

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

Authors: ing. A. Lewinska & ing. R.J. Starink
Correctors: dr. R.G. Visser & ing. A.S. Noordman-de Neef
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1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies organizes every year proficiency tests for Gasoil. During the annual proficiency testing program of 2017/2018, 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, 184 laboratories in 78 different countries registered for participation. In the PT for Cetane Number, 44 laboratories in 29 different countries registered register for participation. In the PT for the Total Contamination on Gasoil 68 laboratories in 39 different countries and in the PT for the Oxidation Stability on Gasoil 50 laboratories in 29 different countries registered for participation. In total 192 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 2017 proficiency test are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkensisse, 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 for the main round robin ultra low Sulphur (ULS) Gasoil samples labelled #17170; for the Cetane Number round robin two types of samples, an ULS Gasoil, labelled #17171 and an Automotive Diesel Oil (ADO), labelled #17174 (for Derived Cetane Number only); for the Total Contamination round robin an ULS Gasoil, labelled #17172 and for the Oxidation Stability round robin an ULS Gasoil, labelled #17173.

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 Spijkensisse, 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 March 2017 (iis-protocol, version 3.4). 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)

A batch of approximately 400 litre ULS Gasoil, which was purchased from the local market was homogenized in a mixing vessel. Out of this batch, 225 amber glass bottles of 1L and 225 amber glass bottles of 0.5L, with inner and outer caps were filled and labelled #17170. 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 #17170-1	832.60	sample #17170-6	832.59
sample #17170-2	832.60	sample #17170-7	832.60
sample #17170-3	832.60	sample #17170-8	832.60
sample #17170-4	832.60	sample #17170-9	832.60
sample #17170-5	832.60	sample #17170-10	832.60

Table 1: homogeneity test results of subsamples #17170

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 D4052:16
0.3*R (reference test method)	0.15

Table 2: evaluation of the repeatability of subsamples #17170

The calculated repeatability was less than 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #17170 was assumed.

Preparation of samples for PT on Cetane Number

Another batch of approximately 400 litre ULS Gasoil, which was purchased from the local market was homogenized in a mixing vessel. Out of this batch, 300 amber glass bottles of 1L, with inner and outer caps were filled and labelled #17171. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples.

A second batch of approximately 60 litre ADO, especially for DCN analyses, was obtained from a third party. This batch was homogenized in a precleaned drum and 120 amber glass bottles of 0.5L with inner and outer caps were filled and labelled #17174. The homogeneity of the subsamples of #17174 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 sample #17171	Density at 15°C in kg/m ³ sample #17174
sample -1	832.60	835.41
sample -2	832.60	835.40
sample -3	832.59	835.41
sample -4	832.61	835.41
sample -5	832.61	835.41
sample -6	832.62	835.40
sample -7	832.61	835.40
sample -8	832.61	835.41
sample -9	832.59	--
Sample -10	832.59	--

Table 3: homogeneity test results of subsamples #17171 and #17174

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 #17171	Density at 15°C in kg/m ³ sample #17174
r (observed)	0.03	0.01
reference test method	ASTM D4052:16	ASTM D4052:16
0.3*R (reference test method)	0.15	0.15

Table 4: evaluation of the repeatabilities of subsamples #17171 and #17174

The calculated repeatabilities were less than 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #17171 and #17174 was assumed.

Preparation of samples for PT on Total Contamination

Several retain ULS Gasoil batches (approx. 136 litre in total) were homogenized in the mixing vessel and 80 amber glass bottles of 1L with inner and outer caps were filled and labelled #17172. Each of the 80 bottles, before filling, was spiked with 1 ml of a freshly prepared and ultrasonically homogenized, 1.6 g/kg Arizona Dust A3 in oil suspension. 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

Several other retain ULS Gasoil batches (approx. 105 litre in total) were homogenized in the mixing vessel. Out of this batch, 102 amber glass bottles of 0.5L, with inner and outer caps were filled and labelled #17173. 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 #17173-1	833.79	sample #17173-5	833.78
sample #17173-2	833.78	sample #17173-6	833.78
sample #17173-3	833.79	sample #17173-7	833.78
sample #17173-4	833.78	sample #17173-8	833.78

Table 5: homogeneity test results of subsamples #17173

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 D4052:16
0.3*R (reference test method)	0.15

Table 6: precision data of the subsamples #17173

The calculated repeatability was less than 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples #17173 was assumed.

Depending on the registration of the participant: one bottle of 1L #17170 and one bottle of 0.5L #17170, four bottles of 1L #17171, one bottle of 0.5L #17174, one bottle of 1L #17172 and/or 2 bottles of 0.5L #17173 were sent to the participating laboratories on August 30, 2017.

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 #17170; 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 #17171 and #17174 were requested to determine; Derived Cetane number (D6890 and D7668), Ignition Delay (D6890 and D7668), Air temperature, Combustion Delay and Chamber Wall Temperature. On sample #17171 also Cetane number.

On sample #17172 was requested to determine; Particulate and Total Contamination. On sample #17173 was requested to determine; Oxidation Stability (Filterable Insolubles, Adherent Insolubles and Total Insolubles).

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

To get comparable test results, a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the reference test methods that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The participating laboratories are also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisnl.com.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalysis). Additional or corrected test results are used for data analysis and the original test results are placed under 'Remarks' in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the 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 March 2017 (iis-protocol, version 3.4).

For the statistical evaluation, the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<...' or '>...' were not used in the statistical evaluation.

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

If a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.

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

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. 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 these with a factor of 2.8.

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis, the reported analysis 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 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. The Kernel Density Graph 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. ISO reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation in this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility based on former iis proficiency tests could be used.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to

recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate whether the reported test result is fit-for-use.

The z-scores were calculated according to:

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

The $z_{(\text{target})}$ scores are listed in the result tables of appendix 1.

Absolute values for $z < 2$ are very common and absolute values for $z > 3$ are very rare. Therefore, 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: twenty participants reported test results after the final reporting date and eight participants did not report any test results at all.

For the PT on Cetane Number: five participants reported the test results after the final reporting date and eight participants did not report any test results at all.

For the PT on Total Contamination: Seven participants reported the test results after the final reporting date and ten 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 nine participants did not report any test results at all.

Finally, the reporting participants reported in total 3341 numerical test results. Observed were 83 outlying test results, which is 2.5%. 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 SAMPLE AND PER TEST

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.

Sample #17170

Acid Number (Total): This determination was not problematic. One statistical outlier was observed. However, 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. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier 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 a number of participants 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, five statistical outliers were observed.

C.I. D976: This determination was not problematic. One statistical outlier was observed. However, 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 Gasoil ASTM D975:16 table 1 refers to the version from 1980. Two participants probably made calculation errors.

C.I. D4737: This determination might not to be problematic compared to the calculated reproducibility of iis16G04ASTM. Regretfully, no reproducibility is mentioned in ASTM D4737:10(2016). Three 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. Two participants possibly made a calculation error. Up to 2003 ASTM D4737 and ISO4264/IP380 were equivalent test methods and the calculation formula mentioned is the same as given in procedure A.

- Cloud Point: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D2500:17.
- CFPP: 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 D6371:17.
- Colour ASTM: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D1500:12.
- Conradson CR: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D189:06(2014).
- Ramsbottom CR: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full 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. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4052:16.
- Distillation: This determination was not problematic. In total seventeen statistical outliers were observed. All calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D86:17 (automated). When evaluated against ASTM D86:17 (manual) the calculated reproducibilities of IBP, 95% rec and FBP after rejection of the statistical outliers are not in agreement with the requirements of the manual test method.
- FAME: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility 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 Gasoil specification ASTM D975:16. However, in Gasoil 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. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D93:16a (procedure A).
- Kinematic. Visc. 40°C: This determination was problematic for a number of laboratories. Thirteen (!) statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D445:17a.
- Lubricity: This determination was not problematic. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is 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 in agreement with the requirements of the respective test methods.
- Nitrogen: This determination was problematic. Four 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. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D97:17a.
Also, the automated mode the determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D5950:14.
- Sulphur: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5453:16e1.
- Water: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility 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.

Sample #17171

CN - D613: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D613:16e1.

DCN - D6890: Only three test results were reported. Therefore, no significant conclusions were drawn.

DCN - D7668: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility for DCN is in agreement with the requirements of ASTM D7668:14a. The calculated reproducibility for Ignition Delay (ID) is not in agreement with the requirements of ASTM D7668:14a. The calculated reproducibility for Combustion Delay (CD) is in agreement with the requirements of ASTM D7668:14a.

Sample #17174

DCN - D6890: Only five test results were reported. Therefore, no significant conclusions were drawn.

DCN - D7668: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility for DCN is in agreement with the requirements of ASTM D7668:14a. The calculated reproducibility for Ignition Delay (ID) is not in agreement with the requirements of ASTM D7668:14a. The calculated reproducibility for Combustion Delay (CD) is in agreement with the requirements of ASTM D7668:14a.

Sample #17172

Particulate Contamination: 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 D6217:11. The large variation may be (partly) explained by not reporting the test result in the right unit (in mg/kg instead of mg/L). This is also underpinned by the Kernel Density plot on page 81 as the group seems bimodal distributed.

Total Contamination: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN12662:14. The large variation may be (partly) explained by not reporting the test result in the right unit (in mg/L instead of mg/kg). This is also underpinned by the left shoulder in the Kernel Density plot on page 83.

Sample #17173Oxidation Stability

Filterable Insolubles (A): This determination was not problematic at this low level of 0.10 mg/100ml. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D2274:14.

Adherent Insolubles Insolubles (B): This determination was not problematic at this low level of 0.13 mg/100ml. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with ASTM D2274:14.

Total Insolubles: This determination was not problematic at this low level of 0.24 mg/100ml. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers 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	85	0.02	0.02	0.04
Aromatics by FIA	%V/V	34	21.2	4.8	3.7
Ash content	%M/M	77	(0.0007)	(0.0008)	(0.005)
Cetane Index ASTM D976		93	54.3	0.6	2
Cetane Index ASTM D4737		118	54.3	1.0	n.a.
Cloud Point	°C	132	-6.6	2.6	4
Cold Filter Plugging Point	°C	107	-25.7	8.5	5.2
Colour ASTM		72	1.0	0.5	1
Conradson Carbon Residue	%M/M	75	0.02	0.02	0.03
Ramsbottom Carbon Residue	%M/M	15	0.07	0.03	0.03
Copper Corrosion 3hrs at 50°C		123	1	n.a.	n.a.
Density at 15°C	kg/m ³	166	832.6	0.3	0.5
Distillation – automated					
-IBP	°C	147	172.5	7.6	9.5
-10% recovery	°C	151	208.9	4.6	4.6
-50% recovery	°C	149	272.5	3.1	3.0
-90% recovery	°C	149	334.0	4.5	5.0
-95% recovery	°C	144	349.8	8.1	8.6
-FBP	°C	144	359.4	5.1	7.1
-Volume at 250°C	%V/V	135	33.5	2.6	2.7
-Volume at 350°C	%V/V	132	95.1	2.0	2.7
FAME	%V/V	65	3.5	0.6	0.9
Flash Point PMcc	°C	163	63.4	3.4	4.5
Kinematic Viscosity at 40°C	mm ² /s	134	2.760	0.030	0.031
Lubricity by HFRR	µm	60	203	50	80
Nitrogen	mg/kg	38	55.2	9.5	6.4
Pour Point, manual	°C	82	-27.5	5.5	9
Pour Point, automated	°C	39	-26.6	5.4	6.1
Sulphur	mg/kg	118	8.9	2.1	3.0
Water	mg/kg	128	50.3	46.3	177.1
Water and Sediment (D2709)	%V/V	49	<0.05	n.a.	n.a.
Water and Sediment (D1796)	%V/V	33	<0.05	n.a.	n.a.

Table 7: reproducibility of tests on sample #17170.

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

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		22	54.8	4.5	4.7
DCN (D6890)		3	57.4	4.6	(2.9)
Ignition delay (D6890)		3	3.5	0.3	(0.2)
DCN (D7668)		9	56.5	1.2	1.6
Ignition delay (D7668)		9	2.7	0.2	0.1
Combustion delay (D7668)		9	4.2	0.1	0.1

Table 8: reproducibility of tests on sample #17171

Results between brackets for information only. Number of reported test result is low

Parameters	unit	n	average	2.8 * sd	R (lit)
DCN (D6890)		5	53.5	9.8	(2.8)
Ignition delay (D6890)		5	3.8	0.7	(0.2)
DCN (D7668)		10	51.8	0.9	1.4
Ignition delay (D7668)		10	3.0	0.2	0.2
Combustion delay (D7668)		10	4.6	0.1	0.1

Table 9: reproducibility of tests on sample #17174

Results between brackets for information only. Number of reported test result is low

Parameters	unit	n	average	2.8 * sd	R (lit)
Particulate Contamination	mg/L	12	18.4	9.0	4.9
Total Contamination	mg/kg	42	24.0	11.1	8.1

Table 10: reproducibility of tests on sample #17172

Parameters	unit	n	average	2.8 * sd	R (lit)
Oxidation Stab. Filt. Insol. A	mg/100mL	35	0.10	0.19	0.37
Oxidation Stab. Adher. Insol B	mg/100mL	35	0.13	0.24	0.37
Oxidation Stab. Tot. Insol.	mg/100mL	37	0.24	0.41	0.74

Table 11: reproducibility of tests on sample #17173

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 2017 WITH PREVIOUS PTS.

	Sept 2017	Sept 2016	Sept 2015	Sept 2014	Sept 2013
Number of reporting labs	181	199	165	163	160
Number of test results reported	3341	3721	2996	3419	3123
Statistical outliers	83	61	55	68	67
Percentage outliers	2.5%	1.6%	1.8%	2.0%	2.1%

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 2017	Sept 2016	Sept 2015	Sept 2014	Sept 2013
Acid Number (Total)	++	++	+	++	++
Aromatics by FIA	-	-	--	--	--
Ash content	(++)	(++)	(++)	(++)	(++)
Cetane Index ASTM D976	++	++	++	n.e.	n.e.
Cloud Point	++	++	++	++	++
Cold Filter Plugging Point	--	-	-	-	-
Colour ASTM	++	++	++	++	++
Conradson Carbon Residue	+	+	+/-	+	+
Ramsbottom Carbon Residue	+/-	-	--	--	--
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.
Ignition Delay (D7668)	-	+/-	+/-	--	n.e.
Combustion Delay (D7668)	+/-	-	-	n.e.	n.e.
Particulate Contamination mg/L	--	-	--	n.e.	n.e.
Total Contamination mg/kg	-	+/-	--	--	--
Oxidation Stab. Filt. Insol. A	++	+/-	+/-	++	+
Oxidation Stab. Ad. Insol. B	+	+/-	+/-	n.e.	n.e.
Oxidation Stab. Total Insol.	++	+	+	n.e.	n.e.

Table 13: comparison determinations against the reference 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

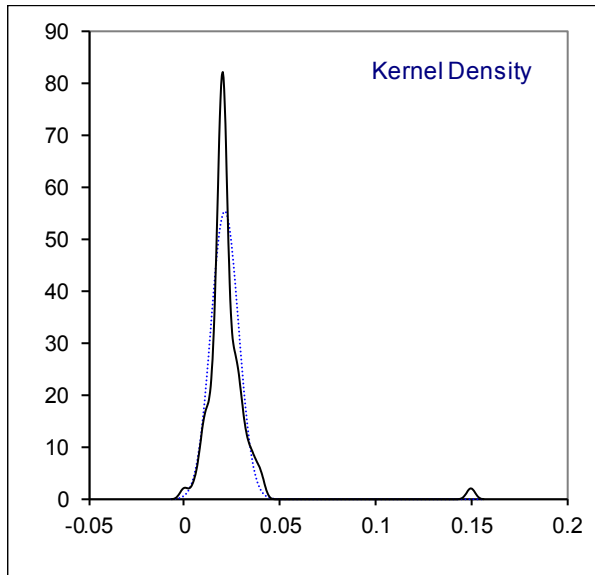
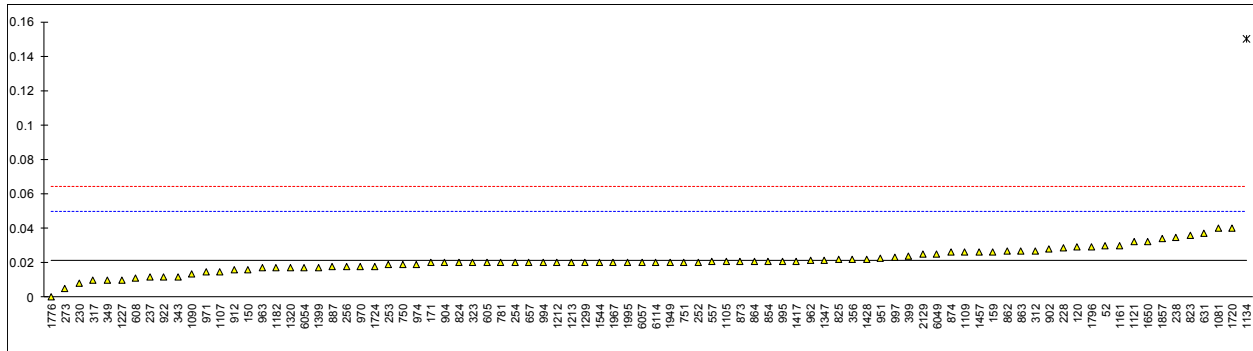
Determination of Acid Number (total) on sample #17170; results in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D974	0.03		0.62	732		----		----
53		----		----	750	D664	0.019		-0.15
62		----		----	751	D974	0.02038		-0.06
90		----		----	759		----		----
92		----		----	779		----		----
120	D974	0.029		0.55	781	D974	0.020		-0.08
131		----		----	782		----		----
140	D974	<0.02		----	785		----		----
150	D664-A	0.016		-0.36	798		----		----
158		----		----	823	D974	0.036		1.04
159	D664-A	0.0265		0.37	824	D974	0.02		-0.08
169		----		----	825	D974	0.022		0.06
171	D974	0.02	C	-0.08	842		----		----
175		----		----	854	D664-A	0.021		-0.01
186		----		----	862	D974	0.027		0.41
194	D664-A	<0.10		----	863	D974	0.027		0.41
203		----		----	864	D974	0.021		-0.01
217		----		----	872		----		----
218		----		----	873	D974	0.021		-0.01
221		----		----	874	D664-A	0.026		0.34
224		----		----	887	D664-A	0.0178		-0.24
228	D974	0.0288		0.53	902	D664-A	0.028		0.48
230	D664-A	0.008		-0.92	904	D664-A	0.02		-0.08
237	D974	0.012		-0.64	912	D974	0.016		-0.36
238	D974	0.0346		0.94	922	D664-A	0.012		-0.64
240		----		----	951	D974	0.0224		0.08
252	D974	0.0204		-0.06	962	D974	0.0214		0.01
253	D974	0.019		-0.15	963	D974	0.017		-0.29
254	D974	0.02		-0.08	970	D974	0.018		-0.22
256	D974	0.018		-0.22	971	D974	0.015		-0.43
258		----		----	974	D974	0.019		-0.15
273	D974	0.0054		-1.11	994	D974	0.020		-0.08
312	D974	0.027		0.41	995	D974	0.021		-0.01
317	D974	0.01		-0.78	996		----		----
323	D974	0.02		-0.08	997	D974	0.023		0.13
333		----		----	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059		----		----
338		----		----	1081	D664-A	0.04		1.32
343	D664-A	0.012		-0.64	1090	D974	0.01376		-0.52
344		----		----	1105	D974	0.0206		-0.04
349	D664-A	0.01		-0.78	1107	D664-A	0.015		-0.43
351		----		----	1109	D974	0.026		0.34
353		----		----	1121	IP139	0.032		0.76
355		----		----	1124		----		----
356	D974	0.022		0.06	1126		----		----
381		----		----	1134	IP177	0.15	R(0.01)	9.02
399	D664-A	0.024		0.20	1146		----		----
431		----		----	1161	D664-A	0.03		0.62
433		----		----	1171		----		----
440		----		----	1182	D664-A	0.017		-0.29
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	D974	0.020		-0.08
507	D974	n/a		----	1213	D974	0.02		-0.08
511		----		----	1227	D664-A	0.01		-0.78
529		----		----	1297		----		----
541	D974	<0.05		----	1299	D664-A	0.02		-0.08
555		----		----	1320	D664-A	0.017		-0.29
556		----		----	1347	D974	0.0214		0.01
557	D974	0.0205560		-0.04	1348		----		----
558		----		----	1356	D664-A	<0.05		----
562		----		----	1385		----		----
575		----		----	1399	D664-A	0.0171		-0.29
603		----		----	1417	D664-A	0.021		-0.01
604		----		----	1428	D664-A	0.022		0.06
605	D664-A	0.02		-0.08	1430		----		----
608	D664-A	0.011		-0.71	1431		----		----
614		----		----	1457	D974	0.026		0.34
621		----		----	1498		----		----
631	D974	0.037		1.11	1544	D974	0.020		-0.08
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D974	0.02		-0.08	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D664	0.032		0.76	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D974	0.0202		-0.07
1720	D974	0.04		1.32	1967	D974	0.02		-0.08
1724	D664-A	0.018		-0.22	1984		----		----
1776	D664-A	0		-1.48	1995	D664	0.02		-0.08
1796	D664-A	0.0295		0.58	2129	D974	0.025		0.27
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049	D974	0.025		0.27
1849		----		----	6054	D974	0.017		-0.29
1857	D974	0.0340		0.90	6057	D664-A	0.02		-0.08
1881		----		----	6101		----		----
1906		----		----	6114	D664-A	0.020		-0.08
1936		----		----	6142		----		----

normality suspect
n 85
outliers 1
mean (n) 0.0212
st.dev. (n) 0.00719
R(calc.) 0.0201
st.dev. (D974:14e2) 0.014
R(D974:14e2) 0.04

