47		0.28
333	IP501	17		0.53	1345		-----		-----
334		-----		-----	1347		-----		-----
340	IP501	16.7		0.39	1348	in house	12		-1.86
342	IP501	18.8	C	1.39	1356	IP501	15.695		-0.09
343	IP501	16.2		0.15	1365	IP500	14.391		-0.72
351	IP501	15.7		-0.09	1372	IP501	16.824		0.45
356	IP501	13.8		-1.00	1381		-----		-----
357	IP501	18		1.01	1385		-----		-----
360	IP501	15.8		-0.04	1389		-----		-----
370		-----		-----	1402	IP501	17		0.53
372	IP500	16.1		0.10	1404		-----		-----
391	IP501	18		1.01	1412	IP501	16		0.05
398	IP501	14		-0.91	1431	in house	16.1		0.10
399		-----		-----	1455	IP501	15	C	-0.43
444		-----		-----	1510		-----		-----
445	IP501	17		0.53	1520		-----		-----
447		-----		-----	1556		-----		-----
463		-----		-----	1586	IP501	14		-0.91
494	IP501	14		-0.91	1613		-----		-----
507	IP501	16		0.05	1643	D5185	17.3		0.68
511		-----		-----	1648	IP501	0.36	R(0.01)	-7.44
541		-----		-----	1720		-----		-----
551	IP501	17.65		0.84	1724	IP501	15.1		-0.38
557	IP501	14.1790		-0.82	1740	IP501	15		-0.43
605	IP501	16.1		0.10	1782	IP501	16		0.05
608		-----		-----	1784	IP501	15.8		-0.04
621		-----		-----	1792	IP501	15.3		-0.28
631		-----		-----	1810		-----		-----
657	IP501	14.4		-0.71	1813	IP501	15.2		-0.33
663	IP501	17.7		0.87	1833	IP501	15.6		-0.14
704	IP500	15.58		-0.15	1854	IP501	15.9		0.00
705	IP500	16.30		0.20	1857	IP501	16.8		0.44
781	IP501	15.8		-0.04	1862	IP501	16.4		0.24
785		-----		-----	1881		-----		-----
791		-----		-----	1949	IP500	15.8		-0.04
823	IP501	14.2		-0.81	1950		-----		-----
824	IP501	16.0		0.05	1967		-----		-----
840	IP500	14.98		-0.44	1986	IP500	16		0.05
851	IP501	21.00		2.45	1995		-----		-----
855	IP501	15.8		-0.04	2129	IP500	9.6		-3.01
862	IP501	16.2		0.15	6013		-----		-----
863	IP501	16.4		0.24	6016		-----		-----
864	IP501	15.3		-0.28	6021		-----		-----
865	IP501	16.3		0.20	6025		-----		-----
873	IP500	15.7		-0.09	6028		-----		-----
874	IP500	15.21		-0.33	7017		-----		-----
875	IP501	13.5		-1.15					

normality	not OK	
n	84	
outliers	2	Spike
mean (n)	15.890	14.8 (Recovery approx.107%)
st.dev. (n)	1.8368	
R(calc.)	5.143	
R(IP501:05)	5.843	Compare R(IP500:03)=3.659

