Results of Proficiency Test
Gasoil (ASTM Spec)
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Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies organizes every year proficiency tests for Gasoil. In the annual proficiency testing program of 2016/2017, it was decided to continue the proficiency test for the testing of Gasoil in accordance with the latest applicable version of ASTM D975 specification.
In the main PT, 195 laboratories in 78 different countries did register for participation. In the PT for Cetane Number, 60 laboratories in 31 different countries did register for participation. In the PT for the Total Contamination on Gasoil 72 laboratories in 38 different countries and in the PT for the Oxidation Stability on Gasoil 64 laboratories in 33 different countries did register for participation. In total 208 laboratories did register for participation for the above Gas Oil PTs. See appendix 3 for the number of participants per country of the main round. In this report, the results of the 2016 proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. Dependent on registration it was decided to send ultra low Sulphur (ULS) Gasoil samples for the main round robin labelled #16180; for the Cetane Number round robin ULS Gasoil two types of samples labelled #16181 and Hydrogenated Vegetable Oil (HVO) labelled #16182; for the Total Contamination round robin ULS Gasoil samples labelled #16183 and for the Oxidation Stability round robin ULS Gasoil samples labelled #16184.
The HVO sample for the Cetane Number PT is a special sample. This type of fuel is not based on crude oil as common Gasoil but based on Hydrogenated Vegetable Oils. Paraffinic Diesel Fuel like Hydrotreated Vegetable Oil is used more and more as Gasoil or as a blend component in Gasoil. According to specification EN15940:16 the main differences between a paraffinic diesel fuel and automotive diesel fuel are in the areas of Density, Sulfur, Aromatics and Cetane. In order to learn about the testing of properties for Cetane Number of HVO Diesel, it was decided to send an additional sample of HVO Diesel with the Cetane Number Gasoil sample.
Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for the 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% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the 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 is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

Preparation of samples for PT on regular low sulphur winter Gasoil (main round)

From a batch of 800 litre low sulphur Gasoil (automotive diesel), which was purchased from the local market, approx. 350 litre for the regular samples was homogenized in a mixing vessel. Out of this batch, 220 amber glass bottles of 1L and 220 amber glass bottles of 0.5L, with inner and outer caps were filled and labelled #16180. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples.

	Density at 15°C in kg/m^3		Density at 15°C in kg/m^3
sample #16180-1	833.08	sample #16180-6	833.05
sample #16180-2	833.06	sample #16180-7	833.05
sample #16180-3	833.04	sample #16180-8	833.05
sample #16180-4	833.05	sample #16180-9	833.05
sample #16180-5	833.04	sample #16180-10	833.05

Table 1: homogeneity test results of subsamples #16180

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

	Density at 15°C in kg/m^3
r (observed)	0.03
reference test method	ASTM D4052:15
0.3*R (reference test method)	0.16

Table 2: evaluation of the repeatability of subsamples #16180

The calculated repeatability was less than 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #16180 was assumed.

Preparation of samples for PT on Cetane Number in Gasoil and in hydrogenated vegetable oil

From the batch of 800 litre for the main round, another 300 litre was homogenized in the mixing vessel and 260 amber glass bottles of 1L with inner and outer caps were filled and labelled #16181.

A batch of 300 litre hydrogenated vegetable oil was obtained from a third party. This batch was homogenized in the mixing vessel and 260 amber glass bottles of 1L with inner and outer caps were filled and labelled #16182.

The homogeneities of the subsamples of #16181 and #18182 were checked by the determination of Density in accordance with ASTM D4052 on 8 stratified randomly selected samples of #16181 and of #18182.

	Density at 15°C in kg/m^3 sample #16181	Density at 15°C in kg/m^3 sample #16182
sample -1	833.06	781.18
sample -2	833.06	781.20
sample -3	833.06	781.19
sample -4	833.06	781.21
sample -5	833.05	781.21
sample -6	833.05	781.20
sample -7	833.06	781.20
sample -8	833.07	781.20

Table 3: homogeneity test results of subsamples #16181 and #16182

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

	Density at 15°C in kg/m^3 sample #16181	Density at 15°C in kg/m^3 sample #16182
r (observed)	0.02	0.03
reference test method	ASTM D4052:15	ASTM D4052:15
0.3*R (reference test method)	0.16	0.16

Table 4: precision data of the subsamples #16181

The calculated repeatabilities were less than 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #16181 or #16182 was assumed.

Preparation of samples for PT on Total Contamination in Gasoil

The remaining material (approx. 85 litre) of the low sulphur Gasoil batch used for the main round was homogenized again and 80 amber glass bottles of 1L with inner and outer caps were filled and labelled #16183. Each of the 80 filled bottles was spiked with 1 ml of a freshly prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. The addition was checked by weighting each bottle before and after addition of the spike.

Preparation of samples for PT on Oxidation Stability in Gasoil

For the Oxidation Stability determination 58 litre of another batch of regular Gasoil obtained at a local supplier was homogenised and subsequently divided over 78 amber glass bottles of 0.5L with inner and outer caps and labelled #16184. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3		Density at 15°C in kg/m^3
sample #16184-1	839.70	sample #16184-5	839.69
sample #16184-2	839.69	sample #16184-6	839.69
sample #16184-3	839.69	sample #16184-7	839.69
sample #16184-4	839.69	sample #16184-8	839.69

Table 5: homogeneity test results of subsamples #16184

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

	Density at 15°C in kg/m^3
r (observed)	0.01
reference test method	ASTM D4052:15
0.3*R (reference test method)	0.16

Table 6: precision data of the subsamples #16184

The calculated repeatability was less than 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #16184 was assumed.

Depending on the registration of the participant: one bottle of 1L #16180 and one bottle of 0.5L #16180, four bottles of 1L #16181, three bottles of 1L #16182, one bottle of 1L #16183 and/or 1 bottle of 0.5L #16184 were sent to the participating laboratories on August 31, 2016.

2.5 STABILITY OF THE SAMPLES

The stability of the ultra low Sulphur Gasoil packed in amber glass bottles was checked. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were requested to determine on the samples of #16180; Acid number (total), Aromatics by FIA, Ash Content, Calculated Cetane Index (D976 and D4737), Cloud Point, Cold Filter Plugging Point (CFPP), Color ASTM, Conradson Carbon Residue, Ramsbottom Carbon Residue, Copper Corrosion, Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250°C and 350°C), FAME content, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR, Nitrogen, Pour Point (manual and/or automated), Sulphur content, Water content and Water & Sediment (D2709 & D1796).

On samples #16181 and #16182 were requested to determine; Cetane number, Derived Cetane number (D6890 and D7668), Igniton Delay (D6890 and D7668), Air temperature, Combustion Delay and Chamber Wall Temperature.
On sample #16183 was requested to determine; Total Contamination and on sample #16184; Oxidation Stability (Filterable Insolubles, Adherent Insolubles and Total Insolubles) was requested to determine.

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

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalysis). Additional or corrected test results are used for data analysis and original test results are placed under 'Remarks' in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report ‘iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation’ of April 2014 (iis-protocol, version 3.3).
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as ‘<…’ or ‘>…’ were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. 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.

According to ISO 5725 the original test results per determination were submitted to Dixon's, Grubbs' and/or Rosner's outlier tests. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.
For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

3.2 GRAPHICS

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

3.3 Z-SCORES

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

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

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

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

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

4 EVALUATION

In this interlaboratory study, a number of laboratories encountered problems with sample despatch. For the main PT: nine participants reported test results after the final reporting date and nine participants did not report any test results at all.
For the PT on Cetane Number: three participants reported the test results after the final reporting date and five participants did not report any test results at all.
For the PT on Total Contamination: five participants reported the test results after the final reporting date and four participants did not report any test results at all.
For the Oxidation Stability PT: four participants reported the test results after the final reporting date and eight participants did not report any test results at all.
Finally, 199 participants reported in total 3721 numerical test results. Observed were 61 outlying test results, which is 1.6%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

In the iis PT reports, ASTM test methods are referred to with a number (e.g. D976) and an added designation for the year that the test method was adopted or revised (e.g. D976:06). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D976:06 (2016)). In the test results tables of Appendix 1 only the test method number and year of adoption will be used. The abbreviations, used in these tables, are listed in appendix 4.

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

4.1 EVALUATION PER TEST AND PER SAMPLE

In this section, the results are discussed per sample and per test. The specified test methods and requirements were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the reported data.

Acid Number (Total): 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 D974:14e2.

Aromatics (FIA): This determination was problematic. Two statistical outliers were observed and one test result was excluded as this test result was reported in %M/M. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D1319:15. One should be aware that this Gasoil does not meet the scope of ASTM D1319 (petroleum fractions should be distilling below 315°C). Another explanation for the large observed reproducibility might be that more participants than one may have reported a test result in %M/M.

Ash: Regretfully, the ash content for this sample was near or below the application range of the test method. Therefore, no z-scores were calculated. Nevertheless, two statistical outliers were observed.

C.I. D976: 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 D976:06(2016) and ASTM D976:80(1990)e1. The specification for Gas Oil ASTM D975:16 table 1 refers to the version from 1980. Eight participants probably made calculation errors.

C.I. D4737: This determination might not to be problematic compared to the calculated reproducibility of iis15G04ASTM. Regretfully, no reproducibility is mentioned in ASTM D4737:10(2016). No statistical outliers were observed.
Not all participants used procedure A for the calculation of C.I. as mentioned in the scope of ASTM D4737 for this type of Gasoil. Eight participants reported and calculated the C.I. according to ASTM D4737 procedure B and therefore these test results were excluded. One participant reported to use procedure B for the calculation but the test result appeared to be calculated by procedure A. Therefore, this test result was not excluded. Eight participants possibly made a calculation error.
Up to 2003 ISO4264/IP380 and ASTM D4737 were equivalent test methods and the calculation formula mentioned is the same as given in procedure A.

Cloud Point: 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 the requirements of ASTM D2500:16a.

CFPP: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D6371:05(2010).

Colour ASTM: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D1500:12.

Conradson CR: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D189:06(2014).

Ramsbottom CR: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D524:15.

Copper Corrosion: This determination was not problematic. All participants agreed on a result of 1 (or 1A or 1B).

Density at 15°C: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4052:15.

Distillation: This determination was not problematic. In total twelve statistical outliers were observed and four test results, all reported by the same participant, were excluded. All calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ASTM D86:16a (automated). When evaluated against ASTM D86:16a (manual) the calculated reproducibilities of IBP, 95% rec and FBP after rejection of the suspect data are not in agreement with the requirements of the manual test method.

FAME: 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 D7371:14.
It is remarkable that most laboratories reported test method EN14078, which is not mentioned in Gas Oil specification ASTM D975:16. However, in Gas Oil specification ASTM D7467:15ce1, paragraph 4.1.18 it is mentioned that EN14078 may be used instead of ASTM D7371. It should be noted that the calculated reproducibility is not at all in agreement with the more strictly requirements of EN14078:14; range B.

Flash Point: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D93:15 (procedure A).

Kinematic. Visc. 40°C: This determination was problematic. Eight (!) statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D445:15a.

Lubricity: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ASTM D6079:11(2016). When the calculated reproducibilities for ASTM D6079 and for ISO12156 (equal to ASTM D7688/IP450) were evaluated separately, both observed reproducibilities are not in agreement with the requirements of the respective test methods. There reason may be that not all laboratories may use a climatic chamber as required.

Nitrogen: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4629:12.

Pour Point: The determination was not problematic for the manual mode. No statistical outliers were observed and the calculated reproducibility is in good agreement with the requirements of ASTM D97:16.
Also for the automated mode the determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5950:14.

Sulphur: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5453:16e1.

Water: This determination was not problematic. One statistical outlier was observed and one test result excluded. The calculated reproducibility after rejection of the suspect data is in good agreement with the requirements of the ASTM D6304-A:16e1.

Water and Sediment (D2709): Most reporting laboratories reported a “less than” test result or zero. Therefore no significant conclusions were drawn.

Water and Sediment (D1796): Most reporting laboratories reported a “less than” test result or zero. Therefore no significant conclusions were drawn.

CN - D613: This determination was not problematic for sample #16181 and for sample #16182 (HVO). No statistical outliers were observed. The calculated reproducibilities are in agreement with the requirements of ASTM D613:16e1. Allthough the CN for the HVO sample (#16182) is above the application limits of the target reproducibility of ASTM D613:16e1 the calculated reproducibility for CN seems very well in agreement with the requirements of ASTM D613:16e1. Therefore, the z-scores are also calculated for sample #16182.

DCN - D6890: This determination was not problematic for sample #16181. No statistical outliers were observed. The calculated reproducibilities for DCN and for ID are in agreement with the requirements of ASTM D6890:16. No calculation errors were observed.

The DCN determination was problematic for sample #16182 (HVO). No statistical outliers were observed. Three test results were excluded because the formula were used for ID range 2.8 – 6.3 ms. Test method EN 15195:15 mentioned in Annex D to use another formula when ID is outside the range of 2.8 – 6.3 ms. Test method ASTM D6890 mentions also to the same formula as in EN 15195 when the ID is outside the range of 3.1 – 6.5 ms. Further, no calculation errors were observed.
Allthough the ID is outside the application limits of the target reproducibilities of ASTM D6890:16 the calculated reproducibility for ID is in agreement with the requirements of ASTM D6890:16. Therefore, the z-scores are calculated for DCN and ID. However, the calculated reproducibility for DCN after rejection of suspect data is not in agreement with the requirements of ASTM D6890:16.

DCN - D7668: This determination was problematic for sample #16181. In total, two statistical outliers were observed. Three test results were excluded as iis could not reproduce the calculation of DCN or the reported value for CD seems not correct. The calculated reproducibility for DCN after rejection of suspect data is not in agreement with the requirements of ASTM D7668:14a. The calculated reproducibility for ID after rejection of the statistical outliers is in full agreement with the requirements of ASTM D7668:14a. The calculated reproducibility for CD after rejection of suspect data is almost in agreement with the requirements of ASTM D7668:14a.
Please note that the requirements of ASTM D7668:14a are stricter than the requirements of ASTM D6890:16 at the same level of DCN while the calculated reproducibilities of both test methods in this PT are equal.

This determination was also problematic for sample #16182 (HVO). No statistical outliers were observed. However, the calculated reproducibilities for DCN, ID and CD are not in agreement with the requirements of ASTM D7668:14a. Three participants may have made a calculation error for the DCN.

Total Contamination: This proficiency test was set-up according to specification ASTM D975 for Gas Oil and therefore it was expected that test method ASTM D6217 would be the reported test method for the determination of Total Contamintion in Gas Oil. Suprisenly, many participants reported test method EN12662. Major differences between ASTM D6217 and test method EN12662 are the volumes used for testing and the reporting unit (mg/L vs mg/kg). Therefore, the reported test results were split up into two groups; one that reported in mg/L and one that reported in mg/kg. As the majority of the mg/kg group reported test method EN12662, it was decided to use the precision data of EN12662:14 for the group reported in mg/kg and for the group reported in mg/L to use the precision data of ASTM D6217:11.
Seven participants that had reported a test method not in line with the reported unit were asked for more background. It appeared that two laboratories had converted the determined value, one had reported the wrong test method and four had reported the wrong unit. The last five were placed in the corresponding table based on the feedback.
The samples of 1 litre were spiked with 1 ml of a freshly prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4 - 32 µm) in oil suspention. Therefore, the expected test result should be higher than 10 mg/L (or 13 mg/kg). Lower reported test values were excluded.
The determination in mg/L was problematic. One statistical outlier was observed. This laboratory used ASTM D4898 which is intended for Hydraulic Fluids. Two test results were excluded as the reporting laboratories did not report at least the spiked amount. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D6217:11.
The determination in mg/kg was not problematic. Two statistical outliers were observed. Six test results were excluded, as the reporting laboratories did not report at least the spiked amount. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of EN12662:14.

Oxidation Stability: Filterable Insolubles (A)

This determination was not problematic at this low level of 0.12 mg/100ml. Four statistical outliers were observed. One test result was excluded because this participant reported a negative test result, which indicates the use of an incorrect procedure. However, the calculated reproducibility after rejection of the suspect data might be in full agreement with ASTM D2274:14.

Adherent Insolubles Insolubles (B)

This determination was not problematic at this low level of 0.15 mg/100ml. Three statistical outliers were observed. One test result was excluded (see Filterable Insolubles (A)). The calculated reproducibility after rejection of the suspect data is in full agreement with ASTM D2274:14.

Total Insolubles

This determination was not problematic at this low level of 0.27 mg/100ml. Five statistical outliers were observed. One test result was excluded (see Filterable Insolubles (A)). The calculated reproducibility after rejection of the suspect data is in agreement with ASTM D2274:14.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameter	unit	n	average	2.8 * sd	R (lit)	
Acid Number (Total)	mgKOH/g	95	0.023	0.025	0.040	
Aromatics by FIA	%V/V	35	21.76	4.98	3.70	
Ash content	%M/M	88	0.0008	0.0017	(0.0050)	
Cetane Index ASTM D976		97	54.27	0.67	2.00	
Cetane Index ASTM D4737		117	54.46	0.97	n.a.	
Cloud Point	°C	148	-6.1	2.9	4.0	
Cold Filter Plugging Point	°C	124	-19.9	5.7	4.6	
Colour ASTM		89	1.0	0.4	1.0	
Conradson Carbon Residue	%M/M	87	0.026	0.028	0.031	
Ramsbottom Carbon Residue	%M/M	20	0.073	0.044	0.031	
Copper Corrosion 3hrs at 50°C		139	1(1A/1B)	n.a.	n.a.	
Density at 15°C	kg/m^3	175	833.1	0.4	0.5	
Distillation					Auto	Manual
-IBP	°C	164	170.9	7.6	9.4	6.6
-10% recovery	°C	163	212.1	4.9	4.7	4.5
-50% recovery	°C	165	273.2	2.9	3.0	3.8
-90% recovery	°C	164	331.1	3.9	5.0	3.9
-95% recovery	°C	165	345.4	6.5	8.4	4.9
-FBP	°C	163	354.3	5.1	7.1	3.9
-Volume at 250°C	%V/V	146	32.0	2.5	2.7	2.7
-Volume at 350°C	%V/V	142	96.2	1.9	2.7	2.5
FAME	%V/V	68	3.87	0.58	0.90	
Flash Point PMcc	°C	172	62.0	4.4	4.4	
Kinematic Viscosity at 40°C	mm^2/s	156	2.771	0.041	0.031	
Lubricity by HFRR	µm	78	224	104	80	
Nitrogen	mg/kg	43	56.0	10.4	6.4	
Pour Point, manual	°C	100	-24.6	5.5	9.0	
Pour Point, automated	°C	42	-23.8	3.3	6.1	
Sulphur	mg/kg	129	8.10	2.52	2.78	
Water	mg/kg	137	56.9	53.5	190.9	
Water and Sediment (D2709)	%V/V	53	<0.05	n.a.	n.a.	
Water and Sediment (D1796)	%V/V	38	<0.05	n.a.	n.a.	

Table 7: reproducibility of tests on sample #16180.

NB: results between brackets may be near or below the limit of detection

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		35	55.3	3.9	4.7
DCN (D6890)		12	56.9	2.3	2.9
Iginition delay (D6890)		11	3.6	0.1	0.2
DCN (D7668)		11	56.8	2.3	1.7
Ignition delay (D7668)		9	2.7	0.1	0.1
Combustion delay (D7668)		10	4.2	0.2	0.1

Table 8: reproducibility of tests on sample #16181

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		5	82.2	6.2	8.1
DCN (D6890)		5	84.4	5.5	3.9
Iginition delay (D6890)		8	2.6	0.1	0.1
DCN (D7668)		7	89.9	5.2	3.2
Ignition delay (D7668)		7	2.2	0.1	0.1
Combustion delay (D7668)		7	3.1	0.2	0.1

Table 9: reproducibility of tests on sample #16182

Parameters	unit	n	average	2.8 * sd	R (lit)
Total Contamination	mg/L	10	12.5	5.6	4.0
Total Contamination	mg/kg	48	17.9	7.6	7.1

Table 10: reproducibility of tests on sample #16183

Parameters	unit	n	average	2.8 * sd	R (lit)
Oxidation Stab. Filt. Insol. A	mg/100mL	41	0.12	0.36	0.38
Oxidation Stab. Adher. Insol B	mg/100mL	39	0.15	0.39	0.38
Oxidation Stab. Tot. Insol.	mg/100mL	44	0.27	0.48	0.76

Table 11: reproducibility of tests on sample #16184

Without further statistical calculations, it can be concluded that for several 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 INTERLABORATORY STUDY OF SEPTEMBER 2016 WITH PREVIOUS PTS.

	Sept 2016	*Sept 2015*	*Sept 2014*	*Sept 2013*	*Oct 2012*
Number of reporting labs	199	165	163	160	158
Number of test results reported	3721	2996	3419	3123	3086
Statistical outliers	61	55	68	67	97
Percentage outliers	1.6%	1.8%	2.0%	2.1%	3.1%

Table 12: 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:

Parameter	*Sept 2016*	*Sept 2015*	*Sept 2014*	*Sept 2013*	*Oct 2012*
Acid Number (Total)	++	+	++	++	++
Aromatics by FIA	-	--	--	--	--
Ash content	(++)	(++)	(++)	(++)	(++)
Cetane Index ASTM D976	++	++	n.e.	n.e.	n.e.
Cloud Point	++	++	++	++	++
Cold Filter Plugging Point	-	-	-	-	--
Colour ASTM	++	++	++	++	++
Conradson Carbon Residue	+	+/-	+	+	+/-
Ramsbottom Carbon	-	--	--	--	--
Density at 15°C	+	++	++	++	++
Distillation	+	+	++	++	+
FAME	++	++	++	++	(++)
Flash Point PMcc	+/-	+	+	+	++
Kinematic Viscosity at 40°C	-	+/-	+	-	-
Lubricity by HFRR	-	--	--	-	-
Nitrogen	-	-	--	--	--
Pour Point (manual and auto)	++	+	++	+	++
Sulphur	+	+	++	+/-	+
Water	++	++	++	++	++
Cetane Number	+	+	++	++	++
DCN (D6890)	+/-	+/-	-	++	++
Ignition Delay (D6890)	+	+/-	--	++	++
DCN (D7668)	-	+/-	--	n.e.	n.e.
Ignition Delay (D7668)	+/-	+/-	--	n.e.	n.e.
Combustion Delay (D7668)	-	-	n.e.	n.e.	n.e.
Total Contamination mg/L	-	--	n.e.	n.e.	n.e.
Total Contamination mg/kg	+/-	--	--	--	n.e.
Oxidation Stab. Filt. Insol. A	+/-	+/-	++	+	++
Oxidation Stab. Ad. Insol. B	+/-	+/-	n.e.	n.e.	n.e.
Oxidation Stab. Total Insol.	+	+	n.e.	n.e.	n.e.

Table 13: comparison determinations against the refence test method

The performance of the determinations against the requirements of the respective reference test methods 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 similar to 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 (total) on sample #16180; results in mgKOH/g

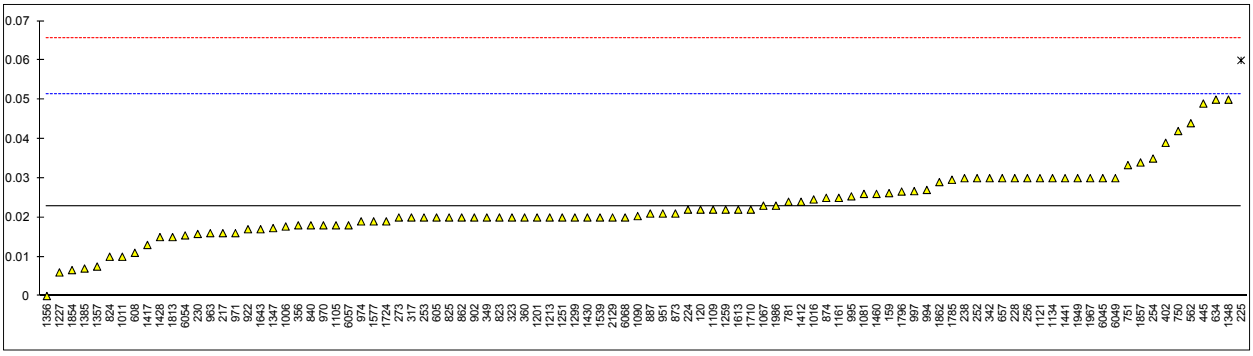
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664-A	<0.1		-----	825	D664-A	0.02		-0.20
53		-----		-----	840	D664-A	0.018		-0.34
90		-----		-----	854	D664-A	<0.1		-----
92		-----		-----	862	D664-A	0.02		-0.20
120	D664-A	0.022		-0.06	863	D664-A	<0.1		-----
131		-----		-----	873	D664-A	0.021		-0.13
132	D664-A	<0.10		-----	874	D664-A	0.025		0.15
140		-----		-----	887	D664-A	0.021		-0.13
150	D664-A	<0.10		-----	902	D664-A	0.02		-0.20
159	D664-A	0.0262		0.24	904		-----		-----
169		-----		-----	922	D664-A	0.017		-0.41
171	D664-A	<0.10		-----	951	D974	0.0210		-0.13
175		-----		-----	962		-----		-----
186		-----		-----	963	D664-A	0.016		-0.48
194		-----		-----	970	D664-A	0.018		-0.34
203		-----		-----	971	D664-A	0.016		-0.48
217	D974	0.016		-0.48	974	D974	0.019		-0.27
221		-----		-----	994	D664-A	0.027		0.29
224	D974	0.022		-0.06	995	D664-A	0.02538		0.18
225	D974	0.06	R(0.01)	2.60	996		-----		-----
228	D974	0.03		0.50	997	D664-A	0.0267		0.27
230	D664-A	0.0158		-0.49	998		-----		-----
237	D664-A	<0.1		-----	1006	D974	0.0177		-0.36
238	D974	0.03		0.50	1011	D664	0.01		-0.90
240		-----		-----	1016	ISO6618	0.02459		0.12
252	D974	0.03		0.50	1033		-----		-----
253	D974	0.02		-0.20	1059	ISO6619	<0,05		-----
254	D974	0.035		0.85	1067	D974	0.023		0.01
256	D974	0.03		0.50	1080		-----		-----
258		-----		-----	1081	D664-A	0.026		0.22
273	D974	0.02		-0.20	1082		-----		-----
312		-----		-----	1090	D974	0.02035		-0.17
317	D974	0.02		-0.20	1105	D974	0.018		-0.34
323	D974	0.02		-0.20	1109	D974	0.022		-0.06
333		-----		-----	1121	IP139	0.03		0.50
335		-----		-----	1126		-----		-----
336		-----		-----	1134	D664-A	0.03		0.50
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342	D664-A	0.03		0.50	1161	D664-A	0.025		0.15
343	D664-A	<0,1		-----	1167		-----		-----
344		-----		-----	1171		-----		-----
349	D664-A	0.02		-0.20	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356	D974	0.018		-0.34	1201	D664-A	0.02		-0.20
360	D974	0.020		-0.20	1213	D664-A	0.02		-0.20
381		-----		-----	1227	D664-A	0.006		-1.18
402	D664-A	0.039		1.13	1229		-----		-----
445	D664-A	0.049		1.83	1251	D974	0.02		-0.20
446		-----		-----	1259	D664-A	0.022		-0.06
485		-----		-----	1299	D664-A	0.020		-0.20
507		-----		-----	1347	D664-A	0.0173		-0.39
511		-----		-----	1348	D664-A	0.05		1.90
529		-----		-----	1356	D664-A	0		-1.60
541	D974	<0.1		-----	1357	D664-A	0.0075		-1.07
556		-----		-----	1379		-----		-----
557		-----		-----	1385	D664-A	0.007		-1.11
558		-----		-----	1397		-----		-----
562	D664-A	0.044		1.48	1399		-----		-----
603		-----		-----	1409	D664-A	< 0.01		-----
604		-----		-----	1412	D664-A	0.024		0.08
605	D664-A	0.02		-0.20	1417	IP177	0.013		-0.69
608	D664-A	0.011		-0.83	1428	D664-A	0.015		-0.55
614		-----		-----	1430		0.02		-0.20
634	D664-A	0.05	C	1.90	1441	D974	0.03		0.50
657	D664-A	0.03		0.50	1460	D664	0.026		0.22
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750	D664-A	0.042		1.34	1539	ISO6618	0.02		-0.20
751	D974	0.03333		0.73	1575		-----		-----
759		-----		-----	1577	D664-A	0.019		-0.27
781	D664-A	0.024		0.08	1588		-----		-----
785		-----		-----	1613	D974	0.022		-0.06
823	D664-A	0.02		-0.20	1629		-----		-----
824	D664-A	0.01		-0.90	1634		-----		-----

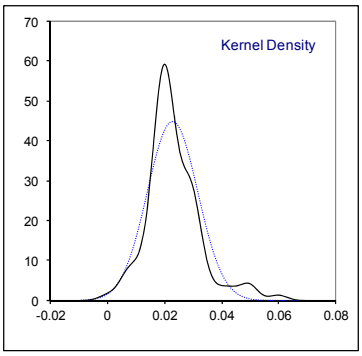
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D664-A	0.017		-0.41	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944		-----		-----
1710	D664-A	0.022		-0.06	1948		-----		-----
1720		-----		-----	1949	D664-A	0.030		0.50
1724	D664-A	0.019		-0.27	1967	D664	0.03		0.50
1741		-----		-----	1984		-----		-----
1776	D664-A	<0,01		-----	1986	D664-A	0.023		0.01
1783		-----		-----	1995		-----		-----
1785	D664-A	0.0296		0.47	2129	D664-A	0.020		-0.20
1796	D664-A	0.0266		0.26	6005		-----		-----
1807		-----		-----	6012		-----		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045	D974	0.03		0.50
1813	D974	0.015		-0.55	6049	D664-A	0.03		0.50
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054	D974	0.01543		-0.52
1854	D664-A	0.0066		-1.14	6057	D974	0.018		-0.34
1857	D664-A	0.034		0.78	6068	ISO6618	0.02		-0.20
1862	D664-A	0.029		0.43	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	suspect
n	95
outliers	1
mean (n)	0.0228
st.dev. (n)	0.00888
R(calc.)	0.0249
R(D974:14e2)	0.0400

compare R(D664:11ae1-A) = 0.1442

Lab 634 first reported: 0.08





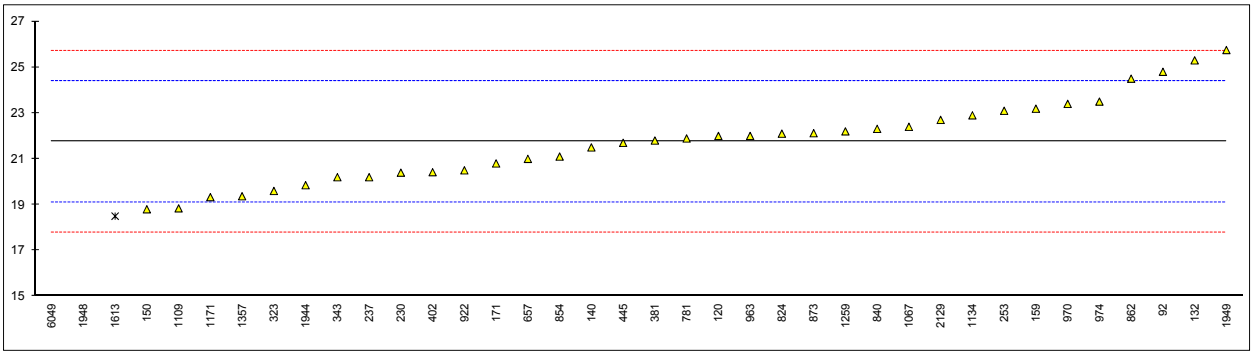
Determination of Aromatics by FIA on sample #16180; results in %V/V

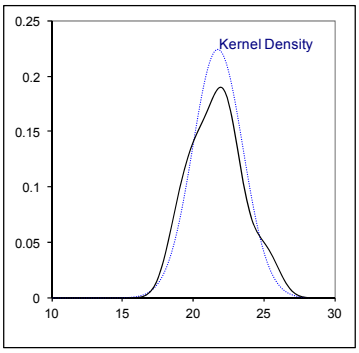
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840	D1319	22.31		0.42
90		-----		-----	854	D1319	21.1		-0.50
92	D1319	24.8		2.30	862	D1319	24.5		2.07
120	D1319	22.0		0.18	863		-----		-----
131		-----		-----	873	D1319	22.12		0.27
132	D1319	25.3		2.68	874		-----		-----
140	D1319	21.5		-0.20	887		-----		-----
150	D1319	18.8	C	-2.24	902		-----		-----
159	D1319	23.19		1.08	904		-----		-----
169		-----		-----	922	D1319	20.5		-0.95
171	D1319	20.8		-0.73	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D1319	22.0		0.18
194		-----		-----	970	D1319	23.4		1.24
203		-----		-----	971		-----		-----
217		-----		-----	974	D1319	23.5		1.32
221		-----		-----	994		-----		-----
224		-----		-----	995		-----		-----
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230	D1319	20.397		-1.03	998		-----		-----
237	D1319	20.2		-1.18	1006		-----		-----
238		-----		-----	1011		-----		-----
240		-----		-----	1016		-----		-----
252		-----		-----	1033		-----		-----
253	D1319	23.10		1.01	1059		-----		-----
254		-----		-----	1067	D1319	22.4		0.49
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317		-----		-----	1105		-----		-----
323	D1319	19.6		-1.63	1109	D1319	18.84		-2.21
333		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1134	D1319	22.9		0.86
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342		-----		-----	1161		-----		-----
343	D1319	20.2		-1.18	1167		-----		-----
344		-----		-----	1171	D1319	19.33		-1.84
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356		-----		-----	1201		-----		-----
360		-----		-----	1213		-----		-----
381	D1319	21.8		0.03	1227		-----		-----
402	D1319	20.42		-1.01	1229		-----		-----
445	D1319	21.7		-0.04	1251		-----		-----
446		-----		-----	1259	D1319	22.2		0.33
485		-----		-----	1299		-----		-----
507		-----		-----	1347		-----		-----
511		-----		-----	1348		-----		-----
529		-----		-----	1356		-----		-----
541		-----		-----	1357	D1319	19.37		-1.81
556		-----		-----	1379		-----		-----
557		-----		-----	1385		-----		-----
558		-----		-----	1397		-----		-----
562		-----		-----	1399		-----		-----
603		-----		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605		-----		-----	1417		-----		-----
608		-----		-----	1428		-----		-----
614		-----		-----	1430		-----		-----
634		-----		-----	1441		-----		-----
657	D1319	21.0		-0.57	1460		-----		-----
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539		-----		-----
751		-----		-----	1575		-----		-----
759		-----		-----	1577		-----		-----
781	D1319	21.89		0.10	1588		-----		-----
785		-----		-----	1613	IP391	18.5	ex	-2.47
823		-----		-----	1629		-----		-----
824	D1319	22.1		0.26	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944	D1319	19.85		-1.44
1710		-----		-----	1948		3.18	R(0.01)	-14.06
1720		-----		-----	1949	D1319	25.75		3.02
1724		-----		-----	1967		-----		-----
1741		-----		-----	1984		-----		-----
1776		-----		-----	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785		-----		-----	2129	D1319	22.7		0.71
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012		-----		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045		-----		-----
1813		-----		-----	6049	EN12916	1.92	R(0.01)	-15.01
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854		-----		-----	6057		-----		-----
1857		-----		-----	6068		-----		-----
1862		-----		-----	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	OK
n	35
outliers	2+1ex
mean (n)	21.759
st.dev. (n)	1.7786
R(calc.)	4.980
R(D1319:15)	3.700