Lab 171 first reported: 0.4
Lab 1134 first reported: ASTM D974

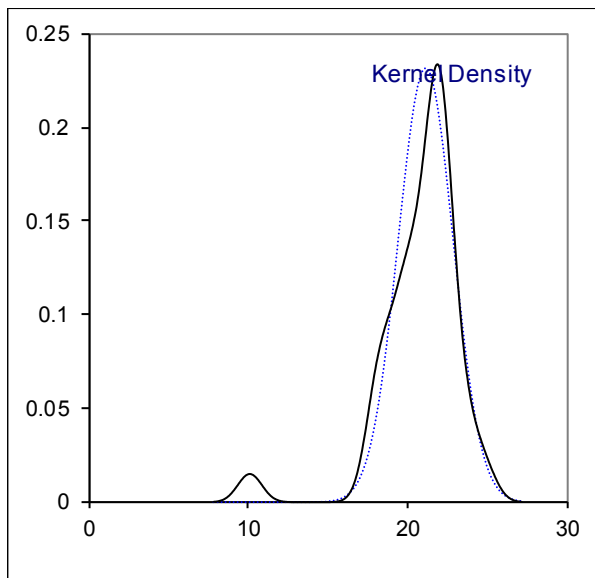
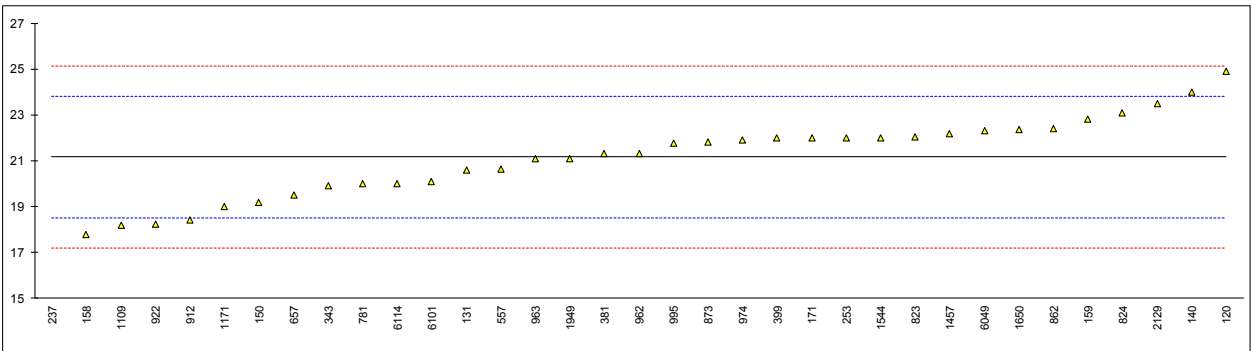


Determination of Aromatics by FIA on sample #17170; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	732		----		----
53		----		----	750		----		----
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120	D1319	24.9		2.83	781	D1319	20.0		-0.88
131	D1319	20.6		-0.42	782		----		----
140	D1319	24.0		2.15	785		----		----
150	D1319	19.2		-1.48	798		----		----
158	D1319	17.8		-2.54	823	D1319	22.03		0.66
159	D1319	22.81		1.25	824	D1319	23.07		1.45
169		----		----	825		----		----
171	D1319	22.0		0.64	842		----		----
175		----		----	854		----		----
186		----		----	862	D1319	22.4		0.94
194		----		----	863		----		----
203		----		----	864		----		----
217		----		----	872		----		----
218		----		----	873	D1319	21.80		0.48
221		----		----	874		----		----
224		----		----	887		----		----
228		----		----	902		----		----
230		----		----	904		----		----
237	D1319	10.13	R(0.01)	-8.35	912	D1319	18.43		-2.07
238		----		----	922	D1319	18.24		-2.21
240		----		----	951		----		----
252		----		----	962	D1319	21.3		0.11
253	D1319	22.00		0.64	963	D1319	21.1		-0.05
254		----		----	970		----		----
256		----		----	971		----		----
258		----		----	974	D1319	21.9		0.56
273		----		----	994		----		----
312		----		----	995	D1319	21.78		0.47
317		----		----	996		----		----
323		----		----	997		----		----
333		----		----	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059		----		----
338		----		----	1081		----		----
343	D1319	19.9		-0.95	1090		----		----
344		----		----	1105		----		----
349		----		----	1107		----		----
351		----		----	1109	D1319	18.18		-2.26
353		----		----	1121		----		----
355		----		----	1124		----		----
356		----		----	1126		----		----
381	D1319	21.3		0.11	1134		----		----
399	D1319	22.0		0.64	1146		----		----
431		----		----	1161		----		----
433		----		----	1171	D1319	19.00		-1.63
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212		----		----
507	D1319	n/a		----	1213		----		----
511		----		----	1227		----		----
529		----		----	1297		----		----
541		----		----	1299		----		----
555		----		----	1320		----		----
556		----		----	1347		----		----
557	D1319	20.623886		-0.41	1348		----		----
558		----		----	1356		----		----
562		----		----	1385		----		----
575		----		----	1399		----		----
603		----		----	1417		----		----
604		----		----	1428		----		----
605		----		----	1430		----		----
608		----		----	1431		----		----
614		----		----	1457	D1319	22.2		0.79
621		----		----	1498		----		----
631		----		----	1544	D1319	22.0		0.64
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D1319	19.5		-1.26	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D1319	22.35		0.90	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D1319	21.11		-0.04
1720		----		----	1967		----		----
1724		----		----	1984		----		----
1776		----		----	1995		----		----
1796		----		----	2129	D1319	23.5		1.77
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049	D1319	22.3		0.86
1849		----		----	6054		----		----
1857		----		----	6057		----		----
1881		----		----	6101	D1319	20.1136		-0.79
1906		----		----	6114	D1319	20.00		-0.88
1936		----		----	6142		----		----

normality OK
 n 34
 outliers 1
 mean (n) 21.160
 st.dev. (n) 1.7196
 R(calc.) 4.815
 st.dev.(D1319:15) 1.32
 R(D1319:15) 3.7



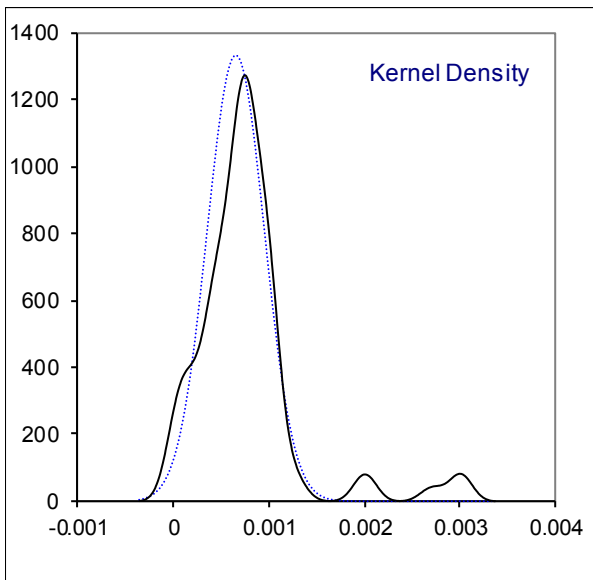
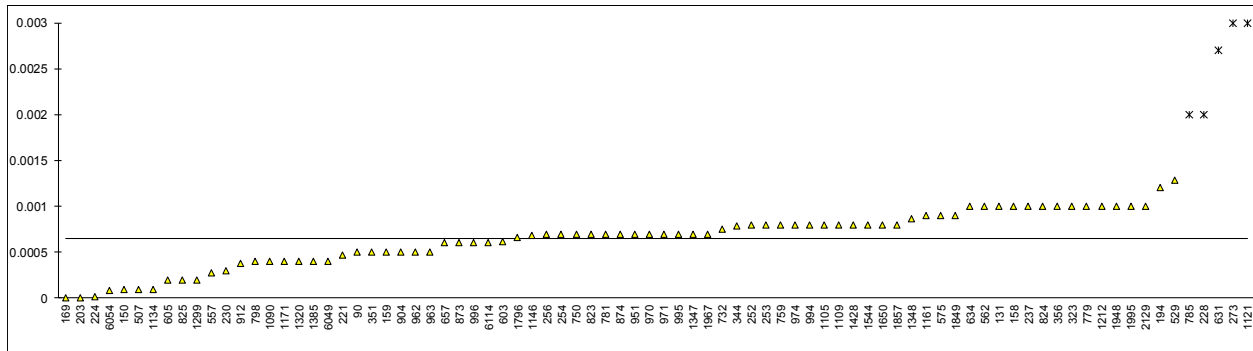
Determination of Ash on sample #17170; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	<0.001		----	732	D482	0.00075		----
53		----		----	750	D482	0.0007		----
62	D482	<0.001		----	751		----		----
90	D482	0.0005		----	759	D482	0.0008		----
92	D482	<0.001		----	779	ISO6245	0.001		----
120	D482	<0.001		----	781	D482	0.0007		----
131	D482	0.001		----	782		----		----
140	D482	<0.001		----	785	D482	0.002	R(0.01)	----
150	D482	0.0001		----	798	D482	0.0004		----
158	D482	0.001		----	823	D482	0.0007		----
159	D482	0.0005		----	824	D482	0.001		----
169	D482	0.000		----	825	D482	0.0002		----
171	D482	<0.001		----	842		----		----
175		----		----	854	D482	<0.001		----
186		----		----	862	D482	<0.001		----
194	D482	0.0012		----	863	D482	<0.001		----
203	D482	0.0000		----	864	D482	<0.001		----
217		----		----	872		----		----
218		----		----	873	D482	0.0006		----
221	D482	0.00047		----	874	D482	0.0007		----
224	D482	0.000015		----	887		----		----
228	D482	0.002	R(0.01)	----	902	D482	<0,001		----
230	ISO6245	0.0003		----	904	D482	0.0005		----
237	D482	0.001		----	912	D482	0.00038		----
238		----		----	922	D482	<0.001		----
240		----		----	951	D482	0.0007		----
252	D482	0.0008		----	962	D482	0.0005		----
253	D482	0.0008		----	963	D482	0.0005		----
254	D482	0.0007		----	970	D482	0.0007		----
256	D482	0.0007		----	971	D482	0.0007		----
258		----		----	974	D482	0.0008		----
273	D482	0.003	R(0.01)	----	994	D482	0.0008		----
312		----		----	995	D482	0.0007		----
317	D482	<0.001		----	996	D482	0.0006		----
323	D482	0.001		----	997		----		----
333		----		----	998		----		----
335		----		----	1006	D482	<0.001		----
336		----		----	1033		----		----
337		----		----	1059	ISO6245	<0,001		----
338		----		----	1081		----		----
343	D482	<0,001		----	1090	ISO6245	0.0004		----
344	D482	0.00079		----	1105	D482	0.0008		----
349		----		----	1107		----		----
351	D482	0.0005		----	1109	D482	0.0008		----
353	IP4	<0.001		----	1121	D482	0.003	R(0.01)	----
355		----		----	1124	ISO6245	< 0.001		----
356	D482	0.001		----	1126		----		----
381		----		----	1134	D482	0.0001		----
399		----		----	1146	D482	0.00069		----
431		----		----	1161	ISO6245	0.000896		----
433		----		----	1171	ISO6245	0.0004		----
440		----		----	1182		----		----
446	D482	<0.001		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	D482	0.001		----
507	D482	0.00010		----	1213	D482	<0.005		----
511		----		----	1227		----		----
529	D482	0.00129		----	1297		----		----
541	D482	<0.001		----	1299	D482	0.0002		----
555	D482	<0.001		----	1320	D482	0.0004		----
556		----		----	1347	D482	0.0007		----
557	D482	0.0028068		----	1348	D482	0.00087		----
558		----		----	1356	ISO6245	<0.010		----
562	D482	0.001		----	1385	D482	0.0004		----
575	D482	0.0009		----	1399		----		----
603	D482	0.00062		----	1417		----		----
604		----		----	1428	D482	0.0008		----
605	D482	0.0002		----	1430	D482	<0.001		----
608	D482	<0.01		----	1431		----		----
614	D482	<0.001		----	1457		----		----
621		----		----	1498		----		----
631	D482	0.0027	R(0.01)	----	1544	D482	0.0008		----
633		----		----	1588		----		----
634	D482	0.001		----	1629		----		----
657	D482	0.0006		----	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D482	0.0008		----	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948	ISO6245	0.0010		----
1709		----		----	1949		----		----
1720		----		----	1967	D482	0.0007		----
1724	D482	<0.001		----	1984		----		----
1776		----		----	1995	D482	0.001		----
1796	D482	0.00066		----	2129	D482	0.001		----
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049	D482	0.0004		----
1849	ISO6245	0.0009		----	6054	D482	0.00009		----
1857	D482	0.0008		----	6057	ISO6245	<0,001		----
1881		----		----	6101		----		----
1906		----		----	6114	D482	0.0006		----
1936		----		----	6142		----		----

normality OK
n 77
outliers 5
mean (n) 0.00065
st.dev. (n) 0.000299
R(calc.) 0.00084
st.dev.(D482:13) (0.00179)
R(D482:13) (0.005)

Application range: 0.001 – 0.180 %M/M



Determination of Calculated Cetane Index, two variables ASTM D976 on sample #17170

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	54.2		-0.09	732	D976	54.44		0.25
53				----	750	D976	54.3		0.05
62	D976	54.1		-0.23	751				----
90	D976	53.94		-0.45	759	D976	54.4		0.19
92	D976	54.114		-0.21	779	D976	54.3		0.05
120	D976	54.1		-0.23	781	D976	54.2		-0.09
131	D976	54.3		0.05	782				----
140	D976	54.1		-0.23	785				----
150	D976	53.7		-0.79	798				----
158				----	823	D976	54.4		0.19
159	D976	54.44		0.25	824	D976	54.5		0.33
169	D976	55.15	R(0.05)	1.24	825	D976	54.2		-0.09
171	D976	54.5		0.33	842				----
175				----	854	D976	54.4		0.19
186				----	862	D976	54.15		-0.16
194	D976	54.2		-0.09	863	D976	54.3		0.05
203				----	864	D976	54.2		-0.09
217				----	872	D976	54.4		0.19
218				----	873	D976	54.5		0.33
221	D976	54.34		0.11	874	D976	54.5		0.33
224	D976	54.21		-0.08	887	D976	53.74		-0.73
228	D976	53.9		-0.51	902	D976	54.4		0.19
230	D976	54.5		0.33	904	D976	54.1		-0.23
237	D976	53.9		-0.51	912	D976	54.3		0.05
238	D976	54.2		-0.09	922	D976	54.0		-0.37
240				----	951	D976	54.65		0.54
252	D976	54.2		-0.09	962	D976	54.36		0.13
253	D976	54.1		-0.23	963	D976	54.6		0.47
254	D976	54.2		-0.09	970	D976	54.3		0.05
256	D976	54.2		-0.09	971	D976	54.5		0.33
258	D976	54.76		0.69	974	D976	54.5		0.33
273				----	994	D976	54.2		-0.09
312	D976	54.5		0.33	995	D976	54.0		-0.37
317	D976	54.4		0.19	996	D976	53.9		-0.51
323	D976	54.4		0.19	997	D976	53.8		-0.65
333				----	998				----
335				----	1006	D976	54.5		0.33
336	D976	54.3		0.05	1033				----
337				----	1059				----
338				----	1081				----
343				----	1090				----
344				----	1105				----
349				----	1107				----
351				----	1109				----
353				----	1121	D976	54.1		-0.23
355	D976	53.9933		-0.38	1124				----
356	D976	54.47		0.29	1126				----
381				----	1134	D976	54.3		0.05
399	D976	54.27		0.01	1146	D976	54.3		0.05
431				----	1161				----
433				----	1171				----
440				----	1182	D976	54.4		0.19
446	D976	54.3		0.05	1186				----
485				----	1199				----
495				----	1212	D976	54.45		0.26
507	D976	54.19		-0.10	1213				----
511				----	1227	D976	54.2	E	-0.09
529	D976	54.760		0.69	1297	D976	54.0844		-0.25
541	D976	54.4		0.19	1299				----
555				----	1320				----
556				----	1347				----
557	D976	53.57		-0.97	1348				----
558				----	1356				----
562				----	1385				----
575				----	1399				----
603				----	1417				----
604				----	1428				----
605				----	1430				----
608	D976	54.6		0.47	1431	D976	54.06		-0.29
614				----	1457	D976	54.4		0.19
621				----	1498	D976	54.7		0.61
631	D976	54.35		0.12	1544	D976	54.2		-0.09
633				----	1588				----
634	D976	53.9		-0.51	1629				----
657	D976	54.2		-0.09	1634				----
671				----	1636				----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650		----		----	1937		----		----
1654		----		----	1938		----		----
1689	GB/T11139	54.4	E	0.19	1948		----		----
1709	D976	54.33	C	0.09	1949	D976	54.1		-0.23
1720		----		----	1967	D976	54.2		-0.09
1724	D976	54.33		0.09	1984		----		----
1776		----		----	1995		----		----
1796	D976	54.4		0.19	2129	D976	53.9		-0.51
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811	D976	54.2		-0.09	6049	D976	54.2		-0.09
1849		----		----	6054	D976	54.2		-0.09
1857	D976	54.2		-0.09	6057	D976	54.7		0.61
1881		----		----	6101		----		----
1906		----		----	6114	D976	54.4		0.19
1936		----		----	6142		----		----

normality OK
n 93
outliers 1
mean (n) 54.264
st.dev. (n) 0.2289
R(calc.) 0.641
st.dev.(D976:06) 0.71
R(D976:06) 2