Lab 150 first reported 1
Lab 342 first reported 24.9
Lab 1455 first reported 16



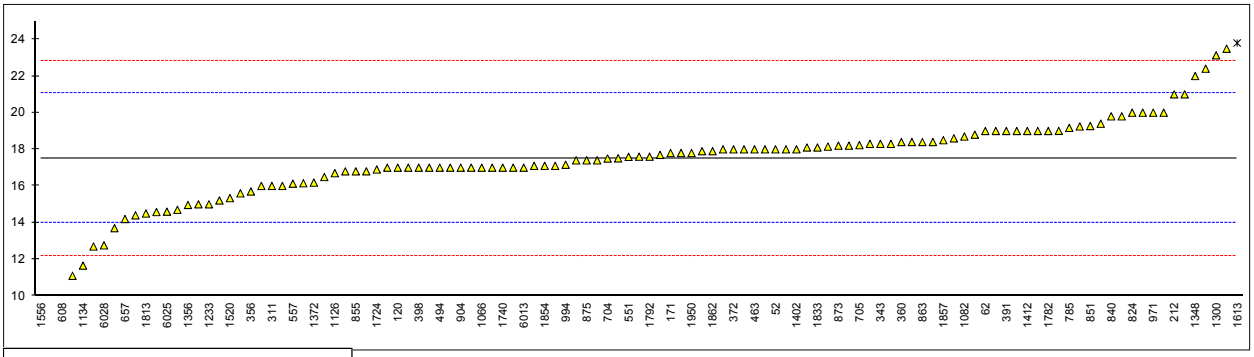


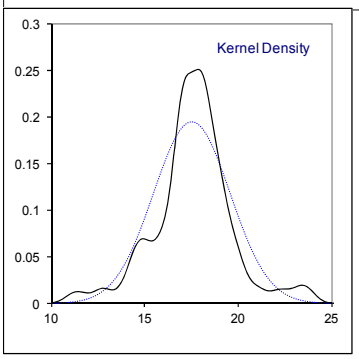
Determination of Zinc on sample #16002; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	IP470	18		0.28	902	IP470	17		-0.29
62	IP470	19		0.84	904	IP470	17		-0.29
90		-----		-----	912		-----		-----
92		-----		-----	913		-----		-----
120	IP501	17		-0.29	922	IP501	17		-0.29
131	IP501	16.15		-0.77	963	IP501	16		-0.85
132	IP470	19		0.84	971	IP501	20		1.40
133		-----		-----	994	IP501	17.16		-0.20
140	IP501	17.0		-0.29	995	D5863-B	18.3		0.44
150	IP501	19.8		1.29	1011		-----		-----
154		-----		-----	1016	IP501	0.9	R(0.01)	-9.37
158		-----		-----	1059	in house	20		1.40
159	IP501	17		-0.29	1066	IP501	17		-0.29
168		-----		-----	1082	D5185	18.7		0.67
169		-----		-----	1109		-----		-----
171	IP501	17.8		0.16	1121		-----		-----
175		-----		-----	1126	IP501	16.7		-0.46
194	IP470	18		0.28	1134	IP501	11.656		-3.30
212	IP470	21		1.97	1135	IP501	17.8		0.16
221	IP470	17.51		0.00	1191		-----		-----
230	IP470	15.6		-1.08	1212	IP501	17.9		0.22
237	IP501	16.49		-0.58	1229	in house	18.15		0.36
254		-----		-----	1233	IP501	15		-1.42
273		-----		-----	1259		-----		-----
311	IP501	16		-0.85	1264		-----		-----
323	IP501	18		0.28	1299	IP470	11.1		-3.62
331	IP501	19.01		0.84	1300	IP501	23.13	C	3.17
333	IP501	18		0.28	1345	IP470	19.25		0.98
334	IP470	15		-1.42	1347	in house	22.4		2.76
340	IP501	18.3		0.44	1348	in house	22		2.53
342	IP501	18.4		0.50	1356	IP501	14.965		-1.44
343	IP501	18.3		0.44	1365	IP470	15.21		-1.30
351	IP501	16.8		-0.40	1372	IP501	16.185		-0.75
356	IP501	15.7		-1.02	1381		-----		-----
357	IP501	21		1.97	1385	in house	18		0.28
360	IP501	18.4		0.50	1389		-----		-----
370		-----		-----	1402	IP501	18		0.28
372	IP470	18		0.28	1404	IP470	19		0.84
391	IP501	19		0.84	1412	IP501	19		0.84
398	IP501	17		-0.29	1431	in house	18.6		0.61
399	IP501	14.58		-1.65	1455	IP501	17	C	-0.29
444		-----		-----	1510		-----		-----
445	IP501	16		-0.85	1520	IP470	15.34		-1.22
447		-----		-----	1556	INH-1129	0	R(0.01)	-9.88
463	IP470	18.0		0.28	1586	IP501	19		0.84
494	IP501	17		-0.29	1613	D5863	23.8	ex	3.55
507	IP501	17		-0.29	1643	D5185	13.7		-2.15
511		-----		-----	1648	IP470	19.4		1.06
541		-----		-----	1720		-----		-----
551	IP501	17.59		0.04	1724	IP501	16.9		-0.35
557	IP501	16.1262		-0.78	1740	IP501	17		-0.29
605	IP501	14.7		-1.59	1782	IP501	19		0.84
608	IP501	3.78	R(0.01)	-7.74	1784	IP501	17.7		0.11
621		-----		-----	1792	IP501	17.6		0.05
631	IP470	23.49		3.37	1810		-----		-----
657	IP501	14.2		-1.87	1813	IP501	14.5		-1.70
663	IP501	20.0		1.40	1833	IP501	18.1		0.33
704	IP470	17.5		-0.01	1854	IP501	17.1		-0.23
705	IP470	18.23		0.40	1857	IP501	18.5		0.56
781	IP501	17.1		-0.23	1862	IP501	17.9		0.22
785	IP501	19.17		0.94	1881	IP470	17.4		-0.06
791		-----		-----	1949	IP470	16.8		-0.40
823	IP501	14.4		-1.75	1950	IP470	17.8		0.16
824	IP501	20.0		1.40	1967	IP470	18.8		0.73
840	IP501	19.8		1.29	1986	IP470	17		-0.29
851	IP501	19.27		0.99	1995		-----		-----
855	IP470	16.8		-0.40	2129	IP470	18.4		0.50
862	IP501	18.2		0.39	6013	IP470	17		-0.29
863	IP501	18.4		0.50	6016		-----		-----
864	IP501	17.6		0.05	6021	IP501	17.1		-0.23
865	IP501	17.4		-0.06	6025	IP470	14.6		-1.64
873	IP470	18.2		0.39	6028	IP501	12.76		-2.68
874	IP501	18.1		0.33	7017	IP470	12.7		-2.71
875	IP501	17.4		-0.06					