Lab 150 first reported: 16.6
Lab 1613 excluded, reported test result in %M/M





Determination of Ash on sample #16180; results in %M/M

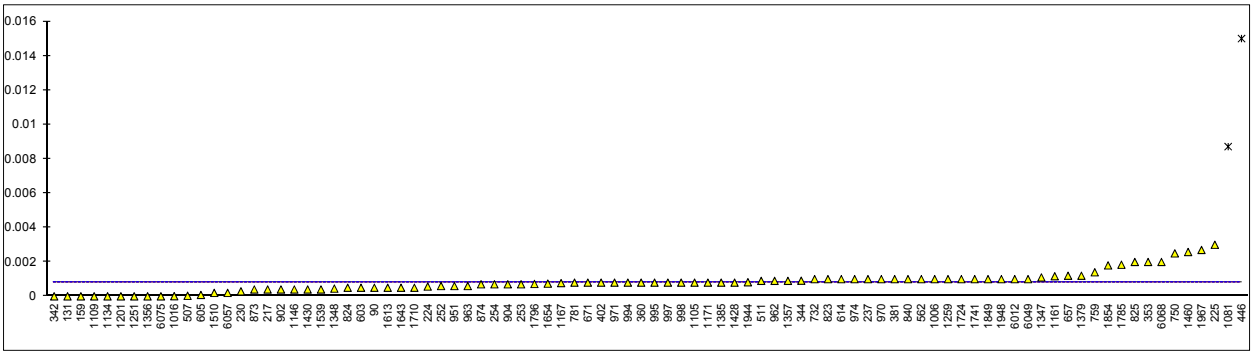
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	<0.001		-----	825	D482	0.002		-----
53		-----		-----	840	D482	0.001		-----
90	D482	0.0005		-----	854	D482	<0.001		-----
92	D482	<0.001		-----	862	D482	<0.001		-----
120	D482	<0.001		-----	863	ISO6245	<0.001		-----
131	D482	0.0000		-----	873	D482	0.0004		-----
132	D482	<0.001		-----	874	D482	0.0007		-----
140	D482	<0.001		-----	887		-----		-----
150	D482	<0.001		-----	902	D482	0.0004		-----
159	D482	0.000		-----	904	D482	0.0007		-----
169	D482	<0.0001		-----	922	D482	<0.001		-----
171	D482	<0.001		-----	951	D482	0.0006		-----
175		-----		-----	962	D482	0.0009		-----
186		-----		-----	963	D482	0.0006		-----
194		-----		-----	970	D482	0.0010		-----
203		-----		-----	971	D482	0.0008		-----
217	D482	0.0004		-----	974	D482	0.0010		-----
221	D482	<0.01		-----	994	D482	0.0008		-----
224	D482	0.00057		-----	995	D482	0.0008		-----
225	D482	0.003		-----	996		-----		-----
228	D482	<0.01		-----	997	D482	0.0008		-----
230	ISO6245	0.00029		-----	998	D482	0.0008		-----
237	D482	0.001		-----	1006	D482	0.001		-----
238		-----		-----	1011	D482	<0.001		-----
240		-----		-----	1016	D482	0.00001		-----
252	D482	0.0006		-----	1033		-----		-----
253	D482	0.0007		-----	1059	ISO6245	<0,001		-----
254	D482	0.0007		-----	1067		-----		-----
256	D482	<0.001		-----	1080		-----		-----
258		-----		-----	1081	D482	0.00871	R(0.01), **f+?**	-----
273	D482	<0.001		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317	D482	<0.001		-----	1105	D482	0.0008		-----
323	D482	<0.001		-----	1109	D482	0.0000		-----
333		-----		-----	1121	IP4	<0.001		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1134	IP4	0		-----
337		-----		-----	1146	D482	0.0004		-----
338		-----		-----	1159		-----		-----
342	ISO6245	0.000		-----	1161	ISO6245	0.00117		-----
343	D482	<0.001	C	-----	1167	ISO6245	0.00077		-----
344	D482	0.00091		-----	1171	ISO6245	0.0008		-----
349		-----		-----	1182		-----		-----
353	IP4	0.002		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356	D482	<0.001		-----	1201	D482	0		-----
360	D482	0.0008		-----	1213	D482	< 0.005		-----
381	ISO6245	0.001		-----	1227		-----		-----
402	D482	0.0008		-----	1229		-----		-----
445	IP4	<0.001		-----	1251	ISO6245	0		-----
446	D482	0.015	R(0.01), **f+?**	-----	1259	ISO6245	0.001		-----
485		-----		-----	1299	D482	<0.001		-----
507	D482	0.00003		-----	1347	D482	0.0011		-----
511	D482	0.0009		-----	1348	D482	0.00045		-----
529		-----		-----	1356	ISO6245	0		-----
541	D482	<0.001		-----	1357	D482	0.0009		-----
556		-----		-----	1379	GOST1461-75	0.0012		-----
557		-----		-----	1385	D482	0.0008		-----
558		-----		-----	1397		-----		-----
562	D482	0.001		-----	1399		-----		-----
603	D482	0.0005		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605	D482	0.00008		-----	1417		-----		-----
608	D482	<0.001		-----	1428	ISO6245	0.0008		-----
614	D482	0.001		-----	1430	D482	0.0004		-----
634		-----		-----	1441		-----		-----
657	D482	0.0012		-----	1460	D482	0.00258		-----
671	D482	0.0008		-----	1498		-----		-----
732	D482	0.001		-----	1510	D482	0.0002		-----
750	D482	0.0025		-----	1539	ISO6245	0.0004		-----
751		-----		-----	1575		-----		-----
759	D482	0.0014		-----	1577	D482	<0.01		-----
781	D482	0.0008		-----	1588		-----		-----
785		-----		-----	1613	D482	0.0005		-----
823	D482	0.001		-----	1629		-----		-----
824	D482	0.0005		-----	1634		-----		-----

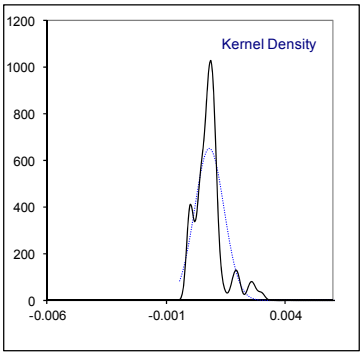
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D482	0.0005		-----	1937		-----		-----
1654	ISO6245	0.00074		-----	1938		-----		-----
1709		-----		-----	1944	D482	0.00082		-----
1710	ISO6245	0.0005		-----	1948	ISO6245	0.0010		-----
1720		-----		-----	1949		-----		-----
1724	D482	0.001		-----	1967	D482	0.0027		-----
1741	ISO6245	0.001		-----	1984		-----		-----
1776		-----		-----	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785	D482	0.00184		-----	2129	D482	<0.001		-----
1796	D482	0.00072		-----	6005		-----		-----
1807		-----		-----	6012	ISO6245	0.001		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045		-----		-----
1813	D482	<0.001		-----	6049	D482	0.001		-----
1846		-----		-----	6051		-----		-----
1849	ISO6245	0.001		-----	6054		-----		-----
1854	ISO6245	0.0018		-----	6057	ISO6245	0.0002		-----
1857		-----		-----	6068	ISO6245	0.002		-----
1862		-----		-----	6075	ISO6245	0.0000		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	not OK
n	88
outliers	2
mean (n)	0.00082
st.dev. (n)	0.000614
R(calc.)	0.00172
R(D482:13)	(0.00500)

Application range: 0.001 – 0.180 %M/M

Lab 343 first reported: 0.0058





Determination of Calculated Cetane Index, two variables ASTM D976 on sample #16180

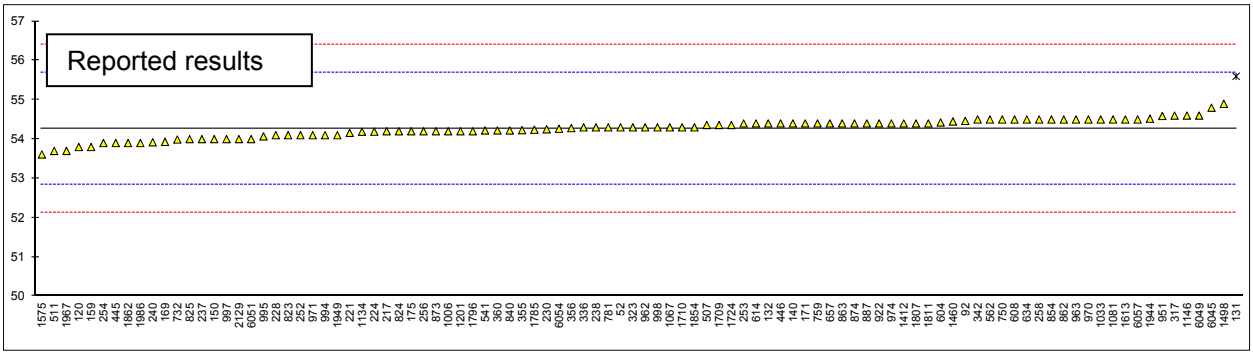
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	54.3		0.04	825	D976	54.0		-0.38
53		-----		-----	840	D976	54.22		-0.07
90		-----		-----	854	D976	54.5		0.32
92	D976	54.464		0.27	862	D976	54.5		0.32
120	D976	53.8		-0.66	863	D976	54.4		0.18
131	D976	55.6	E,R(0.01)	1.86	873	D976	54.2		-0.10
132	D976	54.4		0.18	874	D976	54.4		0.18
140	D976	54.4	E	0.18	887	D976	54.40		0.18
150	D976	54.0		-0.38	902		-----		-----
159	D976	53.8		-0.66	904		-----		-----
169	D976	53.93	E	-0.48	922	D976	54.4		0.18
171	D976	54.4		0.18	951	D976	54.59		0.45
175	D976	54.2		-0.10	962	D976	54.3		0.04
186		-----		-----	963	D976	54.5		0.32
194		-----		-----	970	D976	54.5		0.32
203		-----		-----	971	D976	54.1		-0.24
217	D976	54.2		-0.10	974	D976	54.4		0.18
221	D976	54.16		-0.15	994	D976	54.1		-0.24
224	D976	54.19		-0.11	995	D976	54.07		-0.28
225		-----		-----	996		-----		-----
228	D976	54.1		-0.24	997	D976	54.0		-0.38
230	D976	54.25		-0.03	998	D976	54.3		0.04
237	D976	54.0		-0.38	1006	D976	54.2		-0.10
238	D976	54.3		0.04	1011		-----		-----
240	D976	53.92		-0.49	1016		-----		-----
252	D976	54.1		-0.24	1033	D976	54.5		0.32
253	D976	54.4		0.18	1059		-----		-----
254	D976	53.9		-0.52	1067	D976	54.3		0.04
256	D976	54.2		-0.10	1080		-----		-----
258	D976	54.5		0.32	1081	D976	54.5		0.32
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317	D976	54.6		0.46	1105		-----		-----
323	D976	54.3		0.04	1109		-----		-----
333		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336	D976	54.3		0.04	1134	D976	54.1879		-0.12
337		-----		-----	1146	D976	54.6		0.46
338		-----		-----	1159		-----		-----
342	D976	54.5		0.32	1161		-----		-----
343		-----		-----	1167		-----		-----
344		-----		-----	1171		-----		-----
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355	D976	54.2285		-0.06	1191		-----		-----
356	D976	54.28		0.01	1201	D976	54.2		-0.10
360	D976	54.22		-0.07	1213		-----		-----
381		-----		-----	1227		-----		-----
402		-----		-----	1229		-----		-----
445	D976	53.9		-0.52	1251		-----		-----
446	D976	54.4		0.18	1259		-----		-----
485		-----		-----	1299		-----		-----
507	D976	54.36		0.13	1347		-----		-----
511	D976	53.7	E	-0.80	1348		-----		-----
529		-----		-----	1356		-----		-----
541	D976	54.22		-0.07	1357		-----		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385		-----		-----
558		-----		-----	1397		-----		-----
562	D976	54.5		0.32	1399		-----		-----
603		-----		-----	1409		-----		-----
604	D976	54.425		0.22	1412	D976	54.4		0.18
605		-----		-----	1417		-----		-----
608	D976	54.5		0.32	1428		-----		-----
614	D976	54.4	E	0.18	1430		-----		-----
634	D976	54.5		0.32	1441		-----		-----
657	D976	54.4		0.18	1460	D976	54.45		0.25
671		-----		-----	1498	D976	54.9	E	0.88
732	D976	53.99		-0.39	1510		-----		-----
750	D976	54.5		0.32	1539		-----		-----
751		-----		-----	1575	D976	53.61		-0.92
759	D976	54.4		0.18	1577		-----		-----
781	D976	54.3		0.04	1588		-----		-----
785		-----		-----	1613	D976	54.5		0.32
823	D976	54.1		-0.24	1629		-----		-----
824	D976	54.2		-0.10	1634		-----		-----

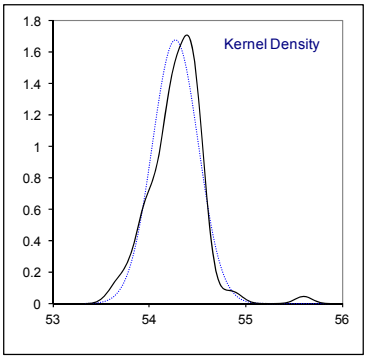
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709	D976	54.36		0.13	1944	D976	54.52		0.35
1710	D976	54.3		0.04	1948		-----		-----
1720		-----		-----	1949	D976	54.10		-0.24
1724	D976	54.36		0.13	1967	D976	53.7		-0.80
1741		-----		-----	1984		-----		-----
1776		-----		-----	1986	D976	53.9		-0.52
1783		-----		-----	1995		-----		-----
1785	D976	54.24		-0.04	2129	D976	54.0		-0.38
1796	D976	54.2		-0.10	6005		-----		-----
1807	D976	54.4		0.18	6012		-----		-----
1810		-----		-----	6016		-----		-----
1811	D976	54.4	E	0.18	6045	D976	54.8	E	0.74
1813		-----		-----	6049	D976	54.6		0.46
1846		-----		-----	6051	D976	54.0		-0.38
1849		-----		-----	6054	D976	54.2636		-0.01
1854	D976	54.3		0.04	6057	D976	54.5		0.32
1857		-----		-----	6068		-----		-----
1862	D976	53.9		-0.52	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

		recalculated by iis	
normality	OK	OK	
n	97	164	
outliers	1	1	
mean (n)	54.270	54.232	
st.dev. (n)	0.2377	0.2246	
R(calc.)	0.666	0.629	
R(D976:06)	2.000	2.000	Compare R(D976:80(1990)e1) = 2.000

The CCI calculated by iis for labs marked with an E;
Lab 131: 54.41
Lab 140: 54.19
Lab 169: 54.14
Lab 511: 54.09
Lab 614: 54.16
Lab 1498: 54.30
Lab 1811: 54.05
Lab 6045: 54.11

Please note: The reported CCI of labs marked with an E are also used for the statistical evaluation





Determination of Calculated Cetane Index, four variables D4737 on sample #16180

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	54.5		-----	825	D4737-A	54.3		-----
53		-----		-----	840	D4737-A	54.61		-----
90		-----		-----	854	D4737-A	54.9		-----
92	D4737-A	55.012		-----	862	D4737-A	54.8		-----
120	D4737-A	54.2		-----	863	D4737-A	54.6		-----
131	D4737-A	54.8		-----	873	D4737-B	53.5	ex, see §4.1	-----
132	D4737-A	55.1		-----	874	D4737-B	53.7	ex, see §4.1	-----
140	D4737-A	54.7	E	-----	887	D4737-A	54.38		-----
150	D4737-A	54.1		-----	902	ISO4264	54.1		-----
159	D4737-A	54.1		-----	904		-----		-----
169	D4737-B	53.58	ex, see §4.1	-----	922		-----		-----
171	D4737-A	54.9		-----	951		-----		-----
175		-----		-----	962	D4737-A	54.5		-----
186		-----		-----	963	D4737-A	54.8		-----
194		-----		-----	970	D4737-A	54.8		-----
203		-----		-----	971	D4737-A	54.4		-----
217	D4737-A	54.4		-----	974	D4737-A	54.7		-----
221	D4737-A	54.4		-----	994	D4737-A	54.2		-----
224		-----		-----	995	D4737-A	53.27	E; ex,see §4.1	-----
225		-----		-----	996		-----		-----
228	D4737-A	54.5		-----	997	D4737-A	53.2663	E; ex,see §4.1	-----
230	ISO4264	54.6		-----	998	D4737-A	54.4		-----
237	D4737-A	54.1		-----	1006		-----		-----
238		-----		-----	1011	ISO4264	55.0		-----
240	D4737-A	53.99		-----	1016		-----		-----
252		-----		-----	1033	IP380	54.9		-----
253		-----		-----	1059	ISO4264	54.3		-----
254		-----		-----	1067	D4737-B	53.7	ex, see §4.1	-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081	ISO4264	54.8		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317	ISO4264	55.0		-----	1105	D4737-A	54.3		-----
323	D4737-A	54.7		-----	1109	D4737-A	54.4		-----
333		-----		-----	1121		-----		-----
335	ISO4264	54.6		-----	1126		-----		-----
336	D4737-A	54.5		-----	1134	D4737-A	54.3154		-----
337	D4737-A	54.7		-----	1146		-----		-----
338	D4737-A	54.6		-----	1159		-----		-----
342	ISO4264	55.0		-----	1161	ISO4264	54.19		-----
343	D4737-A	54.1		-----	1167	ISO4264	55.0		-----
344		-----		-----	1171	ISO4264	53.68		-----
349		-----		-----	1182		-----		-----
353	IP380	54.40		-----	1186		-----		-----
355	D4737-A	54.3649		-----	1191		-----		-----
356	D4737-A	54.65		-----	1201	ISO4264	54.6		-----
360	D4737-A	54.53		-----	1213	D4737-A	54.1		-----
381	ISO4264	54.5		-----	1227		-----		-----
402	ISO4264	54.5		-----	1229		-----		-----
445	IP380	54.1		-----	1251	ISO4264	54.6		-----
446	D4737-A	54.7		-----	1259	ISO4264	54.4		-----
485	D4737-A	54.7		-----	1299	D4737-A	54.2		-----
507	D4737-A	54.82	E	-----	1347	D4737-A	54.79		-----
511	D4737-A	53.9	E	-----	1348	D4737-A	53.815	E	-----
529		-----		-----	1356		-----		-----
541	D4737-A	54.48		-----	1357	D4737-A	55.1		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385	D4737-A	53.68		-----
558		-----		-----	1397	ISO4264	54.8		-----
562		-----		-----	1399		-----		-----
603		-----		-----	1409	ISO4264	54.3		-----
604		-----		-----	1412	D4737-A	54.7		-----
605		-----		-----	1417		-----		-----
608		-----		-----	1428	ISO4264	54.5		-----
614	D4737-B	51.4	E; ex,see §4.1	-----	1430	D4737	54.3	Meth. A	-----
634		-----		-----	1441	D4737-A	54.3		-----
657	D4737-A	54.7		-----	1460	D4737-A	54.71		-----
671		-----		-----	1498		-----		-----
732		-----		-----	1510	IP380	54.1		-----
750	D4737-A	54.8		-----	1539	ISO4264	54.3		-----
751		-----		-----	1575	D4737-A	53.58		-----
759	D4737-A	54.7		-----	1577		-----		-----
781	D4737-A	54.6		-----	1588		-----		-----
785		-----		-----	1613	D4737-A	54.79		-----
823	D4737-A	54.3		-----	1629		-----		-----
824	D4737-A	54.4		-----	1634	ISO4264	54.36		-----

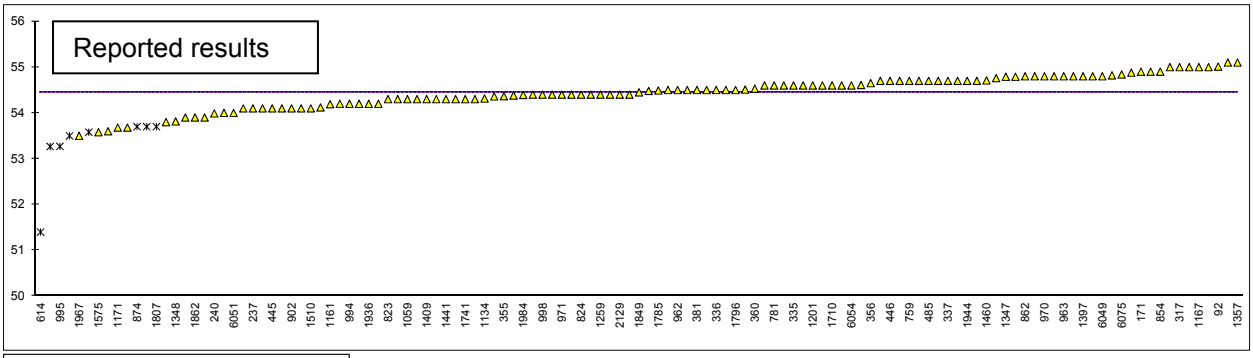
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937	ISO4264	54.4		-----
1654	ISO4264	54.88		-----	1938	ISO4264	53.9		-----
1709	D4737-A	54.51		-----	1944	D4737-A	54.70		-----
1710	ISO4264	54.6		-----	1948	ISO4264	54.12		-----
1720		-----		-----	1949	D4737-A	54.20		-----
1724	D4737-A	54.76		-----	1967	D4737-A	53.5		-----
1741	ISO4264	54.3	E	-----	1984	ISO4264	54.394		-----
1776	ISO4264	54.0		-----	1986	D4737-A	53.8		-----
1783		-----		-----	1995		-----		-----
1785	D4737-A	54.49		-----	2129	D4737-A	54.4		-----
1796	D4737-A	54.5		-----	6005	ISO4264	54.7		-----
1807	D4737-B	53.7	ex, see §4.1	-----	6012	ISO4264	53.6		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045	D4737-A	54.4		-----
1813	D4737-B	54.6	Meth. A	-----	6049	D4737-A	54.8		-----
1846		-----		-----	6051	D4737	54.0	Meth. A	-----
1849	ISO4264	54.45		-----	6054	D4737-A	54.6000		-----
1854	D4737-A	54.8		-----	6057	ISO4264	55.0		-----
1857		-----		-----	6068	ISO4264	54.3		-----
1862	D4737-A	53.9		-----	6075		54.84	Meth. A	-----
1906		-----		-----	7009		-----		-----
1936	ISO4264	54.2		-----					

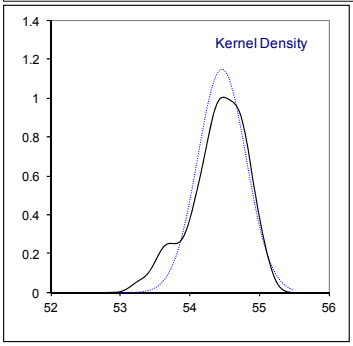
			recalculated with method A by iis	
	normality	OK	OK	
	n	117	164	
	outliers	0+8 ex	1	
	mean (n)	54.460	54.480	
	st.dev. (n)	0.3466	0.3421	
	R(calc.)	0.970	0.958	
	R(D4737:10)	n.a.	n.a.	Compare R(iis15G04ASTM) = 0.915

NB: The CCI reported with method B are excluded from the statistical evaluation as test method ASTM D4737 refers to method A in the scope. Calculation with method B is intended to use for Grade No 2-D S500 Diesel only.
Lab1813 reported to use method B; iis calc CCI of 53.73. acc. to method B; The CCI of 54.6 appeared to be calculated with method A, therefore this test result is not excluded

The CCI calculated with method A (if method not mentioned) by iis for labs marked with an E;
Lab 140: 54.46
Lab 507: 54.48
Lab 511: 54.38
Lab 614: 53.35; calculated with method B, therefore excluded
Lab 995: 54.08; calculated with method B, therefore excluded
Lab 997: 54.08; calculated with method B, therefore excluded
Lab 1348: 54.19
Lab 1741: 54.53

Please note: The reported CCI of labs marked with an E are also used for the statistical evaluation except for labs 995 and 997.





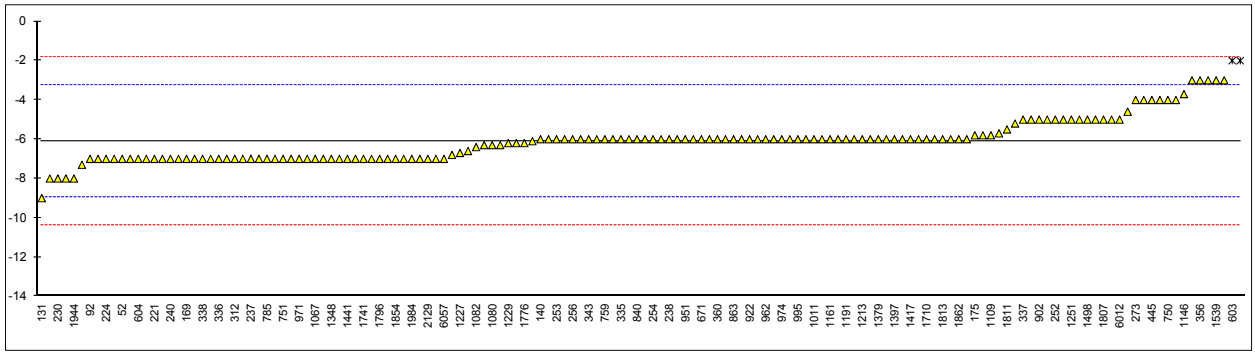
Determination of Cloud Point on sample #16180; results in °C,

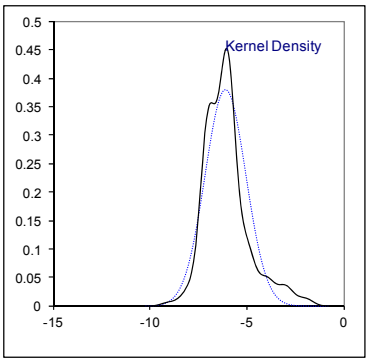
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2500	-7		-0.63	825	D2500	-6		0.07
53		-----		-----	840	D2500	-6		0.07
90	D2500	-4		1.47	854	D2500	-6		0.07
92	D2500	-7		-0.63	862	D2500	-6		0.07
120	D2500	-6		0.07	863	ISO3015	-6.0		0.07
131	D2500	-9		-2.03	873	D2500	-7		-0.63
132	D2500	-7		-0.63	874	D2500	-7		-0.63
140	D2500	-6		0.07	887	D2500	-6		0.07
150	D2500	-6		0.07	902	EN23015	-5.0		0.77
159	D2500	-3		2.17	904	D2500	-6		0.07
169	D2500	-7		-0.63	922	D2500	-6.0		0.07
171	D2500	-6	C	0.07	951	D2500	-6		0.07
175	D5771	-5.8		0.21	962	D2500	-6		0.07
186		-----		-----	963	D2500	-7		-0.63
194		-----		-----	970	D2500	-6		0.07
203	D2500	-7		-0.63	971	D2500	-7		-0.63
217	D2500	-7		-0.63	974	D2500	-6		0.07
221	D2500	-7		-0.63	994	D2500	-6		0.07
224	D2500	-7.0		-0.63	995	D2500	-6		0.07
225		-----		-----	996		-----		-----
228	D2500	-8		-1.33	997	D2500	-6		0.07
230	D2500	-8.0		-1.33	998	D2500	-5.0		0.77
237	D2500	-7		-0.63	1006		-----		-----
238	D2500	-6		0.07	1011	D2500	-6		0.07
240	D2500	-7		-0.63	1016	ISO3015	-5.8		0.21
252	D2500	-5		0.77	1033	D5772	-6.8		-0.49
253	D2500	-6		0.07	1059	EN23015	-7		-0.63
254	D2500	-6		0.07	1067	D5771	-7		-0.63
256	D2500	-6		0.07	1080	D2500	-6.3		-0.14
258		-----		-----	1081	D5771	-6.1		0.00
273	D2500	-4		1.47	1082	D5771	-6.4		-0.21
312	D2500	-7		-0.63	1090		-----		-----
317	D5771	-7		-0.63	1105	D5773	-5.2		0.63
323	D2500	-7		-0.63	1109	D5773	-5.8		0.21
333	D2500	-6		0.07	1121	D2500	-8		-1.33
335	D2500	-6.0		0.07	1126		-----		-----
336	D2500	-7		-0.63	1134	IP219	-6		0.07
337	D2500	-5		0.77	1146	D2500	-3.7		1.68
338	D2500	-7		-0.63	1159		-----		-----
342	ISO3015	-6		0.07	1161	EN23015	-6		0.07
343	D2500	-6		0.07	1167		-----		-----
344	D2500	-7.3		-0.84	1171	ISO3015	-6.0		0.07
349		-----		-----	1182	D5773	-5.7		0.28
353	IP219	-6		0.07	1186		-----		-----
355		-----		-----	1191	D5773	-6.0		0.07
356	D2500	-3		2.17	1201	ISO3015	-6		0.07
360	D2500	-6		0.07	1213	D2500	-6		0.07
381	ISO3015	-5		0.77	1227	D2500	-6.7		-0.42
402	EN23015	-7		-0.63	1229	D5771	-6.2		-0.07
445	D2500	-4		1.47	1251	EN23015	-5		0.77
446		-----		-----	1259	D2500	-6		0.07
485		-----		-----	1299	D2500	-5		0.77
507	D2500	-4		1.47	1347	D2500	-7		-0.63
511		-----		-----	1348	D2500	-7		-0.63
529		-----		-----	1356	ISO3015	-3		2.17
541	D5771	-6.3		-0.14	1357	D5771	-4.0		1.47
556		-----		-----	1379	D2500	-6		0.07
557		-----		-----	1385	D2500	-6		0.07
558		-----		-----	1397	D5771	-6		0.07
562	D2500	-7		-0.63	1399		-----		-----
603	D2500	-2	R(0.05)	2.87	1409		-----		-----
604	D2500	-7		-0.63	1412	D2500	-6		0.07
605		-----		-----	1417	IP444	-6		0.07
608	D2500	-7		-0.63	1428	EN23015	-7		-0.63
614		-----		-----	1430	D5771	-4.6		1.05
634	D2500	-6		0.07	1441	D2500	-7		-0.63
657	D2500	-5		0.77	1460	D5771	-6.2		-0.07
671	D2500	-6		0.07	1498	D2500	-5		0.77
732	D2500	-7		-0.63	1510	D2500	-5		0.77
750	D2500	-4		1.47	1539	ISO3015	-3		2.17
751	D2500	-7		-0.63	1575		-----		-----
759	D2500	-6		0.07	1577	D2500	-6		0.07
781	D2500	-7		-0.63	1588		-----		-----
785	D2500	-7		-0.63	1613	D2500	-7		-0.63
823	D2500	-6		0.07	1629		-----		-----
824	D2500	-6		0.07	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D2500	-3		2.17	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944	D2500	-8		-1.33
1710	EN23015	-6		0.07	1948		-----		-----
1720	D5773	-6.6		-0.35	1949	D2500	-5.0		0.77
1724	D2500	-6		0.07	1967	D2500	-7		-0.63
1741	ISO3015	-7		-0.63	1984	EN23015	-7		-0.63
1776	EN23015	-6.2		-0.07	1986	D2500	-7		-0.63
1783		-----		-----	1995		-----		-----
1785	D2500	-7.0		-0.63	2129	IP444	-7		-0.63
1796	D2500	-7		-0.63	6005		-----		-----
1807	EN23015	-5		0.77	6012	D2500	-5		0.77
1810	D2500	-7		-0.63	6016	D2500	-6.3		-0.14
1811	D2500	-5.5		0.42	6045	D2500	-7		-0.63
1813	D5773	-6.0		0.07	6049	D2500	-2	R(0.05)	2.87
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854	D2500	-7		-0.63	6057	EN23015	-7.0		-0.63
1857	D2500	-6		0.07	6068		-----		-----
1862	D2500	-6		0.07	6075	EN23015	-6		0.07
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	suspect
n	148
outliers	2
mean (n)	-6.10
st.dev. (n)	1.051
R(calc.)	2.94
R(D2500:16a)	4.00

Lab 171 first reported: -13





Determination of Cold Filter Plugging Point on sample #16180; results in °C

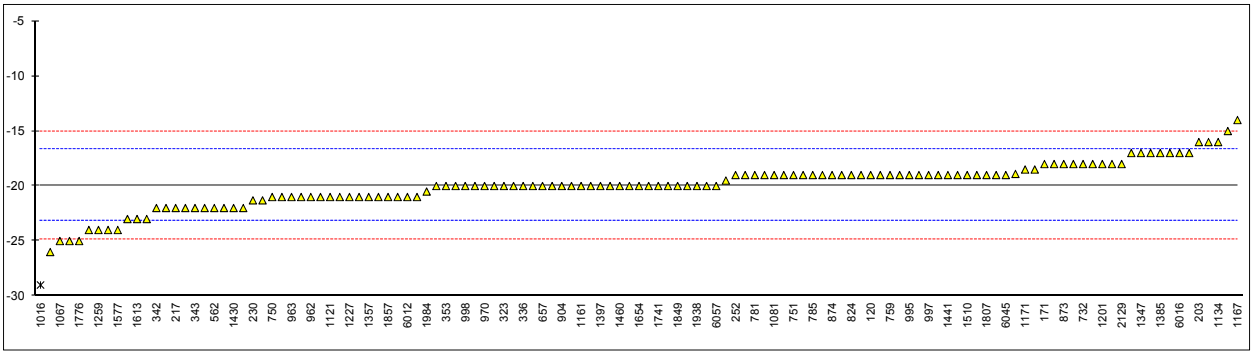
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825	D6371	-19		0.56
53		-----		-----	840		-----		-----
90		-----		-----	854		-----		-----
92		-----		-----	862	D6371	-19		0.56
120	D6371	-19		0.56	863	EN116	-22.0		-1.27
131		-----		-----	873	EN116	-18		1.17
132		-----		-----	874	D6371	-19		0.56
140	D6371	-18		1.17	887		-----		-----
150	D6371	-20		-0.05	902	D6371	-24		-2.50
159		-----		-----	904	EN116	-20		-0.05
169		-----		-----	922	D6371	-20.0		-0.05
171	D6371	-18		1.17	951		-----		-----
175		-----		-----	962	IP309	-21		-0.66
186		-----		-----	963	D6371	-21		-0.66
194		-----		-----	970	IP309	-20		-0.05
203	IP309	-16	C	2.39	971		-----		-----
217	D6371	-22		-1.27	974	IP309	-22		-1.27
221		-----		-----	994	D6371	-19		0.56
224		-----		-----	995	D6371	-19		0.56
225		-----		-----	996		-----		-----
228		-----		-----	997	D6371	-19		0.56
230	IP309	-21.3		-0.85	998	D6371	-20.0		-0.05
237	D6371	-19		0.56	1006	D6371	-18		1.17
238		-----		-----	1011	EN116	-22		-1.27
240		-----		-----	1016	EN116	-29	R(0.01)	-5.55
252	IP309	-19		0.56	1033	IP309	-26		-3.72
253		-----		-----	1059	EN116	-21		-0.66
254		-----		-----	1067	IP309	-25		-3.11
256	IP309	-19		0.56	1080	EN116	-21.3		-0.85
258		-----		-----	1081	EN116	-19		0.56
273	IP309	-17		1.78	1082	EN116	-19		0.56
312	D6371	-21		-0.66	1090		-----		-----
317	D6371	-19		0.56	1105	D6371	-20.0		-0.05
323	D6371	-20		-0.05	1109	IP309	-19.0		0.56
333		-----		-----	1121	D6371	-21		-0.66
335	EN116	-19.0		0.56	1126		-----		-----
336	D6371	-20		-0.05	1134	IP309	-16		2.39
337	D6371	-20		-0.05	1146		-----		-----
338	D6371	-20		-0.05	1159		-----		-----
342	D6371	-22		-1.27	1161	EN116	-20		-0.05
343	EN116	-22		-1.27	1167	EN116	-14		3.62
344	EN116	-20		-0.05	1171	EN116	-18.5		0.87
349		-----		-----	1182	EN116	-20		-0.05
353	IP309	-20		-0.05	1186		-----		-----
355		-----		-----	1191	EN116	-21		-0.66
356	IP309	-18		1.17	1201	EN116	-18		1.17
360	D6371	-20		-0.05	1213		-----		-----
381	EN116	-21		-0.66	1227	EN116	-21		-0.66
402	EN116	-20		-0.05	1229	EN116	-21		-0.66
445	IP309	-19		0.56	1251	EN116	-18		1.17
446		-----		-----	1259	EN116	-24		-2.50
485		-----		-----	1299	EN116	-24		-2.50
507	D6371	-16		2.39	1347	D6371	-17		1.78
511		-----		-----	1348	D6371	-17		1.78
529		-----		-----	1356	D6371	-22		-1.27
541	D6371	<-20		-----	1357	D6371	-21.0		-0.66
556		-----		-----	1379		-----		-----
557		-----		-----	1385	D6371	-17		1.78
558		-----		-----	1397	EN116	-20		-0.05
562	D6371	-22		-1.27	1399		-----		-----
603		-----		-----	1409	EN116	-25		-3.11
604		-----		-----	1412		-----		-----
605		-----		-----	1417	IP309	-23		-1.89
608		-----		-----	1428	EN116	-20		-0.05
614		-----		-----	1430	EN116	-22		-1.27
634		-----		-----	1441	D6371	-19		0.56
657	IP309	-20		-0.05	1460	D6371	-20.0		-0.05
671		-----		-----	1498	D6371	-19		0.56
732	D6371	-18		1.17	1510	IP309	-19		0.56
750	D6371	-21		-0.66	1539	EN116	-20		-0.05
751	EN116	-19		0.56	1575		-----		-----
759	D6371	-19		0.56	1577	EN116	-24		-2.50
781	D6371	-19		0.56	1588		-----		-----
785	EN116	-19.0		0.56	1613	D6371	-23		-1.89
823	D6371	-19		0.56	1629		-----		-----
824	D6371	-19		0.56	1634		-----		-----

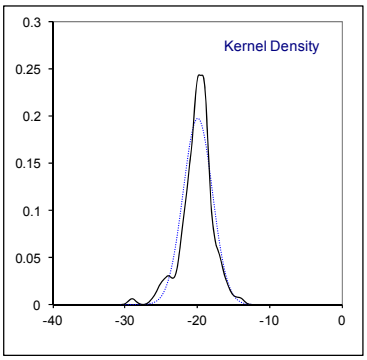
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937	EN116	-19		0.56
1654	EN116	-20.0		-0.05	1938	EN116	-20		-0.05
1709		-----		-----	1944	EN116	-15		3.00
1710	EN116	-20		-0.05	1948		-----		-----
1720		-----		-----	1949	EN116	-18.9		0.62
1724	IP309	-23		-1.89	1967	D6371	-21		-0.66
1741	EN116	-20		-0.05	1984	EN116	-20.5		-0.36
1776	EN116	-25		-3.11	1986	EN116	-20		-0.05
1783		-----		-----	1995		-----		-----
1785	D6371	-19.0		0.56	2129	D6371	-18		1.17
1796	D6371	-21		-0.66	6005	EN116	-18.5		0.87
1807	D6371	-19		0.56	6012	EN116	-21		-0.66
1810	EN116	-22		-1.27	6016	D6371	-17		1.78
1811	D6371	-20.0		-0.05	6045	D6371	-19		0.56
1813		-----		-----	6049	IP309	-17		1.78
1846		-----		-----	6051		-----		-----
1849	EN116	-20		-0.05	6054		-----		-----
1854	EN116	-17		1.78	6057	EN116	-20		-0.05
1857	D6371	-21		-0.66	6068	EN116	-21.0		-0.66
1862	IP309	-20		-0.05	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936	EN116	-19.5		0.25					

normality	suspect
n	124
outliers	1
mean (n)	-19.92
st.dev. (n)	2.024
R(calc.)	5.67
R(D6371:05)	4.58