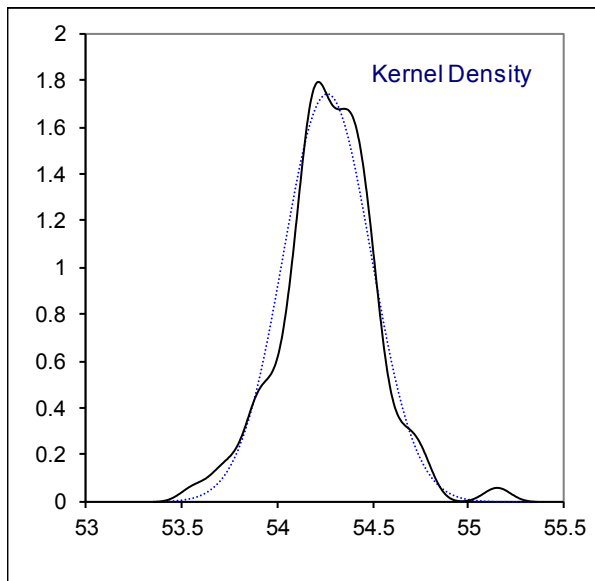
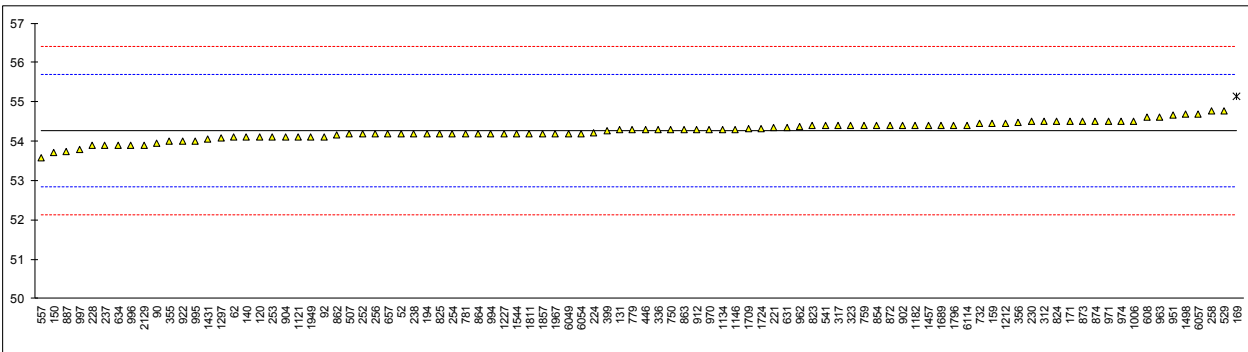
Lab 1709 first reported: 54.91

The CCI calculated by iis for labs marked with an E:

Lab 1227 : 54.43

Lab 1689 : 54.11

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



Determination of Calculated Cetane Index, four variables D4737 on sample #17170

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	54.3		----	732	ISO4264	53.86		----
53		----		----	750	D4737	54.2		----
62	D4737-A	54.0		----	751		----		----
90	D4737-A	53.69		----	759	D4737-A	54.4		----
92	D4737-A	54.221		----	779	ISO4264	54.4		----
120	D4737-A	54.4		----	781	D4737-A	54.3		----
131	D4737-A	54.2		----	782	ISO4264	54.15		----
140	D4737-A	54.2		----	785	D4737-A	54.8		----
150	D4737-A	53.7		----	798	D4737-A	54.1		----
158		----		----	823	D4737-A	54.6		----
159	D4737-A	54.83		----	824	D4737-A	54.6		----
169	D4737-A	55.4		----	825	D4737-A	54.5		----
171	D4737-A	54.6		----	842		----		----
175		----		----	854	D4737-A	54.5		----
186		----		----	862	D4737-A	54.25		----
194	ISO4264	54.1		----	863	D4737-A	54.3		----
203		----		----	864	D4737-A	54.4		----
217		----		----	872	ISO4264	54.3		----
218		----		----	873	D4737-A	54.4		----
221	D4737-A	54.38		----	874	D4737-A	54.6		----
224		----		----	887	D4737-A	53.60		----
228	D4737-A	54.0		----	902	D4737-A	54.5		----
230	ISO4264	54.6		----	904	D4737-A	54.0		----
237	D4737-A	53.9		----	912	ISO4264	54.2		----
238		----		----	922		----		----
240		----		----	951		----		----
252		----		----	962	D4737-A	54.44		----
253		----		----	963	D4737-A	54.7		----
254		----		----	970	D4737-A	54.4		----
256		----		----	971	D4737-B	54.7		----
258		----		----	974	D4737-A	54.6		----
273	D4737-A	53.87		----	994	D4737-A	54.3		----
312	D4737-A	54.5		----	995	D4737-A	54.1		----
317	ISO4264	54.4		----	996	D4737-A	53.9		----
323	D4737-A	54.6		----	997	D4737-A	53.8		----
333	D4737-A	54.1		----	998		----		----
335	ISO4264	54.1		----	1006	D4737-A	54.7		----
336	D4737-A	54.3		----	1033		----		----
337		----		----	1059	ISO4264	54.5		----
338	ISO4264	53.3		----	1081	ISO4264	54.4		----
343	D4737-A	54.2		----	1090		----		----
344	D4737-A	54.9		----	1105	D4737-A	54.6		----
349		----		----	1107	D4737-A	54.5		----
351	ISO4264	54.02		----	1109	D4737-A	54.1		----
353	IP380	54.29		----	1121	IP380	54.0		----
355		----		----	1124	ISO4264	54.44		----
356	D4737-A	54.60		----	1126		----		----
381	ISO4264	53.8		----	1134	D4737-A	54.1		----
399		----		----	1146		----		----
431		----		----	1161	ISO4264	54.44		----
433		----		----	1171	ISO4264	54.07	E	----
440		----		----	1182	D4737-A	54.3		----
446	D4737-A	54.3		----	1186		----		----
485	D4737-A	54.4		----	1199		----		----
495		----		----	1212	D4737-A	54.63		----
507	D4737-A	54.50		----	1213		----		----
511		----		----	1227		----		----
529	D4737-A	54.978		----	1297		----		----
541	D4737-A	54.31		----	1299	D4737-A	53.9		----
555	D4737	54.64		----	1320	D4737-A	54.3		----
556		----		----	1347	D4737-A	54.31		----
557	D4737	53.90	E	----	1348	D4737-A	54.613		----
558		----		----	1356	ISO4264	55.6	E,R(0.05)	----
562		----		----	1385	D4737-A	54.55		----
575		----		----	1399	D4737-A	55.3	E	----
603		----		----	1417		----		----
604		----		----	1428	ISO4264	54.6		----
605		----		----	1430	D4737-A	53.7		----
608		----		----	1431	D4737-A	54.03		----
614	D4737-A	53.3		----	1457	D4737-A	54.6		----
621		----		----	1498		----		----
631	D4737-A	54.39		----	1544	D4737-A	54.1		----
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D4737-A	54.4		----	1634	ISO4264	54.53		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	ISO4264	54.1		----	1937	ISO4264	54.5		----
1654		----		----	1938	ISO4264	54.3		----
1689	SH/T0694	54.55	E	----	1948	ISO4264	54.01		----
1709	D4737-A	54.31		----	1949	D4737-A	54.3		----
1720	D4737-A	54.7		----	1967	D4737-A	54.2		----
1724	D4737-A	54.5		----	1984	ISO4264	54.501		----
1776	ISO4264	54.0		----	1995	D4737	54.4		----
1796	D4737-A	54.6		----	2129	D4737-A	53.7		----
1807	ISO4264	53.0	R(0.05)	----	6005	ISO4264	54.0	E	----
1810		----		----	6016		----		----
1811		----		----	6049	D4737-A	54.3		----
1849	ISO4264	54.33		----	6054	D4737-A	54.2		----
1857	D4737-A	51.7	E,R(0.01)	----	6057	ISO4264	55.1		----
1881		----		----	6101		----		----
1906		----		----	6114	D4737-A	54.4		----
1936	ISO4264	54.4	E	----	6142		----		----

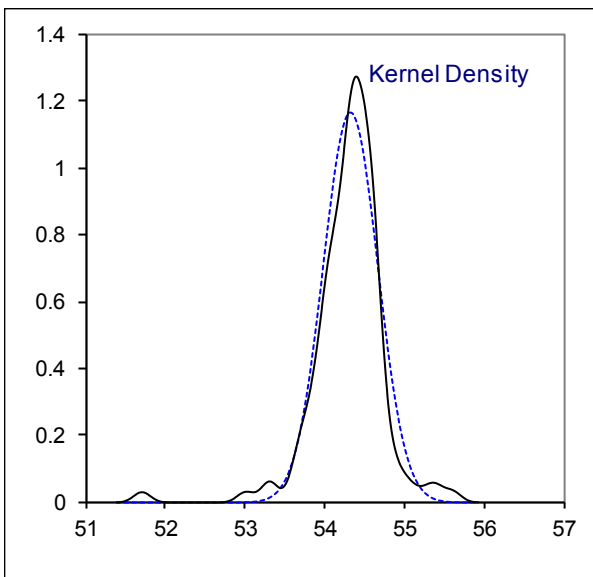
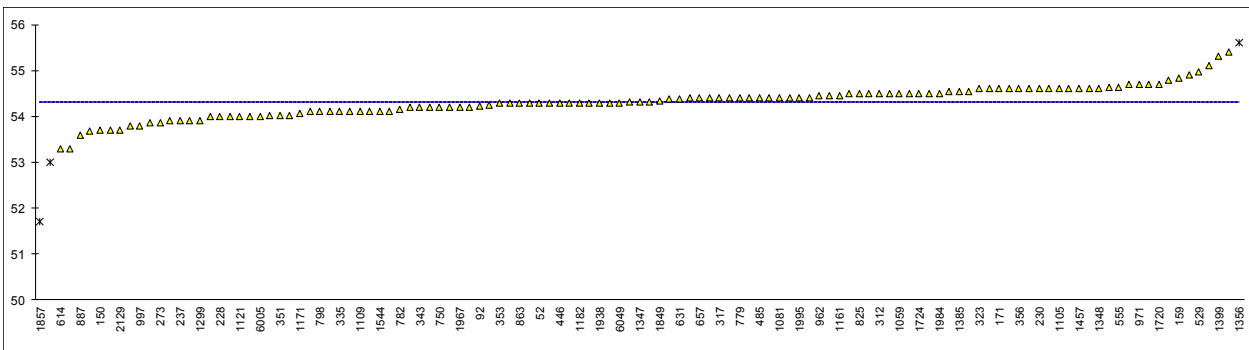
normality suspect
n 118
outliers 3
mean (n) 54.316
st.dev. (n) 0.3428
R(calc.) 0.960
st.dev.(D4737:10) n.a.
R(D4737:10) n.a.

Compare R(iis16G04ASTM) = 0.970

The CCI calculated by iis for labs marked with an E:

- Lab 557 : 53.67
- Lab 1171 : 53.64
- Lab 1356 : 55.86
- Lab 1399 : 54.64
- Lab 1689 : 54.21
- Lab 1857 : 54.43
- Lab 1936 : 54.17
- Lab 6005 : 54.40

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

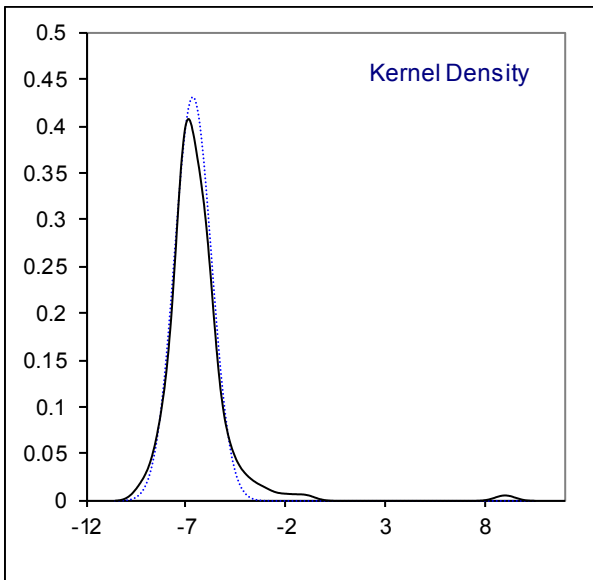
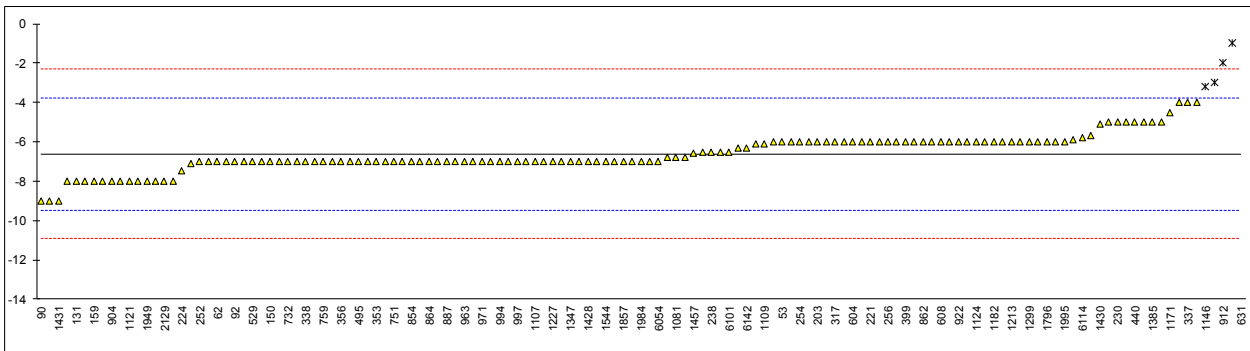


Determination of Cloud Point on sample #17170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5773	-7.1		-0.34	732	EN23015	-7		-0.27
53	D2500	-6		0.43	750	D2500	-7		-0.27
62	D2500	-7		-0.27	751	D2500	-7		-0.27
90	D2500	-9		-1.67	759	D2500	-7		-0.27
92	D2500	-7		-0.27	779	EN23015	-7		-0.27
120	D5772	-6.1		0.36	781	D2500	-7		-0.27
131	D2500	-8		-0.97	782	D2500	-6		0.43
140	D2500	-5		1.13	785		----		----
150	D2500	-7		-0.27	798	D2500	-6		0.43
158		----		----	823	D2500	-6		0.43
159	D2500	-8		-0.97	824	D2500	-7		-0.27
169	D2500	-5		1.13	825	D2500	-7		-0.27
171	D2500	-7		-0.27	842		----		----
175	D5771	-6.3		0.22	854	D2500	-7		-0.27
186		----		----	862	D2500	-6.0		0.43
194	D2500	-6		0.43	863	D2500	-7		-0.27
203	D2500	-6		0.43	864	D2500	-7		-0.27
217		----		----	872		----		----
218		----		----	873	D2500	-7		-0.27
221	D2500	-6		0.43	874	D2500	-6		0.43
224	D2500	-7.5		-0.62	887	D2500	-7		-0.27
228	D2500	-7		-0.27	902	EN23015	-8		-0.97
230	D2500	-5		1.13	904	D2500	-8		-0.97
237	D2500	-7		-0.27	912	D2500	-2.0	R(0.01)	3.23
238	D2500	-6.5		0.08	922	D2500	-6		0.43
240	D2500	-6		0.43	951	D2500	-7		-0.27
252	D2500	-7		-0.27	962	D2500	-8		-0.97
253	D2500	-7		-0.27	963	D2500	-7		-0.27
254	D2500	-6		0.43	970	D2500	-7		-0.27
256	D2500	-6		0.43	971	D2500	-7		-0.27
258		----		----	974	D2500	-7		-0.27
273	D2500	-5		1.13	994	D2500	-7		-0.27
312	D2500	-7		-0.27	995	D2500	-7		-0.27
317	D5771	-6		0.43	996	D2500	-6		0.43
323	D2500	-8		-0.97	997	D2500	-7		-0.27
333	D2500	-6		0.43	998		----		----
335	D2500	-8		-0.97	1006		----		----
336	D2500	-6		0.43	1033	D7689	-6.8		-0.13
337	D2500	-4		1.83	1059	EN23015	-7		-0.27
338	EN23015	-7		-0.27	1081	D5771	-6.8		-0.13
343	D2500	-6		0.43	1090		----		----
344		----		----	1105	D5773	-5.9		0.50
349		----		----	1107	D2500	-7		-0.27
351	D7683	-6		0.43	1109	D5773	-6.1		0.36
353	IP219	-7		-0.27	1121	D2500	-8.0		-0.97
355		----		----	1124	EN23015	-6.0		0.43
356	D2500	-7		-0.27	1126		----		----
381	ISO3015	-6		0.43	1134	D2500	-7		-0.27
399	D2500	-6		0.43	1146	D2500	-3.2	R(0.05)	2.39
431		----		----	1161	D2500	-6		0.43
433		----		----	1171	ISO3015	-4.5		1.48
440	IP219	-5		1.13	1182	D5773	-6.0		0.43
446		----		----	1186		----		----
485		----		----	1199		----		----
495	D7689	-7		-0.27	1212	D2500	-6		0.43
507	D2500	-4		1.83	1213	D2500	-6		0.43
511		----		----	1227	D2500	-7		-0.27
529	D2500	-7		-0.27	1297	D5773	-6.0		0.43
541	D5771	-6.5		0.08	1299	D2500	-6		0.43
555		----		----	1320	D2500	-7		-0.27
556		----		----	1347	D2500	-7		-0.27
557		----		----	1348	D2500	-6		0.43
558		----		----	1356	ISO3015	-1	R(0.01)	3.93
562	D2500	-4		1.83	1385	D2500	-5		1.13
575		----		----	1399	D5773	-5.7		0.64
603		----		----	1417	IP444	-7		-0.27
604	D2500	-6		0.43	1428	D2500	-7		-0.27
605		----		----	1430	D5771	-5.1		1.06
608	D2500	-6		0.43	1431	D2500	-9		-1.67
614	D2500	-9		-1.67	1457	D2500	-6.6		0.01
621		----		----	1498	D2500	-7		-0.27
631	D2500	9	R(0.01)	10.93	1544	D2500	-7		-0.27
633		----		----	1588		----		----
634	D2500	-7		-0.27	1629		----		----
657	D2500	-7		-0.27	1634		----		----
671	D2500	-3	R(0.05)	2.53	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D5771	-7.0		-0.27	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D2500	-8		-0.97
1720	D5773	-6.5		0.08	1967	D2500	-8		-0.97
1724	D2500	-8		-0.97	1984	EN23015	-7		-0.27
1776	EN23015	-6.8		-0.13	1995	D2500	-6.0		0.43
1796	D2500	-6		0.43	2129	IP444	-8		-0.97
1807	D2500	-5		1.13	6005		----		----
1810		----		----	6016		----		----
1811	D2500	-6		0.43	6049	D2500	-7		-0.27
1849		----		----	6054	D2500	-7		-0.27
1857	D2500	-7		-0.27	6057	ISO3015	-8		-0.97
1881	D2500	-7		-0.27	6101	D2500	-6.5		0.08
1906		----		----	6114	D2500	-5.8		0.57
1936		----		----	6142	IP219	-6.3		0.22

normality OK
n 132
outliers 5
mean (n) -6.61
st.dev. (n) 0.925
R(calc.) 2.59
st.dev.(D2500:17) 1.4
R(D2500:17) 4