normality	suspect	
n	111	
outliers	3+1ex	Spike
mean (n)	17.512	17.1 (Recovery approx.102%)
st.dev. (n)	2.0520	
R(calc.)	5.746	
R(IP470:05)	4.965	Compare R(IP501:05) = 3.77

Lab 1300 first reported 26.54
Lab 1455 first reported 19

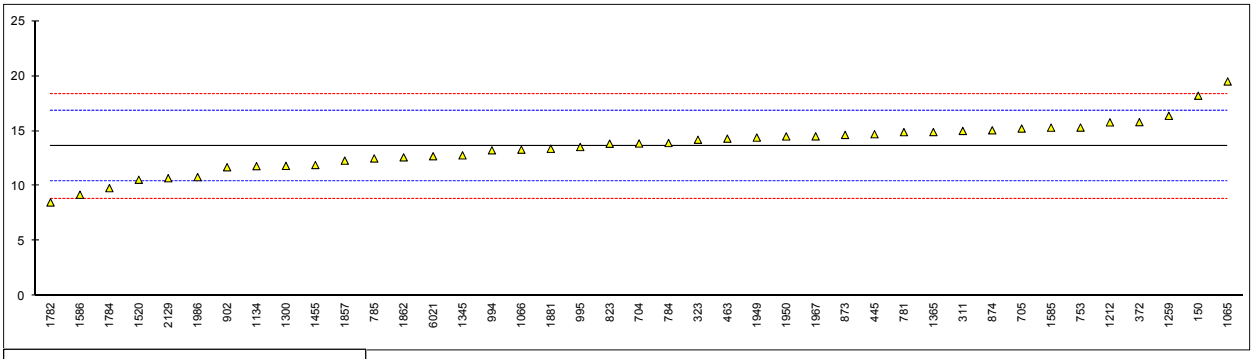


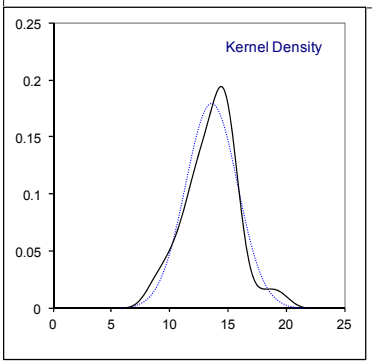


Determination of Bromine Number on distillate <360°C AET on sample #16003; results in g Br_2/100g