Compare R(EN116:15) = 4.19

Lab 203 first reported: -26



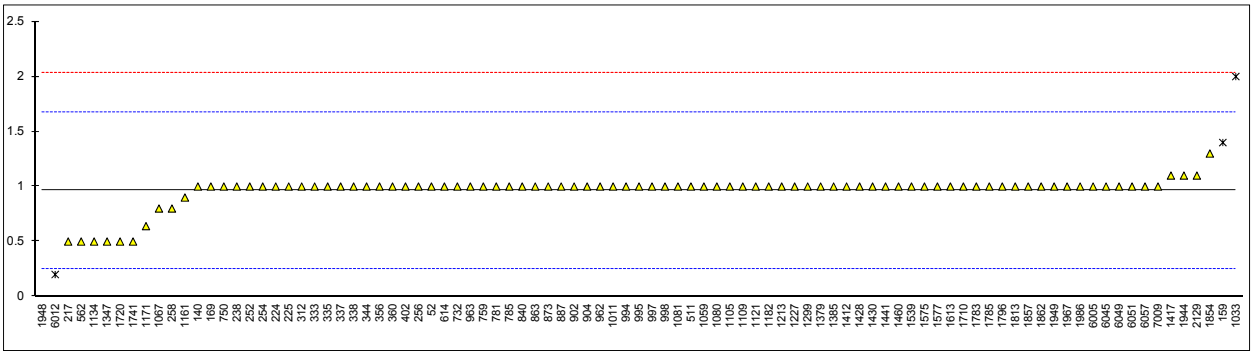


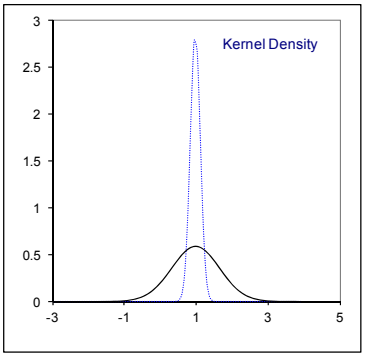
Determination of Colour ASTM on sample #16180;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6045	1.0		0.10	825	D1500	L 1.0		-----
53		-----		-----	840	D1500	1.0		0.10
90		-----		-----	854	D1500	L1.0		-----
92	D1500	L1.0		-----	862	D1500	L1.0		-----
120	D1500	L1.5		-----	863	D1500	1.0		0.10
131		-----		-----	873	D6045	1.0		0.10
132	D1500	L1.0		-----	874	D1500	L1.0		-----
140	D1500	1.0		0.10	887	D1500	1.0		0.10
150	D6045	L2.0		-----	902	D1500	1.0		0.10
159	D1500	1.4	R(0.01)	1.22	904	D1500	1.0		0.10
169	D6045	1.0		0.10	922	D1500	L1.0		-----
171	D1500	L1.0		-----	951	D1500	L 1.0		-----
175		-----		-----	962	D1500	1.0		0.10
186		-----		-----	963	D1500	1		0.10
194		-----		-----	970	D1500	<1		-----
203	D1500	Less than 1		-----	971	D1500	L 1.0		-----
217	D1500	0.5		-1.30	974	D1500	<1		-----
221	D1500	L 1.0		-----	994	D1500	1.0		0.10
224	D1500	1.0		0.10	995	D1500	1.0		0.10
225	D1500	1.0		0.10	996		-----		-----
228	D1500	L 1.0		-----	997	D1500	1.0		0.10
230	D1500	L1.0		-----	998	D1500	1		0.10
237	D1500	L1.5		-----	1006		-----		-----
238	D1500	1.0		0.10	1011	D1500	1.0		0.10
240	D1500	L1.0		-----	1016		-----		-----
252	D1500	1.0		0.10	1033	D1500	2.0	R(0.01)	2.90
253	D1500	< 1		-----	1059	D1500	1.0		0.10
254	D1500	1.0		0.10	1067	D6045	0.8		-0.46
256	D1500	1.0		0.10	1080	D1500	1.0		0.10
258	D6756	0.8		-0.46	1081	D6045	1.0		0.10
273	D1500	L0.5		-----	1082		-----		-----
312	D1500	1.0		0.10	1090		-----		-----
317	D1500	L1		-----	1105	D6045	1.0		0.10
323	D1500	L1.5		-----	1109	D1500	1.0		0.10
333	D1500	1.0		0.10	1121	D1500	1.0		0.10
335	D1500	1.0		0.10	1126		-----		-----
336	D1500	L1.0		-----	1134	D1500	0.5		-1.30
337	D1500	1.0		0.10	1146		-----		-----
338	D1500	1.0		0.10	1159	D1500	L1.0		-----
342	D1500	L1.0		-----	1161	D1500	0.9		-0.18
343	D1500	L.1.0		-----	1167		-----		-----
344	D1500	1.0		0.10	1171	D1500	0.64		-0.91
349	D6045	<1,0		-----	1182	D1500	1		0.10
353		-----		-----	1186		-----		-----
355	D1500	L1		-----	1191		-----		-----
356	D1500	1.0		0.10	1201	D1500	L1.0		-----
360	D1500	1.0		0.10	1213	D1500	1.0		0.10
381		-----		-----	1227	D1500	1		0.10
402	D1500	1		0.10	1229		-----		-----
445	D1500	L1.0		-----	1251		-----		-----
446	D1500	L1.5		-----	1259	D1500	L1.0		-----
485	D1500	L1.0		-----	1299	D6045	1.0		0.10
507	D1500	L1.0		-----	1347	D1500	0.5		-1.30
511	D6045	1		0.10	1348		-----		-----
529		-----		-----	1356		-----		-----
541	D1500	L1.0		-----	1357	D6045	L1.0		-----
556		-----		-----	1379	D1500	1		0.10
557		-----		-----	1385	D1500	1.0		0.10
558		-----		-----	1397		-----		-----
562	D1500	0.5		-1.30	1399		-----		-----
603	D1500	L1.0		-----	1409	D1500	< 1		-----
604	D1500	L1.0		-----	1412	D1500	1.0		0.10
605		-----		-----	1417	D6045	1.1		0.38
608	D1500	L1.0		-----	1428	D6045	1.0		0.10
614	D1500	1.0		0.10	1430	D1500	1.0		0.10
634	D1500	<0.5		-----	1441	D1500	1.0		0.10
657	D1500	<1.0		-----	1460	D1500	1.0		0.10
671		-----		-----	1498		-----		-----
732	D1500	1.0		0.10	1510	D1500	0.5L		-----
750	D1500	1		0.10	1539	D1500	1.0		0.10
751		-----		-----	1575	D1500	1.0		0.10
759	D6045	1.0		0.10	1577	D1500	1		0.10
781	D1500	1.0		0.10	1588		-----		-----
785	D6045	1.0		0.10	1613	D1500	1.0		0.10
823	D1500	L1.0		-----	1629		-----		-----
824	D1500	L1.0		-----	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944	D1500	1.1		0.38
1710	ISO2049	1		0.10	1948	ISO2049	-16	R(0.01)	-47.50
1720	D1500	0.5		-1.30	1949	D1500	1.0		0.10
1724		-----		-----	1967	D1500	1.0		0.10
1741	ISO2049	0.5		-1.30	1984		-----		-----
1776		-----		-----	1986	D1500	1.0		0.10
1783	D1500	1.0		0.10	1995		-----		-----
1785	D1500	1.0		0.10	2129	D1500	1.1		0.38
1796	D1500	1.0		0.10	6005	D1500	1.0		0.10
1807	D1500	<1.0		-----	6012	D1500	0.2	R(0.01)	-2.14
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045	D1500	1.0		0.10
1813	D6045	1.0		0.10	6049	D1500	1.0		0.10
1846		-----		-----	6051	D1500	1.0		0.10
1849		-----		-----	6054		-----		-----
1854	D1500	1.3		0.94	6057	ISO2049	1.0		0.10
1857	D1500	1.0		0.10	6068		-----		-----
1862	D1500	1.0		0.10	6075		-----		-----
1906		-----		-----	7009	D1500	1		0.10
1936		-----		-----					

				Only D6045
	normality	not OK		not OK
	n	89		14
	outliers	4		0
	mean (n)	0.96		0.98
	st.dev. (n)	0.140		0.080
	R(calc.)	0.39		0.22
	R(D1500:12)	1.00	R(D6045:12)	0.48





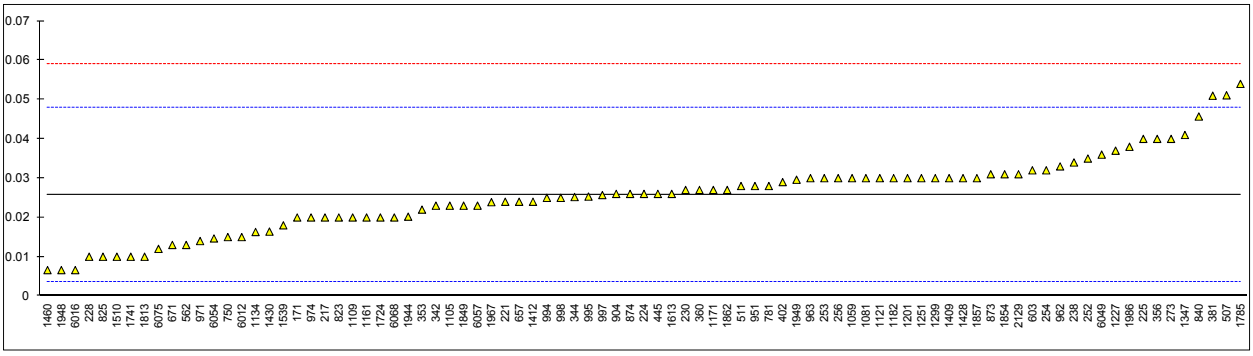
Determination of Conradson Carbon Residue on 10% residue on sample #16180; results in %M/M

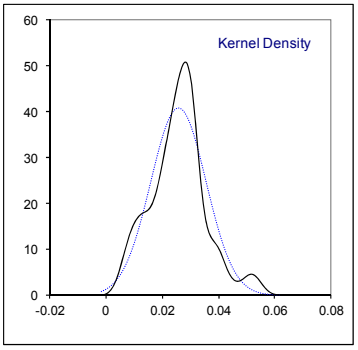
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825	D4530	0.01		-1.41
53		-----		-----	840	D189	0.0457		1.80
90		-----		-----	854	D4530	<0.1		-----
92	D4530	<0.05		-----	862	D4530	<0.1		-----
120		-----		-----	863	ISO10370	<0.1		-----
131		-----		-----	873	D4530	0.031		0.48
132		-----		-----	874	D4530	0.026		0.03
140		-----		-----	887		-----		-----
150		-----		-----	902	D4530	<0,1		-----
159		-----		-----	904	D189	0.026		0.03
169		-----		-----	922	D189	<0.01		-----
171	D189	0.02		-0.51	951	D189	0.028		0.21
175		-----		-----	962	D189	0.033		0.66
186		-----		-----	963	D189	0.03		0.39
194		-----		-----	970		-----		-----
203		-----		-----	971	D189	0.014		-1.05
217	D189	0.02		-0.51	974	D4530	0.02		-0.51
221	D189	0.024		-0.15	994	D189	0.025		-0.06
224	D189	0.026		0.03	995	D189	0.02531		-0.04
225	D4530	0.04		1.28	996		-----		-----
228	D189	0.01		-1.41	997	D189	0.0257		0.00
230	ISO10370	0.027		0.12	998	D189	0.025		-0.06
237		-----		-----	1006		-----		-----
238	D189	0.034		0.75	1011		-----		-----
240		-----		-----	1016	ISO10370	<0.1		-----
252	D4530	0.035		0.84	1033		-----		-----
253	D189	0.03		0.39	1059	ISO10370	0.03	C	0.39
254	D189	0.032		0.57	1067		-----		-----
256	D189	0.03		0.39	1080		-----		-----
258		-----		-----	1081	ISO10370	0.03		0.39
273	D4530	0.04		1.28	1082		-----		-----
312		-----		-----	1090		-----		-----
317	D4530	<0.10		-----	1105	D4530	0.023		-0.24
323	D4530	<0.10		-----	1109	D4530	0.02		-0.51
333		-----		-----	1121	D4530	0.03		0.39
335		-----		-----	1126		-----		-----
336		-----		-----	1134	IP13	0.0163		-0.85
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342	ISO10370	0.023		-0.24	1161	ISO10370	0.02		-0.51
343	D4530	<0.1	C	-----	1167		-----		-----
344	D4530	0.0252		-0.05	1171	ISO6615	0.027		0.12
349		-----		-----	1182	ISO10370	0.030		0.39
353	IP13	0.022		-0.33	1186		-----		-----
355		-----		-----	1191		-----		-----
356	D189	0.04		1.28	1201	D4530	0.03		0.39
360	D4530	0.027		0.12	1213	D4530	<0.1		-----
381	ISO10370	0.051		2.27	1227	D4530	0.037		1.01
402	ISO10370	0.029		0.30	1229		-----		-----
445	D189	0.026		0.03	1251	ISO10370	0.03		0.39
446		-----		-----	1259		-----		-----
485		-----		-----	1299	D4530	0.03		0.39
507	D189	0.0511		2.28	1347	D189	0.041		1.37
511	D189	0.028		0.21	1348		-----		-----
529		-----		-----	1356		-----		-----
541	D189	<0.01		-----	1357	D4530	<0.10		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385		-----		-----
558		-----		-----	1397		-----		-----
562	D189	0.013		-1.14	1399		-----		-----
603	D4530	0.032		0.57	1409	ISO10370	0.03		0.39
604		-----		-----	1412	D189	0.024		-0.15
605		-----		-----	1417		-----		-----
608	D4530	<0.01		-----	1428	ISO10370	0.030		0.39
614		-----		-----	1430	D189	0.0164		-0.84
634		-----		-----	1441		-----		-----
657	D4530	0.024		-0.15	1460	D4530	0.0066		-1.72
671	D4530	0.013		-1.14	1498		-----		-----
732		-----		-----	1510	D4530	0.01		-1.41
750	D189	0.015		-0.96	1539	ISO10370	0.018		-0.69
751		-----		-----	1575		-----		-----
759		-----		-----	1577		-----		-----
781	D189	0.028		0.21	1588		-----		-----
785		-----		-----	1613	D189	0.026		0.03
823	D189	0.02		-0.51	1629		-----		-----
824		-----		-----	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D189	<0.01		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944	ISO10370	0.0202		-0.50
1710		-----		-----	1948	ISO10370	0.0066		-1.72
1720		-----		-----	1949	D4530	0.0296		0.35
1724	D4530	0.02		-0.51	1967	D189	0.0239		-0.16
1741	ISO10370	0.01		-1.41	1984		-----		-----
1776		-----		-----	1986	D4530	0.038		1.10
1783		-----		-----	1995		-----		-----
1785	D189	0.054		2.54	2129	D189	0.031		0.48
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012	ISO6615	0.015		-0.96
1810		-----		-----	6016	D4530	0.0066		-1.72
1811		-----		-----	6045		-----		-----
1813	D4530	0.01		-1.41	6049	D4530	0.036		0.92
1846		-----		-----	6051		-----		-----
1849	ISO10370	0.023		-0.24	6054	D4530	0.01466		-0.99
1854	ISO10370	0.031		0.48	6057	ISO10370	0.023		-0.24
1857	D4530	0.03		0.39	6068	ISO10370	0.02		-0.51
1862	D4530	0.027		0.12	6075	ISO10370	0.012		-1.23
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	OK
n	87
outliers	0
mean (n)	0.0257
st.dev. (n)	0.00982
R(calc.)	0.0275
R(D189:06)	0.0311

Lab 343 first reported: 0.07
Lab 1059 first reported: 0.06





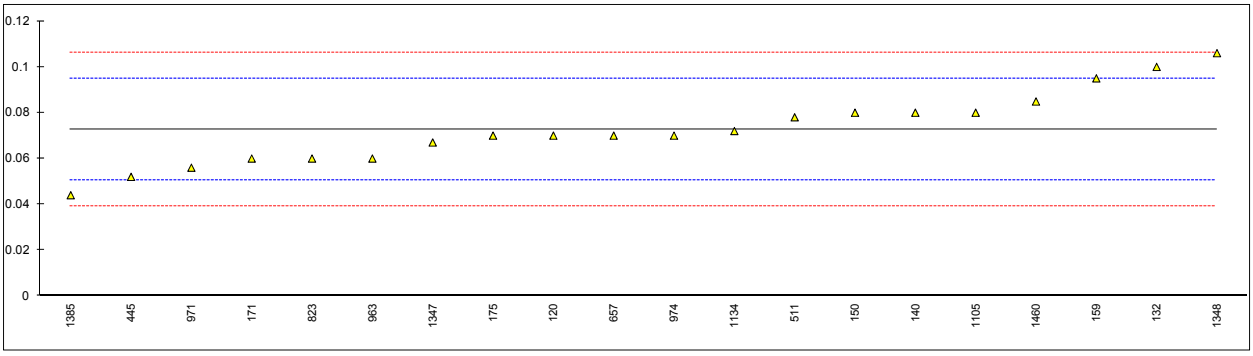
Determination of Ramsbottom Carbon Residue on 10% residue on sample #16180; results in %M/M

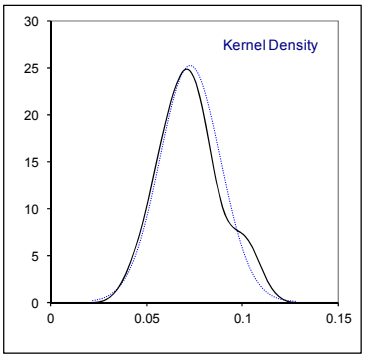
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
90		-----		-----	854		-----		-----
92		-----		-----	862		-----		-----
120	D524	0.07		-0.25	863		-----		-----
131		-----		-----	873		-----		-----
132	D524	0.10		2.44	874		-----		-----
140	D524	0.08		0.65	887		-----		-----
150	D524	0.08		0.65	902		-----		-----
159	D524	0.095		1.99	904		-----		-----
169		-----		-----	922		-----		-----
171	D524	0.06		-1.14	951		-----		-----
175	D524	0.07		-0.25	962		-----		-----
186		-----		-----	963	D524	0.06		-1.14
194		-----		-----	970		-----		-----
203		-----		-----	971	D524	0.056		-1.50
217		-----		-----	974	D524	0.07		-0.25
221		-----		-----	994		-----		-----
224		-----		-----	995		-----		-----
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230		-----		-----	998		-----		-----
237		-----		-----	1006		-----		-----
238		-----		-----	1011		-----		-----
240		-----		-----	1016		-----		-----
252		-----		-----	1033		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1067		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317		-----		-----	1105	D524	0.08		0.65
323		-----		-----	1109		-----		-----
333		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1134	D524	0.072		-0.07
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342		-----		-----	1161		-----		-----
343		-----		-----	1167		-----		-----
344		-----		-----	1171		-----		-----
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356		-----		-----	1201		-----		-----
360		-----		-----	1213		-----		-----
381		-----		-----	1227		-----		-----
402		-----		-----	1229		-----		-----
445	D524	0.052		-1.86	1251		-----		-----
446		-----		-----	1259		-----		-----
485		-----		-----	1299		-----		-----
507		-----		-----	1347	D524	0.067		-0.51
511	D524	0.078		0.47	1348	D524	0.106		2.98
529		-----		-----	1356		-----		-----
541		-----		-----	1357		-----		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385	D524	0.044		-2.58
558		-----		-----	1397		-----		-----
562		-----		-----	1399		-----		-----
603		-----		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605		-----		-----	1417		-----		-----
608		-----		-----	1428		-----		-----
614		-----		-----	1430		-----		-----
634		-----		-----	1441		-----		-----
657	D524	0.07	C	-0.25	1460	D524	0.0849		1.09
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539		-----		-----
751		-----		-----	1575		-----		-----
759		-----		-----	1577		-----		-----
781		-----		-----	1588		-----		-----
785		-----		-----	1613		-----		-----
823	D524	0.06		-1.14	1629		-----		-----
824		-----		-----	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944		-----		-----
1710		-----		-----	1948		-----		-----
1720		-----		-----	1949		-----		-----
1724		-----		-----	1967		-----		-----
1741		-----		-----	1984		-----		-----
1776		-----		-----	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785		-----		-----	2129		-----		-----
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012		-----		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045		-----		-----
1813		-----		-----	6049		-----		-----
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854		-----		-----	6057		-----		-----
1857		-----		-----	6068		-----		-----
1862		-----		-----	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	OK
n	20
outliers	0
mean (n)	0.0727
st.dev. (n)	0.01584
R(calc.)	0.0443
R(D524:15)	0.0313

Lab 657 first reported: 0.015





Determination of Copper Corrosion (3 hrs at 50°C) on sample #16180;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1a		-----	825	D130	1a		-----
53		-----		-----	840	D130	1a		-----
90	D130	1a		-----	854	D130	1a		-----
92	D130	1a		-----	862	D130	1a		-----
120	D130	1A		-----	863	ISO2160	1a		-----
131		-----		-----	873	D130	1A		-----
132	D130	1a		-----	874	D130	1a		-----
140	D130	1a		-----	887	D130	1a		-----
150	D130	1a		-----	902	ISO2160	1a		-----
159	D130	1a		-----	904	D130	1a		-----
169	D130	1a		-----	922	D130	1A		-----
171	D130	1a		-----	951	D130	No .1		-----
175	D130	1a		-----	962	D130	1A		-----
186		-----		-----	963	D130	1a		-----
194		-----		-----	970	D130	1a		-----
203	D130	1A		-----	971	D130	1a		-----
217		-----		-----	974	D130	1a		-----
221	D130	1 A		-----	994	D130	1a		-----
224	D130	1A		-----	995	D130	1a		-----
225	D130	1a		-----	996		-----		-----
228	D130	1 A		-----	997	D130	1a		-----
230	D130	1a		-----	998	D130	1A		-----
237	D130	1		-----	1006	D130	1a		-----
238	D130	1a		-----	1011	D130	1a		-----
240	D130	1A		-----	1016	ISO2160	1A		-----
252	D130	1A		-----	1033	IP154	1b		-----
253	D130	1 A		-----	1059	D130	1a		-----
254	D130	1A		-----	1067	ISO2160	1a		-----
256	D130	1a		-----	1080		-----		-----
258	D130	1A		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317	D130	1a		-----	1105	D130	1a		-----
323	D130	1A		-----	1109	D130	1a		-----
333		-----		-----	1121	D130	1a		-----
335	D130	1		-----	1126		-----		-----
336	D130	1		-----	1134	D130	1a		-----
337	D130	1b		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342	D130	1a		-----	1161	ISO2160	1A		-----
343	D130	1a		-----	1167	ISO2160	1a		-----
344	D130	1a		-----	1171	ISO2160	1A		-----
349		-----		-----	1182	D130	1		-----
353	IP154	1a		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356	D130	1A		-----	1201	D130	1A		-----
360	D130	1A		-----	1213	D130	1a		-----
381	ISO2160	1		-----	1227	D130	1A		-----
402	ISO2160	1A		-----	1229		-----		-----
445	D130	1A		-----	1251	ISO2160	1b		-----
446	D130	1b		-----	1259	ISO2160	1A		-----
485	ISO2160	1		-----	1299	D130	1A		-----
507	D130	1A		-----	1347	D130	1A		-----
511	D130	1A		-----	1348	D130	1A		-----
529		-----		-----	1356		-----		-----
541	D130	1A		-----	1357	D130	1a		-----
556		-----		-----	1379	D130	1A		-----
557		-----		-----	1385	D130	1A		-----
558		-----		-----	1397		-----		-----
562	D130	1		-----	1399		-----		-----
603	D130	1A		-----	1409	D130	1a		-----
604		-----		-----	1412	D130	1a		-----
605		-----		-----	1417	IP154	1B		-----
608	D130	1a		-----	1428	ISO2160	1A		-----
614		-----		-----	1430	D130	1a		-----
634	D130	1a		-----	1441	D130	1a		-----
657	D130	1a		-----	1460	D130	1a		-----
671	D130	1A		-----	1498		-----		-----
732		-----		-----	1510	D130	1A		-----
750	D130	1a		-----	1539		-----		-----
751	D130	1a		-----	1575	D130	1A		-----
759		-----		-----	1577		-----		-----
781	D130	1a		-----	1588		-----		-----
785		-----		-----	1613	D130	1A		-----
823	D130	1a		-----	1629		-----		-----
824	D130	1a		-----	1634	ISO2160	1a		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654	ISO2160	1A		-----	1938		-----		-----
1709		-----		-----	1944	D130	1a		-----
1710	ISO2160	1A		-----	1948	ISO2160	1A		-----
1720		-----		-----	1949	D130	1a		-----
1724	D130	1a		-----	1967	D130	1A		-----
1741	ISO2160	1		-----	1984		-----		-----
1776		-----		-----	1986	D130	1A		-----
1783		-----		-----	1995		-----		-----
1785	D130	1a		-----	2129	IP154	1a		-----
1796	D130	1a		-----	6005	ISO2160	1a		-----
1807	D130	1a		-----	6012	D130	1A		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045	D130	1a		-----
1813	D130	1a		-----	6049	D130	1a		-----
1846		-----		-----	6051	D130	1A		-----
1849		-----		-----	6054	D130	1A		-----
1854	D130	1A		-----	6057	ISO2160	1A		-----
1857	D130	1a		-----	6068	ISO2160	1a		-----
1862	D130	1A		-----	6075	ISO2160	1A		-----
1906		-----		-----	7009	D849	1A		-----
1936		-----		-----					

normality	n.a.
n	139
outliers	0
mean (n)	1 /1A / 1B
st.dev. (n)	n.a.
R(calc.)	n.a.
R(lit.)	n.a.

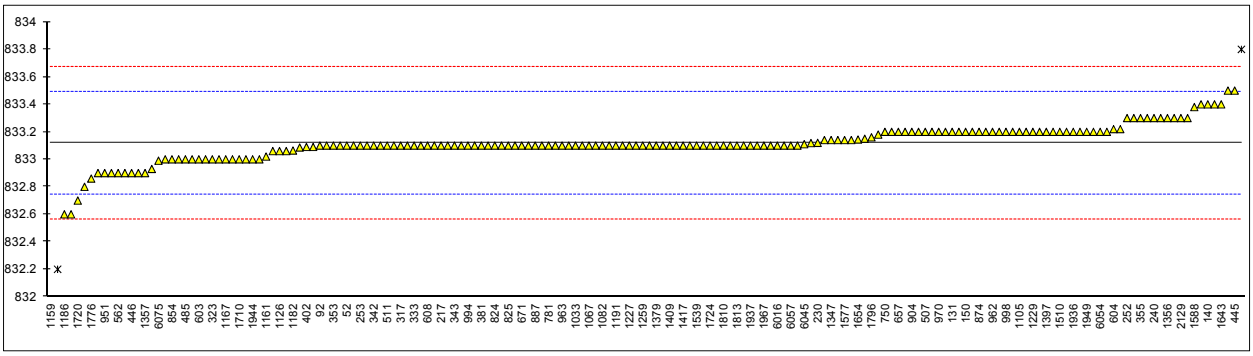
Determination of Density at 15°C on sample #16180; results in kg/m^3

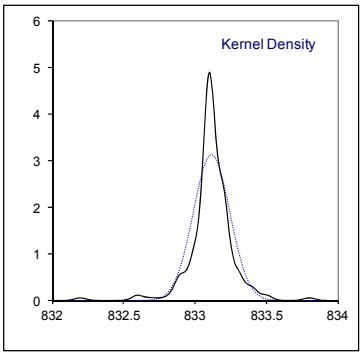
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	833.1		-0.09	825	D4052	833.1	C	-0.09
53		-----		-----	840	D4052	833.06		-0.31
90	D4052	833.1		-0.09	854	D4052	833.0		-0.63
92	D4052	833.1		-0.09	862	D4052	833.1		-0.09
120	D4052	832.9		-1.17	863	ISO12185	833.18		0.34
131	D4052	833.2		0.45	873	D4052	833.1		-0.09
132	D4052	833.1		-0.09	874	D4052	833.2		0.45
140	D4052	833.4		1.52	887	D4052	833.1		-0.09
150	D4052	833.2		0.45	902	D4052	833.2		0.45
159	D4052	833.3		0.98	904	D4052	833.2		0.45
169	D4052	833.2		0.45	922	D4052	833.1		-0.09
171	D4052	833.0		-0.63	951	D1298	832.9		-1.17
175	D4052	833.1		-0.09	962	D4052	833.2		0.45
186	D4052	833.4		1.52	963	D4052	833.1		-0.09
194		-----		-----	970	D4052	833.2		0.45
203	D1298	832.93		-1.01	971	D4052	833.2		0.45
217	D4052	833.1		-0.09	974	D4052	833.2		0.45
221	D4052	833.2		0.45	994	D4052	833.1		-0.09
224	D1298	832.9		-1.17	995	D4052	833.1		-0.09
225	D4052	833.1		-0.09	996		-----		-----
228	D4052	833.3		0.98	997	D4052	833.1		-0.09
230	ISO12185	833.12		0.02	998	D4052	833.2		0.45
237	D4052	833.14		0.12	1006	D4052	833.2		0.45
238	D4052	832.8		-1.71	1011	D4052	833.0		-0.63
240	D4052	833.3		0.98	1016		-----		-----
252	D1298	833.3		0.98	1033	IP365	833.1		-0.09
253	D4052	833.1		-0.09	1059	D4052	833.1		-0.09
254	D4052	833.50		2.06	1067	D4052	833.1		-0.09
256	D4052	833.1		-0.09	1080	D4052	833.1		-0.09
258	D1298	833.2		0.45	1081		-----		-----
273	D4052	833		-0.63	1082	ISO12185	833.1		-0.09
312	D4052	833.1		-0.09	1090		-----		-----
317	D4052	833.1		-0.09	1105	D4052	833.2		0.45
323	D4052	833.0		-0.63	1109	D4052	833.1		-0.09
333	D4052	833.1		-0.09	1121	D4052	833.2		0.45
335	D4052	833.1		-0.09	1126	D4052	833.06		-0.31
336	D4052	833.0		-0.63	1134	IP365	833.3		0.98
337	D4052	833.2		0.45	1146	D4052	833.09		-0.15
338	D4052	833.1		-0.09	1159	D1298	831.8	R(0.01)	-7.09
342	D4052	833.1		-0.09	1161	ISO12185	833.02		-0.52
343	D4052	833.1		-0.09	1167	ISO12185	833.0		-0.63
344		-----		-----	1171	D4052	832.90		-1.17
349	D4052	833.1		-0.09	1182	ISO12185	833.064		-0.29
353	IP365	833.1		-0.09	1186	D1298	832.6		-2.78
355	D4052	833.3		0.98	1191	ISO12185	833.1		-0.09
356	D4052	833.2		0.45	1201	D4052	833.1		-0.09
360	D4052	833.1		-0.09	1213	D4052	833.00		-0.63
381	D4052	833.1		-0.09	1227	D4052	833.1		-0.09
402	D4052	833.09		-0.15	1229	ISO12185	833.2		0.45
445	D4052	833.5		2.06	1251	ISO12185	833.1		-0.09
446	D4052	832.9		-1.17	1259	D4052	833.1		-0.09
485	D4052	833.0		-0.63	1299	D4052	833.2		0.45
507	D4052	833.20		0.45	1347	D4052	833.14		0.12
511	D4052	833.1		-0.09	1348	D4052	833.1		-0.09
529		-----		-----	1356	ISO12185	833.3		0.98
541	D4052	833.1		-0.09	1357	D4052	832.9		-1.17
556		-----		-----	1379	D4052	833.1		-0.09
557		-----		-----	1385	D4052	833.1		-0.09
558		-----		-----	1397	D4052	833.2		0.45
562	D4052	832.9		-1.17	1399		-----		-----
603	D4052	833.0		-0.63	1409	ISO12185	833.1		-0.09
604	D4052	833.22		0.55	1412	D4052	833.1		-0.09
605	D4052	833.40		1.52	1417	IP365	833.1		-0.09
608	D4052	833.1		-0.09	1428	ISO12185	833.1		-0.09
614	D4052	833.2		0.45	1430	D4052	833.8	C,R(0.01)	3.68
634	D4052	833.1		-0.09	1441	D4052	833.14		0.12
657	D4052	833.2		0.45	1460	D4052	833.06	C	-0.31
671	D4052	833.1		-0.09	1498	D4052	833.2		0.45
732	D4052	833.1		-0.09	1510	D4052	833.2		0.45
750	D4052	833.2		0.45	1539	ISO12185	833.1		-0.09
751	D1298	832.9		-1.17	1575		-----		-----
759	D4052	833.1		-0.09	1577	D4052	833.14		0.12
781	D4052	833.1		-0.09	1588	ISO12185	833.38		1.42
785	D4052	833.0		-0.63	1613	D4052	833.1		-0.09
823	D4052	833.15		0.18	1629		-----		-----
824	D4052	833.1		-0.09	1634	ISO12185	833.086		-0.17

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D4052	833.4		1.52	1937	ISO12185	833.1		-0.09
1654	ISO12185	833.144		0.14	1938	ISO12185	833.1		-0.09
1709	D4052	833.14		0.12	1944	D1298	833.0		-0.63
1710	ISO12185	833.0		-0.63	1948	ISO12185	833.2		0.45
1720	D4052	832.7		-2.25	1949	D4052	833.2		0.45
1724	D4052	833.1		-0.09	1967	D4052	833.1		-0.09
1741	ISO12185	833.0		-0.63	1984	ISO12185	833.0		-0.63
1776	ISO12185	832.86		-1.38	1986	D4052	833.3		0.98
1783	D4052	833.1		-0.09	1995		-----		-----
1785	D4052	833.22		0.55	2129	D4052	833.3		0.98
1796	D4052	833.16		0.23	6005	ISO12185	833.1		-0.09
1807	D4052	832.6		-2.78	6012	ISO3675	833.3		0.98
1810	D4052	833.1		-0.09	6016	D4052	833.10		-0.09
1811	D4052	833.1		-0.09	6045	D4052	833.11		-0.04
1813	D4052	833.1		-0.09	6049	D4052	833.1		-0.09
1846		-----		-----	6051	D4052	833.2		0.45
1849	ISO12185	833.118		0.00	6054	D4052	833.2		0.45
1854	D4052	832.2	C,R(0.01)	-4.94	6057	ISO12185	833.1		-0.09
1857	D4052	833.1		-0.09	6068	ISO12185	833.2		0.45
1862	D4052	833.2		0.45	6075	ISO12185	832.99		-0.68
1906		-----		-----	7009	D4052	833.1		-0.09
1936	ISO12185	833.2		0.45					

normality	not OK
n	175
outliers	3
mean (n)	833.12
st.dev. (n)	0.128
R(calc.)	0.36
R(D4052:15)	0.52

Lab 825 reported 833.1 kg/L
Lab 1430 reported 833.8 kg/L
Lab 1460 reported 0.83306 kg/m^3
Lab 1854 reported 832.2 kg/L





Determination of Distillation on sample #16180; results in °C

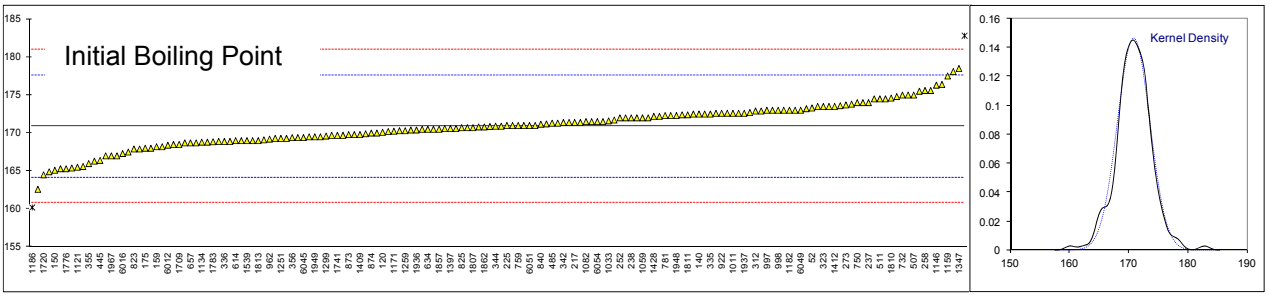
lab	method	mode	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52	D86	Automated	173.3		211.8		273.7		330.3		344.7		354.1	
53			-----		-----		-----		-----		-----		-----	
90	D86	Manual	169.9		207.8		272.8		332.8		351.8		356.8	
92	D86	Automated	178.1		214.1		275.1		330.6		344.7		349.4	
120	D86	Automated	170.1	C	211.3		271.5		331.2		349.3		353.5	
131	D86	Automated	175.5		214.1		274.2		333.3		347.5		354.4	
132	D86	Automated	170.8		216.7		274.1		330.8		344.0		350.8	
140	D86	Automated	172.5		212.7		273.5		330.8		344.6	C	353.1	
150	D86	Automated	165.1		209.5		272.2		330.4		344.9		351.5	
159	D86	Automated	168.2		211.2		272.2		329.7		342.9		351.7	
169	D86	Automated	167.9		211.6		272.9		332.1		348.0		353.7	
171	D86	Automated	171.4		214.5		274.0		331.6		346.2		356.8	
175	D86	Automated	168.0		210.3		273.6		333.2		348.4		354.6	
186			-----		-----		-----		-----		-----		-----	
194			-----		-----		-----		-----		-----		-----	
203			-----		-----		-----		-----		-----		-----	
217	D86	Automated	171.4		211.7		273.0		330.7		344.9		353.3	
221	D86	Manual	172.0		212.0		273.0		332.0		346.0		353.0	
224	D86	Manual	171.71		212.10		272.64		332.36		348.11		357.78	
225	D86	Manual	171.0		211.0		271.5		330.0		347.0		353.0	
228	D86	Manual	174.0		213.0		273.0		333.0		345.0		354.0	
230	D86	Automated	172.3		213.1		273.3		332.1		346.6		358.7	
237	D86	Manual	174.0		210.0		272.0		328.0		339.0		355.0	
238	D86	Manual	172.0		212.0		273.0		333.0		347.0		357.0	
240	D86	Manual	173.0		210.0		272.0		330.0		345.0		352.0	
252	D86	Manual	172.0		210.0		273.0		331.0		345.0		354.0	
253	D86	Manual	170.5		213.5		274.0		331.5		347.0		355.0	
254	D86	Manual	171.0		210.0		272.0		332.0		346.5		353.0	
256	D86	Manual	167.0		209.0		273.0		331.0		-----		354.0	
258	D86	Automated	175.6		213.9		274.9		333.0		346.6		354.5	
273	D86	Automated	173.7		212.0		272.8		330.5		343.5		350.4	
312	D86	Automated	172.9		214.0		274.1		332.1		346.7		354.2	
317	D86	Automated	172.0		214.2		274.8		332.7		347.4		356.1	
323	D86	Automated	173.5		213.2		273.4		330.8		345.2		353.4	
333	D86	Automated	168.7		211.5		272.3		329.6		343.5		353.2	
335	D86	Automated	172.5		210.5		273.8		331.5		347.2		354.0	
336	D86	Automated	168.9		212.0		273.1		331.5		345.4		355.6	
337	D86	Automated	173.2		213.6		273.7		330.9		343.6		355.1	
338	D86	Automated	173.5		213.1		273.3		332.4		348.5		353.9	
342	D86	Automated	171.4		214.9		274.7		332.2		347.0		353.3	
343	D86	Automated	162.6	C	210.8		271.8		330.6		344.0		351.2	
344	D86	Automated	170.9		213.3		272.2		329.0		341.7		350.8	
349			-----		-----		-----		-----		-----		-----	
353	D86	Automated	168.9		210.3		273.5		333.1		348.5		356.5	
355	D86	Manual	165.98		210.978		273.475		331.473		345.972		350.486	
356	D86	Automated	169.4		213.6		273.4		331.0		344.9		355.1	
360	D86	Automated	165.3		212.9		273.1		330.0		343.3		353.2	
381	D86	Automated	165.6		211.7		273.4		332.2		346.3		355.3	
402	D86	Automated	171.3		210.9		273.7		332.9		346.8		349.7	
445	D86	Automated	166.4		211.8		272.3		330.4		344.7		353.7	
446	D86	Automated	175		211.7		273.9		332.5		345.9		352.7	
485	D86	Automated	171.30		213.20		273.80		331.35		344.90		354.55	
507	D86	Manual	175.0		211.0		274.0		329.0		340.0		346.0	R(1)
511	D86	Manual	174.5		212.5		272.5	C	329		343		354	
529			-----		-----		-----		-----		-----		-----	
541	D86	Automated	169.1		212.2		273.1		330.7		344.6		355.3	
556			-----		-----		-----		-----		-----		-----	
557			-----		-----		-----		-----		-----		-----	
558			-----		-----		-----		-----		-----		-----	
562	D86	Automated	169.5		210.9		274.2		331.4		344.1		356.3	
603			-----		-----		-----		-----		-----		-----	
604	D86	Automated	171.4		209.2		274.3		332.2		347.0		353.6	
605			-----		-----		-----		-----		-----		-----	
608	D86	Automated	174.8		214.5		274.4		332.0		346.3		355.7	
614	D86	Manual	169		210		273		331		344		350	
634	D86	Manual	170.5		213.5		274.5		334.5		350.5		356.5	
657	D86	Automated	168.7		212.9		273.9		331.1		344.3		355.3	
671			-----		-----		-----		-----		-----		-----	
732	D86	Manual	175.0		212.0		272.0		331.0		345.0		355.0	
750	D86	Manual	174		212.5		275		334		349		356	
751			-----		-----		-----		-----		-----		-----	
759	D86	Manual	171.0		212.5		274.0		331.0		343.5		356.0	
781	D86	Automated	172.3		212.5		273.5		331.2		345.8		354.9	
785	D86	Automated	170.7		213.3		274.6		332.6		347.7		355.9	
823	D86	Automated	167.9		211.5		272.5		330.5		344.6		354.3	
824	D86	Automated	168.0		211.9		273.0		331.7		346.1		354.3	