Determination of Cold Filter Plugging Point on sample #17170; results in °C

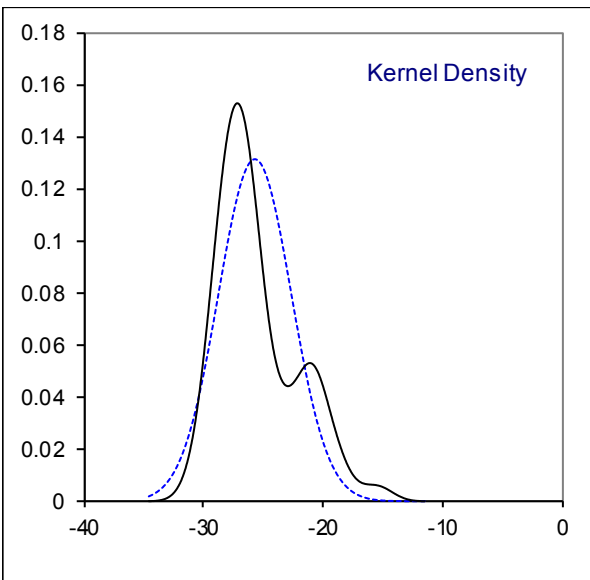
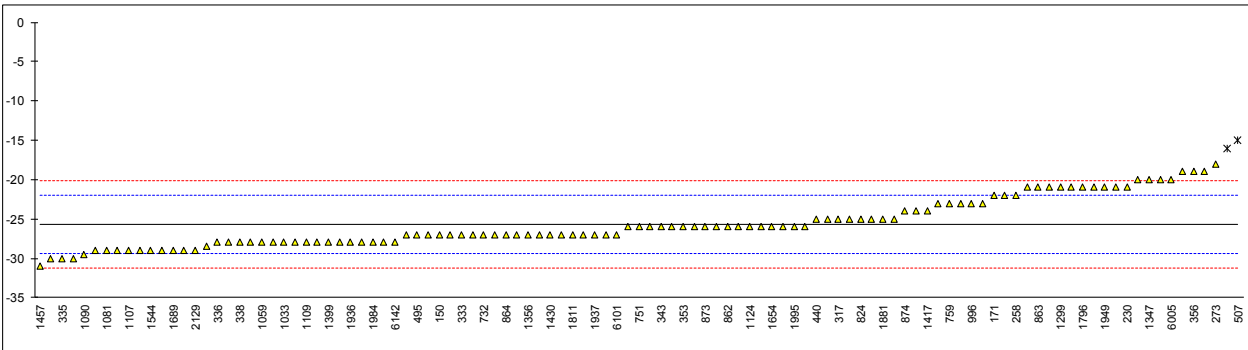
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	732	EN116	-27		-0.73
53		----		----	750	IP309	-23		1.44
62		----		----	751	IP309	-26		-0.19
90		----		----	759	EN116	-23		1.44
92		----		----	779		----		----
120	D6371	-26		-0.19	781	D6371	-27		-0.73
131		----		----	782	EN116	-25		0.35
140	D6371	-29		-1.81	785		----		----
150	D6371	-27		-0.73	798		----		----
158		----		----	823	D6371	-26		-0.19
159		----		----	824	D6371	-25		0.35
169		----		----	825	D6371	-26		-0.19
171	D6371	-22		1.98	842		----		----
175		----		----	854		----		----
186		----		----	862	D6371	-26		-0.19
194		----		----	863	IP309	-21		2.52
203	IP309	-19		3.61	864	D6371	-27		-0.73
217		----		----	872		----		----
218		----		----	873	D6371	-26		-0.19
221		----		----	874	D6371	-24		0.90
224		----		----	887		----		----
228		----		----	902	D6371	-27		-0.73
230	IP309	-20.97		2.54	904	D6371	-28		-1.27
237		----		----	912	D6371	-16.0	R(0.05)	5.23
238		----		----	922	D6371	-23		1.44
240		----		----	951		----		----
252	IP309	-22		1.98	962	IP309	-28		-1.27
253		----		----	963	D6371	-29		-1.81
254		----		----	970	IP309	-25		0.35
256	IP309	-21		2.52	971		----		----
258	IP309	-22		1.98	974		----		----
273	IP309	-18		4.15	994	D6371	-26		-0.19
312	D6371	-27		-0.73	995		----		----
317	EN116	-25		0.35	996	D6371	-23		1.44
323	D6371	-30		-2.36	997		----		----
333	D6371	-27		-0.73	998		----		----
335	EN116	-30		-2.36	1006	D6371	-26		-0.19
336	D6371	-28		-1.27	1033	IP309	-28.0		-1.27
337		-27		-0.73	1059	EN116	-28		-1.27
338	EN116	-28		-1.27	1081	EN116	-29		-1.81
343	EN116	-26		-0.19	1090	EN116	-29.5		-2.08
344		----		----	1105	D6371	-28.0		-1.27
349		----		----	1107	EN116	-29		-1.81
351		----		----	1109	IP309	-28		-1.27
353	IP309	-26		-0.19	1121	D6371	-23.0		1.44
355		----		----	1124	EN116	-26.0		-0.19
356	EN116	-19		3.61	1126		----		----
381	EN116	-26		-0.19	1134	IP309	-29		-1.81
399		----		----	1146		----		----
431	EN116	-28		-1.27	1161	EN116	-21		2.52
433		----		----	1171	EN116	-20.0		3.06
440	IP309	-25		0.35	1182	EN116	-28.0		-1.27
446		----		----	1186		----		----
485		----		----	1199		----		----
495	EN116	-27		-0.73	1212	EN116	-27		-0.73
507	D6371	-15	R(0.05)	5.77	1213		----		----
511		----		----	1227	EN116	-24		0.90
529		----		----	1297	D6371	-28.4		-1.49
541	D6371	<-20		----	1299	EN116	-21		2.52
555		----		----	1320	D6371	-26		-0.19
556		----		----	1347	IP309	-20		3.06
557		----		----	1348	IP309	-19		3.61
558		----		----	1356	D6371	-27		-0.73
562	D6371	-25		0.35	1385	IP309	-20		3.06
575		----		----	1399	IP309	-28		-1.27
603		----		----	1417	IP309	-24		0.90
604		----		----	1428	EN116	-27		-0.73
605		----		----	1430	EN116	-27		-0.73
608		----		----	1431	D6371	-30		-2.36
614		----		----	1457	EN116	-31		-2.90
621		----		----	1498	D6371	-21		2.52
631		----		----	1544	D6371	-29		-1.81
633		----		----	1588		----		----
634		----		----	1629		----		----
657	IP309	-27		-0.73	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	EN116	-29.0		-1.81	1937	EN116	-27		-0.73
1654	D6371	-26		-0.19	1938	EN116	-28		-1.27
1689	SH/T0248	-29.0		-1.81	1948		-25		0.35
1709		----		----	1949	D6371	-21		2.52
1720		----		----	1967	D6371	-21		2.52
1724	IP309	-27		-0.73	1984	EN116	-28		-1.27
1776	EN116	-26		-0.19	1995	D6371	-26.0		-0.19
1796	D6371	-21		2.52	2129	EN116	-29		-1.81
1807	EN116	-29		-1.81	6005	EN116	-20.0		3.06
1810	EN116	-28		-1.27	6016		----		----
1811	D6371	-27		-0.73	6049	D6371	-28		-1.27
1849	EN116	-27		-0.73	6054		----		----
1857	D6371	-21		2.52	6057	EN116	-27		-0.73
1881	EN116	-25		0.35	6101	D6371	-27.0		-0.73
1906		----		----	6114	EN116	-26		-0.19
1936	EN116	-28		-1.27	6142	IP309	-28		-1.27

normality OK
n 107
outliers 2
mean (n) -25.65
st.dev. (n) 3.032
R(calc.) 8.49
st.dev.(D6371:17) 1.845
R(D6371:17) 5.17

Only D6371
OK
42
2
-25.87
2.512
7.03
1.854
5.19

Only IP309/EN116
OK
65
0
-25.47
3.298
9.24
1.614
4.52

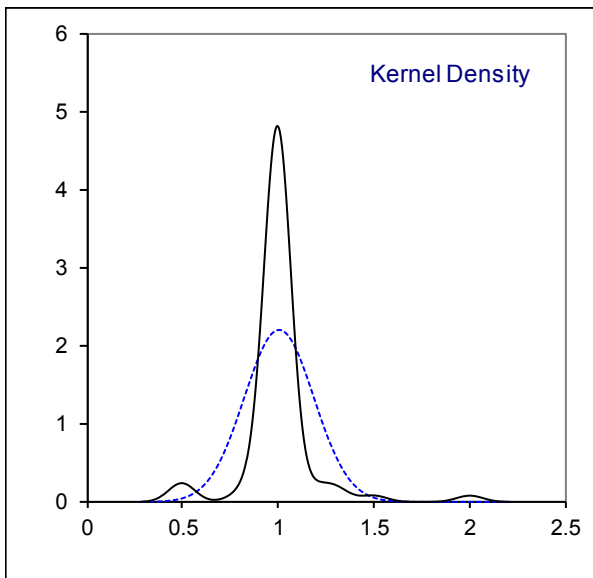
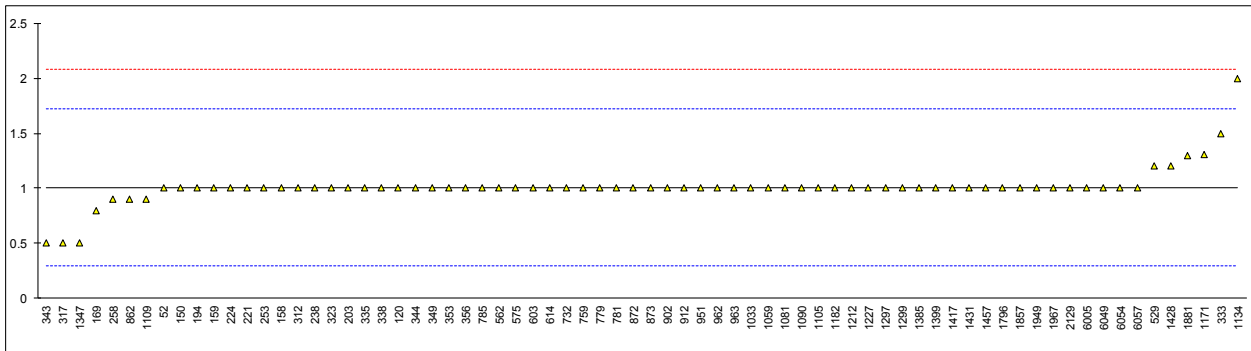


Determination of Colour ASTM on sample #17170;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6045	1.0		-0.02	732	D1500	1.0		-0.02
53					750	D1500	L1.0		
62	D1500	<1.0			751				
90					759	D6045	1.0		-0.02
92	D1500	L1			779	D1500	1.0		-0.02
120	D1500	1.0		-0.02	781	D1500	1.0		-0.02
131					782				
140	D1500	L1.5			785	D6045	1.0		-0.02
150	D6045	1.0		-0.02	798	D1500	less 0.5		
158	D1500	1.0		-0.02	823	D6045	<1.0		
159	D1500	1.0		-0.02	824	D1500	L1.0		
169	D6045	0.8		-0.58	825	D1500	L1.0		
171	D1500	L1.0			842				
175					854	D1500	L1.0		
186					862	D6045	0.9		-0.30
194	D1500	1.0		-0.02	863	D1500	L1.0		
203	D1500	1		-0.02	864	D1500	L1.0		
217					872	D6045	1.0		-0.02
218					873	D6045	1		-0.02
221	D1500	1.0		-0.02	874	D1500	<1.0		
224	D1500	1.0		-0.02	887	D1500	L1.0		
228	D1500	L1.0			902	D1500	1.0		-0.02
230	D1500	L1.0			904	D1500	L1.5		
237	D1500	L1.0			912	D1500	1.0		-0.02
238	D1500	1.0		-0.02	922	D1500	L1.0		
240	D1500	L1.0			951	D1500	1		-0.02
252	D1500	L1.0			962	D1500	1.0		-0.02
253	D1500	1		-0.02	963	D1500	1.0		-0.02
254	D1500	L 1.0			970	D1500	L1.0		
256	D1500	L1.0			971	D1500	L1.0		
258	D6756	0.9		-0.30	974	D1500	L1.0		
273	D1500	L0.5			994	D1500	L.1		
312	D1500	1.0		-0.02	995	D1500	L 1.0		
317	D1500	0.5		-1.42	996	D1500	L.1.0		
323	D1500	1.0		-0.02	997	D1500	L1.0		
333	D1500	1.5		1.38	998				
335	D1500	1		-0.02	1006				
336	D1500	L1.0			1033	D1500	1.0		-0.02
337					1059	D6045	1.0		-0.02
338	D1500	1.0		-0.02	1081	D6045	1.0		-0.02
343	D1500	0.5		-1.42	1090	D6045	1.0		-0.02
344	D1500	1.0		-0.02	1105	D1500	1.0		-0.02
349	D6045	1.0		-0.02	1107	D1500	L1.5		
351					1109	D6045	0.9		-0.30
353	D6045	1.0		-0.02	1121	D1500	<1		
355	D1500	L1.5			1124				
356	D1500	1.0		-0.02	1126				
381					1134	D1500	2.0		2.78
399	D1500	L1,0			1146				
431					1161				
433					1171	D1500	1.31		0.85
440					1182	D1500	1.0		-0.02
446	D1500	L1.0			1186				
485	D1500	L 1.0			1199				
495					1212	D1500	1.0		-0.02
507	D1500	L1.0			1213	D1500	L1.0		
511					1227	D1500	1		-0.02
529	D1500	1.2		0.54	1297	D1500	1		-0.02
541	D1500	L1.0			1299	D6045	1.0		-0.02
555	D1500	L1.0			1320				
556					1347	D155	0.5		-1.42
557	D1500	L1.5			1348				
558	D1500	L0.5			1356				
562	D1500	1		-0.02	1385	D1500	1.0		-0.02
575	D1500	1		-0.02	1399	D1500	1		-0.02
603	D1500	1.0		-0.02	1417	D6045	1.0		-0.02
604	D1500	L1.0			1428	D6045	1.2		0.54
605					1430	D1500	L1		
608	D1500	L1.0			1431	D1500	1		-0.02
614	D1500	1.0		-0.02	1457	D6045	1.0		-0.02
621					1498				
631	D1500	<1.0			1544	D1500	L1.0		
633					1588				
634	D1500	L1.0			1629				
657	D1500	<1.0			1634				
671	D1500	<1			1636				

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650		----		----	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D1500	1.0		-0.02
1720		----		----	1967	D1500	1.0		-0.02
1724		----		----	1984		----		----
1776		----		----	1995	D1500	L1		----
1796	D1500	1.0		-0.02	2129	D6045	1.0		-0.02
1807	D1500	<1.0		----	6005	D1500	1.0		-0.02
1810		----		----	6016		----		----
1811		----		----	6049	D1500	1.0		-0.02
1849		----		----	6054	D1500	1.0		-0.02
1857	D1500	1.0		-0.02	6057	D1500	1		-0.02
1881	D1500	1.3		0.82	6101	D1500	<1		----
1906		----		----	6114	D1500	L1.0		----
1936		----		----	6142		----		----

normality not OK
n 72
outliers 0
mean (n) 1.01
st.dev. (n) 0.181
R(calc.) 0.51
st.dev.(D1500:12) 0.4
R(D1500:12) 1

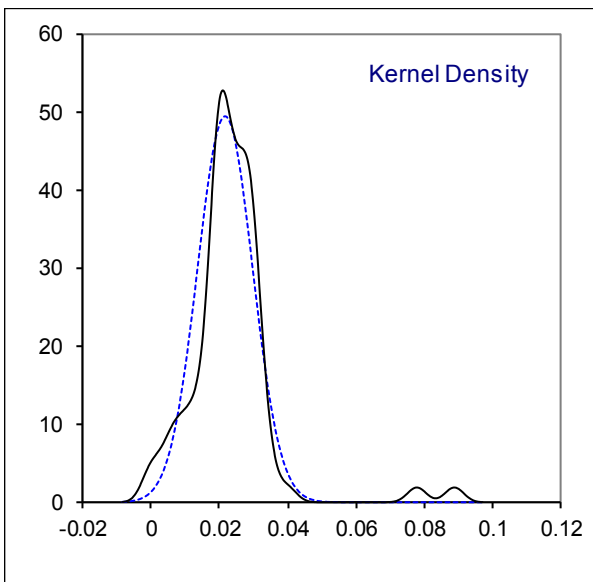
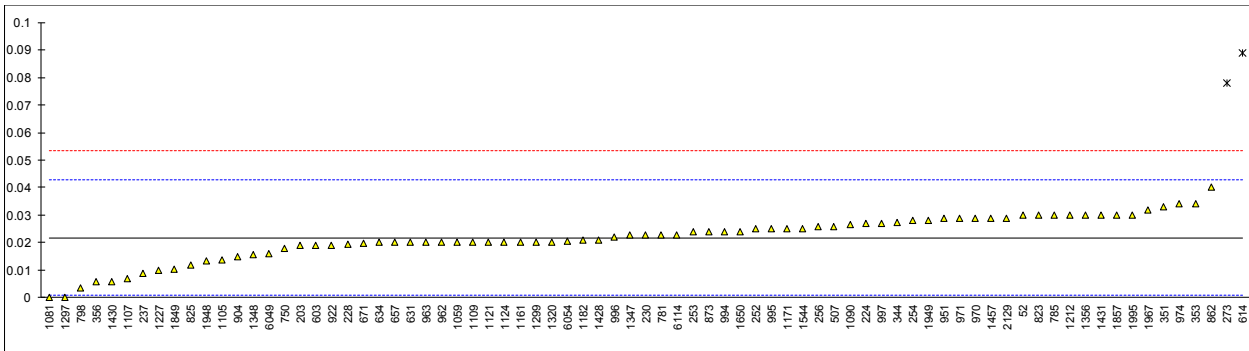