lab	method	value	mark	z(targ)	remarks
140		-----		-----	
150	D1159	18.2		2.88	
158		-----		-----	
171		-----		-----	
311	D1159	15.0		0.88	reported distillate quantity too low to perform the determination
323	D1159	14.2		0.38	
356		-----		-----	reported distillate quantity too low to perform the determination
372	D1159	15.80		1.38	
399		-----		-----	
445	D1159	14.7		0.69	
463	D1159	14.30		0.44	
551		-----		-----	
657		-----		-----	
704	D1159	13.86		0.17	
705	D1159	15.22		1.02	
753	D1159	15.31		1.07	
781	D1159	14.89		0.81	
784	D1159	13.9		0.19	
785	D1159	12.5		-0.68	
823	D1159	13.84		0.15	
873	D1159	14.64		0.65	
874	D1159	15.06		0.92	
875		-----		-----	
902	D1159	11.7		-1.18	
922		-----		-----	
963		-----		-----	
994	D1159	13.24		-0.22	
995	D1159	13.54		-0.03	
1011		-----		-----	
1016		-----		-----	
1065	D1159	19.5		3.69	
1066	D1159	13.3		-0.18	distillate at 10 mmHg, reported 13.6 at 2 mmHg
1134	IP130	11.8		-1.12	
1212	D1159	15.78		1.37	
1259	D1159	16.38		1.74	
1264		-----		-----	
1300	D1159	11.825		-1.10	
1345	D1159	12.78		-0.51	distillate at 10 mmHg
1365	D1159	14.90		0.82	
1402		-----		-----	
1455	D1159	11.9		-1.06	
1520	D1159	10.56		-1.90	
1556		-----		-----	
1585	D1159	15.3		1.07	distillate at 2 mmHg
1586	D1159	9.2		-2.74	
1724		-----		-----	
1782	D1159	8.5	C	-3.18	first reported 8.26
1784	D1159	9.8		-2.37	
1792		-----		-----	
1854		-----		-----	
1857	D1159	12.3		-0.81	distillate at 2 mmHg
1862	D1159	12.6		-0.62	distillate at 2 mmHg
1881	D1159	13.38		-0.13	distillate at 10 mmHg
1949	D1159	14.4		0.50	distillate at 10 mmHg
1950	D1159	14.5		0.57	distillate at 2 mmHg
1967	D1159	14.51		0.57	
1986	D1159	10.8		-1.75	distillate at 10 mmHg
2129	D1159	10.7		-1.81	
6021	D1159	12.7		-0.56	distillate at 10 mmHg

normality	OK
n	41
outliers	0
mean (n)	13.593
st.dev. (n)	2.2285
R(calc.)	6.240
R(D1159:07)	4.481