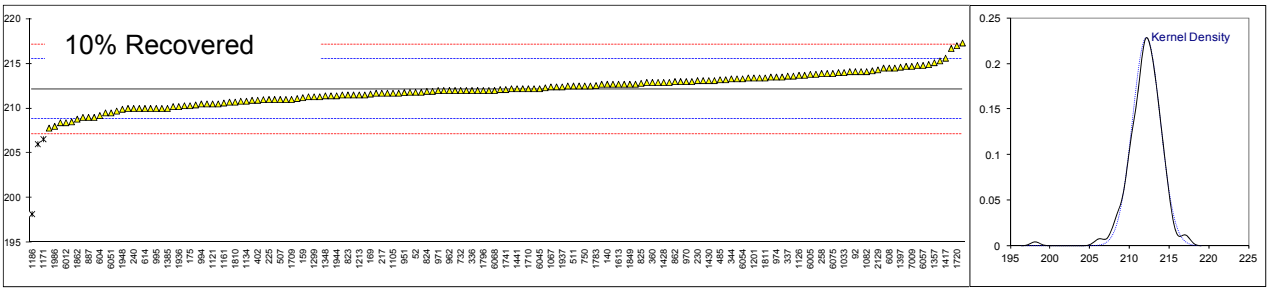
lab	method	mode	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
825	D86	Automated	170.7		212.8		272.2		328.6		340.8		353.3	
840	D86	Automated	171.16		213.81		273.04		330.87		344.71		354.40	
854	D86	Automated	174.5		214.1		274.3		332.3		347.0		355.1	
862	D86	Automated	172.6		213.0		274.4		332.0		346.3		356.7	
863	ISO3405	Manual	174.5		212.5		274.0		331.5		345.5		355.5	
873	D86	Automated	169.8		210.2		273.0		332.5		348.4		356.9	
874	D86	Manual	170.0		211.0		274.0		333.0		349.5		357.0	
887	D86	Manual	170.0		209.0		274.0		332.0		346.5		356.5	
902	D86	Automated	170.4		210.7		272.2		329.6		342.4		354.2	
904	D86	Automated	168.9		208.5		270.2		327.9		341.7		352.1	
922	D86	Automated	172.6		213.4		273.8		331.8		346.4		355.5	
951	D86	Manual	170.86		211.77		274.62		332.54		347.44		357.40	
962	D86	Automated	169.2		212.0		273.5		331.8		346.7		355.0	
963	D86	Automated	170.5		212.7		274.4		331.5		347.1		354.5	
970	D86	Automated	172.5		213.0		274.4		332.8		347.6		356.1	
971	D86	Automated	172.6		212.0		272.8		331.0		346.4		354.2	
974	D86	Automated	172.4		213.5		274.1		332.6		347.6		355.1	
994	D86	Manual	173.5		210.5		272.5		330.5		346.0		355.0	
995	D86	Manual	172.5		210.0		272.0		331.0		346.5		355.0	
996			-----		-----		-----		-----		-----		-----	
997	D86	Manual	173.0		210.0		272.0		331.0		346.0		355.0	
998	D86	Manual	173.0		211.5		273.0		331.5		347.0		356.0	
1006		Automated	170.6		212.7		273.3		330.3		343.0		354.1	
1011	ISO3405	Automated	172.6		214.7		274.5		331.8		346.1		355.5	
1016			-----		-----		-----		-----		-----		-----	
1033		Automated	171.6		214.0		274.7		332.2		346.7		355.6	
1059	D86	Automated	172.0		212.0		272.4		330.1		344.0		352.6	
1067	D86	Automated	172.9		212.4		273.4		331.9		346.6		355.4	
1080			-----		-----		-----		-----		-----		-----	
1081			-----		-----		-----		-----		-----		-----	
1082	D86	Automated	171.5		214.1		273.7		331.4		345.4		354.9	
1090			-----		-----		-----		-----		-----		-----	
1105	D86	Automated	164.9		211.7		272.6		329.9		343.6		352.7	
1109	D86	Automated	170.3		211.8		272.9		330.1		343.5		353.6	
1121	D86	Manual	165.5		210.5		272.5		330.5		345.5		355.5	
1126	D86	Automated	173.0		213.7		273.7		333.3		346.9		359.5	
1134	IP123	Automated	168.8		210.8		273.3		332.5		348.9		353.3	
1146	ISO3405	Automated	176.3 177.50		213.7		274.9		332.6		346.1		357.6	
1159	D86		7		210.385		272.879		331.357		344.408		352.411	
1161	D86	Automated	168.7		210.6		272.1		330.4		342.3		350.6	
1167	ISO3405	Automated	171.0		214.8		274.3		332.2		345.7		354.8	
1171	ISO3405	Manual	170.24		206.56	R(5)	270.91		329.76		342.78		355.56	
1182	D86	Automated	173		215.3		274.2		333.5		348.2		355.6	
1186	D86	Manual	160.2	R(5)	198.2	R(1)	267.2	R(1)	328.2	ex	339.2	ex	355.2	ex
1191	D86	Automated	165.4		211.1		272.7		330.6		344.6		353.2	
1201	D86	Automated	173.6		213.4		273.2		330.7		343.9		352.9	
1213		Manual	169.3		211.5		271.0		330.3		343.6		355.8	
1227	D86	Automated	182.8	R(1)	217.3		275.7		334.8		351.5		356.7	
1229	ISO3405	Automated	172.6		213.4		274.2		323.6	R(1)	348		355.7	
1251	ISO3405	Automated	169.3		212.3		273.6		330.3		343.9		354.5	
1259	D86	Automated	170.3		212.9		272.4		328.1		340.1		353.4	
1299		Automated	169.6		211.3		272.3		330.7		345.1		354.2	
1347	D86	Manual	178.5		214.5		274.0		332.0		346.5		354.5	
1348	D86	Automated	169.8		211.4		272		329.5		343.5		356.4	
1356			-----		-----		-----		-----		-----		-----	
1357	D86	Automated	169.7		215.1		274.6		332.2		346.4		355.0	
1379		Manual	172		209		272		330.5		346		354	
1385	D86	Manual	173		210		270		327		340		366	R(1)
1397	D86	Automated	170.6		214.6		274.2		331.0		345.1		356.0	
1399			-----		-----		-----		-----		-----		-----	
1409	ISO3405	Automated	169.8		211.0		272.5		330.5		344.6		354.9	
1412	D86	Manual	173.5		213.0		274.0		333.0		347.5		355.5	
1417	D86	Automated	172.7		215.6		275.1		333.4		349.0		354.6	
1428	ISO3405	Automated	172.2		212.9		273.1		329.7		343.3		353.6	
1430	D86	Automated	170.6		213.1		273.3		329.2		341.6		354.3	
1441	D86	Automated	169.4		212.2		272.4		330.6		345.8		353.3	
1460	D86	Automated	166.3		212.2		274.2		334.8		353.3		353.4	
1498	D86	Automated	170.9		213.1		273.7		331.1		344.2		355.6	
1510	D86	Automated	169.0		211.3		272.1		329.4		343.0		353.7	
1539	D86	Manual	169.0		212.9		272.3		330.9		345.9		349.9	
1575			-----		-----		-----		-----		-----		-----	
1577			-----		-----		-----		-----		-----		-----	
1588			-----		-----		-----		-----		-----		-----	
1613	D86	Automated	173.8		212.7		274.5		333.8		350.1		356.5	
1629			-----		-----		-----		-----		-----		-----	
1634	D86	Automated	168.5		212.4		272.4		328.8		342.6		353.2	
1643			-----		-----		-----		-----		-----		-----	
1654		Automated	-----		-----		-----		-----		345.6		-----	

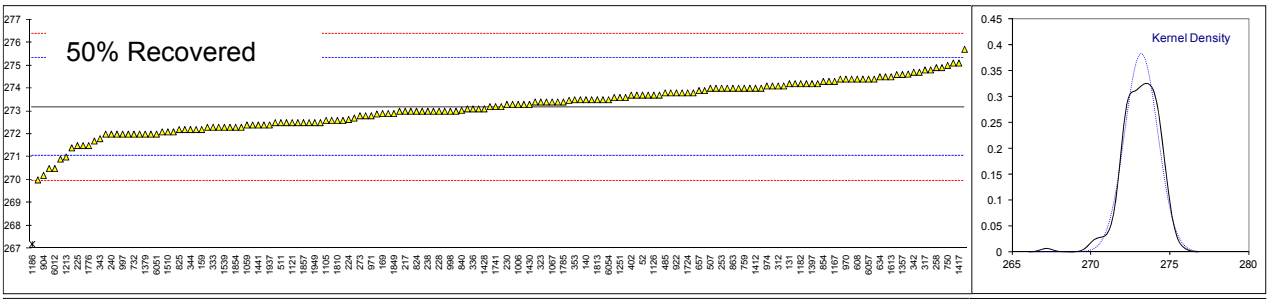
lab	method	mode	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
1709	D86		168.5		211.0		273.8		331.6		346.1		355.3	
1710	ISO3405	Automated	168.2		212.2		273.4		330.7		344.1		354.5	
1720	D86	Automated	164.5		217.0		274.1		331.8		346.8		354.7	
1724	D86	Automated	167.5		213.9		273.8		331.7		346.2		354.9	
1741	ISO3405	Automated	169.7		212.1		273.2		330.4		343.8		354.4	
1776	ISO3405	Automated	165.3		209.7		271.5		328.2		340.9		350.1	
1783		Automated	168.85		212.55		273.8		331.05		344.8		354.3	
1785	D86	Automated	169.30		212.20		273.40		330.55		344.65		354.20	
1796	D86	Automated	169.0		212.0		272.6		329.6		342.7		352.1	
1807	ISO3405	Automated	170.7		211.4		273.0		330.3		344.4		354.2	
1810	D86	Automated	174.6		210.7		272.6		331.0		345.2		353.7	
1811	D86	Automated	172.4		213.4		272.3		329.3		341.5		352.9	
1813	D86	Automated	169.0		212.7		273.5		330.7		344.4		353.9	
1846			-----		-----		-----		-----		-----		-----	
1849		Automated	169.7		212.7		272.9		329.3		342.0		353.2	
1854	D86	Automated	171.2		212.7		272.3		329.3		341.8		353.0	
1857	D86	Automated	170.5		212.0		272.5		330.0		343.5		352.0	
1862	D86	Automated	170.8		208.8		271.7		329.9		343.0		353.9	
1906			-----		-----		-----		-----		-----		-----	
1936	ISO3405	Automated	170.4		210.2		272.1		329.5		342.7		353.9	
1937	ISO3405	Automated	172.6		212.4		272.4		329.3		341.9		352.7	
1938	ISO3405	Automated	168.8		208.4		271.4		329.3		343.5		353.0	
1944	D86	Automated	170.2		211.4		274.4		331.6		345.1		356.5	
1948	ISO3405	Automated	172.3		209.9		272.5		330.1		344.2		355.8	
1949	D86	Manual	169.5		210.5		272.5		329.5		344.0		353.0	
1967	D86		167.0		206.0	R(5)	270.5		330.0		344.5		354.5	
1984	ISO3405	Automated	171.5		211.5		273.2		330.7		345.0		354.7	
1986	D86	Manual	167.0		208.0		272.0		331.0		346.5		353.5	
1995			-----		-----		-----		-----		-----		-----	
2129	D86	Automated	176.4		214.3		272.3		329.4		341.9		357.6	
6005	ISO3405	Automated	172.2		213.8		273.6		332.1		347.8		354.5	
6012	D86	Manual	168.4		208.4		270.5		330.5		344.6		351.6	
6016	D86	Automated	167.3		211.7		273.5		332.0		347.9		353.4	
6045	D86	Automated	169.4		212.2		272.6		330.8		345.0		353.6	
6049	D86	Automated	173.0		211.9		274.8		333.4		346.9		348.6	
6051	D86	Manual	171.0		209.5		272.0		330.5		343.0		354.0	
6054	D86	Automated	171.5		213.3		273.5		330.5		345.1		353.8	
6057	ISO3405	Automated	175.6		214.8		274.4		331.8		345.9		355.9	
6068	ISO3405	Automated	169.5		212.0		272.5		330.1		343.6		353.7	
6075	D86	Automated	171.5		213.9		274.0		331.9		346.2		355.9	
7009	D86		171.0		214.7		274.4		333.3		350.2		355.2	
	normality		OK		OK		OK		OK		OK		OK	
	n		164		163		165		164		165		163	
	outliers		2		3		1		1+1ex		0+1ex		2+1ex	
	mean (n)		170.88		212.14		273.18		331.13		345.36		354.28	
	st.dev. (n)		2.729		1.745		1.042		1.391		2.335		1.819	
	R(calc.)		7.64		4.89		2.92		3.89		6.54		5.09	
	R(D86-Auto:16a)		9.40		4.67		3.00		4.97		8.42		7.10	
Compare R(D86-Manual:16a)			6.64		4.52		3.78		3.93		4.88		3.85	

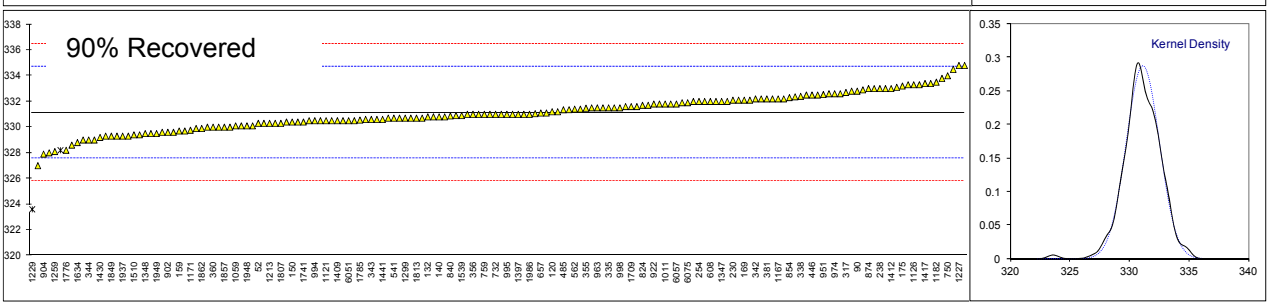
Pleae note: R(1) means R(0.01) and R(5) means R(0.05)

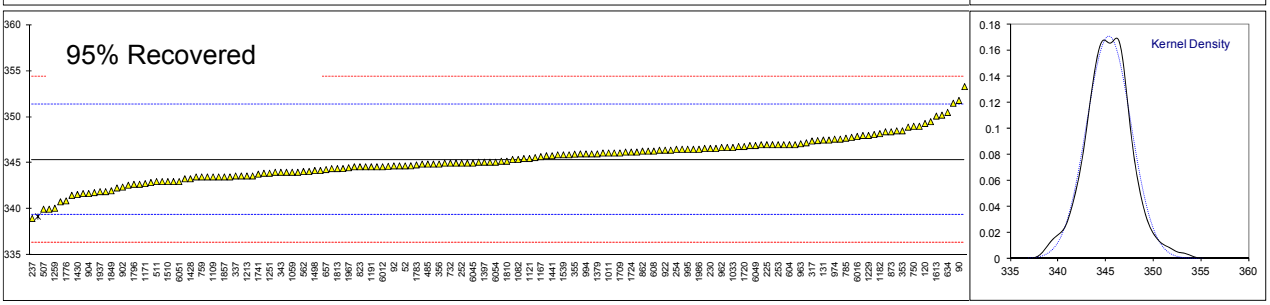
Lab 120 first reported: 161.3 for IBP
Lab 140 first reported: 334.6 for 95% Recovered
Lab 343 first reported: 160.5 for IBP
Lab 511 first reported: 270 for 50% Recovered
Lab 1186: the reported values for 90% rec, 95% rec and FBP are excluded as three of the six related test values are statistical outliers.

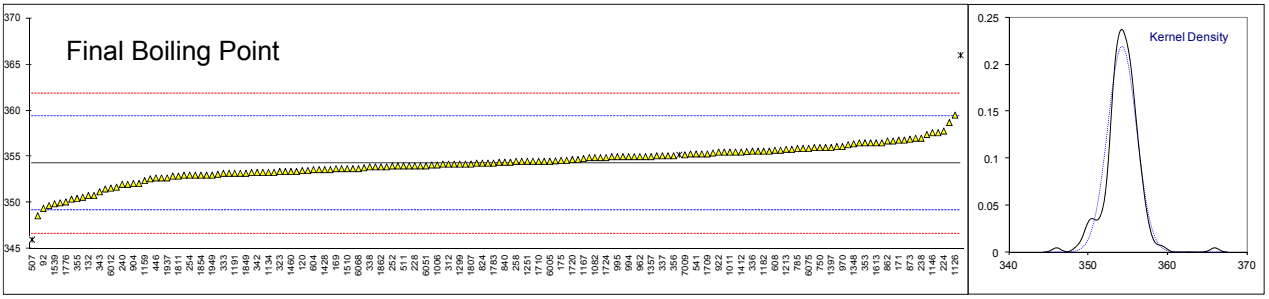

Initial Boiling Point
Kernel Density


10% Recovered
Kernel Density


50% Recovered
Kernel Density


90% Recovered
Kernel Density


95% Recovered
Kernel Density


Final Boiling Point
Kernel Density

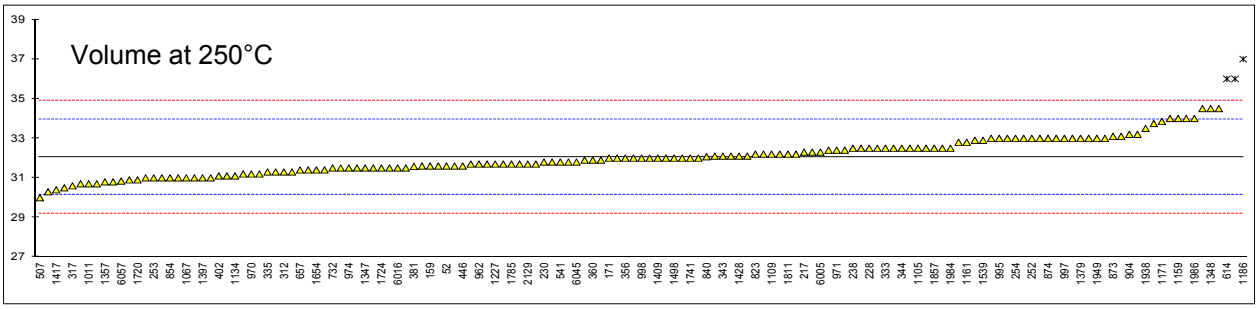
Determination of Distillation on sample #16180; results in %V/V

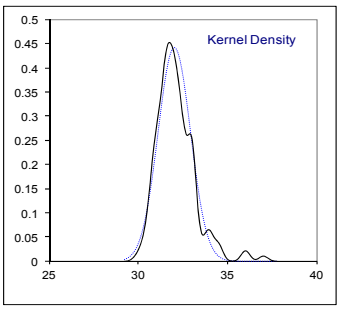
lab	method	mode	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark
52	D86	Automated	31.6		-0.46	96.1		-0.07	-----	
53			-----		-----	-----		-----	-----	
90	D86	Manual	33		1.02	98	C	1.93	1.0	
92	D86	Automated	31.7		-0.35	-----		-----	2.0	
120	D86	Automated	33.2		1.23	95.2		-1.02	1.4	
131			-----		-----	-----		-----	1.2	
132	D86	Automated	30.3		-1.83	96.9		0.77	1.9	
140	D86	Automated	31.6		-0.46	97.5		1.40	1.4	
150	D86	Automated	32.8		0.81	96.7		0.56	1.8	
159	D86	Automated	31.6		-0.46	96.6		0.45	1.3	
169			-----		-----	-----		-----	1.4	
171	D86	Automated	32.0		-0.04	97.0		0.88	1.3	
175			-----		-----	-----		-----	1.3	
186			-----		-----	-----		-----	-----	
194			-----		-----	-----		-----	-----	
203			-----		-----	-----		-----	-----	
217	D86	Automated	32.3		0.28	96.1		-0.07	1.4	
221	D86	Manual	33.0		1.02	96.0		-0.18	1.8	
224	D86	Manual	32.5		0.49	95.7		-0.49	1.6	
225	D86	Manual	34.5		2.60	95.5		-0.70	1.8	
228	D86	Manual	32.5		0.49	95.5		-0.70	1.5	
230	D86	Automated	31.8		-0.25	96.3		0.14	1.3	
237	D86	Manual	33.0		1.02	97.5		1.40	-----	
238	D86	Manual	32.5		0.49	95.5		-0.70	1.5	
240	D86	Manual	34.0		2.07	96.3		0.14	1.3	
252	D86	Manual	33		1.02	-----		-----	-----	
253	D86	Manual	31.0		-1.09	96.0		-0.18	1.3	
254	D86	Manual	33.0		1.02	97.0		0.88	1.4	
256			-----		-----	-----		-----	-----	
258	D86	Automated	-----		-----	-----		-----	1.1	
273			-----		-----	-----		-----	-----	
312	D86	Automated	31.3		-0.77	95.7		-0.49	-----	
317	D86	Automated	30.6		-1.51	95.5		-0.70	1.3	
323	D86	Automated	31.6		-0.46	96.0		-0.18	1.6	
333	D86	Automated	32.5		0.49	96.4		0.24	1.4	
335	D86	Automated	31.3		-0.77	95.6		-0.60	0.8	
336	D86	Automated	32.2		0.17	96.0		-0.18	1.1	
337	D86	Automated	31.5		-0.56	96.7		0.56	0.8	
338	D86	Automated	31.9		-0.14	95.4		-0.81	1.4	
342	D86	Automated	30.7		-1.40	95.8		-0.39	1.4	C
343	D86	Automated	32.1		0.07	96.6		0.45	1.4	
344	D86	Automated	32.5		0.49	96.9		0.77	1	
349			-----		-----	-----		-----	-----	
353	D86	Automated	32.1		0.07	95.3		-0.91	1.1	
355	D86	Manual	31.0		-1.09	95.5		-0.70	2.0	
356	D86	Automated	32.0		-0.04	96.2		0.03	1.6	
360	D86	Automated	31.9		-0.14	96.5		0.35	1.4	
381	D86	Automated	31.58		-0.48	95.83		-0.36	1.2	
402	D86	Automated	31.1		-0.98	-----		-----	2.4	
445	D86	Automated	32.4		0.39	96.2		0.03	1.6	
446	D86	Automated	31.6		-0.46	96.0		-0.18	2.5	
485	D86	Automated	31.30		-0.77	96.10		-0.07	1.55	
507	D86	Manual	30.0		-2.14	-----		-----	1.82	
511			-----		-----	-----		-----	1	
529			-----		-----	-----		-----	-----	
541	D86	Automated	31.8		-0.25	96.2		0.03	1.4	
556			-----		-----	-----		-----	-----	
557			-----		-----	-----		-----	-----	
558			-----		-----	-----		-----	-----	
562			-----		-----	-----		-----	-----	
603			-----		-----	-----		-----	-----	
604	D86	Automated	31.6		-0.46	95.8		-0.39	1.4	
605			-----		-----	-----		-----	-----	
608	D86	Automated	-----		-----	-----		-----	-----	
614	D86	Manual	36	R(0.01)	4.17	97		0.88	3	
634	D86	Manual	32.5		0.49	95		-1.23	1.0	
657	D86	Automated	31.4		-0.67	96.3		0.14	0.9	
671			-----		-----	-----		-----	-----	
732	D86	Manual	31.5		-0.56	96.0		-0.18	2.0	
750	D86	Manual	30.5		-1.61	95.0		-1.23	1.1	
751			-----		-----	-----		-----	-----	
759	D86	Manual	31.0		-1.09	96.0		-0.18	1.8	
781	D86	Automated	31.8		-0.25	95.9		-0.28	1.3	
785	D86	Automated	31.1		-0.98	95.5		-0.70	1.4	
823	D86	Automated	32.2		0.17	96.0		-0.18	0.8	
824	D86	Automated	31.9		-0.14	95.9		-0.28	1.4	

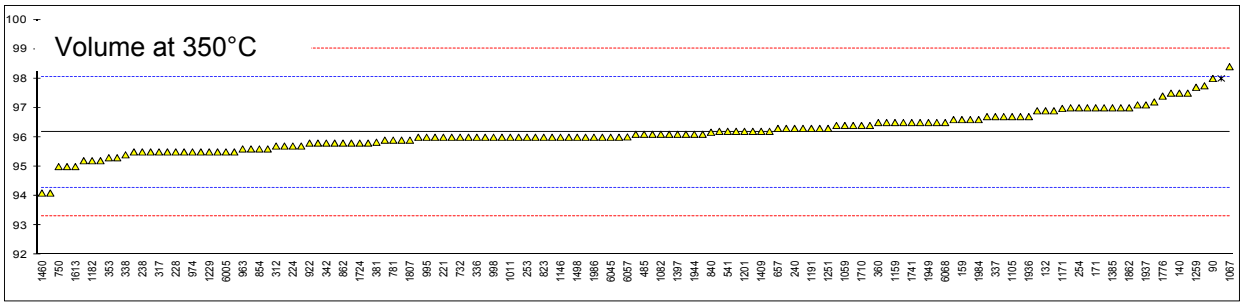
lab	method	mode	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark
825	D86	Automated	31.4		-0.67	97.2		1.09	0.6	
840	D86	Automated	32.07		0.04	96.17		0.00	1.4	
854	D86	Automated	31.0		-1.09	95.6		-0.60	1.4	
862	D86	Automated	31.2		-0.88	95.8		-0.39	1.0	
863	ISO3405	Manual	32.0		-0.04	96.0		-0.18	1.3	
873	D86	Automated	33.1		1.12	95.8		-0.39	1.5	
874	D86	Manual	33.0		1.02	95.5		-0.70	1.5	
887	D86	Manual	33		1.02	96		-0.18	1.2	
902	D86	Automated	33		1.02	97		0.88	1.4	
904	D86	Automated	33.2		1.23	96.7		0.56	-----	
922	D86	Automated	32.0		-0.04	95.8		-0.39	-----	
951	D86	Manual	31.0		-1.09	96.0		-0.18	1.5	
962	D86	Automated	31.7		-0.35	95.7		-0.49	1.0	
963	D86	Automated	30.9		-1.19	95.6		-0.60	1.4	
970	D86	Automated	31.2		-0.88	95.5		-0.70	1.2	
971	D86	Automated	32.4		0.39	95.7		-0.49	1.4	
974	D86	Automated	31.5		-0.56	95.5		-0.70	1.1	
994	D86	Manual	32.5		0.49	96.0		-0.18	1.6	
995	D86	Manual	33.0		1.02	96.0		-0.18	1.5	
996			-----		-----	-----		-----	-----	
997	D86	Manual	33.0		1.02	96.0		-0.18	1.5	
998	D86	Manual	32.0		-0.04	96		-0.18	1.5	
1006		Automated	-----		-----	-----		-----	1.5	C
1011	ISO3405	Automated	30.7		-1.40	96.0		-0.18	1.4	
1016			-----		-----	-----		-----	-----	
1033		Automated	-----		-----	-----		-----	1.4	
1059	D86	Automated	32.5		0.49	96.4		0.24	1.4	
1067	D86	Automated	31.0		-1.09	98.4		2.35	1.2	
1080			-----		-----	-----		-----	-----	
1081			-----		-----	-----		-----	-----	
1082	D86	Automated	31.5		-0.56	96.1		-0.07	1.6	
1090			-----		-----	-----		-----	-----	
1105	D86	Automated	32.5		0.49	96.7		0.56	1.8	
1109	D86	Automated	32.2		0.17	96.5		0.35	1.6	
1121	D86	Manual	33.0		1.02	96.0		-0.18	1.5	
1126	D86	Automated	31.3		-0.77	96.1		-0.07	-----	
1134	IP123	Automated	31.1		-0.98	95.3		-0.91	1.0	
1146	ISO3405	Automated	31		-1.09	96		-0.18	1.1	
1159	D86		34.0		2.07	96.5		0.35	2.5	
1161	D86	Automated	32.8		0.81	96.3		0.14	1.0	
1167	ISO3405	Automated	30.7		-1.40	96.4		0.24	1.0	
1171	ISO3405	Manual	33.85		1.91	96.98		0.85	1.0	
1182	D86	Automated	32.0		-0.04	95.2		-1.02	1.5	
1186	D86	Manual	37	R(0.01)	5.23	98	ex	1.93	1	
1191	D86	Automated	32.1		0.07	96.3		0.14	0.3	
1201	D86	Automated	31.7		-0.35	96.2		0.03	1.0	
1213		Manual	-----		-----	-----		-----	1.0	
1227	D86	Automated	31.7		-0.35	96.3		0.14	-----	
1229	ISO3405	Automated	31.2		-0.88	95.5		-0.70	0.9	
1251	ISO3405	Automated	31.7		-0.35	96.3		0.14	1.4	
1259	D86	Automated	32.2		0.17	97.7		1.61	1.4	
1299		Automated	-----		-----	-----		-----	1.5	
1347	D86	Manual	31.5		-0.56	96.0		-0.18	1.4	
1348	D86	Automated	34.5		2.60	97		0.88	1.0	
1356			-----		-----	-----		-----	-----	
1357	D86	Automated	30.8		-1.30	96.2		0.03	1.4	
1379		Manual	33		1.02	96.5		0.35	2	
1385	D86	Manual	36	R(0.01)	4.17	97		0.88	-----	
1397	D86	Automated	31.0		-1.09	96.1		-0.07	1.1	
1399			-----		-----	-----		-----	-----	
1409	ISO3405	Automated	32.0		-0.04	96.2		0.03	-----	
1412	D86	Manual	32.0		-0.04	95.5		-0.70	-----	
1417	D86	Automated	30.4		-1.72	95.2		-1.02	1.3	
1428	ISO3405	Automated	32.1		0.07	96.7		0.56	1.8	
1430	D86	Automated	-----		-----	-----		-----	1.6	
1441	D86	Automated	31.8		-0.25	95.8		-0.39	1.4	
1460	D86	Automated	31.5		-0.56	94.1		-2.18	1.4	
1498	D86	Automated	32		-0.04	96		-0.18	1.4	
1510	D86	Automated	32.9		0.91	96.6		0.45	1.4	
1539	D86	Manual	32.9		0.91	-----		-----	-----	
1575			-----		-----	-----		-----	-----	
1577			-----		-----	-----		-----	-----	
1588			-----		-----	-----		-----	-----	
1613	D86	Automated	31		-1.09	95		-1.23	1.4	
1629			-----		-----	-----		-----	-----	
1634	D86	Automated	32.1		0.07	97.5		1.40	1.3	
1643			-----		-----	-----		-----	-----	
1654		Automated	31.4		-0.67	96.0		-0.18	1.5	
1709	D86		32.0		-0.04	95.9		-0.28	1.5	

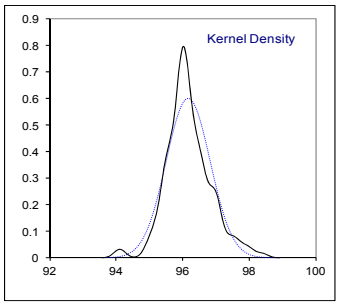
lab	method	mode	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark
1710	ISO3405	Automated	32.4		0.39	96.4		0.24	1.2	
1720	D86	Automated	30.9		-1.19	95.6		-0.60	1.4	
1724	D86	Automated	31.5		-0.56	95.8		-0.39	1.4	
1741	ISO3405	Automated	32.0		-0.04	96.5		0.35	1.2	
1776	ISO3405	Automated	33.1		1.12	97.4		1.30	1.4	
1783		Automated	-----		-----	-----		-----	1.7	
1785	D86	Automated	31.70		-0.35	96.20		0.03	1.45	
1796	D86	Automated	32.0		-0.04	96.9		0.77	1.4	
1807	ISO3405	Automated	32.3		0.28	95.9		-0.28	1.8	
1810	D86	Automated	32.5		0.49	96.1		-0.07	1.6	
1811	D86	Automated	32.2		0.17	97.1		0.98	1.3	
1813			-----		-----	-----		-----	-----	
1846			-----		-----	-----		-----	-----	
1849			-----		-----	-----		-----	-----	
1854	D86	Automated	31.7		-0.35	97.0		0.88	2.0	
1857	D86	Automated	32.5		0.49	96.5		0.35	1.5	
1862	D86	Automated	34.0		2.07	97.0		0.88	1.0	
1906			-----		-----	-----		-----	-----	
1936	ISO3405	Automated	33.0		1.02	96.7		0.56	1.4	
1937	ISO3405	Automated	32.5		0.49	97.1		0.98	1.4	
1938	ISO3405	Automated	33.5		1.54	96.4		0.24	1.4	
1944	D86	Automated	31.5		-0.56	96.1		-0.07	1.4	
1948	ISO3405	Automated	30.8		-1.30	94.1		-2.18	1.4	
1949	D86	Manual	33.0		1.02	96.5		0.35	1.6	
1967	D86		33.75		1.81	97.75		1.67	1.0	
1984	ISO3405	Automated	32.5		0.49	96.6		0.45	1.4	
1986	D86	Manual	34.0		2.07	96.0		-0.18	1.4	
1995			-----		-----	-----		-----	-----	
2129	D86	Automated	31.7		-0.35	96.1		-0.07	1.5	
6005	ISO3405	Automated	32.3		0.28	95.5		-0.70	0.5	
6012	D86	Manual	34.5		2.60	96.0		-0.18	1.7	
6016	D86	Automated	31.5		-0.56	95.5		-0.70	1.4	
6045	D86	Automated	31.8		-0.25	96.0		-0.18	1.4	
6049	D86	Automated	31.4		-0.67	-----		-----	2.35	
6051	D86	Manual	33.0		1.02	96.5		0.35	1.0	
6054	D86	Automated	31.5		-0.56	96.0		-0.18	1.6	
6057	ISO3405	Automated	30.84		-1.26	96.01		-0.17	1.8	
6068	ISO3405	Automated	32.2		0.17	96.5		0.35	1.4	
6075	D86	Automated	31.7		-0.35	95.8		-0.39	1.5	
7009	D86		-----		-----	-----		-----	1.4	
	normality		OK			suspect				
	n		146			142				
	outliers		3			0+1ex				
	mean (n)		32.03			96.17				
	st.dev. (n)		0.901			0.664				
	R(calc.)		2.52			1.86				
	R(D86-A:16a)		2.66			2.66				
	Compare R(D86-M:16a)		2.67			2.50				

Lab 90 first reported: 93 for Volume at 350°C
Lab 342 first reported: 97.8 for Distillation Residue
Lab 1006 first reported: 98.2 for Distillation Residue
Lab 1186: the reported value for 350°C is excluded as three of the six related test values of the Distillation and the reported test value for 250°C are statistical outliers.