Determination of Conradson Carbon Residue (Micro method) on 10% residue on sample #17170; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	0.03		0.78	732		----		----
53		----		----	750	D189	0.018		-0.37
62		----		----	751		----		----
90		----		----	759		----		----
92	D4530	<0.05		----	779		----		----
120		----		----	781	D189	0.023		0.11
131		----		----	782		----		----
140	D4530	<0.1		----	785	D4530	0.03		0.78
150		----		----	798	D189	0.0034		-1.76
158		----		----	823	D4530	0.030		0.78
159		----		----	824	D4530	<0.1		----
169		----		----	825	D4530	0.012		-0.94
171	D189	<0.01		----	842		----		----
175		----		----	854	D4530	<0.1		----
186		----		----	862	D4530	0.04		1.74
194		----		----	863	D4530	<0.1		----
203	D189	0.01896		-0.27	864	D4530	<0.1		----
217		----		----	872		----		----
218		----		----	873	D4530	0.024		0.21
221		----		----	874	D4530	<0.1		----
224	D189	0.027		0.49	887		----		----
228	D189	0.0195		-0.22	902	D4530	<0,1		----
230	ISO10370	0.023		0.11	904	D4530	0.015		-0.65
237	D189	0.009		-1.23	912		----		----
238		----		----	922	D189	0.019		-0.27
240		----		----	951	D189	0.029		0.69
252	D4530	0.025		0.30	962	D189	0.02		-0.18
253	D189	0.0238		0.19	963	D189	0.020		-0.18
254	D189	0.028		0.59	970	D4530	0.029		0.69
256	D189	0.026		0.40	971	D4530	0.029		0.69
258		----		----	974	D4530	0.034		1.16
273	D4530	0.078	R(0.01)	5.37	994	D189	0.024		0.21
312		----		----	995	D189	0.025		0.30
317	D4530	<0.10		----	996	D189	0.022		0.02
323	D4530	<0.10		----	997	D189	0.027		0.49
333		----		----	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059	ISO10370	0.02		-0.18
338		----		----	1081	ISO10370	0		-2.09
343		----		----	1090	ISO10370	0.0265		0.45
344	D4530	0.0274		0.53	1105	D4530	0.0138		-0.77
349		----		----	1107	D4530	0.007		-1.42
351	ISO10370	0.033		1.07	1109	D4530	0.02		-0.18
353	D4530	0.034		1.16	1121	D4530	0.02		-0.18
355		----		----	1124	ISO10370	0.020		-0.18
356	D4530	0.006		-1.51	1126		----		----
381		----		----	1134		----		----
399		----		----	1146		----		----
431		----		----	1161	ISO10370	0.02		-0.18
433		----		----	1171	ISO6615	0.025		0.30
440		----		----	1182	ISO10370	0.021		-0.08
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	ISO10370	0.030		0.78
507	D189	0.026		0.40	1213	D4530	<0.1		----
511		----		----	1227	D4530	0.01		-1.13
529		----		----	1297	D4530	0.000		-2.09
541	D189	<0.01		----	1299	D4530	0.02		-0.18
555		----		----	1320	D4530	0.02		-0.18
556		----		----	1347	D189	0.0229		0.10
557		----		----	1348	D189	0.0156		-0.60
558		----		----	1356	ISO10370	0.03		0.78
562		----		----	1385		----		----
575		----		----	1399		----		----
603	D4530	0.019		-0.27	1417		----		----
604		----		----	1428	D4530	0.021		-0.08
605		----		----	1430	D189	0.006		-1.51
608	D4530	<0.01		----	1431	D4530	0.030		0.78
614	D189	0.089	R(0.01)	6.42	1457	D4530	0.029		0.69
621		----		----	1498		----		----
631	D4530	0.02		-0.18	1544	D189	0.025		0.30
633		----		----	1588		----		----
634	D189	0.02		-0.18	1629		----		----
657	D4530	0.02		-0.18	1634		----		----
671	D4530	0.0197		-0.20	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D189	0.024		0.21	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948	ISO10370	0.0133		-0.82
1709		----		----	1949	D4530	0.028		0.59
1720		----		----	1967	D189	0.0317		0.94
1724		----		----	1984		----		----
1776		----		----	1995	D189	0.03		0.78
1796		----		----	2129	D189	0.029		0.69
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049	ISO10370	0.016		-0.56
1849	ISO10370	0.0104		-1.09	6054	D4530	0.02042		-0.13
1857	D4530	0.03		0.78	6057	ISO10370	<0,01		----
1881		----		----	6101	D4530	<0.02		----
1906		----		----	6114	ISO10370	0.023		0.11
1936		----		----	6142		----		----

normality OK
n 75
outliers 2
mean (n) 0.0218
st.dev. (n) 0.00807
R(calc.) 0.0226
st.dev.(D189:06) 0.01046
R(D189:06) 0.0293

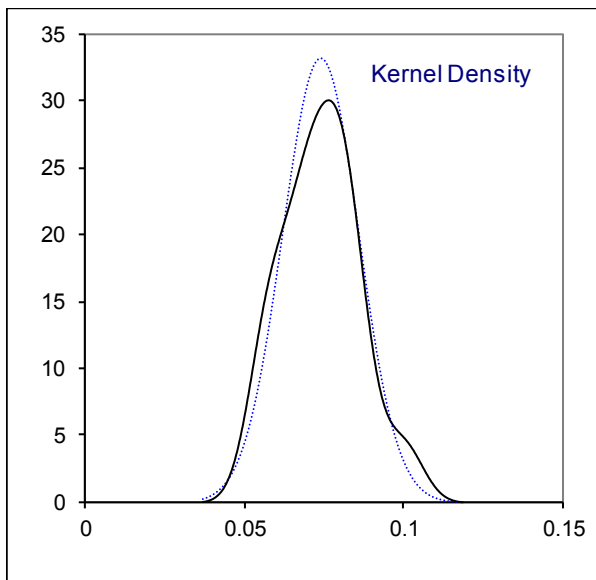
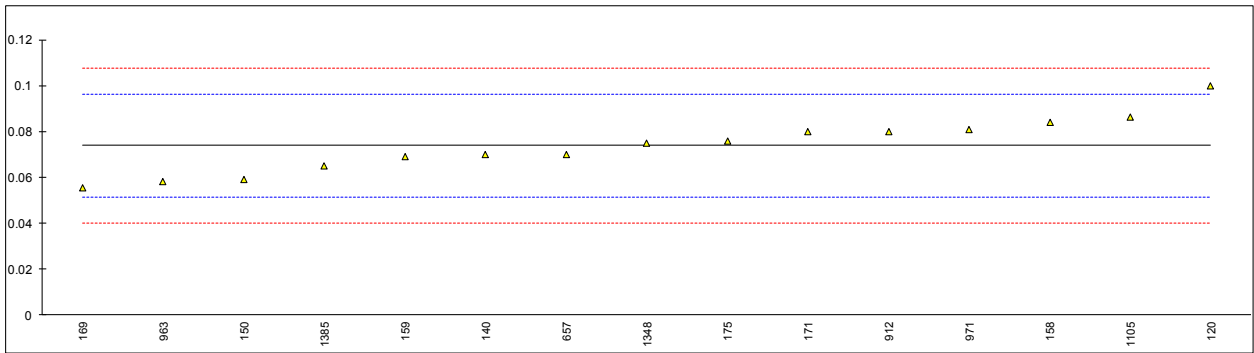


Determination of Ramsbottom Carbon Residue on 10% residue on sample #17170; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	732		----		----
53		----		----	750		----		----
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120	D524	0.10		2.32	781		----		----
131		----		----	782		----		----
140	D524	0.07		-0.35	785		----		----
150	D524	0.059		-1.33	798		----		----
158	D524	0.08418		0.91	823		----		----
159	D524	0.069		-0.44	824		----		----
169	D524	0.0555		-1.64	825		----		----
171	D524	0.08		0.54	842		----		----
175	D524	0.076		0.18	854		----		----
186		----		----	862		----		----
194		----		----	863		----		----
203		----		----	864		----		----
217		----		----	872		----		----
218		----		----	873		----		----
221		----		----	874		----		----
224		----		----	887		----		----
228		----		----	902		----		----
230		----		----	904		----		----
237		----		----	912	D524	0.08		0.54
238		----		----	922		----		----
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963	D524	0.058		-1.42
254		----		----	970		----		----
256		----		----	971	D524	0.081		0.63
258		----		----	974		----		----
273		----		----	994		----		----
312		----		----	995		----		----
317		----		----	996		----		----
323		----		----	997		----		----
333		----		----	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059		----		----
338		----		----	1081		----		----
343		----		----	1090		----		----
344		----		----	1105	D524	0.0864		1.11
349		----		----	1107		----		----
351		----		----	1109		----		----
353		----		----	1121		----		----
355		----		----	1124		----		----
356		----		----	1126		----		----
381		----		----	1134		----		----
399		----		----	1146		----		----
431		----		----	1161		----		----
433		----		----	1171		----		----
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212		----		----
507		----		----	1213		----		----
511		----		----	1227		----		----
529		----		----	1297		----		----
541		----		----	1299		----		----
555		----		----	1320		----		----
556		----		----	1347		----		----
557		----		----	1348	D524	0.0748		0.08
558		----		----	1356		----		----
562		----		----	1385	D524	0.065		-0.80
575		----		----	1399		----		----
603		----		----	1417		----		----
604		----		----	1428		----		----
605		----		----	1430		----		----
608		----		----	1431		----		----
614		----		----	1457		----		----
621		----		----	1498		----		----
631		----		----	1544		----		----
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D524	0.07		-0.35	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650		----		----	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949		----		----
1720		----		----	1967		----		----
1724		----		----	1984		----		----
1776		----		----	1995		----		----
1796		----		----	2129		----		----
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049		----		----
1849		----		----	6054		----		----
1857		----		----	6057		----		----
1881		----		----	6101		----		----
1906		----		----	6114		----		----
1936		----		----	6142		----		----

normality OK
 n 15
 outliers 0
 mean (n) 0.0739
 st.dev. (n) 0.01201
 R(calc.) 0.0336
 st.dev.(D524:15) 0.01123
 R(D524:15) 0.0314



Determination of Copper Corrosion (3 hrs at 50°C) on sample #17170;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1a		----	732		----		----
53		----		----	750	D130	1A		----
62	D130	1b		----	751		----		----
90	D130	1b		----	759		----		----
92	D130	1a		----	779	ISO2160	1a		----
120	D130	1a		----	781	D130	1a		----
131	D130	1A		----	782		----		----
140	D130	1a		----	785		----		----
150	D130	1A		----	798	D130	1a		----
158	D130	1a		----	823	D130	1a		----
159	D130	1a		----	824	D130	1a		----
169	D130	1a		----	825	D130	1a		----
171	D130	1a		----	842		----		----
175		----		----	854	D130	1A		----
186		----		----	862	D130	1a		----
194	D130	1a		----	863	D130	1a		----
203	D130	1A		----	864	D130	1a		----
217		----		----	872		----		----
218		----		----	873	D130	1A		----
221	D130	1A		----	874	D130	1a		----
224	D130	1a		----	887	D130	1a		----
228	D130	1A		----	902	D130	1a		----
230	D130	1a		----	904	D130	1a		----
237	D130	1		----	912	D130	1a		----
238	D130	1A		----	922	D130	1A		----
240		----		----	951	D130	No.1		----
252	D130	1A		----	962	D130	1A		----
253	D130	1A		----	963	D130	1a		----
254	D130	1A		----	970	D130	1A		----
256	D130	1A		----	971	D130	1a		----
258	D130	1a		----	974	D130	1a		----
273	D130	1a		----	994	D130	1a		----
312		----		----	995	D130	1a		----
317	D130	1a		----	996	D130	1a		----
323	D130	1A		----	997	D130	1a		----
333		----		----	998		----		----
335	D130	1B		----	1006	D130	1a		----
336	D130	1		----	1033	IP154	1b		----
337		----		----	1059	D130	1a		----
338		----		----	1081	D130	1a		----
343	D130	1A		----	1090	ISO2160	1		----
344	D130	1a		----	1105	D130	1a		----
349		----		----	1107		----		----
351	D130	1a		----	1109	D130	1a		----
353	IP154	1a		----	1121	D130	1a		----
355		----		----	1124	ISO2160	1 a		----
356	D130	1A		----	1126		----		----
381	ISO2160	1		----	1134		----		----
399		----		----	1146		----		----
431		----		----	1161	ISO2160	1a		----
433		----		----	1171	ISO2160	1A		----
440	IP154	1A		----	1182		----		----
446		----		----	1186	D130	1A		----
485	ISO2160	1		----	1199		----		----
495		----		----	1212	ISO2160	1A		----
507	D130	1A		----	1213		----		----
511		----		----	1227	D130	1A		----
529	D130	1A		----	1297	D130	1A		----
541	D130	1a		----	1299	D130	1A		----
555	D130	1A		----	1320		----		----
556		----		----	1347	D130	1A		----
557	D130	1a		----	1348	D130	1A		----
558		----		----	1356		----		----
562	D130	1a		----	1385	D130	1A		----
575	D130	1a		----	1399		----		----
603	D130	1a		----	1417	D130	1B		----
604		----		----	1428	D130	1A		----
605		----		----	1430	D130	1a		----
608	D130	1a		----	1431	D130	1A		----
614	D130	1a		----	1457	D130	1A		----
621		----		----	1498		----		----
631	D130	1A		----	1544	D130	1a		----
633		----		----	1588		----		----
634	D130	1b		----	1629		----		----
657	D130	1A		----	1634	D130	1a		----
671	D130	1A		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D130	1A		----	1937		----		----
1654		----		----	1938		----		----
1689	GB/T5096	1a		----	1948	ISO2160	1A		----
1709		----		----	1949	D130	1a		----
1720		----		----	1967	D130	1		----
1724		----		----	1984		----		----
1776		----		----	1995	D130	1A		----
1796	D130	1a		----	2129	D130	1a		----
1807	ISO2160	1a		----	6005	ISO2160	1a		----
1810		----		----	6016		----		----
1811		----		----	6049	D130	1a		----
1849	ISO2160	1A		----	6054	D130	1a		----
1857	D130	1 a		----	6057	ISO2160	1A		----
1881		----		----	6101	D130	1a		----
1906		----		----	6114	D130	1a		----
1936		----		----	6142		----		----
	normality	n.a.							
	n	123							
	outliers	n.a.							
	mean (n)	1/1A/1B							
	st.dev. (n)	n.a.							
	R(calc.)	n.a.							
	st.dev.(lit)	n.a.							
	R(Lit)	n.a.							

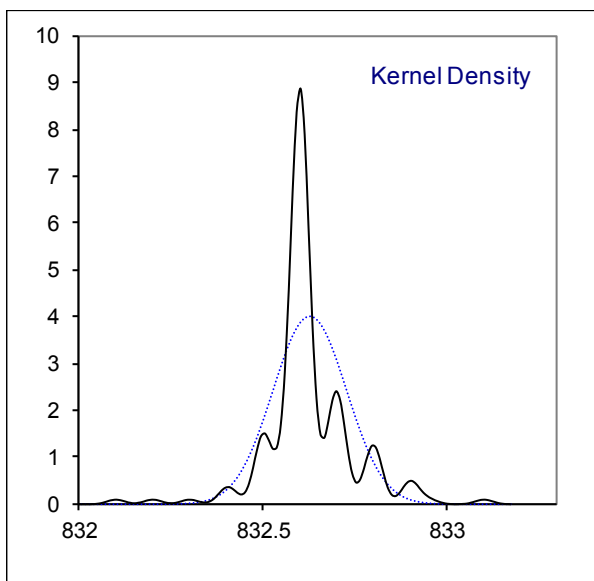
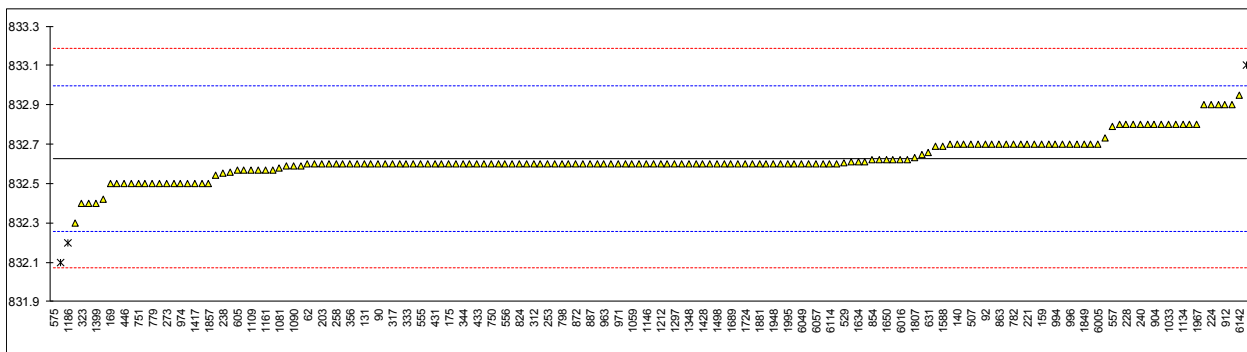
Determination of Density at 15°C on sample #17170; results in kg/m³