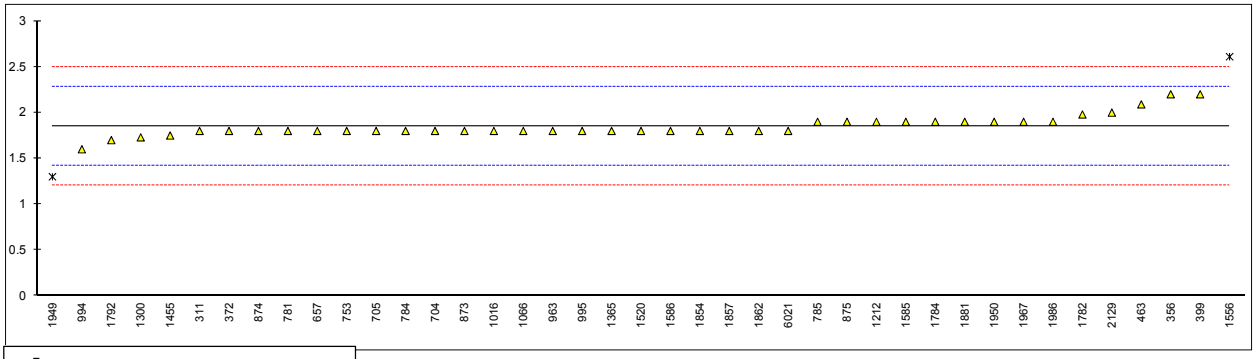

25
20
15
10
5
0
1762
1586
1784
1520
2129
1986
902
1134
1300
1455
1857
785
1862
6021
1345
994
1066
1881
995
823
704
784
323
463
1949
1950
1967
873
445
781
1365
311
874
705
1585
753
1212
372
1259
150
1065

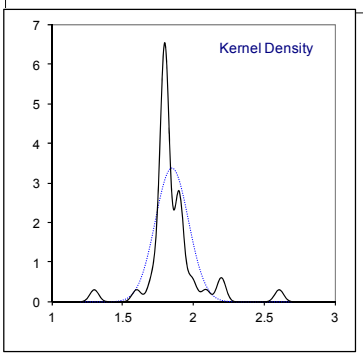

Kernel Density
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20
25

Determination of P-Value on sample #16003;

lab	method	value	mark	z(targ)	remarks
140		-----		-----	
150		-----		-----	
158		-----		-----	
171		-----		-----	
311	SMS1600	1.80		-0.23	
323		-----		-----	
356	SMS1600	2.2		1.63	
372	SMS1600	1.8		-0.23	
399	UNI20011	2.20		1.63	
445		-----		-----	
463	INH-18	2.09		1.12	
551		-----		-----	
657	SMS1600	1.8		-0.23	
704	SMS1600	1.8		-0.23	
705	SMS1600	1.8		-0.23	
753	SMS1600	1.8		-0.23	
781	SMS1600	1.8		-0.23	
784	SMS1600	1.8		-0.23	
785	SMS1600	1.90		0.23	
823		-----		-----	
873	SMS1600	1.80		-0.23	
874	SMS1600	1.80		-0.23	
875	SMS1600	1.90		0.23	
902		-----		-----	
922		-----		-----	
963	SMS1600	1.8		-0.23	
994	SMS1600	1.6		-1.17	
995	SMS1600	1.8		-0.23	
1011		-----		-----	
1016	SMS1600	1.80		-0.23	
1065		-----		-----	
1066	SMS1600	1.8		-0.23	
1134		-----		-----	
1212	SMS1600	1.9		0.23	
1259		-----		-----	
1264		-----		-----	
1300	SMS1600	1.73		-0.56	
1345		-----		-----	
1365	SMS1600	1.80		-0.23	
1402		-----		-----	
1455	SMS1600	1.75		-0.47	
1520	SMS1600	1.8		-0.23	
1556	D7112	2.61	R(0.01)	3.55	
1585	SMS1600	1.90		0.23	
1586	SMS1600	1.8		-0.23	
1724		-----		-----	
1782	SMS1600	1.98		0.61	
1784	SMS1600	1.9		0.23	
1792	SMS1600	1.7		-0.70	
1854	SMS1600	1.8		-0.23	
1857	SMS1600	1.80		-0.23	
1862	SMS1600	1.80		-0.23	
1881	SMS1600	1.90		0.23	
1949	SMS1600	1.30	R(0.01)	-2.57	
1950	SMS1600	1.90		0.23	
1967	SMS1600	1.90		0.23	
1986	SMS1600	1.90		0.23	
2129	SMS1600	2.0		0.70	
6021	SMS1600	1.80		-0.23	

normality	not OK
n	39
outliers	2
mean (n)	1.850
st.dev. (n)	0.1177
R(calc.)	0.330
R(target)	0.600


3
2.5
2
1.5
1
0.5
0
1949 994 1792 1300 1455 311 372 874 781 657 753 705 784 704 873 1016 1066 963 995 1365 1520 1586 1854 1857 1862 6021 785 875 1212 1585 1784 1881 1950 1967 1986 1782 2129 463 356 399 1556