Volume at 250°C


Kernel Density


Volume at 350°C


Kernel Density

Determination of FAME Content on sample #16180; results in %V/V

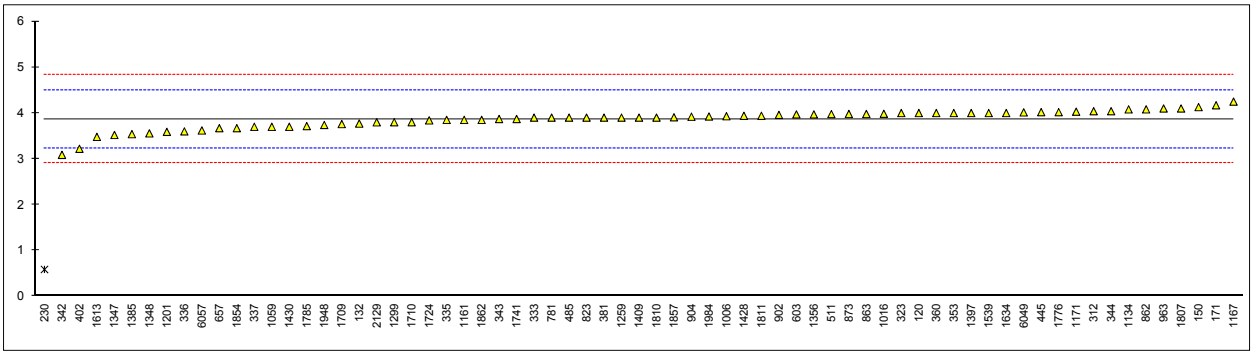
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
90		-----		-----	854		-----		-----
92		-----		-----	862	EN14078	4.08		0.67
120	D7371	4.0		0.42	863	EN14078	3.98		0.36
131		-----		-----	873	EN14078	3.98		0.36
132	D7371	3.77		-0.30	874		-----		-----
140		-----		-----	887		-----		-----
150	D7371	4.13		0.83	902	EN14078	3.96		0.30
159		-----		-----	904	EN14078	3.92		0.17
169		-----		-----	922		-----		-----
171	D7371	4.17		0.95	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D7371	4.10		0.73
194		-----		-----	970		-----		-----
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	994		-----		-----
224		-----		-----	995		-----		-----
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230	EN14078	0.5872	C,R(0.01)	-10.25	998		-----		-----
237		-----		-----	1006	D7371	3.93		0.20
238		-----		-----	1011		-----		-----
240		-----		-----	1016	EN14078	3.984		0.37
252		-----		-----	1033		-----		-----
253		-----		-----	1059	EN14078	3.7		-0.52
254		-----		-----	1067		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312	EN14078	4.04		0.55	1090		-----		-----
317		-----		-----	1105		-----		-----
323	EN14078	4.0		0.42	1109		-----		-----
333	D7371	3.9		0.11	1121		-----		-----
335	EN14078	3.85		-0.05	1126		-----		-----
336	EN14078	3.6		-0.83	1134	EN14078	4.08		0.67
337	EN14078	3.7		-0.52	1146		-----		-----
338		-----		-----	1159		-----		-----
342	EN14078	3.0877		-2.43	1161	EN14078	3.85		-0.05
343	EN14078	3.87		0.02	1167	EN14078	4.25		1.20
344	EN14078	4.04		0.55	1171	EN14078	4.03		0.52
349		-----		-----	1182		-----		-----
353	EN14078	4.00		0.42	1186		-----		-----
355		-----		-----	1191		-----		-----
356		-----		-----	1201	EN14078	3.59		-0.86
360	EN14078	4.00		0.42	1213		-----		-----
381	EN14078	3.9		0.11	1227		-----		-----
402	EN14078	3.22		-2.02	1229		-----		-----
445	EN14078	4.02		0.48	1251		-----		-----
446		-----		-----	1259	EN14078	3.9		0.11
485	EN14078	3.9		0.11	1299	EN14078	3.8		-0.20
507		-----		-----	1347	EN14078	3.521		-1.08
511	D7371	3.977		0.35	1348	EN14078	3.556		-0.97
529		-----		-----	1356	EN14078	3.97		0.33
541		-----		-----	1357		-----		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385	EN14078	3.54		-1.02
558		-----		-----	1397	EN14078	4.0		0.42
562		-----		-----	1399		-----		-----
603	EN14078	3.97	C	0.33	1409	EN14078	3.9		0.11
604		-----		-----	1412		-----		-----
605		-----		-----	1417		-----		-----
608		-----		-----	1428	EN14078	3.94		0.23
614		-----		-----	1430		3.7		-0.52
634		-----		-----	1441		-----		-----
657	EN14078	3.67	C	-0.61	1460		-----		-----
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539	EN14078	4.0		0.42
751		-----		-----	1575		-----		-----
759		-----		-----	1577		-----		-----
781	EN14078	3.90		0.11	1588		-----		-----
785		-----		-----	1613	EN14078	3.48		-1.20
823	D7371	3.9		0.11	1629		-----		-----
824		-----		-----	1634	EN14078	4.0		0.42

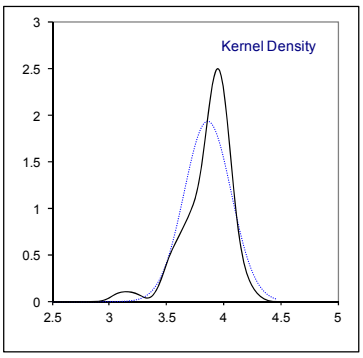
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709	EN14078	3.760		-0.33	1944		-----		-----
1710	EN14078	3.8		-0.20	1948	EN14078	3.74		-0.39
1720		-----		-----	1949		-----		-----
1724	EN14078	3.84		-0.08	1967		-----		-----
1741	EN14078	3.87		0.02	1984	EN14078	3.9245		0.19
1776	EN14078	4.02		0.48	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785	D7371	3.715		-0.47	2129	EN14078	3.798		-0.21
1796		-----		-----	6005		-----		-----
1807	EN14078	4.1		0.73	6012		-----		-----
1810	EN14078	3.9		0.11	6016		-----		-----
1811	D7371	3.94		0.23	6045		-----		-----
1813		-----		-----	6049	EN14078	4.0144		0.47
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854	EN14078	3.67		-0.61	6057	EN14078	3.62		-0.77
1857	EN14078	3.907		0.13	6068		-----		-----
1862	EN14078	3.85		-0.05	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	not OK
n	68
outliers	1
mean (n)	3.865
st.dev. (n)	0.2060
R(calc.)	0.577
R(D7371:14)	0.895

Compare R(EN14078:14; range B) = 0.265

Lab 230 first reported: 5.1845
Lab 603 first reported: 5.15
Lab 657 first reported: 5.00





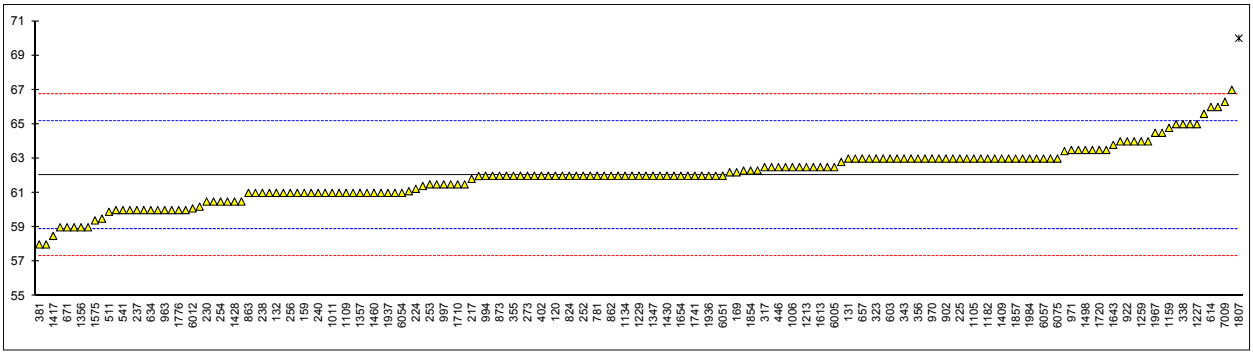
Determination of Flash Point PMcc, on sample #16180; results in °C

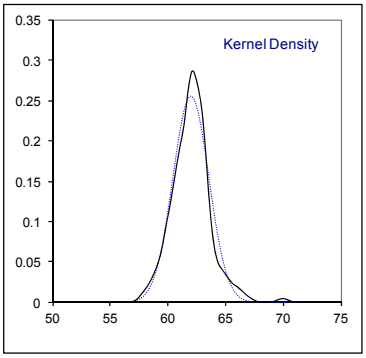
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	61.0		-0.65	825	D93-A	64.0		1.25
53		-----		-----	840	D93-A	63.0		0.62
90	D93-A	60.2		-1.16	854	D93-A	62.0		-0.02
92	D93-A	61.0		-0.65	862	D93-A	62.0		-0.02
120	D93-A	62		-0.02	863	ISO2719-A	61.0		-0.65
131	D93-A	63.0		0.62	873	D93-A	62.0		-0.02
132	D93-A	61.0		-0.65	874	D93-A	63.0		0.62
140	D93-A	62.2		0.11	887	D93-A	63.0		0.62
150	D93-A	61.0		-0.65	902	D93-A	63.0		0.62
159	D93-A	61	C	-0.65	904	D93-A	63.0		0.62
169	D93-A	62.2		0.11	922	D93-A	64.0		1.25
171	D93-B	59.0		-1.92	951	D93-A	62.31		0.18
175	D93-A	62		-0.02	962	D93-A	59.0		-1.92
186	D93-B	60		-1.29	963	D93-A	60.0		-1.29
194		-----		-----	970	D93-A	63.0		0.62
203	D93-A	64		1.25	971	D93-A	63.5		0.94
217	D93-A	61.82		-0.13	974	D93-A	62.5		0.30
221	D93-A	63.0		0.62	994	D93-A	62.0		-0.02
224	D93-A	61.24		-0.50	995	D93-A	61.5		-0.34
225	D93-A	63.0		0.62	996		-----		-----
228	D93-A	62.0		-0.02	997	D93-A	61.5		-0.34
230	ISO2719	60.5		-0.97	998	D93	61.0		-0.65
237	D93-A	60.0		-1.29	1006	D93-C	62.5		0.30
238	D93-A	61.0		-0.65	1011	ISO2719-A	61.0		-0.65
240	D93-A	61.0		-0.65	1016		-----		-----
252	D93-A	62.0		-0.02	1033	IP34-A	62.5		0.30
253	D93-A	61.5		-0.34	1059	ISO2719-A	61.0		-0.65
254	D93-A	60.5		-0.97	1067	D93-A	62.0		-0.02
256	D93-A	61.0		-0.65	1080		-----		-----
258	D93	61.0		-0.65	1081		-----		-----
273	D93-A	62		-0.02	1082		-----		-----
312	D93-A	62.0		-0.02	1090		-----		-----
317	D93-A	62.5		0.30	1105	D93-A	63.0		0.62
323	D93-A	63.0		0.62	1109	D93-A	61.0		-0.65
333	D93-A	63.5		0.94	1121	D93-A	63.0		0.62
335	D93-A	63.0		0.62	1126	D93-A	66		2.53
336	D93-A	63.0		0.62	1134	IP34-A	62.0		-0.02
337		-----		-----	1146	D93-A	61.0		-0.65
338	D93-A	65.0		1.89	1159	D93	64.783		1.75
342	ISO2719-A	61.0		-0.65	1161	ISO2719-A	60.5		-0.97
343	D93-A	63.0		0.62	1167	ISO2719-A	60.0		-1.29
344	D93-A	62.0		-0.02	1171	ISO2719-A	61.98		-0.03
349	D93-A	62		-0.02	1182	D93-A	63		0.62
353	ISO2719-A	65.0		1.89	1186		-----		-----
355	D93-A	62.0		-0.02	1191	ISO2719-A	62.0		-0.02
356	D93-A	63.0		0.62	1201	D93-A	63.0		0.62
360	D93-A	63.0		0.62	1213	D93-A	62.5		0.30
381	ISO2719-A	58.0		-2.56	1227	D93-A	65		1.89
402	ISO2719-A	62.0		-0.02	1229	ISO2719-A	62.0		-0.02
445	D93-A	62.0		-0.02	1251	ISO2719-A	62.0		-0.02
446	D93-A	62.5		0.30	1259	D93-A	64.0		1.25
485	D93-A	62.0		-0.02	1299	D93-A	64.0		1.25
507	D93-A	67.0		3.16	1347	D93-A	62.0		-0.02
511	D93-A	59.9		-1.35	1348	D93-A	62		-0.02
529		-----		-----	1356	ISO2719-A	59		-1.92
541	D93-A	60.0		-1.29	1357	D93-A	61.0		-0.65
556		-----		-----	1379	D93-A	59.5		-1.61
557		-----		-----	1385	D93-A	61		-0.65
558		-----		-----	1397	D93-A	62.5		0.30
562	D93-A	65.6		2.27	1399		-----		-----
603	D93-A	63.0		0.62	1409	ISO2719-B	63.0		0.62
604	D93-A	65.0		1.89	1412	D93-A	61.5		-0.34
605	D93-A	60.0		-1.29	1417	IP34-A	58.5		-2.24
608	D93-A	60.0		-1.29	1428	ISO2719-A	60.5		-0.97
614	D93-A	66		2.53	1430	D93-A	62		-0.02
634	D93-A	60.0		-1.29	1441	D93-A	63.0		0.62
657	D93-A	63.0		0.62	1460	D93	61		-0.65
671	D93-A	59		-1.92	1498	D93-A	63.5		0.94
732	D93-A	60.0		-1.29	1510	D93-A	63.5		0.94
750	D93-A	63.0		0.62	1539	ISO2719-A	62.0		-0.02
751		-----		-----	1575	D93-A	59.4		-1.67
759	D93-A	62.5		0.30	1577	D93-A	58		-2.56
781	D93-A	62.0		-0.02	1588		-----		-----
785	D93-A	60.5		-0.97	1613	D93	62.5		0.30
823	D93-A	62.0		-0.02	1629		61.4		-0.40
824	D93-A	62.0		-0.02	1634	D93-A	62.3		0.17

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D93-A	63.8		1.13	1937	ISO2719-A	61		-0.65
1654	ISO2719-A	62.0		-0.02	1938	ISO2719-A	62		-0.02
1709		-----		-----	1944	D93-A	60.5		-0.97
1710	ISO2719-A	61.5		-0.34	1948	ISO2719-A	63		0.62
1720	D93-A	63.5		0.94	1949	D93-A	63.43		0.89
1724	D93-B	62		-0.02	1967	D93	64.5		1.57
1741	ISO2719-A	62		-0.02	1984	ISO2719-A	63.0		0.62
1776	ISO2719-A	60.0		-1.29	1986	ISO2719-A	61.0		-0.65
1783	D93-A	61.1		-0.59	1995		-----		-----
1785	D93-A	62.8		0.49	2129	D93-A	59.0		-1.92
1796	D93-A	62.5		0.30	6005	ISO2719-A	62.5		0.30
1807	ISO2719-A	70.0	R(0.01)	5.07	6012	D93-A	60.1		-1.23
1810	D93-A	60.0		-1.29	6016	D93-A	63.5		0.94
1811	D93-A	61.5		-0.34	6045	D93-A	63.0		0.62
1813	D93-A	61.0		-0.65	6049	D93-A	64.5		1.57
1846		-----		-----	6051	D93	62.0		-0.02
1849		-----		-----	6054	D93-A	61.0		-0.65
1854	ISO2719-A	62.3		0.17	6057	ISO2719-A	63.0		0.62
1857	D93-A	63.0		0.62	6068	ISO2719-A	63.0		0.62
1862	D93-A	62.0		-0.02	6075	ISO2719-A	63.0		0.62
1906		-----		-----	7009	D93-A	66.3		2.72
1936	ISO2719-A	62.0		-0.02					

normality	OK
n	172
outliers	1
mean (n)	62.027
st.dev. (n)	1.5586
R(calc.)	4.364
R(D93-A:16)	4.404

Lab 159 first reported: 67





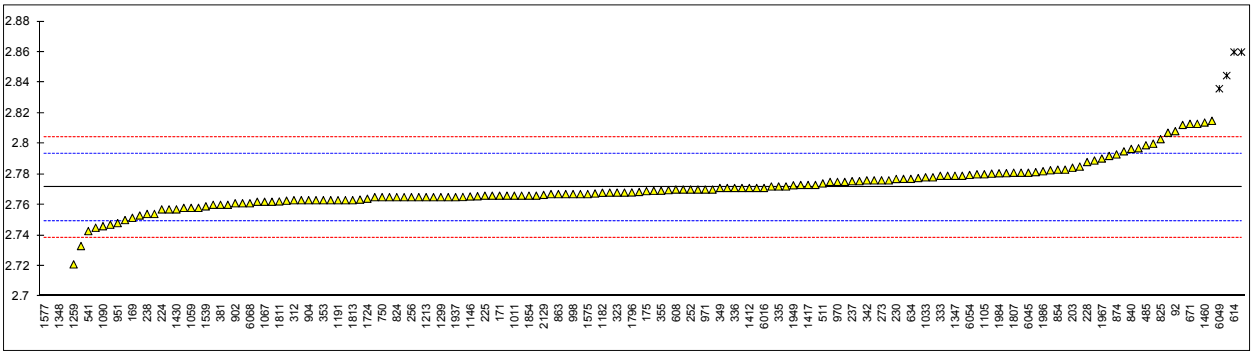
Determination of Kinematic Viscosity at 40°C, on sample #16180; results in mm^2/s

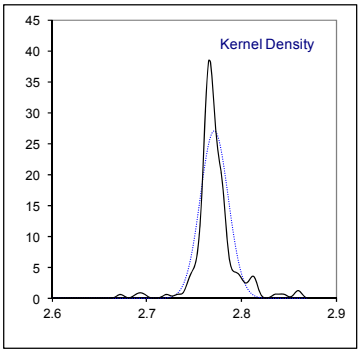
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.763		-0.76	825	D445	2.803		2.86
53		-----		-----	840	D445	2.7966		2.28
90	D445	2.7775		0.56	854	D445	2.783		1.05
92	D445	2.8082		3.33	862	D445	2.763		-0.76
120	D445	2.770		-0.12	863	ISO3104	2.767		-0.40
131	D445	2.767		-0.40	873	D445	2.776		0.42
132	D445	2.775		0.33	874	D445	2.793		1.96
140	D445	2.815		3.95	887	D445	2.777		0.51
150	D445	2.758	C	-1.21	902	D445	2.761		-0.94
159	D445	2.779		0.69	904	D445	2.763		-0.76
169	D445	2.7515		-1.80	922	D445	2.762		-0.85
171	D445	2.766		-0.49	951	D445	2.7480		-2.12
175	D445	2.769		-0.21	962		-----		-----
186		-----		-----	963	D445	2.770		-0.12
194		-----		-----	970	D445	2.775		0.33
203	D445	2.7843		1.17	971	D445	2.770		-0.12
217	D445	2.7684	C	-0.27	974	D445	2.780		0.78
221	D445	2.765		-0.58	994	D445	2.766		-0.49
224	D445	2.757		-1.30	995	D445	2.767		-0.40
225	D445	2.766		-0.49	996		-----		-----
228	D445	2.788		1.51	997	D445	2.770		-0.12
230	ISO3104	2.7769		0.50	998	D445	2.767		-0.40
237	D445	2.775459		0.37	1006	D445	2.765		-0.58
238	D445	2.754		-1.57	1011	ISO3104	2.766		-0.49
240	D445	2.7755		0.37	1016		-----		-----
252	D445	2.770		-0.12	1033	IP71	2.778		0.60
253	D445	2.760		-1.03	1059	ISO3104	2.758		-1.21
254	D445	2.775		0.33	1067	D445	2.762		-0.85
256	D445	2.765		-0.58	1080	D7042	2.7807		0.84
258	D445	2.800		2.59	1081		-----		-----
273	D445	2.776		0.42	1082		-----		-----
312	D445	2.763		-0.76	1090	ISO3104	2.746		-2.30
317	D445	2.768		-0.30	1105	D445	2.780		0.78
323	D445	2.768		-0.30	1109	D445	2.7634		-0.72
333	D445	2.779		0.69	1121	D445	2.785	C	1.23
335	ISO3104	2.772		0.06	1126		-----		-----
336	D445	2.771		-0.03	1134	IP71	2.733		-3.47
337	D445	2.772		0.06	1146	D445	2.76547		-0.53
338		-----		-----	1159	D445	2.8123		3.71
342	ISO3104	2.776		0.42	1161	ISO3104	2.757		-1.30
343	D445	2.7674		-0.36	1167	ISO3104	2.763		-0.76
344		----		-----	1171	ISO3104	2.6964	R(0.01)	-6.79
349	D445	2.771		-0.03	1182	D7042	2.7679		-0.31
353	IP71	2.763		-0.76	1186		-----		-----
355	D445	2.769235		-0.19	1191	D445	2.763		-0.76
356	D445	2.765		-0.58	1201	D445	2.766		-0.49
360	D445	2.7804		0.82	1213	D445	2.765		-0.58
381	ISO3104	2.760		-1.03	1227	D445	2.7650		-0.58
402	D445	2.7650		-0.58	1229	ISO3104	2.761		-0.94
445	D445	2.771		-0.03	1251	ISO3104	2.763		-0.76
446		-----		-----	1259	D445	2.721		-4.56
485	D445	2.7990		2.50	1299	D445	2.765		-0.58
507	D445	2.6722	R(0.01)	-8.98	1347	D445	2.779		0.69
511	D445	2.774		0.24	1348	D445	2.69	R(0.01)	-7.37
529		-----		-----	1356	ISO3104	2.773		0.15
541	D445	2.7428		-2.59	1357	D445	2.771		-0.03
556		-----		-----	1379	D445	2.754		-1.57
557		-----		-----	1385	D445	2.745		-2.39
558		-----		-----	1397		-----		-----
562	D445	2.797		2.32	1399		-----		-----
603		-----		-----	1409		-----		-----
604	D445	2.7814	C	0.91	1412	D445	2.771		-0.03
605	D445	2.795		2.14	1417	IP71	2.773		0.15
608	D445	2.770		-0.12	1428	ISO3104	2.760		-1.03
614	D445	2.86	R(0.01)	8.02	1430	D445	2.757		-1.30
634	D445	2.777	C	0.51	1441	D445	2.765		-0.58
657	D445	2.783	C	1.05	1460	D445	2.81386		3.85
671	D445	2.813	C	3.77	1498	D445	2.767		-0.40
732	D445	2.789		1.60	1510	D445	2.768		-0.30
750	D445	2.765		-0.58	1539	ISO3104	2.759		-1.12
751	D445	2.7826		1.02	1575	D445	2.767		-0.40
759	D445	2.7692		-0.20	1577	D445	2.44	R(0.01)	-30.00
781	D445	2.776		0.42	1588		-----		-----
785	D445	2.750		-1.93	1613	D445	2.8446	R(0.01)	6.63
823	D445	2.766		-0.49	1629		-----		-----
824	D445	2.765		-0.58	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D445	2.762		-0.85	1937	ISO3104	2.765		-0.58
1654	ISO3104	2.7651		-0.57	1938	ISO3104	2.7627		-0.78
1709		-----		-----	1944	D445	2.8072		3.24
1710	ISO3104	2.771		-0.03	1948	ISO3104	2.7656		-0.52
1720	D7042	2.747		-2.21	1949	D445	2.7728		0.13
1724	D445	2.764		-0.67	1967	D445	2.7903		1.71
1741	ISO3104	2.860	R(0.01)	8.02	1984	ISO3104	2.78066		0.84
1776	ISO3104	2.7696		-0.16	1986	ISO3104	2.782		0.96
1783		-----		-----	1995		-----		-----
1785	D445	2.7720		0.06	2129	D445	2.7665		-0.44
1796	D445	2.7681		-0.30	6005	ISO3104	2.753		-1.66
1807	ISO3104	2.781		0.87	6012	ISO3104	2.792		1.87
1810	D445	2.758		-1.21	6016	D7042	2.7710		-0.03
1811	D445	2.7622		-0.83	6045	D445	2.781		0.87
1813	D445	2.763		-0.76	6049	D445	2.836	R(0.01)	5.85
1846		-----		-----	6051	D445	2.778		0.60
1849		-----		-----	6054	D445	2.77955		0.74
1854	ISO3104	2.766		-0.49	6057	ISO3104	2.813		3.77
1857	D445	2.781		0.87	6068	ISO3104	2.761		-0.94
1862	D445	2.773		0.15	6075	ISO3104	2.779		0.69
1906		-----		-----	7009		-----		-----
1936	ISO3104	2.766		-0.49					

normality	not OK
n	156
outliers	8
mean (n)	2.7714
st.dev. (n)	0.01469
R(calc.)	0.0411
R(D445:15a)	0.0309

Lab 150 first reported:1.758
Lab 217 first reported: 2.7239
Lab 604 first reported: 2.81375
Lab 634 first reported: 2.870
Lab 657 first reported: 2.730
Lab 671 first reported: 2.910
Lab 1121 first reported: 2.807





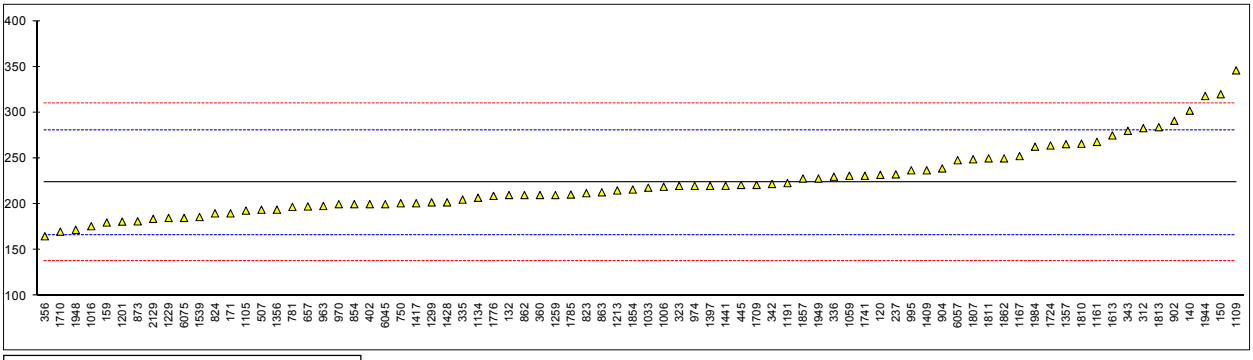
Determination of Lubricity by HFRR at 60°C on sample #16180; results in µm

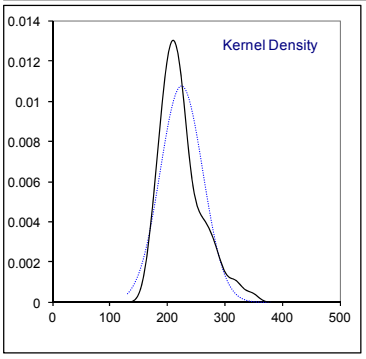
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
90		-----		-----	854	D6079	200		-0.83
92		-----		-----	862	D6079	210		-0.48
120	D6079	232		0.29	863	ISO12156-1	213		-0.38
131		-----		-----	873	D6079	181.3		-1.49
132	D6079	210		-0.48	874		-----		-----
140	D6079	302		2.74	887		-----		-----
150	D6079	320	C	3.37	902	ISO12156-1	291		2.35
159	D6079	180		-1.53	904	ISO12156-1	239		0.53
169		-----		-----	922		-----		-----
171	D6079	190		-1.18	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D6079	198		-0.90
194		-----		-----	970	D6079	200		-0.83
203		-----		-----	971		-----		-----
217		-----		-----	974	D6079	220		-0.13
221		-----		-----	994		-----		-----
224		-----		-----	995	D6079	237		0.46
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230		-----		-----	998		-----		-----
237	D6079	232.5		0.30	1006	D6079	219		-0.17
238		-----		-----	1011		-----		-----
240		-----		-----	1016	ISO12156-1	176		-1.67
252		-----		-----	1033	ISO12156-1	218		-0.20
253		-----		-----	1059	ISO12156-1	231		0.25
254		-----		-----	1067		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312	ISO12156-1	283	C	2.07	1090		-----		-----
317		-----		-----	1105	D6079	193.0		-1.08
323	ISO12156-1	220		-0.13	1109	IP450	346		4.28
333		-----		-----	1121		-----		-----
335	ISO12156-1	205		-0.66	1126		-----		-----
336	ISO12156-1	230		0.22	1134	ISO12156-1	207		-0.59
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342	D6079	222		-0.06	1161	ISO12156-1	268		1.55
343	ISO12156-1	280		1.97	1167	ISO12156-1	252.5		1.00
344		----		-----	1171		-----		-----
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191	ISO12156-1	223		-0.03
356	D6079	165		-2.06	1201	ISO12156-1	181		-1.50
360	ISO12156-1	210		-0.48	1213	D6079	215		-0.31
381		-----		-----	1227		-----		-----
402	ISO12156-1	200		-0.83	1229	ISO12156-1	185		-1.36
445	ISO12156-1	221		-0.10	1251		-----		-----
446		-----		-----	1259	ISO12156-1	210		-0.48
485		-----		-----	1299	ISO12156-1	202		-0.76
507	D6079	194.0		-1.04	1347		-----		-----
511		-----		-----	1348		-----		-----
529		-----		-----	1356	ISO12156-1	194		-1.04
541		-----		-----	1357	D6079	265.5		1.46
556		-----		-----	1379		-----		-----
557		-----		-----	1385		-----		-----
558		-----		-----	1397	ISO12156-1	220		-0.13
562		-----		-----	1399		-----		-----
603		-----		-----	1409	ISO12156-1	237		0.46
604		-----		-----	1412		-----		-----
605		-----		-----	1417	CECF06A96	201		-0.80
608		-----		-----	1428	ISO12156-1	202		-0.76
614		-----		-----	1430		-----		-----
634		-----		-----	1441	D6079	220		-0.13
657	D6079	197.5		-0.92	1460		-----		-----
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750	ISO12156-1	201		-0.80	1539	ISO12156-1	186		-1.32
751		-----		-----	1575		-----		-----
759		-----		-----	1577		-----		-----
781	D6079	197		-0.94	1588		-----		-----
785		-----		-----	1613	D6079	275		1.79
823	D6079	212		-0.41	1629		-----		-----
824	D6079	190		-1.18	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709	D6079	221		-0.10	1944	ISO12156-1	318		3.30
1710	ISO12156-1	170		-1.88	1948	ISO12156-1	172		-1.81
1720		-----		-----	1949	ISO12156-1	228		0.15
1724	IP450	264		1.41	1967		-----		-----
1741	ISO12156-1	231		0.25	1984	ISO12156-1	262.6915		1.36
1776	ISO12156-1	209		-0.52	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785	D6079	210.5		-0.47	2129	D6079	184		-1.39
1796		-----		-----	6005		-----		-----
1807	ISO12156-1	249		0.88	6012		-----		-----
1810	D6079	266		1.48	6016		-----		-----
1811	D6079	250		0.92	6045	D6079	200		-0.83
1813	IP450	284		2.11	6049		-----		-----
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854	ISO12156-1	216		-0.27	6057	ISO12156-1	248		0.85
1857	D6079	228		0.15	6068		-----		-----
1862	ISO12156-1	250		0.92	6075	ISO12156-1	185		-1.36
1906		-----		-----	7009		-----		-----
1936		-----		-----					

				Only D6079	Only ISO12156/IP450
	normality	not OK		not OK	OK
	n	78		34	43
	outliers	0		0	0
	mean (n)	223.8		218.7	228.3
	st.dev. (n)	37.12		34.45	39.23
	R(calc.)	103.9		96.5	109.9
	R(D6079:11)	80.0	R(ISO12156-1:16)	80.0	80.0 (Digital Camara) 90.0 (Visual)

Lab 150 first reported: 330
Lab 312 first reported: 306





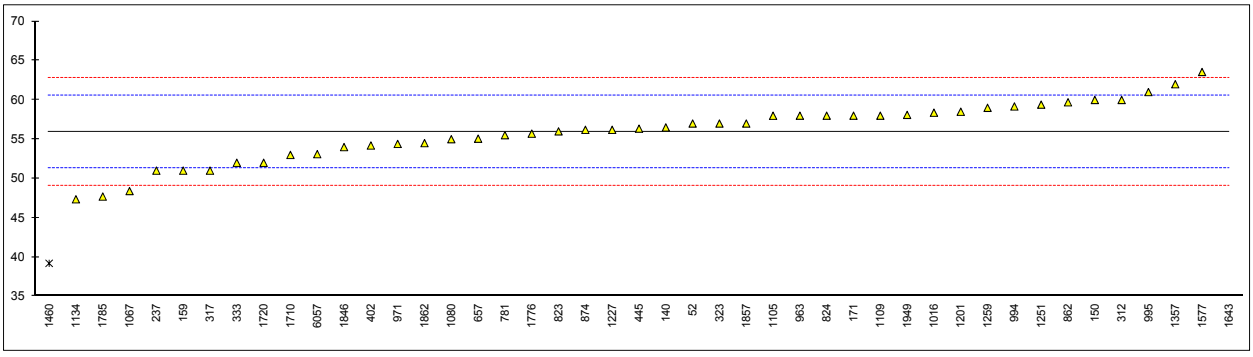
Determination of Nitrogen on sample #16180; results in mg/kg

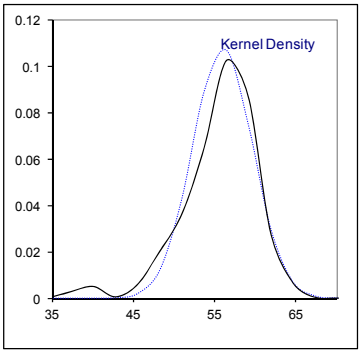
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	57		0.46	825		-----		-----
53		-----		-----	840		-----		-----
90		-----		-----	854		-----		-----
92		-----		-----	862	D4629	59.7		1.63
120		-----		-----	863		-----		-----
131		-----		-----	873		-----		-----
132		-----		-----	874	D4629	56.20		0.11
140	D4629	56.5		0.24	887		-----		-----
150	D4629	60		1.76	902		-----		-----
159	D4629	51		-2.16	904		-----		-----
169		-----		-----	922		-----		-----
171	D4629	58		0.89	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D4629	58		0.89
194		-----		-----	970		-----		-----
203		-----		-----	971	D4629	54.4		-0.68
217		-----		-----	974		-----		-----
221		-----		-----	994	D4629	59.17		1.40
224		-----		-----	995		61		2.20
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230		-----		-----	998		-----		-----
237	D4629	51.0		-2.16	1006		-----		-----
238		-----		-----	1011		-----		-----
240		-----		-----	1016	D4629	58.38		1.06
252		-----		-----	1033		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1067	D4629	48.4		-3.29
256		-----		-----	1080	D4629	55		-0.42
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312	D4629	60	C	1.76	1090		-----		-----
317	D4629	51		-2.16	1105	D4629	57.99		0.89
323	D4629	57		0.46	1109	D4629	58		0.89
333	D4629	52		-1.72	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1134	D4629	47.35		-3.75
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342		-----		-----	1161		-----		-----
343		-----		-----	1167		-----		-----
344		----		-----	1171		-----		-----
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356		-----		-----	1201	D4629	58.5		1.11
360		-----		-----	1213		-----		-----
381		-----		-----	1227	D4629	56.2		0.11
402	D4629	54.2	C	-0.76	1229		-----		-----
445	D5762	56.35		0.17	1251	D4629	59.4		1.50
446		-----		-----	1259	D5762	59		1.33
485		-----		-----	1299		-----		-----
507		-----		-----	1347		-----		-----
511		-----		-----	1348		-----		-----
529		-----		-----	1356		-----		-----
541		-----		-----	1357	D4629	62.0		2.63
556		-----		-----	1379		-----		-----
557		-----		-----	1385		-----		-----
558		-----		-----	1397		-----		-----
562		-----		-----	1399		-----		-----
603		-----		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605		-----		-----	1417		-----		-----
608		-----		-----	1428		-----		-----
614		-----		-----	1430		-----		-----
634		-----		-----	1441		-----		-----
657	D4629	55.07		-0.38	1460	D4629	39.2	R(0.01)	-7.30
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539		-----		-----
751		-----		-----	1575		-----		-----
759		-----		-----	1577	D4629	63.56		3.31
781	D4629	55.51		-0.19	1588		-----		-----
785		-----		-----	1613		-----		-----
823	D4629	56		0.02	1629		-----		-----
824	D4629	58		0.89	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D5291	725	R(0.01)	291.40	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944		-----		-----
1710	MSZ11794	53		-1.29	1948		-----		-----
1720	D4629	52.0		-1.72	1949	D4629	58.1		0.94
1724		-----		-----	1967		-----		-----
1741		-----		-----	1984		-----		-----
1776	ISO3734	55.71		-0.11	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785	D4629	47.7		-3.59	2129		-----		-----
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012		-----		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045		-----		-----
1813		-----		-----	6049		-----		-----
1846	D4629	54		-0.85	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854		-----		-----	6057	D4629	53.1		-1.24
1857	D4629	57		0.46	6068		-----		-----
1862	D4629	54.5		-0.63	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	OK
n	43
outliers	2
mean (n)	55.95
st.dev. (n)	3.698
R(calc.)	10.35
R(D4629:12)	6.43

Lab 312 first reported: 71
Lab 402 first reported: 5.42





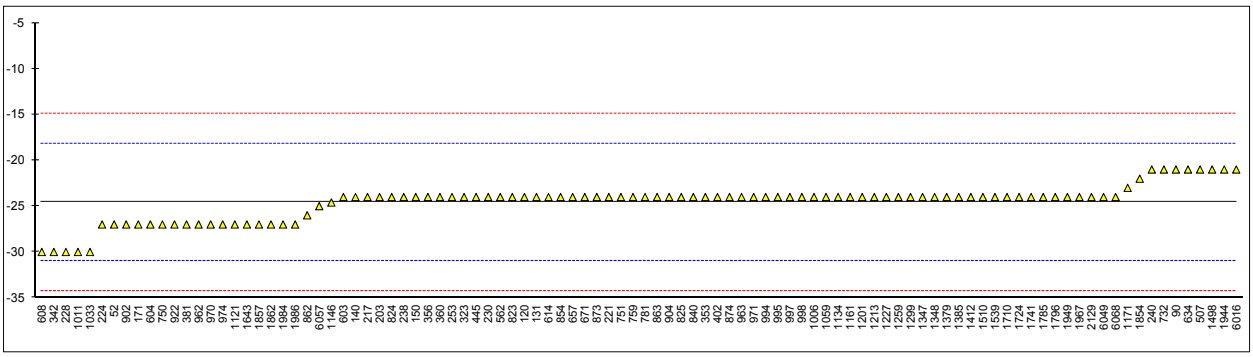
Determination of Pour Point, Manual on sample #16180; results in °C