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	832.6		-0.15	732	ISO12185	832.7		0.41
53	D4052	832.6		-0.15	750	D1298	832.6		-0.15
62	D4052	832.6		-0.15	751	D1298	832.5		-0.71
90	D4052	832.6		-0.15	759	D4052	832.6		-0.15
92	D4052	832.7		0.41	779	D4052	832.5		-0.71
120	D4052	832.6		-0.15	781	D4052	832.6		-0.15
131	D4052	832.6		-0.15	782	D4052	832.7		0.41
140	D4052	832.7		0.41	785	D4052	832.5		-0.71
150	D4052	832.9		1.53	798	D4052	832.6		-0.15
158	D4052	832.8		0.97	823	D4052	832.65		0.13
159	D4052	832.7		0.41	824	D4052	832.6		-0.15
169	D4052	832.5		-0.71	825	D4052	832.6		-0.15
171	D4052	832.6		-0.15	842		----		----
175	D4052	832.6		-0.15	854	D4052	832.62		-0.04
186	D4052	832.9		1.53	862	D4052	832.69		0.35
194	D4052	832.6		-0.15	863	D4052	832.7		0.41
203	D4052	832.6		-0.15	864	D4052	832.6		-0.15
217		----		----	872	D4052	832.6		-0.15
218		----		----	873	D4052	832.6		-0.15
221	D4052	832.7		0.41	874	D4052	832.5		-0.71
224	D1298	832.90		1.53	887	D4052	832.6		-0.15
228	D4052	832.8		0.97	902	D4052	832.6		-0.15
230	ISO12185	832.60		-0.15	904	D4052	832.8		0.97
237	D4052	832.7		0.41	912	D4052	832.9		1.53
238	D4052	832.55		-0.43	922	D4052	832.9		1.53
240	D4052	832.8		0.97	951	D1298	832.1	R(0.01)	-2.95
252	D1298	832.42		-1.16	962	D4052	832.7		0.41
253	D4052	832.6		-0.15	963	D4052	832.6		-0.15
254	D4052	832.6		-0.15	970	D4052	832.6		-0.15
256	D4052	832.5		-0.71	971	D4052	832.6		-0.15
258	D4052	832.6		-0.15	974	D1298	832.5		-0.71
273	D4052	832.5		-0.71	994	D4052	832.7		0.41
312	D4052	832.6		-0.15	995	D4052	832.7		0.41
317	D4052	832.6		-0.15	996	D1298	832.7		0.41
323	D4052	832.4		-1.27	997	D4052	832.8		0.97
333	D4052	832.6		-0.15	998		----		----
335	ISO12185	832.7		0.41	1006	D4052	832.6		-0.15
336	D4052	832.5		-0.71	1033	IP365	832.8		0.97
337		832.6		-0.15	1059	D4052	832.6		-0.15
338	D4052	832.7		0.41	1081	D4052	832.58		-0.26
343	D4052	832.6		-0.15	1090	ISO12185	832.59		-0.21
344	D4052	832.6		-0.15	1105	D4052	832.5		-0.71
349	D4052	832.6		-0.15	1107	D4052	832.6		-0.15
351	D4052	832.60		-0.15	1109	D4052	832.57		-0.32
353	IP365	832.6		-0.15	1121	D4052	832.8		0.97
355	D4052	832.8		0.97	1124	ISO12185	832.602		-0.14
356	D4052	832.6		-0.15	1126	D4052	832.57		-0.32
381	ISO12185	832.61		-0.09	1134	D4052	832.8		0.97
399	D4052	832.3		-1.83	1146	D4052	832.60		-0.15
431	ISO12185	832.60		-0.15	1161	ISO12185	832.57		-0.32
433	ISO12185	832.6		-0.15	1171	D4052	832.60		-0.15
440	D4052	832.7		0.41	1182	ISO12185	832.591		-0.20
446	D4052	832.5		-0.71	1186	D1298	832.2	R(0.01)	-2.39
485	D4052	832.50		-0.71	1199		----		----
495	ISO12185	832.57		-0.32	1212	D4052	832.6		-0.15
507	D4052	832.70		0.41	1213		----		----
511		----		----	1227	D4052	832.6		-0.15
529	D4052	832.605		-0.12	1297	D4052	832.60		-0.15
541	D4052	832.60		-0.15	1299	D4052	832.7		0.41
555	D4052	832.6		-0.15	1320	D4052	832.62		-0.04
556	D4052	832.6		-0.15	1347	D4052	832.60		-0.15
557	D4052	832.79		0.91	1348	D4052	832.6		-0.15
558	D4052	832.6		-0.15	1356	ISO12185	833.1	R(0.01)	2.65
562	D4052	832.4		-1.27	1385	D4052	832.6		-0.15
575	D1298	830.5	R(0.01)	-11.91	1399	D4052	832.4	C	-1.27
603		----		----	1417	IP365	832.5		-0.71
604	D4052	832.56		-0.37	1428	D4052	832.6		-0.15
605	D4052	832.57		-0.32	1430	D4052	832.8		0.97
608	D4052	832.6		-0.15	1431	D4052	832.73		0.58
614	D4052	832.8		0.97	1457	D4052	832.6		-0.15
621		----		----	1498	D4052	832.6		-0.15
631	D4052	832.66		0.19	1544	D4052	832.6		-0.15
633		----		----	1588	ISO12185	832.69		0.35
634	D4052	832.59		-0.21	1629		----		----
657	D4052	832.7		0.41	1634	D4052	832.610		-0.09
671	D4052	832.7		0.41	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D4052	832.62		-0.04	1937		-----		-----
1654	D4052	832.623		-0.02	1938	ISO12185	832.6		-0.15
1689	GB/T1884	832.6		-0.15	1948	D4052	832.6		-0.15
1709	D4052	832.62	C	-0.04	1949	D4052	832.61		-0.09
1720	D4052	832.6		-0.15	1967	D4052	832.8		0.97
1724	D4052	832.6		-0.15	1984	ISO12185	832.6		-0.15
1776	ISO12185	832.57		-0.32	1995	D4052	832.6		-0.15
1796	D4052	832.54		-0.49	2129	D4052	832.6		-0.15
1807	ISO12185	832.63	C	0.02	6005	ISO12185	832.7		0.41
1810	D4052	832.5		-0.71	6016	D4052	832.62		-0.04
1811	D4052	832.6		-0.15	6049	D4052	832.6		-0.15
1849	ISO12185	832.7		0.41	6054	D4052	832.6		-0.15
1857	D4052	832.5		-0.71	6057	ISO12185	832.6		-0.15
1881	D4052	832.6		-0.15	6101	D4052	832.6	C	-0.15
1906		-----		-----	6114	D4052	832.6		-0.15
1936	ISO12185	832.7		0.41	6142	IP365	832.95		1.81

normality suspect
n 166
outliers 4
mean (n) 832.63
st.dev. (n) 0.099
R(calc.) 0.28
st.dev.(D4052:16) 0.186
R(D4052:16) 0.50

Lab 1399 first reported: 831.205 kg/L
Lab 1709 first reported: 833.82 kg/L
Lab 1807 first reported: 834.1 kg/L
Lab 6101 first reported: 832.0 kg/L



Determination of Distillation on sample #17170; results in °C

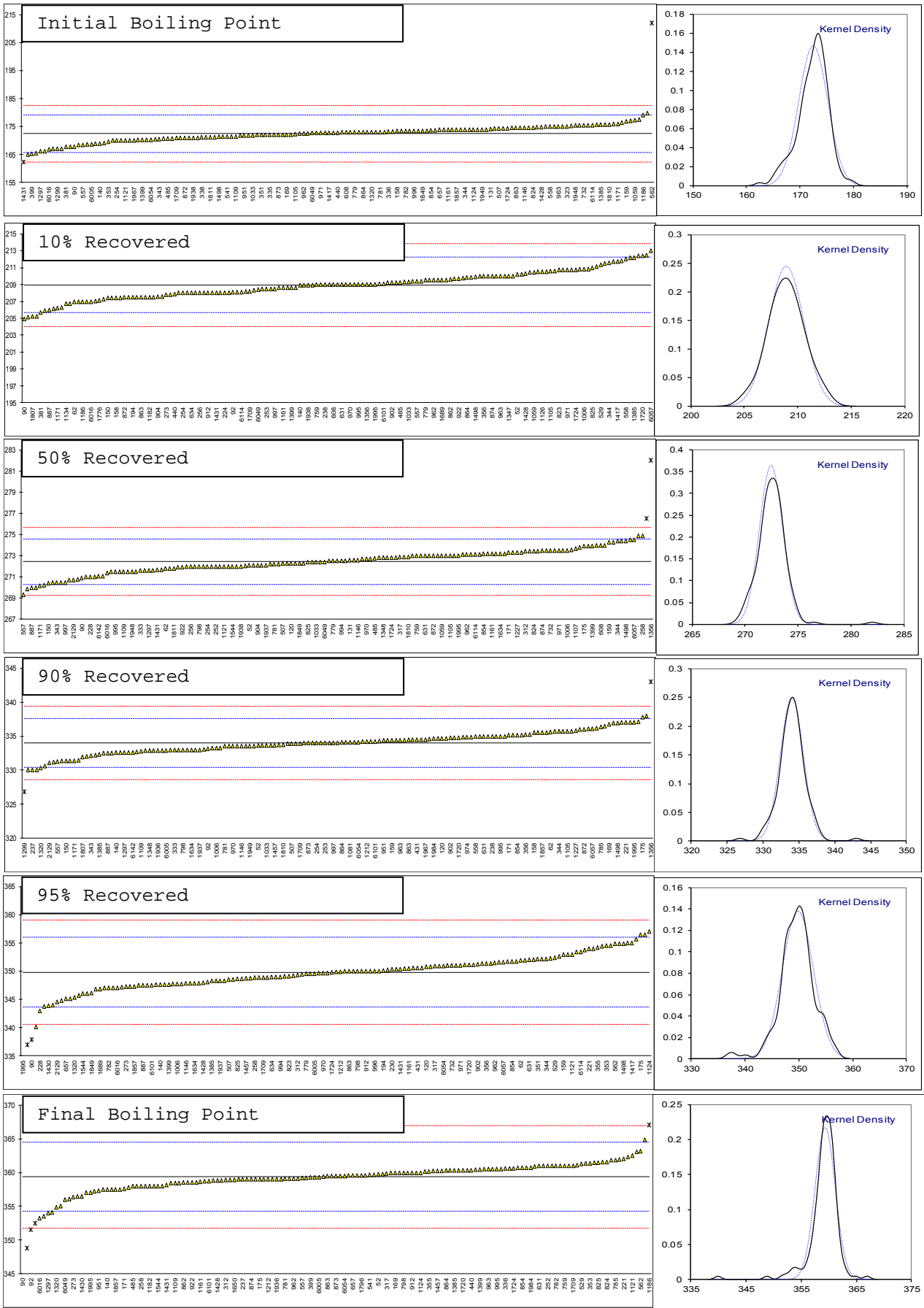
lab	method	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52	D86-automated	170.2		210.2		272.1		333.6		349.9		359.8	
53		----		----		----		----		----		----	
62	D86-automated	171.2		207.0		271.8		335.6		351.9		361.4	
90	D86-manual	167.9		204.9		270.9		332.9		337.9	R(1)	339.9	R(1)
92	D86-automated	173.0		208.1		272.6		333.2		348.9		351.6	R(5)
120	D86-automated	177.6		209.7		272.3		334.7		350.8		359.0	
131	D86-automated	174.1		207.3		272.6		336.2		353.4		353.5	
140	D86-automated	169.0		208.9		272.0		332.6		347.6		357.5	
150	D86-automated	165.6		207.4		270.4		331.4		347.0		357.8	
158	D86-automated	173.4		207.4		271.9		335.5		351.7		357.0	
159	D86-automated	176.8		211.5		274.3		334.4		352.9		359.6	
169	D86-automated	172.1		212.5		276.5	R(5)	336.7		354.4		360.0	
171	D86-automated	171.4		210.4		273.3		335.1		352.3		357.6	
175	D86-automated	173.8		208.6		273.9		337.8		356.4		359.0	
186		----		----		----		----		----		----	
194		173.3		207.5		272.2		334.1		350.1		360.7	
203		----		----		----		----		----		----	
217		----		----		----		----		----		----	
218		----		----		----		----		----		----	
221		170.0		209.0		273.0		337.0		354.0		362.0	
224	D86-manual	171.05		208.05		272.73		333.89		347.57		356.07	
228	D86-manual	175.0		209.0		271.0		330.0		343.0		360.0	
230	D86-automated	174.4		210.0		273.4		335.2		350.3		361.8	
237		175.0		208.0		271.0		330.0		344.0		359.0	
238		174		209		272		335		351		360	
240		----		----		----		----		----		----	
252	D86-manual	172.0		208.0		272.0		334.0		350.0		361.0	
253	D86-manual	172.0		208.5		271.5		334.0		350.0		359.0	
254	D86-manual	170.0		208.0		272.0		334.0		350.0		361.0	
256	D86-manual	170.0		208.0		272.0		334.0		350.0		358.0	
258	D86-automated	174.7		212.4		274.9		334.4		348.9		358.0	
273	D86-automated	171.9		207.8		270.5		332.7		347.3		356.4	C
312	D86-automated	172.6		209.4		273.4		333.9		349.3		358.9	
317	D86-automated	170.3		209.2		272.9		334.3		350.9		359.9	
323	D86-automated	175.1		210.0		272.9		335.1		352.6		358.8	
333	D86-automated	168.4		207.5		271.6		333.0		349.0		358.5	
335	D86-automated	172.0		206.1		272.7		337.0		355.0		361.0	
336		173.2		208.5		272.4		334.7		351.4		360.6	
337		----		----		----		----		----		----	
338	D86-automated	171.1	C	209.0	C	270.2		333.6		350.2		357.2	
343	D86-automated	170.5		212.2		270.5		332.1		345.7		354.1	
344	D86-automated	174.0		211.6		274.4		335.7	C	352.2		359.8	
349		----		----		----		----		----		----	
351		172.00		207.40		271.60		334.40		352.20		361.10	
353	D86-automated	169.5		207.4		273.0		337.1		354.5		361.4	
355	D86-manual	169.119		205.129		271.647		334.164		354.169		360.171	
356	D86-automated	172.2		210.0		273.5		335.2		351.4		361.6	
381	D86-automated	167.7		205.7		271.0		332.5		347.5		359.1	
399		165.3		208.1		272.0		333.1		347.7		359.3	
431		170.7		206.3		272		334.5		350.6		359.5	
433		----		----		----		----		----		----	
440	D86-manual	172.88		207.87		269.85		331.34		344.83		360.33	
446	D86-automated	166.3		207.8		272.5		331.2		343.8		352.5	R(5)
485	D86-automated	170.75		209.25		272.75		333.55		349.05		357.95	
495		----		----		----		----		----		----	
507	D86-automated	174.4		211.7		272.3		333.9		348.5		358.7	
511		----		----		----		----		----		----	
529	D86-automated	173.0		211.35		274.85		335.95		352.35		361.3	
541	D86-automated	171.40		208.05		272.85		334.7		351.75		359.65	
555		----		----		----		----		----		----	
556		----		----		----		----		----		----	
557	D86-manual	168.5		209.4		269.3		331.3		347.3		359.2	
558	D86-manual	175		212		274		335		350		360	
562	D86-automated	212.0	R(1)	209		273.3		335.7		354.9		363.2	
575		----		----		----		----		----		----	
603		----		----		----		----		----		----	
604		----		----		----		----		----		----	
605		----		----		----		----		----		----	
608	D86-manual	173.0		209.0		274.0		338.0		356.5		356.5	
614		----		----		----		----		----		----	
621		----		----		----		----		----		----	
631	D86-manual	174.5		209.0		273.0		335.0		352.0		361.0	
633		----		----		----		----		----		----	
634	D86-manual	172.0		208.0		270.5		334.5		349		355.0	
657	D86-automated	173.8		210.8		272.1		331.4		345.1		359.6	
671		----		----		----		----		----		----	

lab	method	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
732	ISO3405-man.	175.5		210.0		273.5		335.0		351.0		360.5	
750	D86	167.0		207.5		272.5		334.0		351.0		359.0	
751		----		----		----		----		----		----	
759	D86-manual	173.0		209.0		273.0		335.0		350.5		361.0	
779	D86-manual	173.0		209.5		272.5		335.5		349.5		361.5	
781	D86-automated	173.1		209.5		272.2		333.5		348.8		359.1	
782	ISO3405-man	173.5		208.5		272.0		333.0		347.0		361.0	
785	D86-automated	175.8		210.5		274.3		336.4		353.7		361.8	
798	D86-manual	171.0		208.0		272.0		333.0		350.0		360.0	
823	D86-automated	175.7		210.7		273.2		333.7		349.1		361.9	
824	D86-automated	174.6		210.7		273.4		335.7		352.2		361.6	
825	D86-automated	175.9		211.0		272.4		333.0		348.6		361.5	
842		----		----		----		----		----		----	
854	D86-automated	173.6		209.3		273.2		335.1		351.7		360.7	
862	D86-automated	171.8		209.6		272.1		333.5		349.7		358.5	
863	D86-manual	174.5		207.5		273.0		334.5		350.0		359.5	
864	D86-automated	173.0		209.8		272.3		334.1		350.6		360.3	
872	D86-manual	171.0		207.5		273.0		336.0		353.0		361.0	
873	D86-manual	172.0		208.0		273.5		334.0		350.0		359.5	
874	D86-manual	172.5		210.0		273.5		334.5		350.0		359.0	
887	D86-manual	174.0		206.0		270.0		332.5		347.5		357.5	
902	D86-automated	171.1		209.2		273.1		334.8		351.2		360.1	
904	D86-automated	172.0		207.6		272.1		332.6		347.9		358.9	
912		171.0		208.0		273.0		333		350		360	
922	D86-automated	167.8		209.7		271.9		333.3		350.3		358.5	
951	D86-manual	171.82		209.72		273.55		334.39		348.35		357.33	
962	D86-automated	172.5		209.5		273.1		335.0		351.5		359.1	
963	D86-automated	175.0		210.0		273.9		334.4		350.8		360.5	
970	D86-automated	172.8		209.0		272.7		333.5		349.7		360.5	
971	D86-automated	172.8		210.7		273.5		334.9		351.0		360.4	
974	D86-automated	173.1		209.5		273.5		334.9		351.4		360.2	
994	D86-manual	174.5		209.0		272.5		333.5		349.0		361.0	
995	D86-manual	173.5		209.0		271.5		335.0		349.5		360.5	
996	D86-manual	173.5		207.5		271.5		334.0		350.0		358.0	
997		173.0		208.5		270.5		334.0		348.5		359.0	
998		----		----		----		----		----		----	
1006	D86-automated	173.4		210.8		273.5		333.3		347.7		358.4	
1033	IP123-autom	171.9		209.3		272.4		333.6		349.4		359.6	
1059	D86-automated	177.2		210.4		273.0		334.8		350.9		359.7	
1081	D86-automated	171.5		209.2		273.0		334.1		349.2		360.9	
1090		----		----		----		----		----		----	
1105		172.4		210.6		273.0		335.7		354.0		360.0	
1107	D86-automated	172.8		209.0		273.7		335.1		351.6		357.5	
1109	D86-automated	171.5		208.3		271.5		332.8		347.6		358.4	
1121		170.0		207.0		272.0		335.0		353.0		362.5	
1124	ISO3405-autom.	174.0		208.0		274.0		337.0		357.0		360.0	
1126	D86	173.5		210.5		273.8		336.5		351.9		364.9	
1134	D86-automated	168.7		206.7		272.8		334.9		351.1		360.6	
1146	D86-automated	174.5		209.1		272.6		333.5		347.8		360.7	
1161	D86-automated	173.8		208.6		273.2		335.7		350.5		358.6	
1171	ISO3405-man	175.94		206.18		270.17		331.41		345.16		358.41	
1182	D86-automated	174.0		207.5		273.0		336.9		354.9		358.0	
1186	D86-manual	179.0	C	207.0	C	270.0	C	330.0		337.0	C,R(1)	367.0	C,R(5)
1199		----		----		----		----		----		----	
1212	D86-automated	175.3		210.7		273.4		334.2		349.9		359.0	
1213		----		----		----		----		----		----	
1227	D86-automated	168.9		208.6		273.3		335.8		354.5		359.3	
1297	D86-automated	166.2		207.5		271.6		332.6		347.2		354.0	
1299	D86-automated	167.0		208.2		271.1		326.8	R(1)	340.1		348.8	C,R(1)
1320	D86-automated	173.0		210.0		271.8		330.3		345.4		354.9	
1347	D86-manual	175		210		272		334		350		358	
1348	D86-automated	176.5		211.8		272.8		332.9		346.8		360.3	
1356		----		209		282	R(1)	343	R(1)	----		----	
1385	D86-manual	175.7		212.2		272.3		332.3		348.3		360.3	
1399	D86-automated	170.2		208.6		273.9		333.6		347.6		360.4	
1417	ISO3405-autom.	172.8		211.7		274.4		336.1		355.0		359.0	
1428	D86-automated	174.9		210.3		273.3		332.9		348.0		358.8	
1430		170.0		206.7		270.7		330.6		343.9		356.5	
1431	D86-automated	162.4	R(5)	208.0		271.7		334.2		350.3		358.2	
1457	D86-automated	175.6		210.6		273.2		333.6		348.7		360.2	
1498	D86-automated	171.3		209.9		274.4		336.9		354.9		362.3	
1544	D86-automated	173.0		208.0		272.0		332.0		346.0		358.0	
1588		----		----		----		----		----		----	
1629		----		----		----		----		----		----	
1634	D86-automated	174.3		210.0		273.2		333.0		347.9		360.3	
1636		----		----		----		----		----		----	
1650	D86-automated	170.8		207.0		272.4		334.4		350.6		358.9	
1654		----		----		----		----		----		----	
1689	GB/T6536	----		209.5		271.7		332.5		346.8		----	