Kernel Density
7
6
5
4
3
2
1
0
1
1.5
2
2.5
3

Determination of Compatibility rating, Cleanliness and blend ratio used on samples #16004 and #16005;

lab	method	Compatibility		z(targ)	Cleanliness original results	Cleanliness #16004 results		z(targ)	Cleanliness #16005 results		z(targ)
52	D4740	-----		-----	3	3		-----	-----		-----
140	D4740	-----	(C)	-----	1	5	(C)	-----	1		-----
154	D4740	5		-----	1	-----		-----	1		-----
171	D4740	5		-----	2	5		-----	1	(C)	-----
230	D4740	5		-----	1	-----		-----	1		-----
237	D4740	4		-----	2	-----		-----	-----		-----
311	D4740	5		-----	3	3		-----	1		-----
323	D4740	5		-----	1	-----		-----	1		-----
342	D4740	5		-----	1	-----	(C)	-----	1	(C)	-----
351	D4740	5		-----	1	-----		-----	1		-----
360	D4740	5		-----	1	-----		-----	1		-----
370	D4740	5		-----	1	-----		-----	1		-----
372	D4740	5		-----	-----	-----		-----	1		-----
399	D4740	5		-----	1	-----	(C)	-----	1	(C)	-----
445	D4740	5		-----	5	5		-----	1		-----
447	D4740	5		-----	-----	-----		-----	-----		-----
494	D4740	5		-----	4	4		-----	1		-----
507	D4740	5		-----	-----	-----		-----	-----		-----
551		-----		-----	-----	-----		-----	-----		-----
557		-----		-----	-----	-----		-----	-----		-----
657	D4740	4		-----	5	5	(ex)	-----	-----		-----
663		-----		-----	-----	-----		-----	-----		-----
704	D4740	5		-----	1	-----		-----	1		-----
784	D4740	5		-----	-----	-----		-----	-----		-----
785		-----		-----	-----	-----		-----	-----		-----
840	D4740	4		-----	4	4		-----	1		-----
867	D4740	5		-----	1	-----		-----	-----		-----
873	D4740	5		-----	1	-----		-----	1		-----
874	D4740	5		-----	1	-----		-----	1		-----
875	D4740	5		-----	1	-----		-----	-----		-----
922		-----		-----	-----	-----		-----	-----		-----
963		-----		-----	-----	-----		-----	-----		-----
971	D4740	5		-----	-----	-----		-----	-----		-----
974	D4740	5	(C)	-----	5	-----		-----	1	(C)	-----
1065	D4740	5		-----	1	-----		-----	1	(C)	-----
1066	D4740	5		-----	4	4		-----	1		-----
1082	D4740	5		-----	1	-----		-----	1		-----
1121	D4740	5		-----	1	-----		-----	1		-----
1134	D4740	1	R(0.01)	-----	1	-----		-----	1	(C)	-----
1191	D4740	5		-----	1	-----		-----	1		-----
1229	D4740	5		-----	1	-----		-----	1		-----
1365	D4740	5		-----	-----	4		-----	1		-----
1556	D4740	5		-----	-----	-----		-----	-----		-----
1585	D4740	5		-----	1	-----		-----	1		-----
1740	D4740	5		-----	1	-----		-----	1		-----
1782	D4740	5		-----	1	-----		-----	1		-----
1792	D4740	5		-----	1	5	(C)	-----	1	(C)	-----
1813		-----		-----	-----	-----		-----	-----		-----
2129	D4740	5		-----	4	4		-----	1		-----
	normality	not OK				OK			n.a.		
	n	39				11			32		
	outliers	1				0+1ex			0		
	mean (n)	5				4			1		
	st.dev. (n)	n.a.				n.a.			n.a.		
	R(calc.)	n.a.				n.a.			n.a.		
	R(D4740:04)	1				1			1		

Lab 140 reported compatibility result 5 but the picture showed a cleanliness result performed on sample #16004 and not the compatibility result performed on the mixture of samples #16004 and #16005