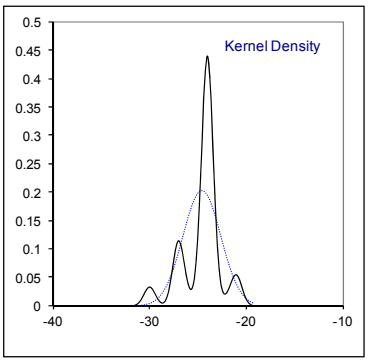
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	-27		-0.75	825	D97	-24		0.18
53		-----		-----	840	D97	-24		0.18
90	D97	-21		1.11	854	D97	-24		0.18
92		-----		-----	862	D97	-26		-0.44
120	D97	-24		0.18	863	ISO3016	-24		0.18
131	D97	-24		0.18	873	D97	-24		0.18
132	D97	<-27		-----	874	D97	-24		0.18
140	D97	-24		0.18	887		-----		-----
150	D97	-24		0.18	902	D97	-27		-0.75
159		-----		-----	904	D97	-24		0.18
169	D97	<-30		-----	922	D97	-27		-0.75
171	D97	-27		-0.75	951	D97	< - 21		-----
175		-----		-----	962	D97	-27		-0.75
186		-----		-----	963	D97	-24		0.18
194		-----		-----	970	D97	-27		-0.75
203	D97	-24		0.18	971	D97	-24		0.18
217	D97	-24		0.18	974	D97	-27		-0.75
221	D97	-24		0.18	994	D97	-24		0.18
224	D97	-27.0		-0.75	995	D97	-24		0.18
225		-----		-----	996		-----		-----
228	D97	-30		-1.69	997	D97	-24		0.18
230	ISO3016	-24		0.18	998	D97	-24.0		0.18
237	D97	<-24		-----	1006	D97	-24		0.18
238	D97	-24		0.18	1011	D97	-30		-1.69
240	D97	-21		1.11	1016		-----		-----
252		-----		-----	1033	IP15	-30		-1.69
253	D97	-24		0.18	1059	ISO3016	-24		0.18
254	D97	<-21		-----	1067		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317		-----		-----	1105		-----		-----
323	D97	-24		0.18	1109		-----		-----
333		-----		-----	1121	D97	-27		-0.75
335		-----		-----	1126		-----		-----
336		-----		-----	1134	IP15	-24		0.18
337		-----		-----	1146	ISO3016	-24.6		-0.01
338		-----		-----	1159		-----		-----
342	ISO3016	-30		-1.69	1161	ISO3016	-24		0.18
343		-----		-----	1167		-----		-----
344		----		-----	1171	ISO3016	-23.0		0.49
349		-----		-----	1182		-----		-----
353	IP15	-24		0.18	1186		-----		-----
355		-----		-----	1191		-----		-----
356	D97	-24		0.18	1201	D97	-24		0.18
360	D97	-24		0.18	1213	D97	-24		0.18
381	ISO3016	-27		-0.75	1227	D97	-24		0.18
402	D97	-24		0.18	1229		-----		-----
445	D97	-24		0.18	1251		-----		-----
446		-----		-----	1259	D97	-24		0.18
485		-----		-----	1299	D97	-24		0.18
507	D97	-21		1.11	1347	D97	-24		0.18
511		-----		-----	1348	D97	-24		0.18
529		-----		-----	1356		-----		-----
541		-----		-----	1357		-----		-----
556		-----		-----	1379	D97	-24		0.18
557		-----		-----	1385	D97	-24		0.18
558		-----		-----	1397		-----		-----
562	D97	-24		0.18	1399		-----		-----
603	D97	-24		0.18	1409		-----		-----
604	D97	-27		-0.75	1412	D97	-24		0.18
605		-----		-----	1417		-----		-----
608	D97	-30		-1.69	1428		-----		-----
614	D97	-24		0.18	1430		-----		-----
634	D97	-21		1.11	1441		-----		-----
657	D97	-24		0.18	1460		-----		-----
671	D97	-24	C	0.18	1498	D97	-21		1.11
732	D97	-21		1.11	1510	D97	-24		0.18
750	D97	-27		-0.75	1539	ISO3016	-24		0.18
751	D97	-24		0.18	1575		-----		-----
759	D97	-24		0.18	1577		-----		-----
781	D97	-24		0.18	1588		-----		-----
785		-----		-----	1613	D97	<-24		-----
823	D97	-24		0.18	1629		-----		-----
824	D97	-24		0.18	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	D97	-27		-0.75	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944	IP15	-21		1.11
1710	ISO3016	-24		0.18	1948		-----		-----
1720		-----		-----	1949	D97	-24.0		0.18
1724	D97	-24		0.18	1967		-24		0.18
1741	ISO3016	-24		0.18	1984	ISO3016	-27		-0.75
1776		-----		-----	1986	ISO3016	-27		-0.75
1783		-----		-----	1995		-----		-----
1785	D97	-24.0		0.18	2129	D97	-24		0.18
1796	D97	-24		0.18	6005		-----		-----
1807		-----		-----	6012		-----		-----
1810		-----		-----	6016	D97	-21		1.11
1811		-----		-----	6045		-----		-----
1813		-----		-----	6049	D97	-24		0.18
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854	ISO3016	-22		0.80	6057	ISO3016	-25		-0.13
1857	D97	-27		-0.75	6068	ISO3016	-24.0		0.18
1862	D97	-27		-0.75	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	suspect
n	100
outliers	0
mean (n)	-24.58
st.dev. (n)	1.965
R(calc.)	5.50
R(D97:16)	9.00

Lab 671 first reported: 30



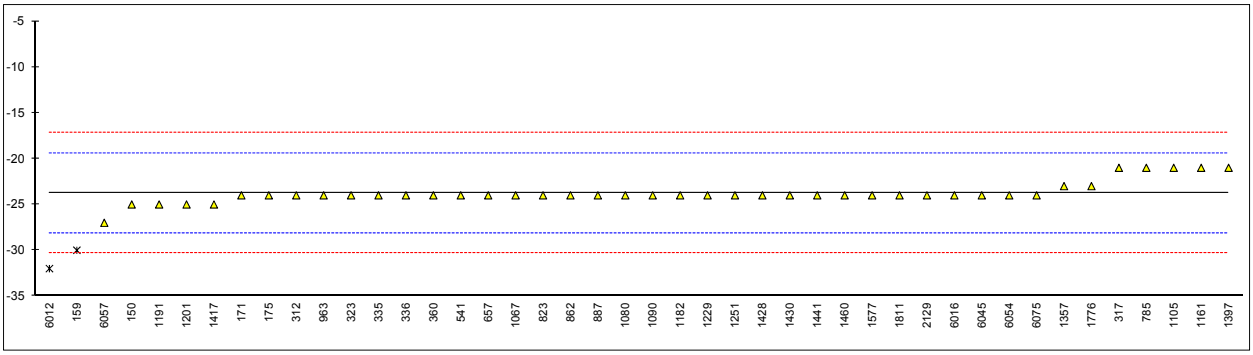


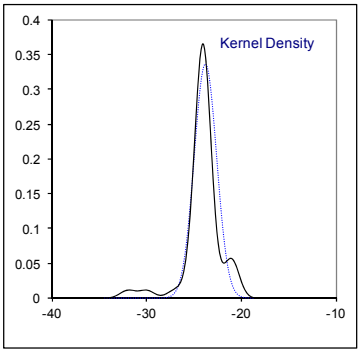
Determination of Pour Point, Automated, 3°C interval on sample #16180; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
90		-----		-----	854		-----		-----
92		-----		-----	862	D5950	-24		-0.11
120		-----		-----	863		-----		-----
131		-----		-----	873		-----		-----
132		-----		-----	874		-----		-----
140		-----		-----	887	D6749	-24.0		-0.11
150	D5950	-25		-0.57	902		-----		-----
159	D5950	-30	R(0.01)	-2.86	904		-----		-----
169		-----		-----	922		-----		-----
171	D5950	-24		-0.11	951		-----		-----
175	D5950	-24		-0.11	962		-----		-----
186		-----		-----	963	D5950	-24		-0.11
194		-----		-----	970		-----		-----
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	994		-----		-----
224		-----		-----	995		-----		-----
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230		-----		-----	998		-----		-----
237		-----		-----	1006		-----		-----
238		-----		-----	1011		-----		-----
240		-----		-----	1016		-----		-----
252		-----		-----	1033		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1067	D5950	-24		-0.11
256		-----		-----	1080	D6749	-24		-0.11
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312	D5950	-24		-0.11	1090	D6892	-24		-0.11
317	D6749	-21		1.27	1105	D5950	-21.0		1.27
323	D5950	-24		-0.11	1109		-----		-----
333		-----		-----	1121		-----		-----
335	D5950	-24.0		-0.11	1126		-----		-----
336	D5950	-24		-0.11	1134		-----		-----
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342		-----		-----	1161	D6749	-21		1.27
343		-----		-----	1167		-----		-----
344		-----		-----	1171		-----		-----
349		-----		-----	1182	D5949	-24		-0.11
353		-----		-----	1186		-----		-----
355		-----		-----	1191	D5950	-25		-0.57
356		-----		-----	1201	D5950	-25		-0.57
360	D5950	-24		-0.11	1213		-----		-----
381		-----		-----	1227		-----		-----
402		-----		-----	1229	D5950	-24		-0.11
445		-----		-----	1251	D5950	-24		-0.11
446		-----		-----	1259		-----		-----
485		-----		-----	1299		-----		-----
507		-----		-----	1347		-----		-----
511		-----		-----	1348		-----		-----
529		-----		-----	1356		-----		-----
541	D5950	-24		-0.11	1357	D6749	-23.0		0.35
556		-----		-----	1379		-----		-----
557		-----		-----	1385		-----		-----
558		-----		-----	1397	D5950	-21		1.27
562		-----		-----	1399		-----		-----
603		-----		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605		-----		-----	1417	D5950	-25		-0.57
608		-----		-----	1428	D5950	-24		-0.11
614		-----		-----	1430	D5950	-24		-0.11
634		-----		-----	1441	D5950	-24		-0.11
657	D5950	-24		-0.11	1460	D5949	-24.0		-0.11
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539		-----		-----
751		-----		-----	1575		-----		-----
759		-----		-----	1577	D6892	-24		-0.11
781		-----		-----	1588		-----		-----
785	D6749	-21.0		1.27	1613		-----		-----
823	D5950	-24		-0.11	1629		-----		-----
824		-----		-----	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944		-----		-----
1710		-----		-----	1948		-----		-----
1720		-----		-----	1949		-----		-----
1724		-----		-----	1967		-----		-----
1741		-----		-----	1984		-----		-----
1776	D5950	-23		0.35	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785		-----		-----	2129	D5950	-24		-0.11
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012	D5950	-32	R(0.01)	-3.78
1810		-----		-----	6016	D5950	-24		-0.11
1811	D5950	-24		-0.11	6045	D5950	-24		-0.11
1813		-----		-----	6049		-----		-----
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054	D5950	-24		-0.11
1854		-----		-----	6057	D5950	-27		-1.49
1857		-----		-----	6068		-----		-----
1862		-----		-----	6075		-24		-0.11
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	not OK
n	42
outliers	2
mean (n)	-23.76
st.dev. (n)	1.185
R(calc.)	3.32
R(D5950:14)	6.10





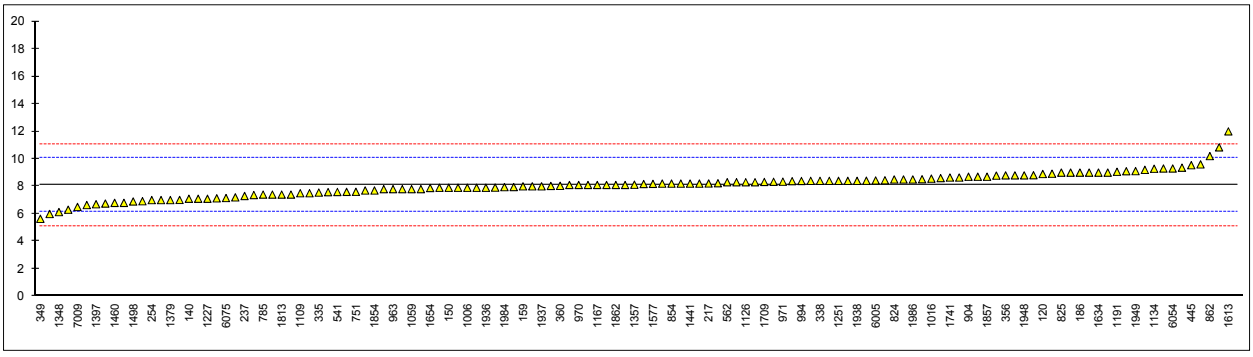
Determination of Sulphur Content on sample #16180; results in mg/kg

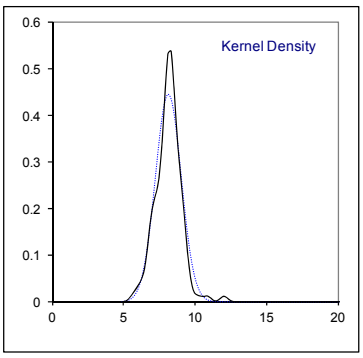
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	7.9		-0.20	825	D5453	9.0		0.90
53		-----		-----	840	D4294	<15		-----
90		-----		-----	854	D5453	8.2		0.10
92	D5453	7.95		-0.15	862	D5453	10.2		2.11
120	D5453	8.9		0.80	863	D5453	9.0		0.90
131		-----		-----	873	ISO20846	8.52		0.42
132	D7039	6.3		-1.81	874	D2622	8.2		0.10
140	D5453	7.1		-1.01	887		-----		-----
150	D5453	7.9		-0.20	902	ISO20846	9.3		1.21
159	D5453	8.0		-0.10	904	D5453	8.7		0.60
169		-----		-----	922	D5453	7.8		-0.30
171	D5453	7.6		-0.50	951	D4294	<17		-----
175	D5453	8.4		0.30	962		-----		-----
186	D4294	9		0.90	963	D5453	7.8		-0.30
194		-----		-----	970	D5453	8.1		0.00
203		-----		-----	971	D5453	8.34		0.24
217	D5453	8.21		0.11	974		-----		-----
221		-----		-----	994	D5453	8.39		0.29
224	D4294	8.6		0.50	995	D5453	8.1		0.00
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230	D4294	<17		-----	998		-----		-----
237	D5453	7.3		-0.81	1006	D5453	7.9		-0.20
238		-----		-----	1011	ISO20846	9.2		1.10
240		-----		-----	1016	ISO20846	8.56		0.46
252		-----		-----	1033		-----		-----
253		-----		-----	1059	ISO20846	7.8		-0.30
254	D4294	7		-1.11	1067	D5453	8.4		0.30
256	D4294	<17		-----	1080	D5453	7.7		-0.40
258	D5453	7.13		-0.98	1081		-----		-----
273	D5453	8.1		0.00	1082		-----		-----
312	D5453	7.9		-0.20	1090		-----		-----
317	D5453	8.7		0.60	1105	D5453	7.01		-1.10
323	D5453	7.8		-0.30	1109	D7039	7.5		-0.61
333	D5453	8.8		0.70	1121		-----		-----
335	ISO20846	7.55		-0.55	1126	ISO20846	8.3		0.20
336	ISO20846	8.0		-0.10	1134	D5453	9.28		1.19
337	D5453	9.6		1.51	1146		-----		-----
338	D5453	8.4		0.30	1159		-----		-----
342		-----		-----	1161	ISO20846	9.0		0.90
343		-----		-----	1167	ISO20846	8.1		0.00
344	D5453	8.334		0.23	1171	ISO20846	8.23		0.13
349	D2622	5.64		-2.48	1182	ISO20846	10.835		2.75
353	IP600	7.1		-1.01	1186	D5453	6.92		-1.19
355	D2622	6.75		-1.36	1191	ISO20846	9.06		0.96
356	ISO20846	8.8		0.70	1201	D5453	8.81		0.71
360	D5453	8.04		-0.06	1213	D5453	7.37		-0.74
381	D5453	8.3		0.20	1227	D5453	7.1		-1.01
402	D5453	8.92		0.82	1229	ISO20846	9.1		1.00
445	D5453	9.54		1.45	1251	ISO20846	8.4		0.30
446		-----		-----	1259	D5453	7.5		-0.61
485	D5453	8.38		0.28	1299	ISO20884	7.0		-1.11
507		-----		-----	1347	D5453	5.99		-2.12
511		-----		-----	1348	D5453	6.13		-1.98
529		-----		-----	1356	ISO8754	<300		-----
541	D5453	7.59		-0.51	1357	D5453	8.12		0.02
556		-----		-----	1379	D4294	7		-1.11
557		-----		-----	1385		-----		-----
558		-----		-----	1397	D5453	6.7		-1.41
562	D5453	8.3		0.20	1399		-----		-----
603		-----		-----	1409	ISO20846	8.1		0.00
604		-----		-----	1412	D5453	8.2		0.10
605		-----		-----	1417	INH-183	62.5	R(0.01)	54.72
608		-----		-----	1428	ISO20846	7.8		-0.30
614		-----		-----	1430		-----		-----
634		-----		-----	1441	D7039	8.2		0.10
657	D5453	9.36		1.27	1460	D5453	6.8	C	-1.31
671	D5453	7.91		-0.19	1498	D5453	6.9		-1.21
732	D4294	less 17		-----	1510		-----		-----
750	ISO20884	7.4		-0.71	1539	ISO20846	8.3		0.20
751	D2622	7.60355		-0.50	1575	D4294	<10		-----
759		-----		-----	1577	D5453	8.18		0.08
781	D5453	8.17		0.07	1588		-----		-----
785	ISO20884	7.4		-0.71	1613	D4294	12		3.92
823	D5453	8.5		0.40	1629		-----		-----
824	D5453	8.5		0.40	1634	ISO20846	9.0		0.90

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937	ISO20846	8.0		-0.10
1654	ISO20846	7.88		-0.22	1938	ISO20846	8.4		0.30
1709	D5453	8.32		0.22	1944	D5453	8.64		0.54
1710	ISO20846	8.4		0.30	1948	ISO20846	8.80		0.70
1720	D5453	9.0		0.90	1949	D5453	9.11		1.01
1724	D5453	7.9		-0.20	1967		-----		-----
1741	D5453	8.64		0.54	1984	ISO20846	7.94585		-0.16
1776	ISO20846	8.03		-0.07	1986	D4294	8.5		0.40
1783		-----		-----	1995		-----		-----
1785	D5453	7.58		-0.52	2129	D5453	7.40		-0.71
1796		-----		-----	6005	ISO20846	8.429		0.33
1807		-----		-----	6012	ISO20846	6.64		-1.47
1810	D5453	8.2		0.10	6016	D5453	6.8		-1.31
1811	D5453	8.41		0.31	6045	D5453	8.1		0.00
1813	D2622	7.4		-0.71	6049	ISO20846	8.78		0.68
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054	D4294	9.3		1.21
1854	ISO20846	7.7		-0.40	6057	ISO20846	8.44		0.34
1857	ISO20846	8.7		0.60	6068	ISO20884	7.2		-0.91
1862	ISO20846	8.1		0.00	6075	ISO20846	7.15		-0.96
1906		-----		-----	7009	D5453	6.50		-1.61
1936	ISO20846	7.9		-0.20					

normality	not OK
n	129
outliers	1
mean (n)	8.102
st.dev. (n)	0.8988
R(calc.)	2.517
R(D5453:16e1)	2.784

Lab 1460 first reported: 40.3





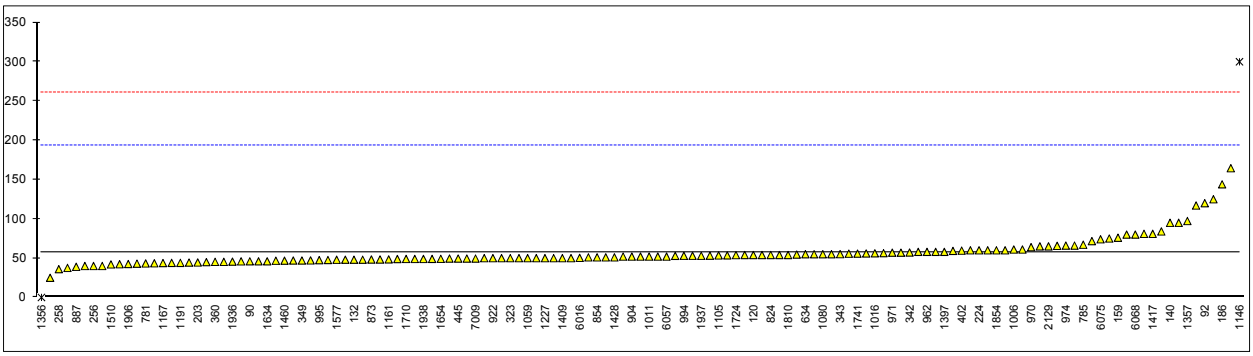
Determination of Water Content by KF on sample #16180; results in mg/kg

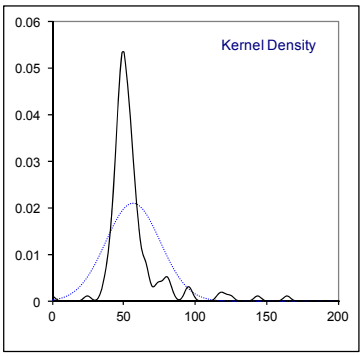
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304-A	52		-0.07	825	D6304-A	55.7		-0.02
53		-----		-----	840	D6304-A	49.5		-0.11
90	D6304-A	46		-0.16	854	D6304-A	51		-0.09
92	E203	120		0.93	862	D6304-A	50		-0.10
120	D6304-A	54		-0.04	863	ISO12937	52.0		-0.07
131		-----		-----	873	ISO12937	48.3		-0.13
132	D6304-A	48		-0.13	874	D6304-A	46		-0.16
140	D6304-A	95.0		0.56	887	D6304-A	39		-0.26
150	D6304-A	44		-0.19	902	D6304-A	58		0.02
159	D6304-A	76		0.28	904	ISO12937	52		-0.07
169	D6304-A	54		-0.04	922	D6304-A	50		-0.10
171	D6304-A	84		0.40	951		-----		-----
175		-----		-----	962	D6304-A	58		0.02
186	D4928	144		1.28	963	D6304-A	55		-0.03
194		-----		-----	970	D6304-A	64		0.10
203	D4928	44.5157		-0.18	971	D6304-A	57		0.00
217	D6304-A	71.7		0.22	974	D6304-A	66		0.13
221		-----		-----	994	D6304-A	53.0		-0.06
224	ISO12937	60.0		0.05	995	D6304-A	47.48		-0.14
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230	D6304	<0.01	**-f?/U?**	-----	998	D6304	57		0.00
237		-----		-----	1006	D6304-A	61		0.06
238		-----		-----	1011	ISO12937	52		-0.07
240		-----		-----	1016	ISO12937	56.2		-0.01
252		-----		-----	1033	IP438	59.226		0.03
253	D6304-A	66		0.13	1059	ISO12937	50		-0.10
254	D6304-A	54		-0.04	1067	ISO12937	52		-0.07
256	D6304-B	40.0		-0.25	1080	ISO12937	55		-0.03
258	E203	36		-0.31	1081		-----		-----
273	D6304-A	48.3		-0.13	1082		-----		-----
312	ISO12937	51		-0.09	1090		-----		-----
317	D6304-A	56		-0.01	1105	D6304-A	53.5		-0.05
323	ISO12937	50		-0.10	1109	D6304-A	43.5		-0.20
333		-----		-----	1121	IP438	61.0	C	0.06
335	ISO12937	47.6		-0.14	1126		-----		-----
336	ISO12937	50		-0.10	1134	IP439	48.91	C	-0.12
337		40		-0.25	1146	D6304-C	300	R(0.01)	3.57
338	D6304-A	45.91		-0.16	1159		-----		-----
342	ISO12937	57.2		0.00	1161	ISO12937	48.46		-0.12
343	ISO12937	55.1		-0.03	1167	ISO12937	43.8		-0.19
344	ISO12937	53.166		-0.06	1171	ISO12937	49.07		-0.12
349	D6304-A	47		-0.15	1182		-----		-----
353	IP438	81		0.35	1186		-----		-----
355		-----		-----	1191	ISO12937	44		-0.19
356	D6304-A	58		0.02	1201	D6304-C	50		-0.10
360	D6304-A	45.3		-0.17	1213	D6304-A	60		0.05
381	ISO12937	47		-0.15	1227	D6304-A	50		-0.10
402	ISO12937	59.61		0.04	1229	ISO12937	25		-0.47
445	IP438	49.5		-0.11	1251	ISO12937	40		-0.25
446	D6304-A	50		-0.10	1259	D6304-A	55		-0.03
485	D6304-A	37.6		-0.28	1299	ISO12937	50		-0.10
507	D6304-A	80.0		0.34	1347		-----		-----
511		-----		-----	1348		-----		-----
529		-----		-----	1356	D6304-A	0	ex, **f-?**	-0.83
541	D6304-A	48		-0.13	1357	D6304-A	97.28		0.59
556		-----		-----	1379	D6304-A	54		-0.04
557		-----		-----	1385		-----		-----
558		-----		-----	1397	ISO12937	58		0.02
562		-----		-----	1399		-----		-----
603	D6304-A	53		-0.06	1409	ISO12937	50		-0.10
604		-----		-----	1412	D6304-A	51.0		-0.09
605		-----		-----	1417	D6304-A	81		0.35
608		-----		-----	1428	ISO12937	51		-0.09
614	D6304-C	117		0.88	1430	D6304-A	125		1.00
634	D6304-A	55		-0.03	1441		-----		-----
657	D6304-A	65		0.12	1460	D6304-A	46.8		-0.15
671		-----		-----	1498		-----		-----
732	D6304-A	46.73		-0.15	1510	D6304-A	42		-0.22
750	D6304-A	54.6		-0.03	1539	ISO12937	43		-0.20
751		-----		-----	1575		-----		-----
759	D6304-A	44.4		-0.18	1577	D6304-A	47.96		-0.13
781	D6304-A	43.3		-0.20	1588		-----		-----
785	ISO12937	67.1		0.15	1613	D6304-A	42.29		-0.21
823	D6304-A	60		0.05	1629		-----		-----
824	D6304-A	54		-0.04	1634	ISO12937	46		-0.16

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643	ISO6296	95		0.56	1937	ISO12937	53		-0.06
1654	ISO12937	49.13		-0.11	1938	ISO12937	49		-0.12
1709		-----		-----	1944	D6304-A	45.30		-0.17
1710	ISO12937	49		-0.12	1948	ISO12937	56.36		-0.01
1720		-----		-----	1949	IP439	49.5		-0.11
1724	ISO12937	53.9		-0.04	1967		-----		-----
1741	ISO12937	55.8		-0.02	1984	ISO12937	65.7		0.13
1776	ISO12937	52.9		-0.06	1986	IP439	60		0.05
1783		-----		-----	1995		-----		-----
1785	D6304-A	164.5		1.58	2129	IP439	65		0.12
1796		-----		-----	6005	ISO12937	50		-0.10
1807	ISO12937	75		0.27	6012	ISO12937	53.54		-0.05
1810		54		-0.04	6016	D6304-A	50.35		-0.10
1811	D6304-A	49		-0.12	6045		-----		-----
1813		-----		-----	6049	D6304-A	47.1		-0.14
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854	D6304-C	60		0.05	6057	ISO12937	52		-0.07
1857	D6304-A	45		-0.17	6068	ISO12937	80		0.34
1862	D6304-A	48		-0.13	6075	ISO12937	74		0.25
1906	D6304-A	42.5		-0.21	7009	D6304-A	49.5		-0.11
1936	ISO12937	45.6		-0.17					

normality	not OK
n	137
outliers	1+1ex
mean (n)	56.92
st.dev. (n)	19.096
R(calc.)	53.47
R(D6304-A:16e1)	190.92

Lab 230 possibly false negative or error in reporting unit?
Lab 1121 reported 61.0 %M/M
Lab 1134 reported 48.91 %M/M
Lab 1356: test result excluded, possibly a false negative?





Determination of Water and Sediment (D2709) on sample #16180; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	0		-----	825	D2709	0		-----
53		-----		-----	840	D2709	<0.005		-----
90		-----		-----	854	D2709	<0.01		-----
92	D2709	0		-----	862	D2709	<0.005		-----
120	D2709	<0.05		-----	863	D2709	<0.01		-----
131	D2709	0.0		-----	873		-----		-----
132	D2709	0.00		-----	874	D2709	0		-----
140	D2709	<0.05		-----	887		-----		-----
150	D2709	<0.01		-----	902		-----		-----
159	D2709	0.00		-----	904		-----		-----
169	D2709	0.000		-----	922		-----		-----
171	D2709	<0.01		-----	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D2709	0		-----
194		-----		-----	970	D2709	0.005		-----
203	D2709	<0.05		-----	971		-----		-----
217		-----		-----	974	D2709	0.005		-----
221		-----		-----	994	D2709	<0.05		-----
224		-----		-----	995		-----		-----
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230		-----		-----	998		-----		-----
237	D2709	0.005		-----	1006		-----		-----
238		-----		-----	1011		-----		-----
240		-----		-----	1016		-----		-----
252		-----		-----	1033		-----		-----
253		-----		-----	1059	D2709	<0,05		-----
254		-----		-----	1067		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317		-----		-----	1105	D2709	<0.005		-----
323	D2709	<0.01		-----	1109	D2709	0.000		-----
333		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1134	D2709	0.001		-----
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342		-----		-----	1161		-----		-----
343	D2709	<0,1		-----	1167		-----		-----
344	D2709	<0,05		-----	1171		-----		-----
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356		-----		-----	1201	D2709	<0.05		-----
360	D2709	< 0.01		-----	1213	D2709	0.001		-----
381		-----		-----	1227		-----		-----
402		-----		-----	1229		-----		-----
445		-----		-----	1251		-----		-----
446		-----		-----	1259		-----		-----
485		-----		-----	1299		-----		-----
507	D2709	0.000		-----	1347	D2709	0		-----
511	D2709	<0.005		-----	1348		-----		-----
529		-----		-----	1356		-----		-----
541	D2709	<0.05		-----	1357		-----		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385	D2709	0.005		-----
558		-----		-----	1397		-----		-----
562	D2709	<0.005		-----	1399		-----		-----
603	D2709	0		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605		-----		-----	1417		-----		-----
608		-----		-----	1428		-----		-----
614		-----		-----	1430		-----		-----
634	D2709	0.005		-----	1441		-----		-----
657	D2709	<0.005		-----	1460	D2709	<0.005		-----
671		-----		-----	1498	D2709	0.005		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539		-----		-----
751		-----		-----	1575	D2709	<0.05		-----
759		-----		-----	1577		-----		-----
781	D2709	0.000		-----	1588		-----		-----
785		-----		-----	1613	D2709	<0.01		-----
823	D2709	<0.005		-----	1629		-----		-----
824	D2709	0.00		-----	1634		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944	D2709	<0.05		-----
1710		-----		-----	1948		-----		-----
1720		-----		-----	1949	D2709	0.0025		-----
1724		-----		-----	1967		-----		-----
1741	ISO3734	<0.05		-----	1984		-----		-----
1776		-----		-----	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785	D2709	<0.01		-----	2129		-----		-----
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012	EN12662	0.00062		-----
1810		-----		-----	6016	D2709	0.00		-----
1811		-----		-----	6045		-----		-----
1813		-----		-----	6049		-----		-----
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854		-----		-----	6057		-----		-----
1857		-----		-----	6068		-----		-----
1862		-----		-----	6075		-----		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

normality	n.a.
n	53
outliers	0
mean (n)	< 0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D2709:16)	n.a.

Determination of Water and Sediment (D1796) on sample #16180; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825	D1796	0		-----
53		-----		-----	840	D1796	0.00		-----
90		-----		-----	854		-----		-----
92		-----		-----	862		-----		-----
120	D1796	<0.05		-----	863		-----		-----
131	D1796	0.0		-----	873		-----		-----
132	D1796	<0.01		-----	874		-----		-----
140	D1796	<0.05		-----	887		-----		-----
150	D1796	0.00		-----	902		-----		-----
159		-----		-----	904		-----		-----
169	D1796	0.000		-----	922	D1796	<0.05		-----
171	D1796	<0.01		-----	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963		-----		-----
194		-----		-----	970	D1796	0		-----
203		-----		-----	971		-----		-----
217		-----		-----	974	D1796	0		-----
221		-----		-----	994	D1796	<0.05		-----
224		-----		-----	995		-----		-----
225		-----		-----	996		-----		-----
228		-----		-----	997		-----		-----
230		-----		-----	998		-----		-----
237	D1796	0.00		-----	1006	D1796	0		-----
238	D1796	< 0.05		-----	1011		-----		-----
240		-----		-----	1016		-----		-----
252		-----		-----	1033		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1067		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1082		-----		-----
312		-----		-----	1090		-----		-----
317		-----		-----	1105		-----		-----
323	D1796	<0.05		-----	1109		-----		-----
333		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1134	D1796	0.006		-----
337		-----		-----	1146		-----		-----
338		-----		-----	1159		-----		-----
342		-----		-----	1161		-----		-----
343	D1796	<0,001		-----	1167		-----		-----
344		-----		-----	1171		-----		-----
349		-----		-----	1182		-----		-----
353		-----		-----	1186		-----		-----
355		-----		-----	1191		-----		-----
356		-----		-----	1201	D1796	<0.01		-----
360	D1796	0.00		-----	1213		-----		-----
381		-----		-----	1227		-----		-----
402		-----		-----	1229		-----		-----
445		-----		-----	1251		-----		-----
446		-----		-----	1259		-----		-----
485		-----		-----	1299	D1796	<0.01		-----
507	D1796	0.00		-----	1347	D1796	0		-----
511	D1796	0.00		-----	1348	D1796	0.005		-----
529		-----		-----	1356		-----		-----
541		-----		-----	1357	D1796	<0.05		-----
556		-----		-----	1379		-----		-----
557		-----		-----	1385	D1796	0.05		-----
558		-----		-----	1397		-----		-----
562		-----		-----	1399		-----		-----
603		-----		-----	1409		-----		-----
604		-----		-----	1412		-----		-----
605		-----		-----	1417		-----		-----
608	D1796	0.00		-----	1428		-----		-----
614	D1796	<0.05		-----	1430		-----		-----
634		-----		-----	1441		-----		-----
657	D1796	<0.025		-----	1460	D1796	0.00		-----
671		-----		-----	1498		-----		-----
732		-----		-----	1510		-----		-----
750		-----		-----	1539		-----		-----
751		-----		-----	1575		-----		-----
759		-----		-----	1577		-----		-----
781	D1796	0.00		-----	1588		-----		-----
785		-----		-----	1613	D1796	0.0		-----
823	D1796	<0.005		-----	1629		-----		-----
824	D1796	0.00		-----	1634		-----		-----

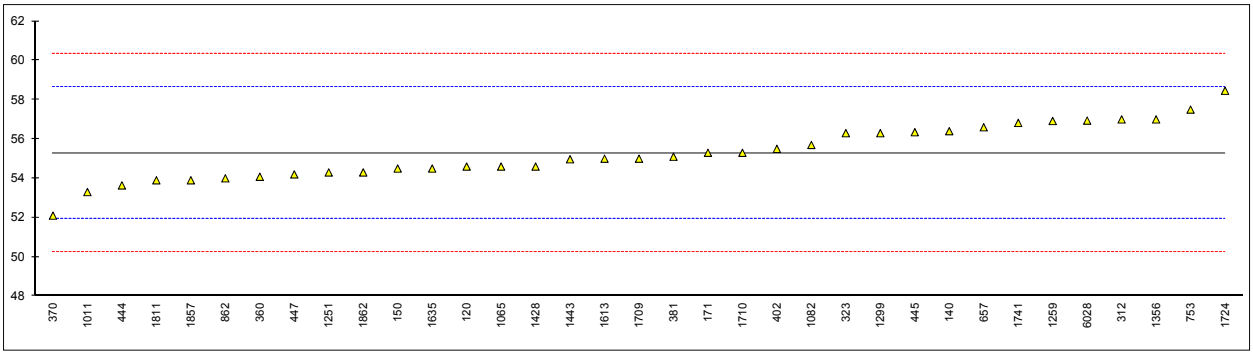
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1643		-----		-----	1937		-----		-----
1654		-----		-----	1938		-----		-----
1709		-----		-----	1944		-----		-----
1710		-----		-----	1948		-----		-----
1720		-----		-----	1949		-----		-----
1724		-----		-----	1967		-----		-----
1741		-----		-----	1984		-----		-----
1776		-----		-----	1986		-----		-----
1783		-----		-----	1995		-----		-----
1785		-----		-----	2129		-----		-----
1796		-----		-----	6005		-----		-----
1807		-----		-----	6012		-----		-----
1810		-----		-----	6016		-----		-----
1811		-----		-----	6045		-----		-----
1813		-----		-----	6049		-----		-----
1846		-----		-----	6051		-----		-----
1849		-----		-----	6054		-----		-----
1854	D1796	<0.05		-----	6057		-----		-----
1857		-----		-----	6068		-----		-----
1862		-----		-----	6075	D1796	0.00		-----
1906		-----		-----	7009		-----		-----
1936		-----		-----					

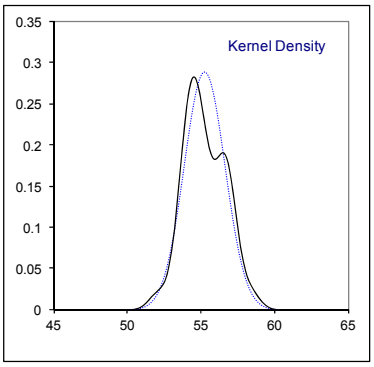
normality	n.a.
n	38
outliers	0
mean (n)	< 0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D1796:11)	n.a.