lab	method	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
1709	D86-automated	170.9	C	208.2	C	272.8	C	333.9	C	348.9	C	361.0	C
1720	D86-automated	165.0		212.4		273.1		334.8		351.1		360.3	
1724	D86-automated	174.4		210.7		272.8		333.5		349.8		360.6	
1776	ISO3405-autom.	170.4		207.1		271.5		334.1		351.1		359.1	
1796	D86-automated	172.8		210.8		273.2		334.6		347.5		359.6	
1807	ISO3405-autom.	173.8		205.2		270.8		331.9		346.0		359.5	
1810	D86-automated	175.8		211.1		272.9		333.7		348.9		360.5	
1811		171.1		208.6		271.8		333.0		347.7		359.2	
1849	ISO3405-autom.	173.5		209.8		272.3		332.2		346.2		358.0	
1857	D86-automated	173.8		210.2		272.3		335.5		347.3		357.5	
1881		----		----		----		----		----		----	
1906		----		----		----		----		----		----	
1936	ISO3405-autom.	173.7		208.9		272		332.9		348.3		359	
1937	ISO3405-autom.	173.5		209.5		272.1		333.0		348.3		358.8	
1938		171		208.9		272		332.9		347.9		359	
1948	D86-automated	175.4		207.6		271.5		332.6		348.1		359.6	
1949	D86-manual	174.0		210.5		271.5		333.5		347.0		357.5	
1967	D86-manual	170.0		209.0		272.5		334.5		352.0		358.5	
1984	ISO3405-autom.	177.15		209.40		273.15		334.65		355.70		360.75	
1995	D86-automated	174		209		273		337		254	R(1)	357	
2129	D86-automated	175.4		205.2		270.7		331.1		344.6		360.2	
6005	ISO3405-autom.	168.7		205.9		274.5		332.9		349.6		359.3	
6016	D86-automated	166.8		207.0		271.4		331.5		347.0		353.3	
6049	D86-automated	172.7		208.4		272.4		333.3		349.7		356.0	
6054	D86-automated	170.3		208.9		272.2		334.1		350.9		359.5	
6057	ISO3405-autom.	179.8		213.0		274.5		336.1		351.6		363.1	
6101		174.5		209.1		272.03	C	334.2		347.5		358.7	
6114	D86-automated	175.6		208.1		273.1		335.5		353.4		360.3	
6142	D86-automated	167.2		207.05		271.05		332.6		348.65		359.4	
	normality	OK		OK		OK		OK		OK		suspect	
	n	147		151		149		149		144		144	
	outliers	2		0		2		2		3		5	
	mean (n)	172.45		208.94		272.45		334.03		349.82		359.37	
	st.dev. (n)	2.722		1.632		1.098		1.596		2.894		1.836	
	R(calc.)	7.62		4.57		3.07		4.47		8.10		5.14	
	st.dev.(D86-A:17)	3.387		1.642		1.071		1.789		3.073		2.536	
	R(D86-A:17)	9.48		4.60		3.0		5.01		8.60		7.1	
	Compare R(D86-M:17)	6.19		4.46		3.88		4.09		5.17		3.90	

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

- Lab 273 first reported: 352.4 for FBP
- Lab 338 first reported: 160.6 for IBP, 202.6 for 10% Rec
- Lab 344 first reported: 339.7 for 90% Rec
- Lab 1186 first reported: 187.0 for IBP, 216.0 for 10% Rec, 276.0 for 50% Rec, 340.0 for 95% Rec, 377.0 for FBP
- Lab 1299 first reported: 348.0 for FBP
- Lab 1709 first reported: 170.9 for IBP, 208.2 for 10% Rec, 272.8 for 50% Rec, 333.9 for 90% Rec, 348.9 for 95% Rec, 361.0 for FBP
- Lab 6101 first reported: 228.5 for 50% Rec



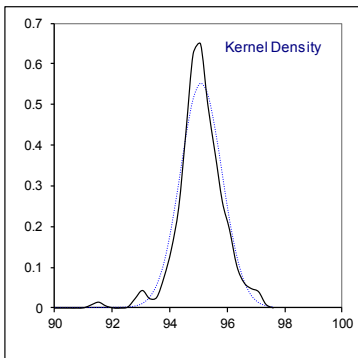
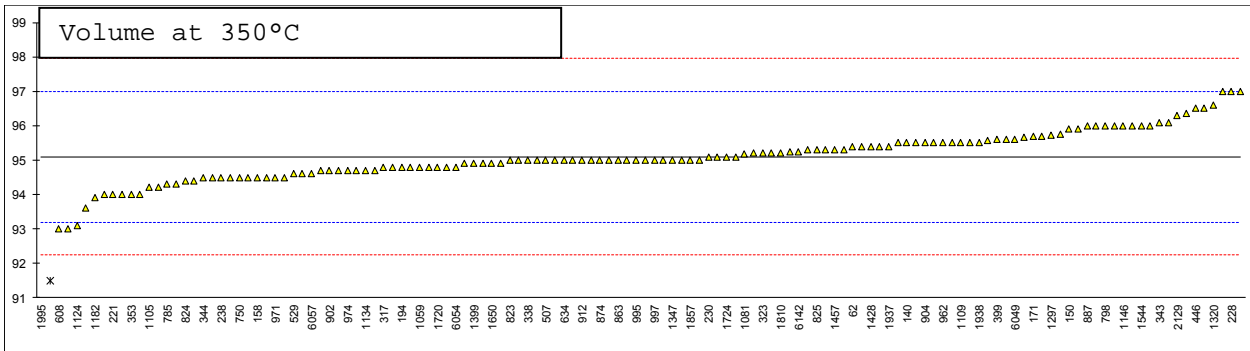
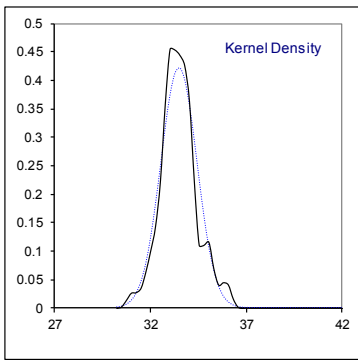
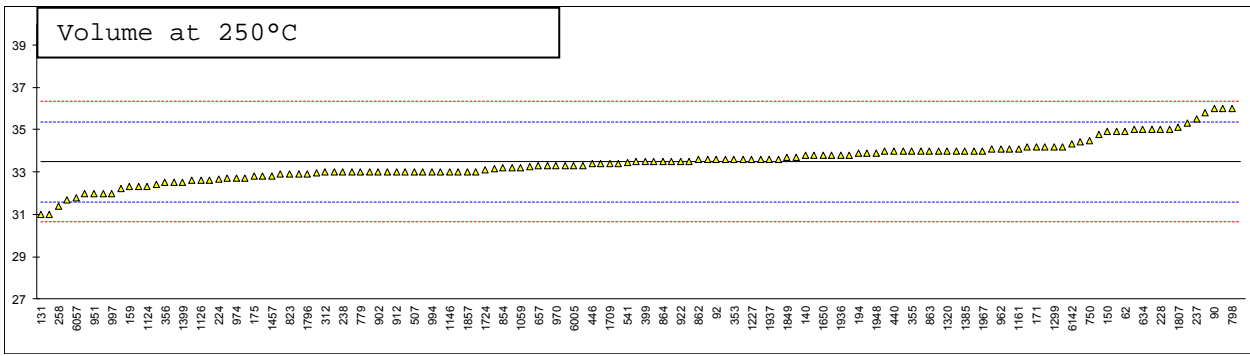
Determination of Distillation on sample #17170; results in %V/V

lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue
52	D86-automated	----		----	----		----	1.8
53		----		----	----		----	----
62	D86-automated	34.9		1.49	95.4		0.31	----
90	D86-manual	36		2.65	----		----	1.0
92	D86-automated	33.6		0.12	95.4		0.31	2.4
120	D86-automated	----		----	----		----	1.0
131	D86-automated	31.0		-2.62	94.0		-1.16	2.0
140	D86-automated	33.8		0.33	95.5		0.42	1.4
150	D86-automated	34.9		1.49	95.9		0.84	1.4
158	D86-automated	34.2		0.75	94.5		-0.63	1.7
159	D86-automated	32.3		-1.25	94.5		-0.63	1.3
169	D86-automated	----		----	----		----	1.6
171	D86-automated	34.2		0.75	95.7		0.63	1.5
175	D86-automated	32.8		-0.72	93.6		-1.58	1.4
186		----		----	----		----	----
194		33.9		0.44	94.8		-0.32	1.4
203		----		----	----		----	----
217		----		----	----		----	----
218		----		----	----		----	----
221		33.5		0.01	94		-1.16	1.8
224	D86-manual	32.66		-0.87	95.75		0.68	1.7
228	D86-manual	35.0		1.59	97.0		2.00	1.0
230	D86-automated	32.7		-0.83	95.1		0.00	1.3
237		35.5		2.12	97.0		2.00	1.0
238		33.0		-0.51	94.5		-0.63	----
240		----		----	----		----	----
252	D86-manual	----		----	----		----	----
253	D86-manual	34.0		0.54	95.0		-0.11	1.2
254	D86-manual	----		----	----		----	----
256	D86-manual	----		----	----		----	----
258	D86-automated	31.4		-2.20	91.5	R(0.01)	-3.79	1.6
273	D86-automated	----		----	----		----	----
312	D86-automated	33.0		-0.51	95.2		0.10	1.0
317	D86-automated	33.3		-0.20	94.8		-0.32	1.5
323	D86-automated	34.0		0.54	95.2		0.10	1.6
333	D86-automated	----		----	----		----	----
335	D86-automated	34.9		1.49	94.0		-1.16	0.7
336		33.6		0.12	94.7		-0.42	1.2
337		----		----	----		----	----
338	D86-automated	35.8		2.44	95		-0.11	1.4
343	D86-automated	33.2		-0.30	96.1		1.05	1.2
344	D86-automated	31.7		-1.88	94.5		-0.63	1
349		----		----	----		----	----
351		34.20		0.75	94.60		-0.53	0.70
353	D86-automated	33.6		0.12	94.0		-1.16	1.3
355	D86-manual	34.0		0.54	94.5		-0.63	2.0
356	D86-automated	32.5		-1.04	94.8		-0.32	1.6
381	D86-automated	34.42		0.98	95.56		0.48	1.2
399		33.5		0.01	95.6		0.53	0.5
431		34.1		0.65	95.5		0.42	1.9
433		----		----	----		----	----
440	D86-manual	34.0		0.54	96.5		1.47	1
446	D86-automated	33.4		-0.09	96.5		1.47	1.9
485	D86-automated	33.25		-0.25	95.25		0.16	1.55
495		----		----	----		----	----
507	D86-automated	33.0		-0.51	95.0		-0.11	1.9
511		----		----	----		----	----
529	D86-automated	33.0		-0.51	94.6		-0.53	1.4
541	D86-automated	33.45		-0.04	94.50		-0.63	1.40
555		----		----	----		----	----
556		----		----	----		----	----
557	D86-manual	35.0		1.59	96.0		0.95	0.2
558	D86-manual	35		1.59	95		-0.11	1.5
562	D86-automated	----		----	----		----	----
575		----		----	----		----	----
603		----		----	----		----	----
604		----		----	----		----	----
605		----		----	----		----	----
608	D86-manual	33.0		-0.51	93.0		-2.21	2.1
614		----		----	----		----	----
621		----		----	----		----	----
631	D86-manual	34		0.54	95		-0.11	1.0
633		----		----	----		----	----
634	D86-manual	35.0		1.59	95.0		-0.11	1.0
657	D86-automated	33.3		-0.20	96.1		1.05	1.3
671		----		----	----		----	----

lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue
732	ISO3405-manual	32.0		-1.56	95.0		-0.11	----
750	D86	34.5		1.07	94.5		-0.63	1.6
751		----		----	----		----	----
759	D86-manual	33.0		-0.51	95.0		-0.11	1.7
779	D86-manual	33.0		-0.51	95.5		0.42	1.5
781	D86-automated	33.8		0.33	95.3		0.21	0.9
782	ISO3405-manual	33.5		0.01	95.5		0.42	1.3
785	D86-automated	32.4		-1.14	94.3		-0.84	1.4
798	D86-manual	36.0		2.65	96.0		0.95	0.8
823	D86-automated	32.9		-0.62	95.0		-0.11	1.0
824	D86-automated	32.9		-0.62	94.4		-0.74	1.4
825	D86-automated	33		-0.51	95.3		0.21	0.4
842		----		----	----		----	----
854	D86-automated	33.2		-0.30	94.7		-0.42	1.4
862	D86-automated	33.6		0.12	95.3		0.21	1.4
863	D86-manual	34.0		0.54	95.0		-0.11	1.5
864	D86-automated	33.5		0.01	94.9		-0.21	1.5
872	D86-manual	33.5		0.01	94.5		-0.63	1.5
873	D86-manual	33.0		-0.51	95.0		-0.11	1.0
874	D86-manual	33.0		-0.51	95.0		-0.11	1.5
887	D86-manual	36		2.65	96		0.95	1.0
902	D86-automated	33.0		-0.51	94.7		-0.42	1.4
904	D86-automated	33.6		0.12	95.5		0.42	1.4
912		33.0		-0.51	95.0		-0.11	1.7
922	D86-automated	33.5		0.01	95.0		-0.11	1.4
951	D86-manual	32.0		-1.56	96.0		0.95	1.8
962	D86-automated	34.1		0.65	95.5		0.42	1.4
963	D86-automated	32.6		-0.93	94.8		-0.32	1.4
970	D86-automated	33.3		-0.20	95.1		0.00	1.4
971	D86-automated	32.5		-1.04	94.5		-0.63	1.4
974	D86-automated	32.7		-0.83	94.7		-0.42	1.2
994	D86-manual	33.0		-0.51	95.5		0.42	1.0
995	D86-manual	32.0		-1.56	95.0		-0.11	1.1
996	D86-manual	33.0		-0.51	95.0		-0.11	1.5
997		32.0		-1.56	95.0		-0.11	----
998		----		----	----		----	----
1006	D86-automated	----		----	----		----	1.5
1033	IP123-automated	----		----	----		----	1.4
1059	D86-automated	33.2		-0.30	94.8		-0.32	1.4
1081	D86-automated	32.96		-0.55	95.17		0.07	1.4
1090		----		----	----		----	----
1105		33.4		-0.09	94.2		-0.95	1.8
1107	D86-automated	32.3		-1.25	94.7		-0.42	2.0
1109	D86-automated	34.1		0.65	95.5		0.42	1.2
1121		34.0		0.54	93.0		-2.21	1.2
1124	ISO3405-autom.	32.3		-1.25	93.1		-2.11	1.6
1126	D86	32.6		-0.93	94.4		-0.74	----
1134	D86-automated	33.6		0.12	94.7		-0.42	1.4
1146	D86-automated	33		-0.51	96		0.95	0.9
1161	D86-automated	34.1		0.65	94.8		-0.32	1.2
1171	ISO3405-manual	35.00		1.59	96.35		1.31	1.0
1182	D86-automated	32.8		-0.72	93.9		-1.26	1.0
1186	D86-manual	31.0		-2.62	97.0		2.00	1.0
1199		----		----	----		----	----
1212	D86-automated	32.6		-0.93	95.0		-0.11	1.5
1213		----		----	----		----	----
1227	D86-automated	33.6		0.12	94.2		-0.95	1
1297	D86-automated	34.80		1.38	95.73		0.66	1.4
1299	D86-automated	34.2		0.75	----		----	1.5
1320	D86-automated	34.0		0.54	96.6		1.58	1.4
1347	D86-manual	34		0.54	95		-0.11	2
1348	D86-automated	33		-0.51	96		0.95	1.3
1356		----		----	----		----	----
1385	D86-manual	34		0.54	95.5		0.42	1.6
1399	D86-automated	32.5		-1.04	94.9		-0.21	----
1417	ISO3405-autom.	32.2		-1.35	94.0		-1.16	1.4
1428	D86-automated	32.7		-0.83	95.4		0.31	1.7
1430		----		----	----		----	----
1431	D86-automated	33.9		0.44	94.9		-0.21	2.4
1457	D86-automated	32.8		-0.72	95.3		0.21	1.5
1498	D86-automated	34		0.54	95		-0.11	1.4
1544	D86-automated	33.5		0.01	96.0		0.95	1.5
1588		----		----	----		----	----
1629		----		----	----		----	----
1634	D86-automated	33.15		-0.35	95.65		0.58	1.0
1636		----		----	----		----	----
1650	D86-automated	33.8		0.33	94.9		-0.21	1.5
1654		----		----	----		----	----
1689	GB/T6536	----		----	----		----	----

lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue
1709	D86-automated	33.4	C	-0.09	95.2	C	0.10	1.4 C
1720	D86-automated	32.9		-0.62	94.8		-0.32	----
1724	D86-automated	33.1		-0.41	95.1		0.00	1.4
1776	ISO3405-autom.	33.8		0.33	94.7		-0.42	1.4
1796	D86-automated	32.9		-0.62	94.9		-0.21	1.2
1807	ISO3405-autom.	35.1		1.70	95.9		0.84	1.0
1810	D86-automated	33.3		-0.20	95.2		0.10	1.6
1811		33.6		0.12	95.6		0.53	1.4
1849	ISO3405-autom.	33.7		0.23	96.0		0.95	1.4
1857	D86-automated	33.0		-0.51	95.0		-0.11	1.3
1881		----		----	----		----	----
1906		----		----	----		----	----
1936	ISO3405-autom.	33.8		0.33	95.4		0.31	1.6
1937	ISO3405-autom.	33.6		0.12	95.4		0.31	1.4
1938		33.8		0.33	95.5		0.42	1.3
1948	D86-automated	33.9		0.44	94.8		-0.32	1.4
1949	D86-manual	33.0		-0.51	95.0		-0.11	1.4
1967	D86-manual	34.0		0.54	94.5		-0.63	1.2
1984	ISO3405-autom.	33.6		0.12	95.3		0.21	1.4
1995	D86-automated	94	R(0.01)	63.70	33.75	R(0.01)	-64.58	2.20
2129	D86-automated	35.3		1.91	96.3		1.26	1.0
6005	ISO3405-autom.	33.3		-0.20	95.1		0.00	1.7
6016	D86-automated	34.2		0.75	95.7		0.63	1.4
6049	D86-automated	33.4		-0.09	95.6		0.53	1.8
6054	D86-automated	33.7		0.23	94.8		-0.32	1.6
6057	ISO3405-autom.	31.8		-1.77	94.6		-0.53	1.5
6101		----		----	----		----	1.0
6114	D86-automated	33.3		-0.20	94.3		-0.84	1.9
6142	D86-automated	34.35		0.91	95.25		0.16	1.4
	normality	OK			suspect			
	n	135			132			
	outliers	1			2			
	mean (n)	33.49			95.10			
	st.dev. (n)	0.943			0.721			
	R(calc.)	2.64			2.02			
	st.dev.(D86-A:17)	0.950			0.950			
	R(D86-A:17)	2.66			2.66			
	Compare R(D86-M:17)	2.62			2.43			