Lab 171 first reported 2 for cleanliness of sample #16005

Lab 342 reported to have used for cleanliness sample #16004 but picture showed that sample #16005 was used

Lab 399 reported to have used for cleanliness sample #16004 but picture showed that sample #16005 was used, 2nd reported value for cleanliness for sample #16005 is 2

Lab 657 picture of cleanliness showed the compatibility result performed on the mixture of samples #16004 and #16005 and not the cleanliness performed on sample #16004, therefore this test result was excluded

Lab 974 mixed up of results; first reported 1 for the compatibility and 5 for the cleanliness for sample #16005

Lab 1065 reported to have used sample #16004 for cleanliness but picture showed that sample #16005 was used

Lab 1134 reported to have used sample #16004 for cleanliness but picture showed that sample #16005 was used

Lab 1792 mixed up sample codes for cleanliness, pictures clearly showed which samples were tested

APPENDIX 2

Number of participants per country

1 lab in	ARGENTINA
2 labs in	AUSTRALIA
2 labs in	AZERBAIJAN
5 labs in	BELGIUM
3 labs in	BRAZIL
2 labs in	BULGARIA
4 labs in	CANADA
1 lab in	CHILE
10 labs in	CHINA, People's Republic
1 lab in	COTE D'IVOIRE
2 labs in	CROATIA
2 labs in	CYPRUS
2 labs in	CZECH REPUBLIC
1 lab in	DJIBOUTI
2 labs in	EGYPT
5 labs in	ESTONIA
4 labs in	FINLAND
9 labs in	FRANCE
3 labs in	GEORGIA
3 labs in	GERMANY
6 labs in	GREECE
1 lab in	GUAM
1 lab in	GUINEA REPUBLIC
1 lab in	HONG KONG
2 labs in	INDIA
1 lab in	INDONESIA
3 labs in	IRAN, Islamic Republic of
1 lab in	IRELAND
1 lab in	ISRAEL
3 labs in	ITALY
1 lab in	JORDAN
2 labs in	KAZAKHSTAN
2 labs in	KENYA
2 labs in	LATVIA
3 labs in	LEBANON
2 labs in	LITHUANIA
1 lab in	MACEDONIA
5 labs in	MALAYSIA
2 labs in	MALTA
1 lab in	MAURITIUS
1 lab in	MEXICO
1 lab in	MOROCCO
6 labs in	NETHERLANDS
2 labs in	NIGERIA
1 lab in	PAKISTAN
1 lab in	PANAMA
1 lab in	PERU
3 labs in	PHILIPPINES
1 lab in	POLAND
3 labs in	PORTUGAL
26 labs in	RUSSIAN FEDERATION
2 labs in	SAUDI ARABIA
1 lab in	SENEGAL
1 lab in	SINGAPORE
1 lab in	SLOVENIA
1 lab in	SOUTH AFRICA
2 labs in	SOUTH KOREA
10 labs in	SPAIN
1 lab in	SUDAN
5 labs in	SWEDEN
2 labs in	TAIWAN
1 lab in	TANZANIA
1 lab in	THAILAND
1 lab in	TOGO
1 lab in	TUNISIA
14 labs in	TURKEY
1 lab in	TURKMENISTAN
2 labs in	UKRAINE
3 labs in	UNITED ARAB EMIRATES
13 labs in	UNITED KINGDOM
14 labs in	UNITED STATES OF AMERICA
1 lab in	VIETNAM

APPENDIX 3

Abbreviations:

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

Literature:

1	i.i.s. Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, April 2014
2	ASTM E178:02
3	ASTM E1301:03
4	ISO 5725:86
5	ISO 5725, parts 1-6, 1994
6	ISO 13528:05
7	M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
8	W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
9	IP 367/84
10	DIN 38402 T41/42
11	P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
12	J.N. Miller, Analyst, 118, 455, (1993)
13	Analytical Methods Committee Technical brief, No 4.January 2001
14	The Royal Society of Chemistry 2002, Analyst, 2002, 127, 1359-1364, P.J. Lowthian and M. Thompson.
15	Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)