Determination of Cetane Number (ASTM D613) of sample #16181

lab	method	value	mark	z(targ)	remarks
120	D613	54.6	C	-0.41	first reported: 76.7, then corrected to 80.1
140	D613	56.4		0.66	
150	D613	54.5		-0.47	
171	D613	55.3		0.01	
312	D613	57		1.02	
323	D613	56.3		0.60	
336		-----		-----	
343		-----		-----	
356		-----		-----	
360	D613	54.08		-0.72	
370	ISO5165	52.1		-1.89	
381	D613	55.1		-0.11	
402	ISO5165	55.5		0.13	
444	D613	53.64		-0.98	
445	D613	56.35		0.63	
447	D613	54.2		-0.65	
614		-----		-----	
657	D613	56.6		0.78	
753	D613	57.5		1.32	
862	D613	54		-0.76	
904		-----		-----	
1006		-----		-----	
1011	ISO5165	53.3		-1.18	
1059		-----		-----	
1065	D613	54.6		-0.41	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1082	D613	55.7		0.25	
1107		-----		-----	
1134		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191		-----		-----	
1201		-----		-----	
1229		-----		-----	
1251	ISO5165	54.3		-0.59	
1259	D613	56.92		0.97	
1299	D613	56.3		0.60	
1356	D613	57		1.02	
1357		-----		-----	
1428	D613	54.6		-0.41	
1443	ISO5165	54.97		-0.19	
1613	D613	55		-0.17	
1635	D613	54.5		-0.47	
1709	D613	55		-0.17	
1710	ISO5165	55.3		0.01	
1724	D613	58.46		1.89	
1741	D613	56.82		0.91	
1776		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811	D613	53.9		-0.82	
1857	D613	53.9		-0.82	
1862	D613	54.3		-0.59	
1948		-----		-----	
6028	ISO5165	56.94		0.98	
6049		-----		-----	
6057		-----		-----	
6075		-----		-----	

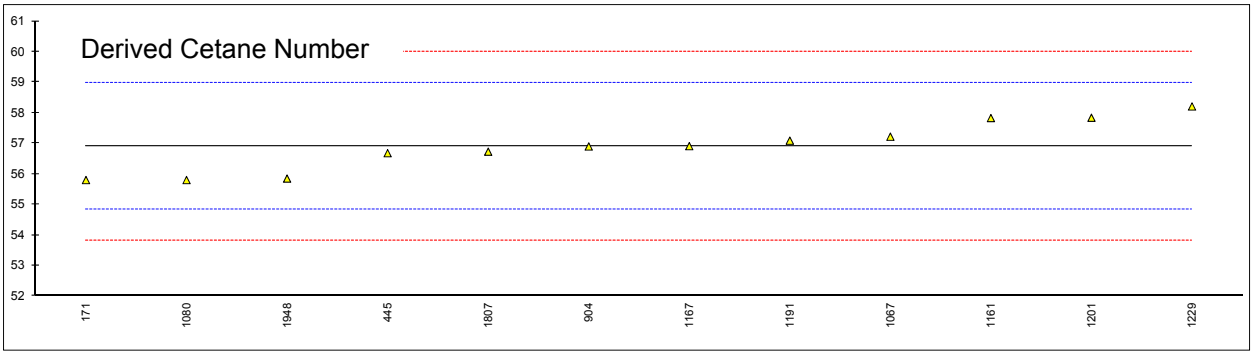
normality	OK
n	35
outliers	0
mean (n)	55.285
st.dev. (n)	1.3806
R(calc.)	3.866
R(D613:16e1)	4.711

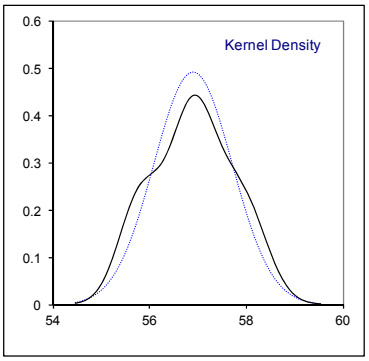

62
60
58
56
54
52
50
48
370
1011
444
1811
1857
862
360
447
1251
1862
150
1635
120
1065
1428
1443
1613
1709
381
171
1710
402
1082
323
1299
445
140
657
1741
1259
6028
312
1356
753
1724

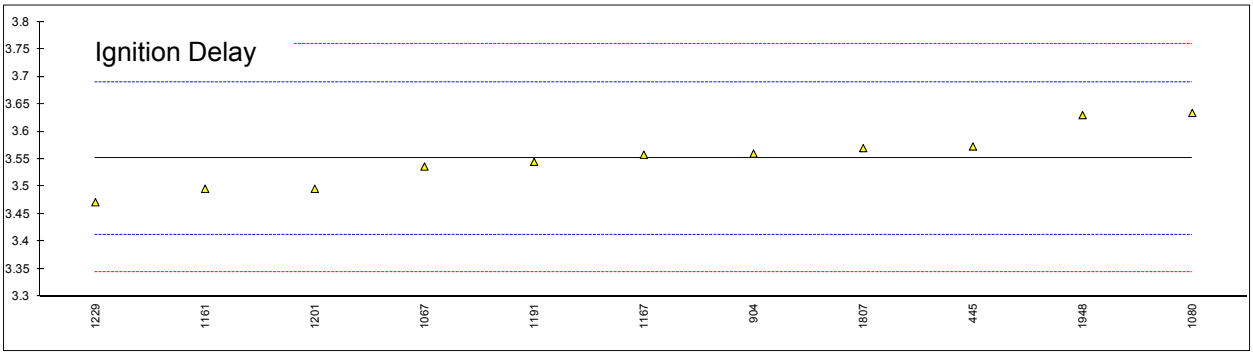

Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
45
50
55
60
65

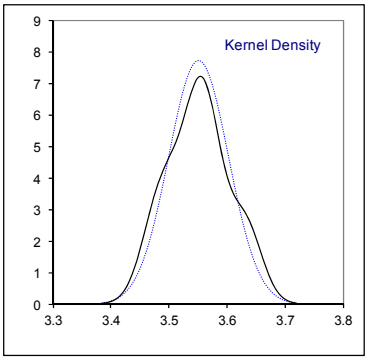
Determination of Derived Cetane Number (D6890) of sample #16181

lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	Air Temp.
120		-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----
171	D7170	55.8		-1.07	-----		-----	-----
312		-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----
336		-----		-----	-----		-----	-----
343		-----		-----	-----		-----	-----
356		-----		-----	-----		-----	-----
360		-----		-----	-----		-----	-----
370		-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----
402		-----		-----	-----		-----	-----
444		-----		-----	-----		-----	-----
445	IP498	56.68		-0.22	3.573		0.31	582.9
447		-----		-----	-----		-----	-----
614		-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----
753		-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----
904	D6890	56.9		0.00	3.56		0.12	-----
1006		-----		-----	-----		-----	-----
1011		-----		-----	-----		-----	-----
1059		-----		-----	-----		-----	-----
1065		-----		-----	-----		-----	-----
1067	EN15195	57.22		0.31	3.5365		-0.22	584.7
1080	D6890	55.8		-1.07	3.634		1.19	585
1081		-----		-----	-----		-----	-----
1082		-----		-----	-----		-----	-----
1107		-----		-----	-----		-----	-----
1134		-----		-----	-----		-----	-----
1161	EN15195	57.83		0.90	3.496		-0.80	585.1
1167	EN15195	56.91		0.00	3.558		0.09	549.4
1191	D6890	57.09		0.18	3.545		-0.10	582.6
1201	EN15195	57.84		0.91	3.496		-0.80	575.6
1229	D6890	58.21		1.27	3.4715		-1.16	561
1251		-----		-----	-----		-----	-----
1259		-----		-----	-----		-----	-----
1299		-----		-----	-----		-----	-----
1356		-----		-----	-----		-----	-----
1357		-----		-----	-----		-----	-----
1428		-----		-----	-----		-----	-----
1443		-----		-----	-----		-----	-----
1613		-----		-----	-----		-----	-----
1635		-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----
1710		-----		-----	-----		-----	-----
1724		-----		-----	-----		-----	-----
1741		-----		-----	-----		-----	-----
1776		-----		-----	-----		-----	-----
1807	EN15195	56.73		-0.17	3.57		0.26	576.7
1810		-----		-----	-----		-----	-----
1811		-----		-----	-----		-----	-----
1857		-----		-----	-----		-----	-----
1862		-----		-----	-----		-----	-----
1948	EN15195	55.85		-1.02	3.63		1.13	580
6028		-----		-----	-----		-----	-----
6049		-----		-----	-----		-----	-----
6057		-----		-----	-----		-----	-----
6075		-----		-----	-----		-----	-----
	normality	OK			OK			
	n	12			11			
	outliers	0			0			
	mean (n)	56.91			3.55			
	st.dev. (n)	0.809			0.052			
	R(calc.)	2.27			0.14			
	R(D6890:16)	2.88			0.19			


Derived Cetane Number
61
60
59
58
57
56
55
54
53
52
171
1080
1948
445
1807
904
1167
1191
1067
1161
1201
1229


Kernel Density
0.6
0.5
0.4
0.3
0.2
0.1
0
54
56
58
60

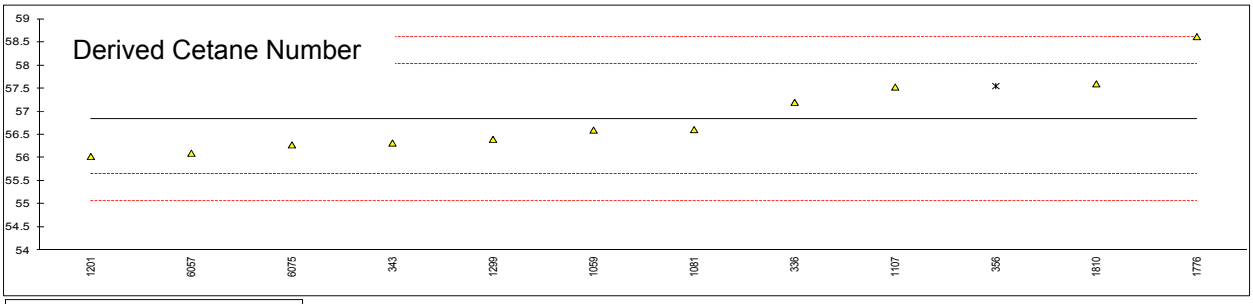

Ignition Delay
3.8
3.75
3.7
3.65
3.6
3.55
3.5
3.45
3.4
3.35
3.3
1229
1161
1201
1067
1191
1167
904
1807
445
1948
1080

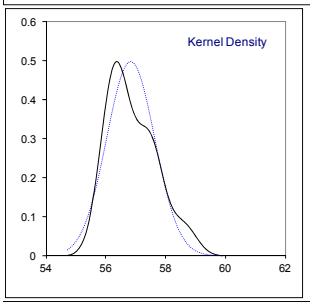

Kernel Density
9
8
7
6
5
4
3
2
1
0
3.3
3.4
3.5
3.6
3.7
3.8

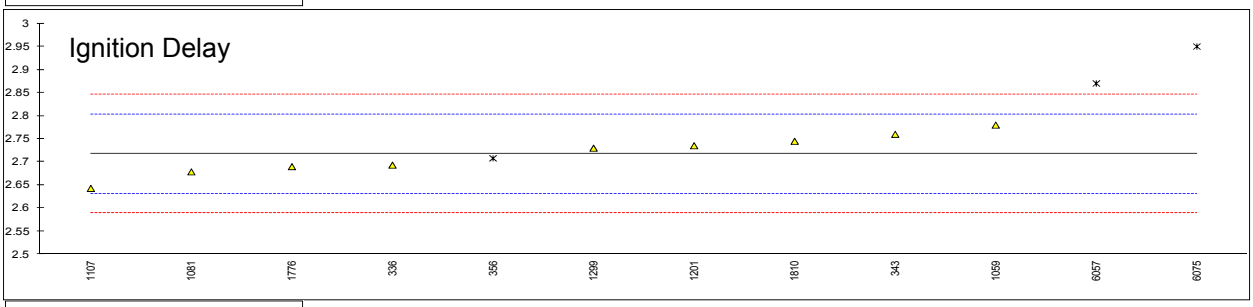
Determination of Derived Cetane Number (D7668) of sample #16181

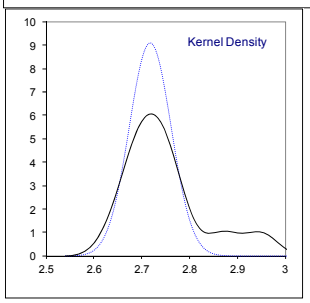
lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	CD	mark	z(targ)	W. T.
120		-----		-----	-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----		-----	-----
171		-----		-----	-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----		-----	-----
336	D7668	57.2		0.60	2.6933		-0.56	4.169		-0.53	605.2
343	D7668	56.32		-0.88	2.76		1.00	4.23		0.98	594
356	D7668	57.55	ex,E	1.19	2.708	ex,E	-0.22	4.316	ex,E	3.11	611.04
360		-----		-----	-----		-----	-----		-----	-----
370		-----		-----	-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----		-----	-----
402		-----		-----	-----		-----	-----		-----	-----
444		-----		-----	-----		-----	-----		-----	-----
445		-----		-----	-----		-----	-----		-----	-----
447		-----		-----	-----		-----	-----		-----	-----
614		-----		-----	-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----		-----	-----
753		-----		-----	-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----		-----	-----
904		-----		-----	-----		-----	-----		-----	-----
1006		-----		-----	-----		-----	-----		-----	-----
1011		-----		-----	-----		-----	-----		-----	-----
1059	D7668	56.6		-0.41	2.78		1.46	4.2		0.24	598
1065		-----		-----	-----		-----	-----		-----	-----
1067		-----		-----	-----		-----	-----		-----	-----
1080		-----		-----	-----		-----	-----		-----	-----
1081	D7668	56.61		-0.40	2.6787		-0.90	4.2076		0.43	597.66
1082		-----		-----	-----		-----	-----		-----	-----
1107	D7668	57.53		1.16	2.643		-1.73	4.149		-1.02	606.09
1134		-----		-----	-----		-----	-----		-----	-----
1161		-----		-----	-----		-----	-----		-----	-----
1167		-----		-----	-----		-----	-----		-----	-----
1191		-----		-----	-----		-----	-----		-----	-----
1201	D7668	56.03		-1.37	2.7353		0.42	4.2483		1.44	600.52
1229		-----		-----	-----		-----	-----		-----	-----
1251		-----		-----	-----		-----	-----		-----	-----
1259		-----		-----	-----		-----	-----		-----	-----
1299	D7668	56.4		-0.75	2.73		0.30	4.22		0.74	595.18
1356		-----		-----	-----		-----	-----		-----	-----
1357		-----		-----	-----		-----	-----		-----	-----
1428		-----		-----	-----		-----	-----		-----	-----
1443		-----		-----	-----		-----	-----		-----	-----
1613		-----		-----	-----		-----	-----		-----	-----
1635		-----		-----	-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----		-----	-----
1710		-----		-----	-----		-----	-----		-----	-----
1724		-----		-----	-----		-----	-----		-----	-----
1741		-----		-----	-----		-----	-----		-----	-----
1776	D7668	58.62		3.00	2.69		-0.64	4.09		-2.48	594.71
1807		-----		-----	-----		-----	-----		-----	-----
1810	D7668	57.6		1.27	2.745		0.65	4.139		-1.27	600.2
1811		-----		-----	-----		-----	-----		-----	-----
1857		-----		-----	-----		-----	-----		-----	-----
1862		-----		-----	-----		-----	-----		-----	-----
1948		-----		-----	-----		-----	-----		-----	-----
6028		-----		-----	-----		-----	-----		-----	-----
6049		-----		-----	-----		-----	-----		-----	-----
6057	D7668	56.1		-1.26	2.87	DG(0.05)	3.56	4.25		1.48	586
6075	D7170	56.28		-0.95	2.95	DG(0.05)	5.43	-----		-----	570.6
	normality	suspect			OK			OK			
	n	11			9			10			
	outliers	0+1ex			2+1ex			0+1ex			
	mean (n)	56.84			2.72			4.19			
	st.dev. (n)	0.803			0.044			0.052			
	R(calc.)	2.25			0.12			0.15			
	R(D7668:14a)	1.66			0.12			0.11			

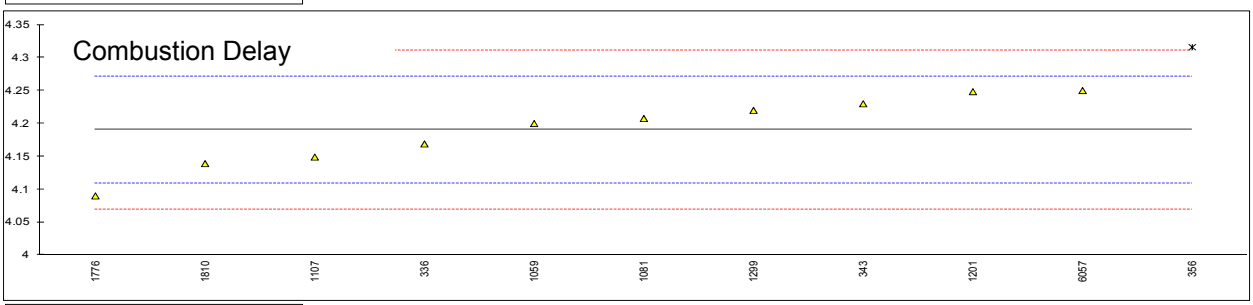
W.T. = Chamber Wall Temperature
Lab 356: test results excluded; iis could not reproduce DCN value based on reported ID and CD, iis calculated DCN 55.02

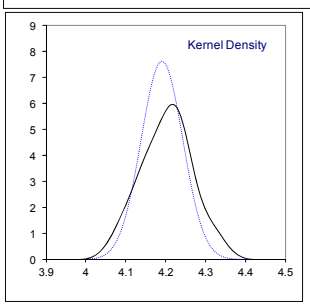

Derived Cetane Number
59
58.5
58
57.5
57
56.5
56
55.5
55
54.5
54
1201
6057
6075
343
1299
1059
1081
336
1107
356
1810
1776


Kernel Density
0.6
0.5
0.4
0.3
0.2
0.1
0
54
56
58
60
62


Ignition Delay
3
2.95
2.9
2.85
2.8
2.75
2.7
2.65
2.6
2.55
2.5
1107
1081
1776
336
356
1299
1201
1810
343
1059
6057
6075


Kernel Density
10
9
8
7
6
5
4
3
2
1
0
2.5
2.6
2.7
2.8
2.9
3

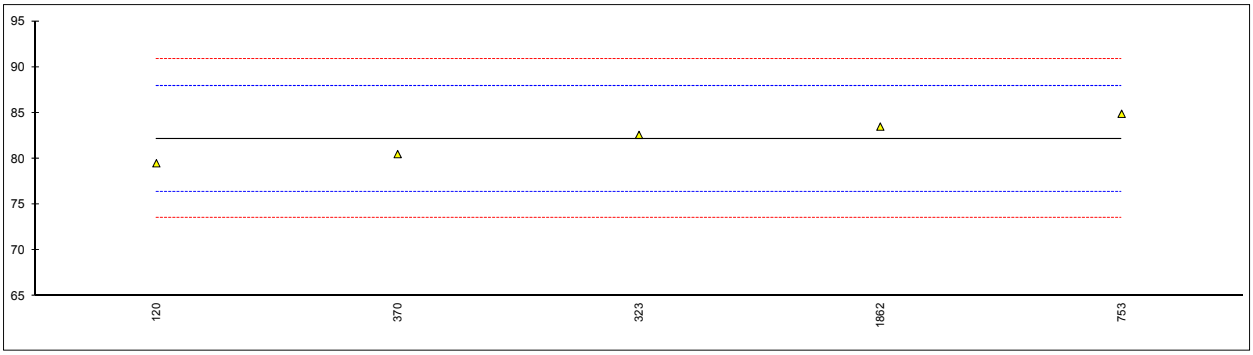

Combustion Delay
4.35
4.3
4.25
4.2
4.15
4.1
4.05
4
1776
1810
1107
336
1059
1081
1299
343
1201
6057
356


Kernel Density
9
8
7
6
5
4
3
2
1
0
3.9
4
4.1
4.2
4.3
4.4
4.5

Determination of Cetane Number (ASTM D613) of sample #16182

lab	method	value	mark	z(targ)	remarks
120	D613	79.5	C	-0.94	first reported: 52.7
140	D613	>74.3		-----	
150		-----		-----	
171		-----		-----	
312	D613	>65		-----	
323	D613	82.6		0.14	
336		-----		-----	
343		-----		-----	
356		-----		-----	
360	D613	> 65		-----	
370	ISO5165	80.5		-0.59	
381	D613	>71,1		-----	
402		-----		-----	
444		-----		-----	
445	D613	Too high		-----	
447		-----		-----	
614		-----		-----	
657		-----		-----	
753	D613	84.9		0.94	
862		-----		-----	
904		-----		-----	
1006		-----		-----	
1011		-----		-----	
1059		-----		-----	
1065	D613	>77.1		-----	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1082	D613	>75,2		-----	
1107		-----		-----	
1134		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191		-----		-----	
1201		-----		-----	
1229		-----		-----	
1251		-----		-----	
1259	D613	>65.0		-----	
1299		-----		-----	
1356		-----		-----	
1357		-----		-----	
1428		-----		-----	
1443	ISO5165	> 77.1		-----	
1613		-----		-----	
1635	D613	>76,0		-----	
1709		-----		-----	
1710		-----		-----	
1724	D613	>74,7		-----	
1741		-----		-----	
1776		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1857		-----		-----	
1862	D613	83.5		0.45	
1948		-----		-----	
6028		-----		-----	
6049		-----		-----	
6057		-----		-----	
6075		-----		-----	

normality	unknown
n	5
outliers	0
mean (n)	82.200
st.dev. (n)	2.1977
R(calc.)	6.154
R(D613:16e1)	8.075

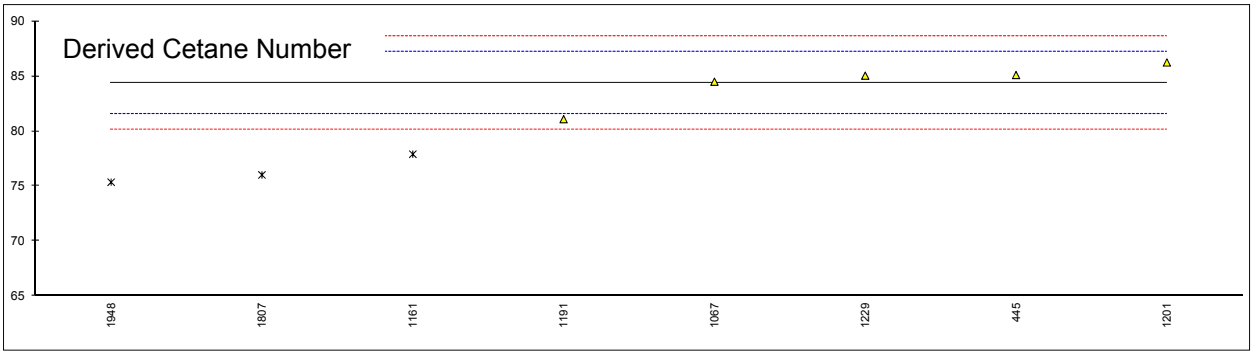

95
90
85
80
75
70
65
120
370
323
1862
753

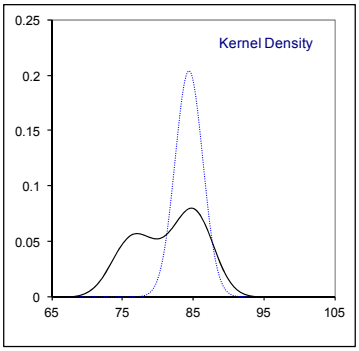
Determination of Derived Cetane Number (D6890) of sample #16182

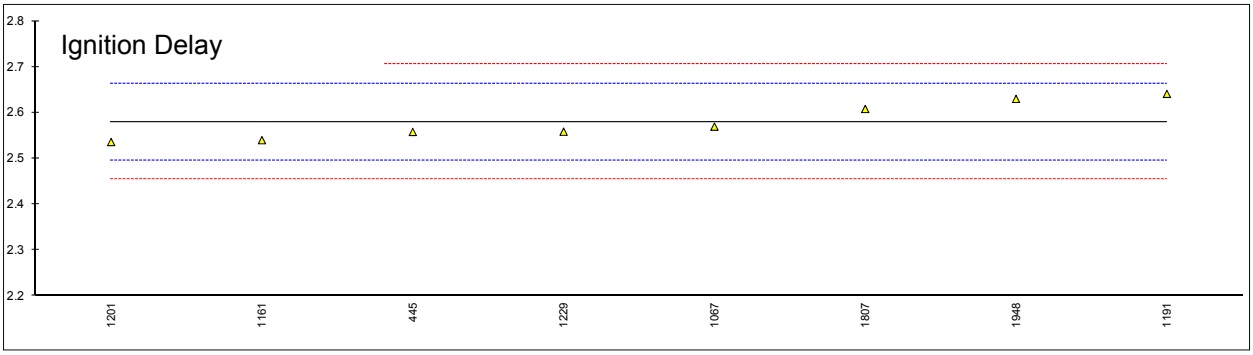
lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	Air Temp.
120		-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----
171		-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----
336		-----		-----	-----		-----	-----
343		-----		-----	-----		-----	-----
356		-----		-----	-----		-----	-----
360		-----		-----	-----		-----	-----
370		-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----
402		-----		-----	-----		-----	-----
444		-----		-----	-----		-----	-----
445	IP498	85.11		0.50	2.558		-0.53	582.8
447		-----		-----	-----		-----	-----
614		-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----
753		-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----
904		-----		-----	-----		-----	-----
1006		-----		-----	-----		-----	-----
1011		-----		-----	-----		-----	-----
1059		-----		-----	-----		-----	-----
1065		-----		-----	-----		-----	-----
1067	EN15195	84.5		0.07	2.5695		-0.25	584.4
1080	D6890	>60		-----	<3,3		-----	585
1081		-----		-----	-----		-----	-----
1082		-----		-----	-----		-----	-----
1107		-----		-----	-----		-----	-----
1134		-----		-----	-----		-----	-----
1161	EN15195	77.91	ex	-4.61	2.54		-0.96	584.7
1167		-----		-----	-----		-----	-----
1191	D6890	81.09		-2.35	2.641		1.45	569
1201	EN15195	86.25		1.31	2.536		-1.05	575.5
1229	D6890	85.05		0.46	2.5585		-0.52	561.3
1251		-----		-----	-----		-----	-----
1259		-----		-----	-----		-----	-----
1299		-----		-----	-----		-----	-----
1356		-----		-----	-----		-----	-----
1357		-----		-----	-----		-----	-----
1428		-----		-----	-----		-----	-----
1443		-----		-----	-----		-----	-----
1613		-----		-----	-----		-----	-----
1635		-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----
1710		-----		-----	-----		-----	-----
1724		-----		-----	-----		-----	-----
1741		-----		-----	-----		-----	-----
1776		-----		-----	-----		-----	-----
1807	EN15195	76.02	ex	-5.95	2.608		0.67	575.9
1810		-----		-----	-----		-----	-----
1811		-----		-----	-----		-----	-----
1857		-----		-----	-----		-----	-----
1862		-----		-----	-----		-----	-----
1948	EN15195	75.36	ex	-6.42	2.63		1.19	580
6028		-----		-----	-----		-----	-----
6049		-----		-----	-----		-----	-----
6057		-----		-----	-----		-----	-----
6075		-----		-----	-----		-----	-----

normality	unknown	unknown
n	5	8
outliers	0+3ex	0
mean (n)	84.40	2.58
st.dev. (n)	1.957	0.041
R(calc.)	5.48	0.11
R(D6890:16)	3.94	0.12

Labs 1161, 1807 and 1948: test results were excluded, formula for ID range 2.8 – 6.3 ms (EN 15195:15) was used, see §4.1
Lab 1161: DCN calculated bij iis: 86.02
Lab 1807: DCN calculated bij iis: 82.62
Lab 1948: DCN calculated bij iis: 81.59


Derived Cetane Number
90
85
80
75
70
65
1948
1807
1161
1191
1067
1229
445
1201

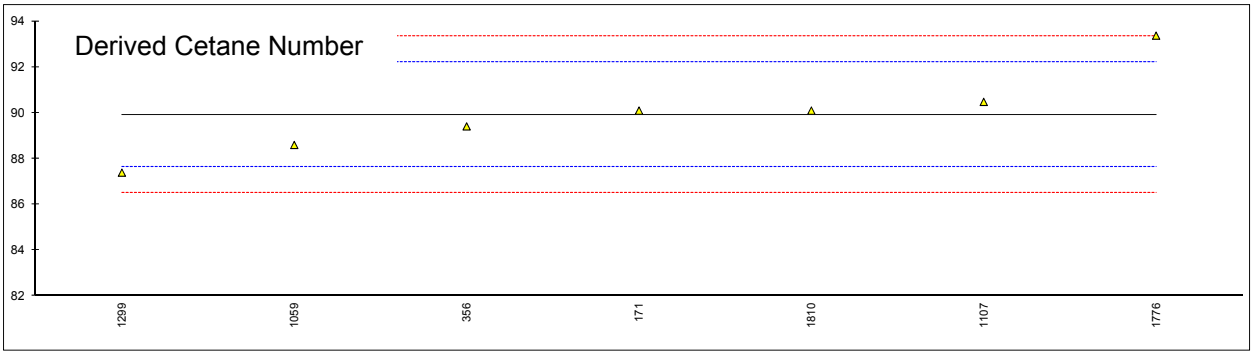

Kernel Density
0.25
0.2
0.15
0.1
0.05
0
65
75
85
95
105

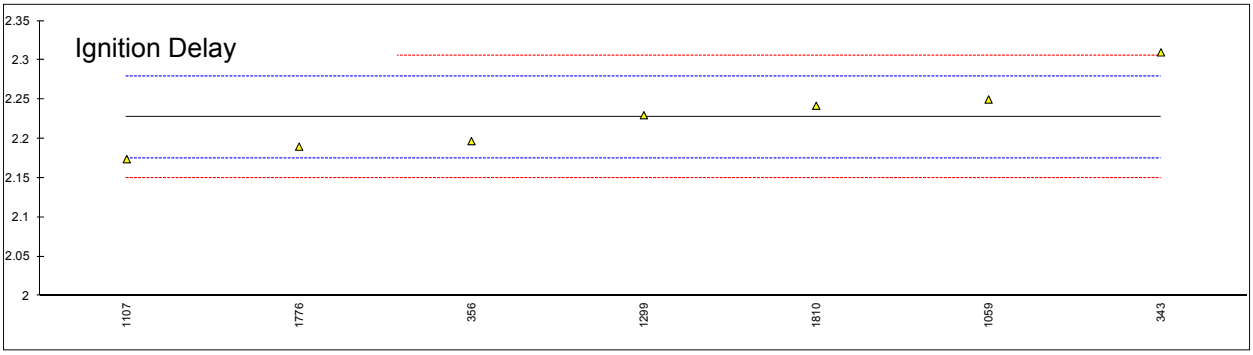

Ignition Delay
2.8
2.7
2.6
2.5
2.4
2.3
2.2
1201
1161
445
1229
1067
1807
1948
1191

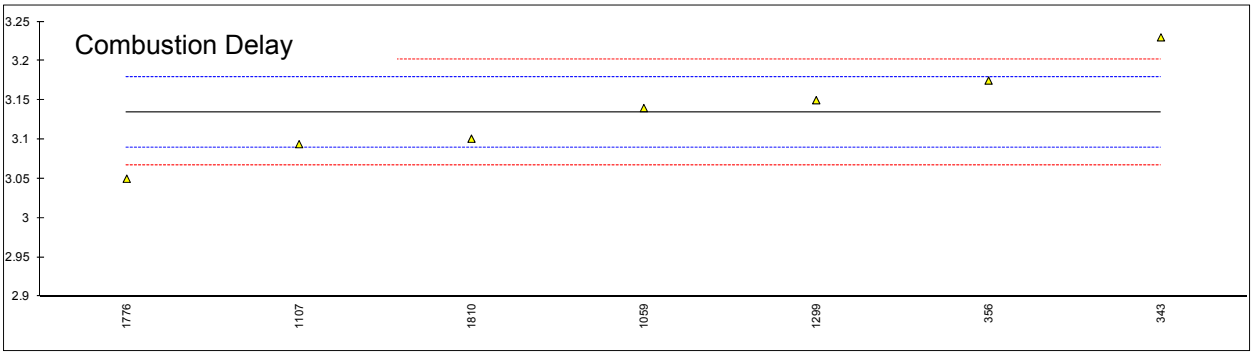
Determination of Derived Cetane Number (D7668) of sample #16182

lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	CD	mark	z(targ)	WT
120		-----		-----	-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----		-----	-----
171	D7170	90.1		0.16	-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----		-----	-----
336		-----		-----	-----		-----	-----		-----	-----
343	D7668	>65		-----	2.31		3.16	3.23		4.24	594
356	D7668	89.41	E	-0.45	2.197		-1.17	3.175		1.80	611.06
360		-----		-----	-----		-----	-----		-----	-----
370		-----		-----	-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----		-----	-----
402		-----		-----	-----		-----	-----		-----	-----
444		-----		-----	-----		-----	-----		-----	-----
445		-----		-----	-----		-----	-----		-----	-----
447		-----		-----	-----		-----	-----		-----	-----
614		-----		-----	-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----		-----	-----
753		-----		-----	-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----		-----	-----
904		-----		-----	-----		-----	-----		-----	-----
1006		-----		-----	-----		-----	-----		-----	-----
1011		-----		-----	-----		-----	-----		-----	-----
1059	D7668	88.6	E	-1.16	2.25		0.86	3.14		0.25	598
1065		-----		-----	-----		-----	-----		-----	-----
1067		-----		-----	-----		-----	-----		-----	-----
1080		-----		-----	-----		-----	-----		-----	-----
1081		-----		-----	-----		-----	-----		-----	-----
1082		-----		-----	-----		-----	-----		-----	-----
1107	D7668	90.48		0.49	2.174		-2.05	3.094		-1.78	606.12
1134		-----		-----	-----		-----	-----		-----	-----
1161		-----		-----	-----		-----	-----		-----	-----
1167		-----		-----	-----		-----	-----		-----	-----
1191		-----		-----	-----		-----	-----		-----	-----
1201		-----		-----	-----		-----	-----		-----	-----
1229		-----		-----	-----		-----	-----		-----	-----
1251		-----		-----	-----		-----	-----		-----	-----
1259		-----		-----	-----		-----	-----		-----	-----
1299	D7668	87.39		-2.22	2.23		0.09	3.15		0.70	595.18
1356		-----		-----	-----		-----	-----		-----	-----
1357		-----		-----	-----		-----	-----		-----	-----
1428		-----		-----	-----		-----	-----		-----	-----
1443		-----		-----	-----		-----	-----		-----	-----
1613		-----		-----	-----		-----	-----		-----	-----
1635		-----		-----	-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----		-----	-----
1710		-----		-----	-----		-----	-----		-----	-----
1724		-----		-----	-----		-----	-----		-----	-----
1741		-----		-----	-----		-----	-----		-----	-----
1776	D7668	93.37	E	3.03	2.19		-1.44	3.05		-3.73	594.68
1807		-----		-----	-----		-----	-----		-----	-----
1810	D7668	90.1		0.16	2.242		0.55	3.101		-1.47	600.2
1811		-----		-----	-----		-----	-----		-----	-----
1857		-----		-----	-----		-----	-----		-----	-----
1862		-----		-----	-----		-----	-----		-----	-----
1948		-----		-----	-----		-----	-----		-----	-----
6028		-----		-----	-----		-----	-----		-----	-----
6049		-----		-----	-----		-----	-----		-----	-----
6057		-----		-----	-----		-----	-----		-----	-----
6075		-----		-----	-----		-----	-----		-----	-----
	normality	unknown			unknown			unknown			
	n	7			7			7			
	outliers	0			0			0			
	mean (n)	89.92			2.23			3.13			
	st.dev. (n)	1.857			0.046			0.059			
	R(calc.)	5.20			0.13			0.17			
	R(D7668:14a)	3.19			0.07			0.06			

Lab 356: DCN calculated by iis is 86.08
Lab 1059: DCN calculated by iis is 87.98
Lab 1776: DCN calculated by iis is 93.09


Derived Cetane Number
94
92
90
88
86
84
82
1299
1059
356
171
1810
1107
1776

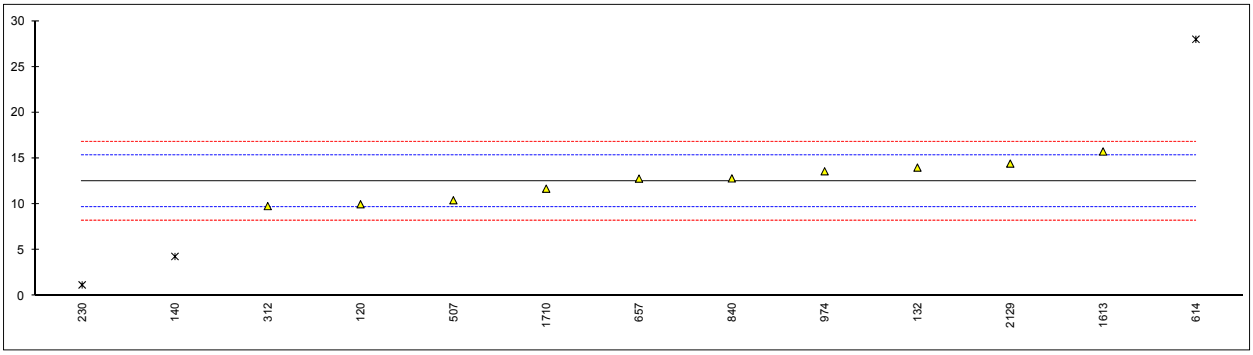

Ignition Delay
2.35
2.3
2.25
2.2
2.15
2.1
2.05
2
1107
1776
356
1299
1810
1059
343

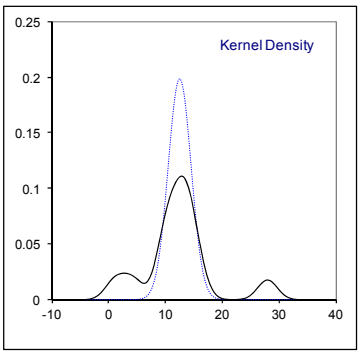

Combustion Delay
3.25
3.2
3.15
3.1
3.05
3
2.95
2.9
1776
1107
1810
1059
1299
356
343

Determination of Total Contamination on sample #16183; results in mg/L

lab	method	value	mark	z(targ)	remarks
120	D6217	10		-1.77	
132	D6217	14.0		1.02	
140	D6217	4.3	ex	-5.76	test result excluded, see §4.1
150		-----		-----	
171	D6217	<0.1		<-8.70	possibly a false negative test result?
230	D6217	1.2	ex	-7.93	test result excluded, see §4.1
237		-----		-----	
273		-----		-----	
312	D6217	9.8		-1.91	
323		-----		-----	
333		-----		-----	
335		-----		-----	
336		-----		-----	
343		-----		-----	
349		-----		-----	
353		-----		-----	
356		-----		-----	
360		-----		-----	
381		-----		-----	
402		-----		-----	
445		-----		-----	
507	D6217	10.44	C	-1.47	first reported: 10.44 mg/kg
603		-----		-----	
614	D4898	28	D(0.01)	10.82	
657	D6217	12.8		0.18	
840	D6217	12.82		0.20	
862		-----		-----	
873		-----		-----	
874		-----		-----	
902		-----		-----	
963		-----		-----	
970		-----		-----	
974	D6217	13.6		0.74	
994		-----		-----	
1006		-----		-----	
1011		-----		-----	
1016		-----		-----	
1033		-----		-----	
1059		-----		-----	
1064		-----		-----	
1081		-----		-----	
1134		-----		-----	
1161		-----		-----	
1167		-----		-----	
1171		-----		-----	
1201		-----		-----	
1251		-----		-----	
1259		-----		-----	
1299		-----		-----	
1397		-----		-----	
1409		-----		-----	
1428		-----		-----	
1539		-----		-----	
1613	D6217	15.76		2.26	
1635		-----		-----	
1654		-----		-----	
1710	D6217	11.7		-0.59	
1724		-----		-----	
1741		-----		-----	
1807		-----		-----	
1857		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948		-----		-----	
1984		-----		-----	
2129	D6217	14.44	C	1.33	first reported:14.44 mg/kg
6005		-----		-----	
6049		-----		-----	
6057		-----		-----	
6075		-----		-----	
9090		-----		-----	

normality	OK
n	10
outliers	1+2ex
mean (n)	12.54
st.dev. (n)	2.013
R(calc.)	5.64
R(D6217:11)	4.00

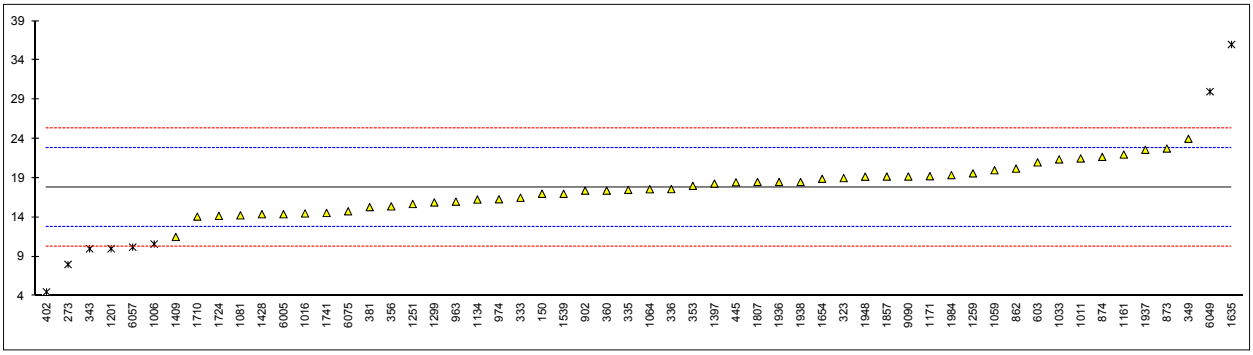


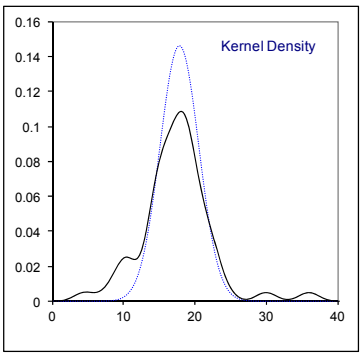


Determination of Total Contamination on sample #16183; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
132		-----		-----	
140		-----		-----	
150	EN12662:2014	17.0		-0.34	
171		-----		-----	
230		-----		-----	
237		-----		-----	
273	IP440	8.0	ex,C	-3.91	test result excluded, see §4.1; first reported: 6.2
312		-----		-----	
323	EN12662:2014	19.0		0.46	
333	EN12662	16.5	C	-0.54	first reported: ASTM D6217
335	EN12662:2014	17.5		-0.14	
336	EN12662:2014	17.6		-0.10	
343	EN12662:2014	10.0	ex	-3.12	test result excluded, see §4.1
349	EN12662:2014	24		2.45	
353	IP440	18.01		0.06	
356	IP440	15.4		-0.97	
360	EN12662:2014	17.4		-0.18	
381	EN12662:2014	15.3	C	-1.01	first reported: 51.3
402	EN12662:2014	4.51	ex	-5.30	test result excluded, see §4.1
445	IP440	18.46	C	0.24	first reported: 18.46 mg/L
507		-----		-----	
603	EN12662	21.0	C	1.25	first reported: 21.0 mg/L
614		-----		-----	
657		-----		-----	
840		-----		-----	
862	EN12662:2014	20.2		0.94	
873	EN12662:2014	22.76		1.95	
874	EN12662:2014	21.7		1.53	
902	EN12662:2014	17.4		-0.18	
963	IP440	16.0		-0.73	
970		-----		-----	
974	D6217	16.3		-0.61	
994		-----		-----	
1006	EN12662:2014	10.6	ex	-2.88	test result excluded, see §4.1
1011	EN12662	21.5		1.45	
1016	EN12662:2014	14.5		-1.33	
1033	IP440	21.38		1.40	
1059	EN12662:2014	20.0		0.86	
1064	EN12662:2014	17.58		-0.11	
1081	EN12662:2014	14.26		-1.43	
1134	IP415	16.27		-0.63	
1161	EN12662:2014	22.0		1.65	
1167		-----		-----	
1171	EN12662:2014	19.24		0.55	
1201	EN12662:1998	10	ex	-3.12	test result excluded, see §4.1
1251	EN12662:2014	15.7		-0.85	
1259	EN12662:2014	19.6		0.70	
1299	EN12662:2014	15.9		-0.77	
1397	EN12662:2014	18.3		0.18	
1409	EN12662:2014	11.5		-2.52	
1428	EN12662:2014	14.4		-1.37	
1539	EN12662:2014	17	C	-0.34	first reported: 28.0
1613		-----		-----	
1635	EN12662:2014	36	R(0.01)	7.21	
1654	EN12662:2014	18.91		0.42	
1710	D6217	14.1		-1.49	
1724	IP440	14.19		-1.45	
1741	EN12662:2014	14.56		-1.31	
1807	EN12662:2014	18.5		0.26	
1857	IP440	19.2		0.54	
1936	EN12662:2014	18.5		0.26	
1937	EN12662:2014	22.6		1.89	
1938	EN12662:2014	18.5		0.26	
1948	EN12662:2014	19.18		0.53	
1984	EN12662:2014	19.375		0.61	
2129		-----		-----	
6005	EN12662:2014	14.4		-1.37	
6049	EN12662:2014	30.0	C,R(0.05)	4.83	first reported: 1.5
6057	EN12662:2014	10.2	ex	-3.04	test result excluded, see §4.1
6075	EN12662:2014	14.77		-1.22	
9090	IP440	19.20		0.54	

normality	OK
n	48
outliers	2+6ex
mean (n)	17.85
st.dev. (n)	2.724
R(calc.)	7.63
R(EN12662:14)	7.05

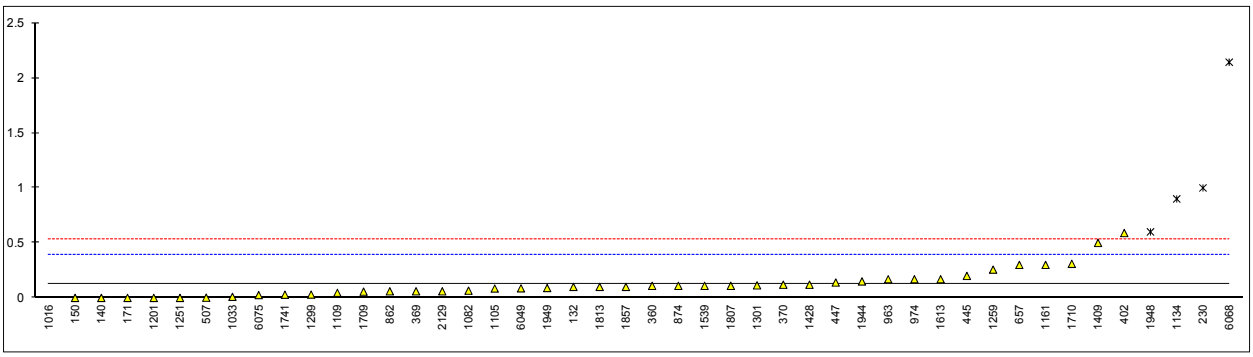


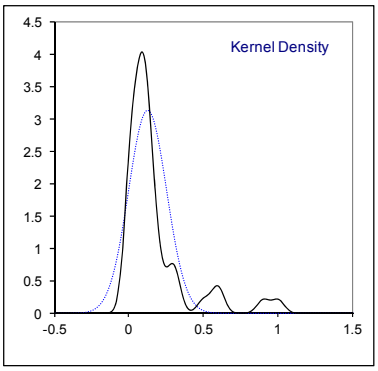


Determination of Oxidation Stability Filterable Insolubles (A) on sample #16184; results in mg/100ml

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
132	D2274	0.1		-0.17	
140	D2274	0		-0.91	
150	D2274	0		-0.91	
159		-----		-----	
171	D2274	0		-0.91	
230	ISO12205	1	R(0.01)	6.44	
237		-----		-----	
312		-----		-----	
323	D2274	<0.1		-----	
343	ISO12205	<0.01		-----	
344		-----		-----	
360	D2274	0.11		-0.10	
369	D2274	0.06		-0.47	
370	ISO12205	0.12		-0.03	
402	ISO12205	0.59		3.43	
445	D2274	0.2		0.56	
447	D2274	0.14		0.12	
507	D2274	0.002		-0.89	
657	D2274	0.3		1.30	
862	D2274	0.06		-0.47	
874	D2274	0.11		-0.10	
902		-----		-----	
963	D2274	0.17		0.34	
974	D2274	0.17		0.34	
1011		-----		-----	
1016	ISO12205	-0.9	ex	-7.51	test result excluded, see §4.1
1033	D2274	0.01		-0.83	
1059	D2274	<0,1		-----	
1081		-----		-----	
1082	ISO12205	0.0657		-0.42	
1105	D2274	0.0857		-0.28	
1109	D2274	0.046		-0.57	
1134	D2274	0.9	R(0.01)	5.70	
1161	ISO12205	0.30	C	1.30	first reported: 0.31
1167		-----		-----	
1191		-----	C	-----	first reported: 0.18 see Oxidation Stability Total Insolubles
1201	D2274	0		-0.91	
1251	ISO12205	0		-0.91	
1259	ISO12205	0.257		0.98	
1299	D2274	0.03		-0.69	
1301	D2274	0.1143		-0.07	
1409	ISO12205	0.5		2.76	
1428	ISO12205	0.12		-0.03	
1539	ISO12205	0.11		-0.10	
1613	D2274	0.17		0.34	
1654		-----		-----	
1709	D2274	0.057		-0.49	
1710	ISO12205	0.31		1.37	
1724		-----		-----	
1741	ISO12205	0.029		-0.69	
1807	ISO12205	0.11		-0.10	
1810		-----		-----	
1811		-----		-----	
1813	D2274	0.1		-0.17	
1857	D2274	0.1		-0.17	
1944	ISO12205	0.15		0.20	
1948	ISO12205	0.6	R(0.05)	3.50	
1949	D2274	0.09		-0.25	
2129	D2274	0.06		-0.47	
6049	D2274	0.087		-0.27	
6057	ISO12205	<0.1		-----	
6068	ISO12205	2.143	R(0.01)	14.83	
6075	ISO12205	0.026		-0.72	

normality	not OK
n	41
outliers	4+1ex
mean (n)	0.123
st.dev. (n)	0.1276
R(calc.)	0.357
R(D2274:14)	0.381

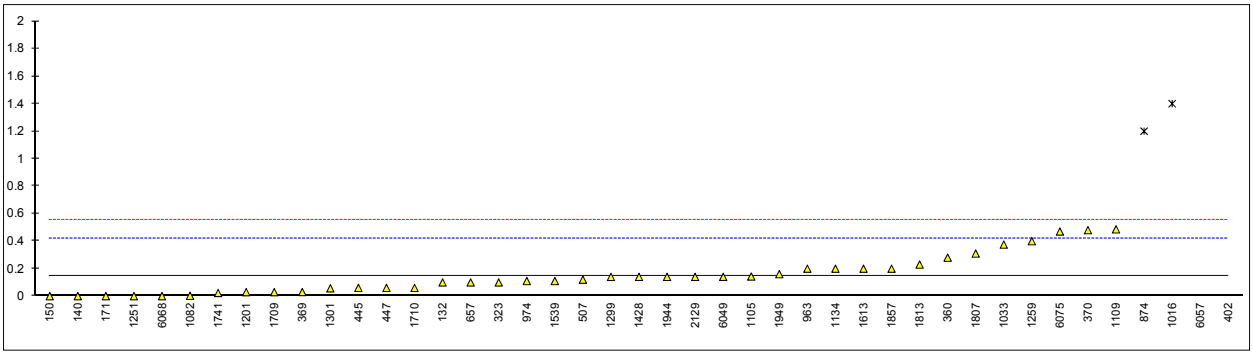

2.5
2
1.5
1
0.5
0
1016 150 140 171 1201 1251 507 1033 6075 1741 1299 1109 1709 862 369 2129 1082 1105 6049 1949 132 1813 1857 360 874 1539 1807 1301 370 1428 447 1944 963 974 1613 445 1259 657 1161 1710 1409 402 1948 1134 230 6068

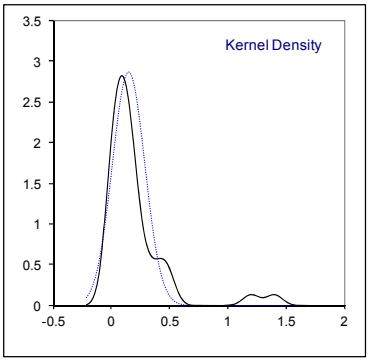

Kernel Density
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5 0 0.5 1 1.5

Determination of Oxidation Stability Adherent Insolubles (B) on sample #16184; results in mg/100ml

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
132	D2274	0.1		-0.36	
140	D2274	0		-1.10	
150	D2274	0		-1.10	
159		-----		-----	
171	D2274	0		-1.10	
230	ISO12205	<0.1		-----	
237		-----		-----	
312		-----		-----	
323	D2274	0.1		-0.36	
343	ISO12205	<0.01		-----	
344		-----		-----	
360	D2274	0.28		0.96	
369	D2274	0.03		-0.88	
370	ISO12205	0.48	C	2.43	first reported: 0.18
402	ISO12205	5.18	R(0.01)	36.94	
445	D2274	0.06		-0.66	
447	D2274	0.06		-0.66	
507	D2274	0.12		-0.22	
657	D2274	0.1		-0.36	
862	D2274	<0.01		-----	
874	D2274	1.2	R(0.01)	7.71	
902		-----		-----	
963	D2274	0.2		0.37	
974	D2274	0.11		-0.29	
1011		-----		-----	
1016	ISO12205	1.4	ex	9.18	test result excluded, see §4.1
1033	D2274	0.375		1.66	
1059	D2274	<0,1		-----	
1081		-----		-----	
1082	ISO12205	0.002857		-1.08	
1105	D2274	0.143		-0.05	
1109	D2274	0.486		2.47	
1134	D2274	0.2		0.37	
1161		-----		-----	
1167		-----		-----	
1191		-----		-----	
1201	D2274	0.029		-0.88	
1251	ISO12205	0		-1.10	
1259	ISO12205	0.4		1.84	
1299	D2274	0.14		-0.07	
1301	D2274	0.0571		-0.68	
1409	ISO12205	<0.1		-----	
1428	ISO12205	0.14		-0.07	
1539	ISO12205	0.11		-0.29	
1613	D2274	0.2		0.37	
1654		-----		-----	
1709	D2274	0.029		-0.88	
1710	ISO12205	0.06		-0.66	
1724		-----		-----	
1741	ISO12205	0.023		-0.93	
1807	ISO12205	0.31		1.18	
1810		-----		-----	
1811		-----		-----	
1813	D2274	0.23		0.59	
1857	D2274	0.2		0.37	
1944	ISO12205	0.14		-0.07	
1948		-----		-----	
1949	D2274	0.16		0.08	
2129	D2274	0.14		-0.07	
6049	D2274	0.14044	C	-0.07	first reported: 1.4044 mg/100ml
6057	ISO12205	4.2	R(0.01)	29.74	
6068	ISO12205	0		-1.10	
6075	ISO12205	0.47		2.35	

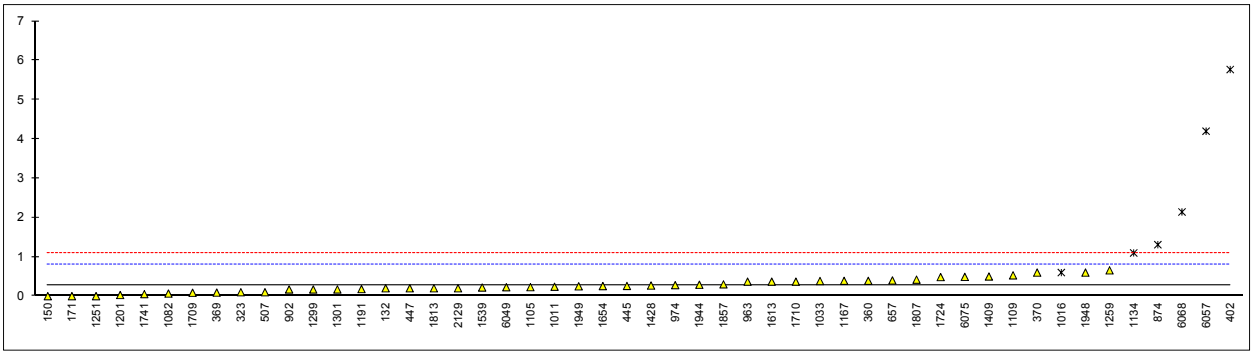
normality	suspect
n	39
outliers	3+1ex
mean (n)	0.149
st.dev. (n)	0.1391
R(calc.)	0.390
R(D2274:14)	0.381


2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
150
140
171
1251
6068
1082
1741
1201
1709
369
1301
445
447
1710
132
657
323
974
1539
507
1299
1428
1944
2129
6049
1105
1949
963
1134
1613
1857
1813
360
1807
1033
1259
6075
370
1109
874
1016
6057
402


Kernel Density
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5
2

Determination of Oxidation Stability Total Insolubles on sample #16184; results in mg/100ml

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
132	D2274	0.2		-0.25	
140	D2274	<0.1		-----	
150	D2274	0		-0.98	
159		-----		-----	
171	D2274	0		-0.98	
230	ISO12205	<0.1		-----	
237		-----		-----	
312		-----		-----	
323	D2274	0.1		-0.62	
343	ISO12205	<0.01		-----	
344		-----		-----	
360	D2274	0.39		0.45	
369	D2274	0.09		-0.65	
370	ISO12205	0.6	C	1.22	first reported: 0.3
402	ISO12205	5.77	R(0.01)	20.20	
445	D2274	0.26		-0.03	
447	D2274	0.2		-0.25	
507	D2274	0.1		-0.62	
657	D2274	0.4		0.48	
862	D2274	<0.1		-----	
874	D2274	1.31	R(0.01)	3.82	
902	ISO12205	0.17		-0.36	
963	D2274	0.37		0.37	
974	D2274	0.28		0.04	
1011	ISO12205	0.24		-0.10	
1016	ISO12205	0.6	ex	1.22	test result excluded, see §4.1
1033	D2274	0.385		0.43	
1059	D2274	<0,1		-----	
1081		-----		-----	
1082	ISO12205	0.0656		-0.74	
1105	D2274	0.229		-0.14	
1109	D2274	0.53		0.96	
1134	D2274	1.1	R(0.01)	3.05	
1161		-----		-----	
1167	ISO12205	0.39		0.45	
1191	ISO12205	0.18	C	-0.32	first reported result as Oxidation Stability Filterable Insolubles (A)
1201	D2274	0.029		-0.88	
1251	ISO12205	0		-0.98	
1259	ISO12205	0.657		1.43	
1299	D2274	0.17		-0.36	
1301	D2274	0.1714		-0.35	
1409	ISO12205	0.5		0.85	
1428	ISO12205	0.27		0.01	
1539	ISO12205	0.22		-0.18	
1613	D2274	0.37		0.37	
1654	ISO12205	0.257		-0.04	
1709	D2274	0.086		-0.67	
1710	ISO12205	0.37		0.37	
1724	D2274	0.4857		0.80	
1741	ISO12205	0.052		-0.79	
1807	ISO12205	0.42		0.56	
1810		-----		-----	
1811		-----		-----	
1813	D2274	0.2	E	-0.25	iis calculated 0.33
1857	D2274	0.3		0.12	
1944	ISO12205	0.29		0.08	
1948	ISO12205	0.6		1.22	
1949	D2274	0.25		-0.07	
2129	D2274	0.2		-0.25	
6049	D2274	0.22744	C	-0.15	first reported: 1.4914 mg/100ml
6057	ISO12205	4.2	R(0.01)	14.43	
6068	ISO12205	2.143	R(0.01)	6.88	
6075	ISO12205	0.49		0.81	
	normality	OK			
	n	44			
	outliers	5+1ex			
	mean (n)	0.268			
	st.dev. (n)	0.1706			
	R(calc.)	0.478			
	R(D2274:14)	0.763			


7
6
5
4
3
2
1
0
150
171
1251
1201
1741
1082
1709
369
323
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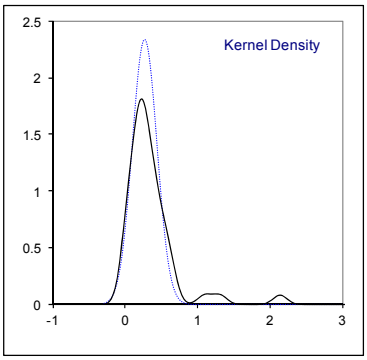
902
1299
1301
1191
132
447
1813
2129
1539
6049
1105
1011
1949
1654
445
1428
974
1944
1857
963
1613
1710
1033
1167
360
657
1807
1724
6075
1409
1109
370
1016
1948
1259
1134
874
6068
6057
402


Kernel Density
2.5
2
1.5
1
0.5
0
-1
0
1
2
3

APPENDIX 2: z-scores of the Determination of Distillation

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP	lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
52	0.72	-0.21	0.48	-0.47	-0.22	-0.07	825	-0.05	0.39	-0.92	-1.43	-1.52	-0.39
53	-----	-----	-----	-----	-----	-----	840	0.08	1.00	-0.13	-0.15	-0.22	0.05
90	-0.29	-2.61	-0.36	0.94	2.14	0.99	854	1.08	1.17	1.04	0.66	0.55	0.32
92	2.15	1.17	1.79	-0.30	-0.22	-1.92	862	0.51	0.51	1.14	0.49	0.31	0.95
120	-0.23	-0.51	-1.57	0.04	1.31	-0.31	863	1.08	0.21	0.76	0.21	0.05	0.48
131	1.38	1.17	0.95	1.22	0.71	0.05	873	-0.32	-1.17	-0.17	0.77	1.01	1.03
132	-0.02	2.73	0.86	-0.19	-0.45	-1.37	874	-0.26	-0.69	0.76	1.05	1.38	1.07
140	0.48	0.33	0.30	-0.19	-0.25	-0.46	887	-0.26	-1.89	0.76	0.49	0.38	0.88
150	-1.72	-1.59	-0.92	-0.41	-0.15	-1.10	902	-0.14	-0.87	-0.92	-0.86	-0.98	-0.03
159	-0.80	-0.57	-0.92	-0.81	-0.82	-1.02	904	-0.59	-2.19	-2.78	-1.82	-1.22	-0.86
169	-0.89	-0.33	-0.26	0.55	0.88	-0.23	922	0.51	0.75	0.58	0.38	0.35	0.48
171	0.16	1.41	0.76	0.26	0.28	0.99	951	0.00	-0.22	1.34	0.79	0.69	1.23
175	-0.86	-1.11	0.39	1.17	1.01	0.13	962	-0.50	-0.09	0.30	0.38	0.45	0.28
186	-----	-----	-----	-----	-----	-----	963	-0.11	0.33	1.14	0.21	0.58	0.09
194	-----	-----	-----	-----	-----	-----	970	0.48	0.51	1.14	0.94	0.74	0.72
203	-----	-----	-----	-----	-----	-----	971	0.51	-0.09	-0.36	-0.07	0.35	-0.03
217	0.16	-0.27	-0.17	-0.24	-0.15	-0.39	974	0.45	0.81	0.86	0.83	0.74	0.32
221	0.33	-0.09	-0.17	0.49	0.21	-0.50	994	0.78	-0.99	-0.64	-0.36	0.21	0.28
224	0.25	-0.03	-0.51	0.69	0.91	1.38	995	0.48	-1.29	-1.10	-0.07	0.38	0.28
225	0.04	-0.69	-1.57	-0.64	0.55	-0.50	996	-----	-----	-----	-----	-----	-----
228	0.93	0.51	-0.17	1.05	-0.12	-0.11	997	0.63	-1.29	-1.10	-0.07	0.21	0.28
230	0.42	0.57	0.11	0.55	0.41	1.74	998	0.63	-0.39	-0.17	0.21	0.55	0.68
237	0.93	-1.29	-1.10	-1.77	-2.12	0.28	1006	-0.08	0.33	0.11	-0.47	-0.78	-0.07
238	0.33	-0.09	-0.17	1.05	0.55	1.07	1011	0.51	1.53	1.23	0.38	0.25	0.48
240	0.63	-1.29	-1.10	-0.64	-0.12	-0.90	1016	-----	-----	-----	-----	-----	-----
252	0.33	-1.29	-0.17	-0.07	-0.12	-0.11	1033	0.22	1.11	1.42	0.60	0.45	0.52
253	-0.11	0.81	0.76	0.21	0.55	0.28	1059	0.33	-0.09	-0.73	-0.58	-0.45	-0.66
254	0.04	-1.29	-1.10	0.49	0.38	-0.50	1067	0.60	0.15	0.20	0.43	0.41	0.44
256	-1.15	-1.89	-0.17	-0.07	-----	-0.11	1080	-----	-----	-----	-----	-----	-----
258	1.41	1.05	1.60	1.05	0.41	0.09	1081	-----	-----	-----	-----	-----	-----
273	0.84	-0.09	-0.36	-0.36	-0.62	-1.53	1082	0.19	1.17	0.48	0.15	0.01	0.24
312	0.60	1.11	0.86	0.55	0.45	-0.03	1090	-----	-----	-----	-----	-----	-----
317	0.33	1.23	1.51	0.88	0.68	0.72	1105	-1.78	-0.27	-0.54	-0.70	-0.59	-0.62
323	0.78	0.63	0.20	-0.19	-0.05	-0.35	1109	-0.17	-0.21	-0.26	-0.58	-0.62	-0.27
333	-0.65	-0.39	-0.82	-0.86	-0.62	-0.43	1121	-1.60	-0.99	-0.64	-0.36	0.05	0.48
335	0.48	-0.99	0.58	0.21	0.61	-0.11	1126	0.63	0.93	0.48	1.22	0.51	2.06
336	-0.59	-0.09	-0.08	0.21	0.01	0.52	1134	-0.62	-0.81	0.11	0.77	1.18	-0.39
337	0.69	0.87	0.48	-0.13	-0.59	0.32	1146	1.62	0.93	1.60	0.83	0.25	1.31
338	0.78	0.57	0.11	0.71	1.04	-0.15	1159	1.98	-1.05	-0.28	0.13	-0.32	-0.74
342	0.16	1.65	1.42	0.60	0.55	-0.39	1161	-0.65	-0.93	-1.01	-0.41	-1.02	-1.45
343	-2.47	-0.81	-1.29	-0.30	-0.45	-1.21	1167	0.04	1.59	1.04	0.60	0.11	0.21
344	0.01	0.69	-0.92	-1.20	-1.22	-1.37	1171	-0.19	**-3.35**	-2.12	-0.77	-0.86	0.51
349	-----	-----	-----	-----	-----	-----	1182	0.63	1.89	0.95	1.33	0.94	0.52
353	-0.59	-1.11	0.30	1.11	1.04	0.88	1186	**-3.18**	**-8.36**	**-5.58**	-1.65	-2.05	0.36
355	-1.46	-0.70	0.27	0.19	0.20	-1.50	1191	-1.63	-0.63	-0.45	-0.30	-0.25	-0.43
356	-0.44	0.87	0.20	-0.07	-0.15	0.32	1201	0.81	0.75	0.02	-0.24	-0.49	-0.54
360	-1.66	0.45	-0.08	-0.64	-0.69	-0.43	1213	-0.47	-0.39	-2.04	-0.47	-0.59	0.60
381	-1.57	-0.27	0.20	0.60	0.31	0.40	1227	**3.55**	3.09	2.35	2.07	2.04	0.95
402	0.13	-0.75	0.48	1.00	0.48	-1.81	1229	0.51	0.75	0.95	**-4.25**	0.88	0.56
445	-1.33	-0.21	-0.82	-0.41	-0.22	-0.23	1251	-0.47	0.09	0.39	-0.47	-0.49	0.09
446	1.23	-0.27	0.67	0.77	0.18	-0.62	1259	-0.17	0.45	-0.73	-1.71	-1.75	-0.35
485	0.13	0.63	0.58	0.12	-0.15	0.11	1299	-0.38	-0.51	-0.82	-0.24	-0.09	-0.03
507	1.23	-0.69	0.76	-1.20	-1.78	**-3.26**	1347	2.27	1.41	0.76	0.49	0.38	0.09
511	1.08	0.21	-0.64	-1.20	-0.78	-0.11	1348	-0.32	-0.45	-1.10	-0.92	-0.62	0.84
529	-----	-----	-----	-----	-----	-----	1356	-----	-----	-----	-----	-----	-----
541	-0.53	0.03	-0.08	-0.24	-0.25	0.40	1357	-0.35	1.77	1.32	0.60	0.35	0.28
556	-----	-----	-----	-----	-----	-----	1379	0.33	-1.89	-1.10	-0.36	0.21	-0.11
557	-----	-----	-----	-----	-----	-----	1385	0.63	-1.29	-2.97	-2.33	-1.78	**4.62**
558	-----	-----	-----	-----	-----	-----	1397	-0.08	1.47	0.95	-0.07	-0.09	0.68
562	-0.41	-0.75	0.95	0.15	-0.42	0.80	1399	-----	-----	-----	-----	-----	-----
603	-----	-----	-----	-----	-----	-----	1409	-0.32	-0.69	-0.64	-0.36	-0.25	0.24
604	0.16	-1.77	1.04	0.60	0.55	-0.27	1412	0.78	0.51	0.76	1.05	0.71	0.48
605	-----	-----	-----	-----	-----	-----	1417	0.54	2.07	1.79	1.28	1.21	0.13
608	1.17	1.41	1.14	0.49	0.31	0.56	1428	0.39	0.45	-0.08	-0.81	-0.69	-0.27
614	-0.56	-1.29	-0.17	-0.07	-0.45	-1.69	1430	-0.08	0.57	0.11	-1.09	-1.25	0.01
634	-0.11	0.81	1.23	1.90	1.71	0.88	1441	-0.44	0.03	-0.73	-0.30	0.15	-0.39
657	-0.65	0.45	0.67	-0.02	-0.35	0.40	1460	-1.36	0.03	0.95	2.07	2.64	-0.35
671	-----	-----	-----	-----	-----	-----	1498	0.01	0.57	0.48	-0.02	-0.39	0.52
732	1.23	-0.09	-1.10	-0.07	-0.12	0.28	1510	-0.56	-0.51	-1.01	-0.98	-0.78	-0.23
750	0.93	0.21	1.70	1.62	1.21	0.68	1539	-0.56	0.45	-0.82	-0.13	0.18	-1.73
751	-----	-----	-----	-----	-----	-----	1575	-----	-----	-----	-----	-----	-----
759	0.04	0.21	0.76	-0.07	-0.62	0.68	1577	-----	-----	-----	-----	-----	-----
781	0.42	0.21	0.30	0.04	0.15	0.24	1588	-----	-----	-----	-----	-----	-----
785	-0.05	0.69	1.32	0.83	0.78	0.64	1613	0.87	0.33	1.23	1.50	1.58	0.88
823	-0.89	-0.39	-0.64	-0.36	-0.25	0.01	1629	-----	-----	-----	-----	-----	-----
824	-0.86	-0.15	-0.17	0.32	0.25	0.01	1634	-0.71	0.15	-0.73	-1.32	-0.92	-0.43

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP	lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
1643	-----	-----	-----	-----	-----	-----	1937	0.51	0.15	-0.73	-1.03	-1.15	-0.62
1654	-----	-----	-----	-----	0.08	-----	1938	-0.62	-2.25	-1.66	-1.03	-0.62	-0.50
1709	-0.71	-0.69	0.58	0.26	0.25	0.40	1944	-0.20	-0.45	1.14	0.26	-0.09	0.88
1710	-0.80	0.03	0.20	-0.24	-0.42	0.09	1948	0.42	-1.35	-0.64	-0.58	-0.39	0.60
1720	-1.90	2.91	0.86	0.38	0.48	0.17	1949	-0.41	-0.99	-0.64	-0.92	-0.45	-0.50
1724	-1.01	1.05	0.58	0.32	0.28	0.24	1967	-1.15	**-3.68**	-2.50	-0.64	-0.29	0.09
1741	-0.35	-0.03	0.02	-0.41	-0.52	0.05	1984	0.19	-0.39	0.02	-0.24	-0.12	0.17
1776	-1.66	-1.47	-1.57	-1.65	-1.48	-1.65	1986	-1.15	-2.49	-1.10	-0.07	0.38	-0.31
1783	-0.60	0.24	0.58	-0.05	-0.19	0.01	1995	-----	-----	-----	-----	-----	-----
1785	-0.47	0.03	0.20	-0.33	-0.24	-0.03	2129	1.65	1.29	-0.82	-0.98	-1.15	1.31
1796	-0.56	-0.09	-0.54	-0.86	-0.88	-0.86	6005	0.39	0.99	0.39	0.55	0.81	0.09
1807	-0.05	-0.45	-0.17	-0.47	-0.32	-0.03	6012	-0.74	-2.25	-2.50	-0.36	-0.25	-1.06
1810	1.11	-0.87	-0.54	-0.07	-0.05	-0.23	6016	-1.07	-0.27	0.30	0.49	0.84	-0.35
1811	0.45	0.75	-0.82	-1.03	-1.28	-0.54	6045	-0.44	0.03	-0.54	-0.19	-0.12	-0.27
1813	-0.56	0.33	0.30	-0.24	-0.32	-0.15	6049	0.63	-0.15	1.51	1.28	0.51	-2.24
1846	-----	-----	-----	-----	-----	-----	6051	0.04	-1.59	-1.10	-0.36	-0.78	-0.11
1849	-0.35	0.33	-0.26	-1.03	-1.12	-0.43	6054	0.19	0.69	0.30	-0.36	-0.09	-0.19
1854	0.10	0.33	-0.82	-1.03	-1.18	-0.50	6057	1.41	1.59	1.14	0.38	0.18	0.64
1857	-0.11	-0.09	-0.64	-0.64	-0.62	-0.90	6068	-0.41	-0.09	-0.64	-0.58	-0.59	-0.23
1862	-0.02	-2.01	-1.38	-0.70	-0.78	-0.15	6075	0.19	1.05	0.76	0.43	0.28	0.64
1906	-----	-----	-----	-----	-----	-----	7009	0.04	1.53	1.14	1.22	1.61	0.36
1936	-0.14	-1.17	-1.01	-0.92	-0.88	-0.15							

Z-scores underlined and bold are marked as statistical outliers

APPENDIX 3

Participants per country of main round

1 lab in	AFGHANISTAN
1 lab in	ALBANIA
1 lab in	ARGENTINA
4 labs in	AUSTRALIA
2 labs in	AZERBAIJAN
2 labs in	BELGIUM
1 lab in	BOSNIA and HERZEGOVINA
1 lab in	BOSNIA and HERZEGOWINA
3 labs in	BRAZIL
1 lab in	BULGARIA
4 labs in	CANADA
2 labs in	CHILE
6 labs in	CHINA, People's Republic
1 lab in	COSTA RICA
2 labs in	COTE D'IVOIRE
2 labs in	CROATIA
1 lab in	CYPRUS
3 labs in	CZECH REPUBLIC
1 lab in	DJIBOUTI
2 labs in	EGYPT
1 lab in	EQUATORIAL GUINEA
3 labs in	FINLAND
6 labs in	FRANCE
3 labs in	GEORGIA
1 lab in	GERMANY
4 labs in	GREECE
1 lab in	GUAM
1 lab in	GUINEA REPUBLIC
1 lab in	HONG KONG
2 labs in	HUNGARY
1 lab in	IRAN, Islamic Republic of
1 lab in	IRELAND
1 lab in	ISRAEL
1 lab in	JORDAN
2 labs in	KAZAKHSTAN
2 labs in	KENYA
3 labs in	LEBANON
4 labs in	MALAYSIA
1 lab in	MALTA
1 lab in	MARTINIQUE
1 lab in	MAURITIUS
1 lab in	MEXICO
1 lab in	MOZAMBIQUE
1 lab in	MYANMAR
10 labs in	NETHERLANDS
2 labs in	NIGERIA
2 labs in	NORWAY
2 labs in	OMAN
1 lab in	PAKISTAN
1 lab in	PANAMA
1 lab in	PERU
1 lab in	PHILIPPINES
3 labs in	POLAND
3 labs in	PORTUGAL
2 labs in	ROMANIA
13 labs in	RUSSIAN FEDERATION
3 labs in	SAUDI ARABIA
1 lab in	SENEGAL
2 labs in	SERBIA
1 lab in	SINGAPORE
1 lab in	SLOVENIA
2 labs in	SOUTH AFRICA
3 labs in	SOUTH KOREA
7 labs in	SPAIN
1 lab in	ST. LUCIA - WEST INDIES
2 labs in	SUDAN
2 labs in	SWEDEN
3 labs in	TAIWAN
1 lab in	TANZANIA
1 lab in	TOGO
1 lab in	TUNISIA
12 labs in	TURKEY
1 lab in	TURKMENISTAN
1 lab in	UKRAINE
3 labs in	UNITED ARAB EMIRATES
9 labs in	UNITED KINGDOM
10 labs in	UNITED STATES OF AMERICA
2 labs in	VIETNAM

APPENDIX 4

Abbreviations:

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

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