Lab 1709 first reported: 30.2 for Volume at 250°C, 94.8 for Volume at 350°C, 1.1 for Distillation Residue



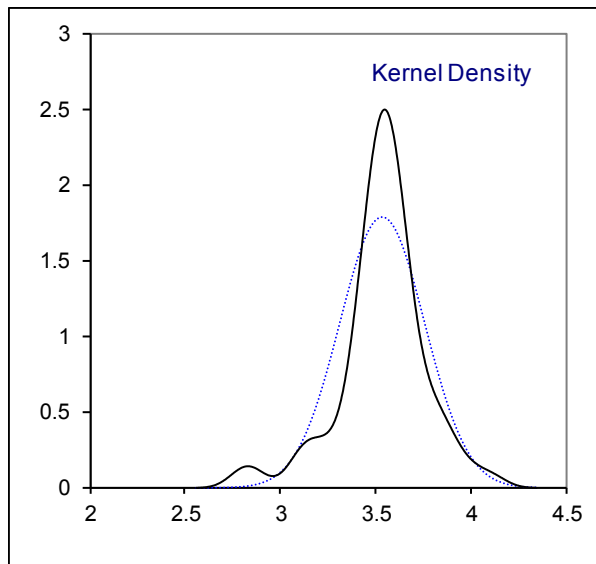
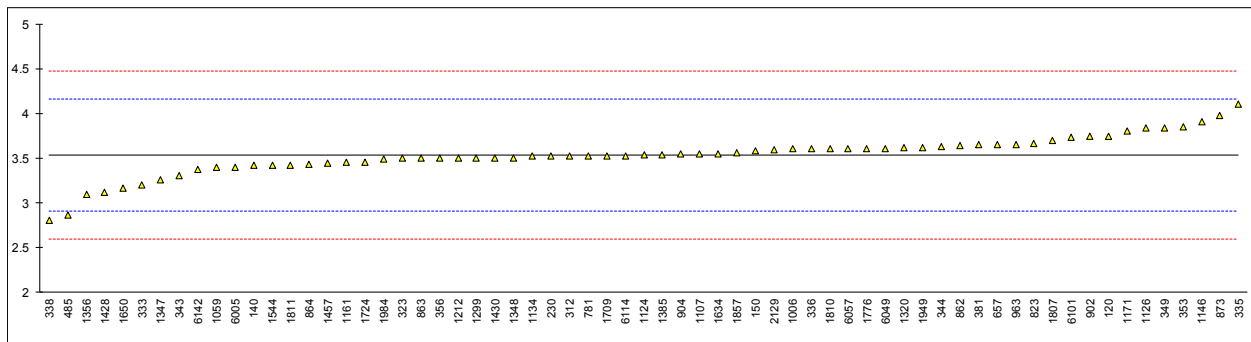
Determination of FAME Content on sample #17170; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	732		----		----
53		----		----	750		----		----
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120	D7371	3.75		0.69	781	EN14078	3.53		-0.01
131		----		----	782		----		----
140	D7371	3.42		-0.36	785		----		----
150	D7371	3.58		0.15	798		----		----
158		----		----	823	EN14078	3.66		0.41
159		----		----	824		----		----
169		----		----	825		----		----
171		----		----	842		----		----
175		----		----	854		----		----
186		----		----	862	EN14078	3.64		0.34
194		----		----	863	EN14078	3.50		-0.10
203		----		----	864	EN14078	3.43		-0.33
217		----		----	872		----		----
218		----		----	873	EN14078	3.98		1.42
221		----		----	874		----		----
224		----		----	887		----		----
228		----		----	902	EN14078	3.74		0.66
230	EN14078	3.528		-0.01	904	D7371	3.55		0.06
237		----		----	912		----		----
238		----		----	922		----		----
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963	D7371	3.653		0.38
254		----		----	970		----		----
256		----		----	971		----		----
258		----		----	974		----		----
273		----		----	994		----		----
312	EN14078	3.53		-0.01	995		----		----
317		----		----	996		----		----
323	EN14078	3.5		-0.10	997		----		----
333	EN14078	3.2		-1.06	998		----		----
335	EN14078	4.1		1.81	1006	EN14078	3.6		0.21
336	EN14078	3.6		0.21	1033		----		----
337		----		----	1059	EN14078	3.4		-0.42
338	EN14078	2.80		-2.33	1081		----		----
343	EN14078	3.3		-0.74	1090		----		----
344	EN14078	3.625		0.29	1105		----		----
349	EN14078	3.84		0.98	1107	EN14078	3.55		0.06
351		----		----	1109		----		----
353	EN14078	3.845		0.99	1121		----		----
355		----		----	1124	EN14078	3.54		0.02
356	EN14078	3.5		-0.10	1126	EN14078	3.84		0.98
381	EN14078	3.65		0.37	1134	EN14078	3.523		-0.03
399		----		----	1146	D7371	3.9072		1.19
431		----		----	1161	EN14078	3.45		-0.26
433		----		----	1171	EN14078	3.80		0.85
440		----		----	1182		----		----
446		----		----	1186		----		----
485	EN14078	2.86		-2.14	1199		----		----
495		----		----	1212	EN14078	3.50		-0.10
507	EN14078	n/a		----	1213		----		----
511		----		----	1227		----		----
529	D7371	----		----	1297		----		----
541		----		----	1299	EN14078	3.5		-0.10
555		----		----	1320	EN14078	3.62		0.28
556		----		----	1347	EN14078	3.260		-0.87
557		----		----	1348	EN14078	3.5014		-0.10
558		----		----	1356	EN14078	3.1		-1.38
562		----		----	1385	EN14078	3.54		0.02
575		----		----	1399		----		----
603		----		----	1417		----		----
604		----		----	1428	EN14078	3.113		-1.34
605		----		----	1430		3.5		-0.10
608		----		----	1431		----		----
614		----		----	1457	EN14078	3.446		-0.28
621		----		----	1498		----		----
631		----		----	1544	D7371	3.42		-0.36
633		----		----	1588		----		----
634		----		----	1629		----		----
657	EN14078	3.653		0.38	1634	EN14078	3.55		0.06
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	EN14078	3.16		-1.19	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709	EN14078	3.53		-0.01	1949	EN14078	3.62		0.28
1720		----		----	1967		----		----
1724	EN14078	3.46		-0.23	1984	EN14078	3.493		-0.13
1776	EN14078	3.61		0.25	1995		----		----
1796		----		----	2129	EN14078	3.591		0.19
1807	EN14078	3.7		0.53	6005	EN14078	3.4		-0.42
1810	D7371	3.6		0.21	6016		----		----
1811	D7371	3.42		-0.36	6049	EN14078	3.61		0.25
1849		----		----	6054		----		----
1857	EN14078	3.56		0.09	6057	EN14078	3.60		0.21
1881		----		----	6101	EN14078	3.73066		0.63
1906		----		----	6114	EN14078	3.53		-0.01
1936		----		----	6142	EN14078	3.373		-0.51

normality not OK
n 65
outliers 0
mean (n) 3.532
st.dev. (n) 0.2228
R(calc.) 0.624
St.dev.(D7371:14) 0.3141
R(D7371:14) 0.880

Compare R(EN14078:14; range B) =0.239



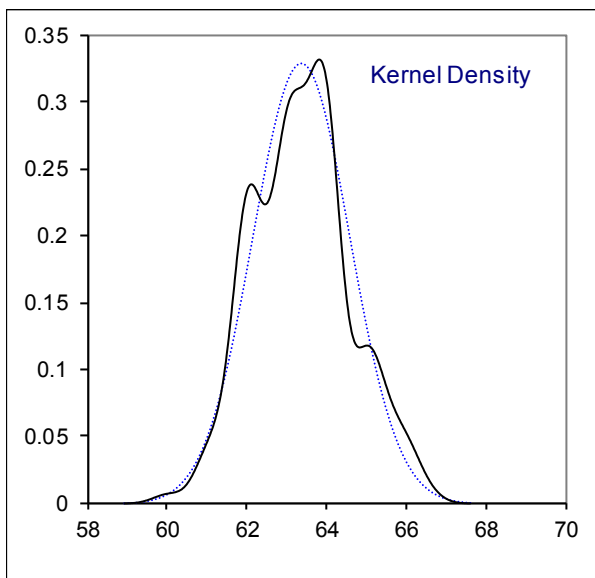
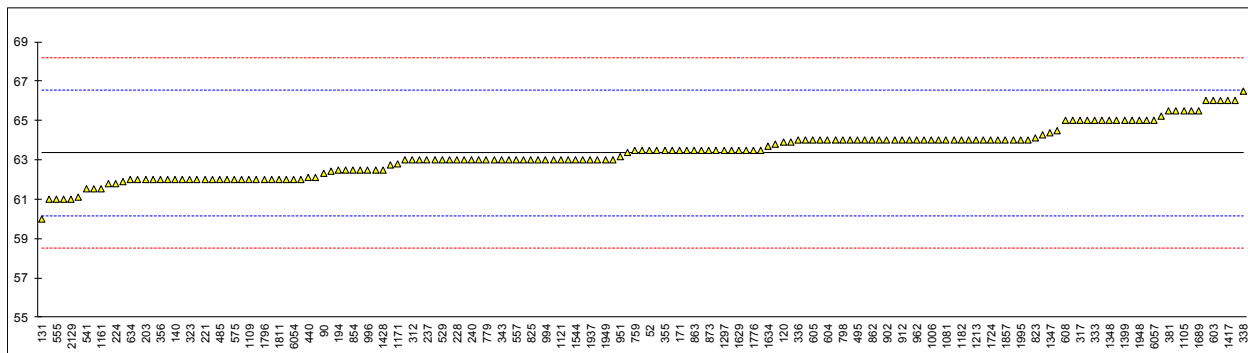
Determination of Flash Point PMcc, on sample #17170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	63.5		0.09	732	ISO2719-A	63.5		0.09
53	D93-A	63.0		-0.22	750	D93	63.0		-0.22
62	D93-A	63.0		-0.22	751		----		----
90	D93-A	62.3		-0.65	759	D93-A	63.5		0.09
92	D93-A	64.0		0.40	779	ISO2719-A	63.0		-0.22
120	D93-A	63.9		0.34	781	D93-A	63.5		0.09
131	D93-A	60.0		-2.09	782	D93-A	63.0		-0.22
140	D93-A	62.0		-0.84	785	D93-A	61.5		-1.15
150	D93-A	66.0		1.65	798	D93-A	64.0		0.40
158	D93-A	62.0		-0.84	823	D93-A	64.1		0.47
159	D93-A	62		-0.84	824	D93-A	63.0		-0.22
169	D93-A	63.9		0.34	825	D93-A	63.0		-0.22
171	D93-A	63.5		0.09	842		----		----
175	D93-A	63.8		0.28	854	D93-A	62.5		-0.53
186	D93-B	61.1		-1.40	862	D93-A	64.0		0.40
194	D93-A	62.5		-0.53	863	D93-A	63.5		0.09
203	D93-A	62		-0.84	864	D93-A	63.5		0.09
217		----		----	872		----		----
218	D93	62.5		-0.53	873	D93-A	63.5		0.09
221	D93-A	62		-0.84	874	D93-A	64.0		0.40
224	D93-A	61.8		-0.97	887	D93-A	64.5		0.71
228	D93-A	63.0		-0.22	902	D93-A	64.0		0.40
230	ISO2719-A	62.0		-0.84	904	D93-A	64.0		0.40
237	D93-A	63.0		-0.22	912	D93-B	64.0		0.40
238	D93-A	63		-0.22	922	D93-A	64.0		0.40
240	D93-A	63.0		-0.22	951	D93-A	63.18		-0.11
252	D93-A	63.0		-0.22	962	D93-A	64.0		0.40
253	D93-A	63.5		0.09	963	D93-A	63.0		-0.22
254	D93-A	61.0		-1.46	970	D93-A	64.0		0.40
256	D93-A	63.0		-0.22	971	D93-A	63.4		0.03
258	D93-A	61.9		-0.90	974	D93-A	63.5		0.09
273	D93-A	63		-0.22	994	D93-A	63.0		-0.22
312	D93-A	63.0		-0.22	995	D93-A	62.5		-0.53
317	D93-A	65.0		1.03	996	D93-A	62.5		-0.53
323	D93-A	62.0		-0.84	997	D93-A	63.0		-0.22
333	D93-B	65.0		1.03	998		----		----
335	D93-A	64.0		0.40	1006	D93-A	64.0		0.40
336	D93-A	64.0		0.40	1033		----		----
337		----		----	1059	ISO2719-A	64.0		0.40
338	ISO2719-A	66.5		1.96	1081	D93-A	64.0		0.40
343	D93-A	63.0		-0.22	1090		----		----
344	D93-A	64.0		0.40	1105	D93-A	65.5		1.34
349	D93-A	62		-0.84	1107	D93-A	62.0		-0.84
351	D93-A	63.50		0.09	1109	D93-A	62.0		-0.84
353	IP34-A	65.0		1.03	1121	D93-A	63.0		-0.22
355	D93-A	63.5		0.09	1124	ISO3679	65.0		1.03
356	D93-A	62.0		-0.84	1126	D93-A	64.0		0.40
381	ISO2719-A	65.5		1.34	1134	D93-A	63.0		-0.22
399	D93-A	65.2		1.15	1146	D93-A	62.1		-0.78
431		----		----	1161	D93-A	61.5		-1.15
433	ISO2719-A	62.0		-0.84	1171	ISO2719-A	62.78		-0.36
440	IP34-A	62.1		-0.78	1182	D93-A	64.0		0.40
446	D93-A	66.0		1.65	1186		----		----
485	D93-A	62.0		-0.84	1199		----		----
495	D93-B	64.0		0.40	1212	D93-A	64.0		0.40
507	D93-A	65.5		1.34	1213	D93-A	64		0.40
511		----		----	1227	D93-A	62		-0.84
529	D93-A	63.0		-0.22	1297	D93-B	63.5		0.09
541	D93-A	61.50		-1.15	1299	D93-A	62.5		-0.53
555	D93	61		-1.46	1320		----		----
556	NBR14598	62.0		-0.84	1347	D93-A	64.4		0.65
557	D93-A	63.0		-0.22	1348	D93-A	65		1.03
558	D93-M	65.0		1.03	1356	ISO2719-A	65		1.03
562		----		----	1385	D93-A	63.5		0.09
575	D93	62		-0.84	1399	D93-A	65	C	1.03
603	D93-A	66.0		1.65	1417	IP34-A	66.0		1.65
604	D93-A	64.0		0.40	1428	D93-A	62.5		-0.53
605	D93-A	64		0.40	1430	D93-A	66.0		1.65
608	D93-A	65.0		1.03	1431	D93-A	61.0		-1.46
614	D93-A	64		0.40	1457	D93-A	64.0		0.40
621		----		----	1498	D93-A	65.5		1.34
631	D93-A	61.8		-0.97	1544	D93-A	63.0		-0.22
633		----		----	1588		----		----
634	D93-A	62.0		-0.84	1629		63.5		0.09
657	D93-A	64		0.40	1634	D93-A	63.7		0.22
671	D93-A	62		-0.84	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D93-A	62.4		-0.59	1937	ISO2719-A	63		-0.22
1654		----			1938	ISO2719-A	63		-0.22
1689	GB/T261	65.5		1.34	1948	ISO2719-A	65		1.03
1709		----			1949	D93-A	63.0		-0.22
1720	D93-A	63.5		0.09	1967	D93-A	62.0		-0.84
1724	D93-A	64		0.40	1984	ISO2719-A	63.0		-0.22
1776	ISO2719-A	63.5		0.09	1995	D93	64		0.40
1796	D93-A	62.0		-0.84	2129	D93-A	61.0		-1.46
1807	ISO2719-A	65.0		1.03	6005	ISO2719-A	64.0		0.40
1810	D93-A	62		-0.84	6016	D93-A	65.0		1.03
1811	D93-A	62.0		-0.84	6049	D93-A	63.5		0.09
1849	ISO2719-A	64.0		0.40	6054	D93-A	62.0		-0.84
1857	D93-A	64.0		0.40	6057	D93-A	65.0		1.03
1881	D93-A	63.0		-0.22	6101	D93-A	62.0		-0.84
1906		----			6114	D93-A	64.28		0.58
1936	ISO2719-A	64		0.40	6142	D93-A	62.75		-0.37

normality OK
n 163
outliers 0
mean (n) 63.352
st.dev. (n) 1.2157
R(calc.) 3.404
st.dev.(D93-A:16a) 1.6064
R(D93-A:16a) 4.498

Lab 1399 first reported: 76



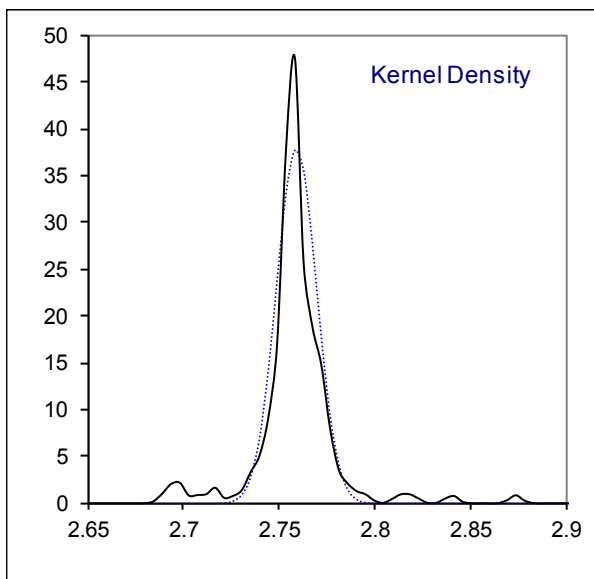
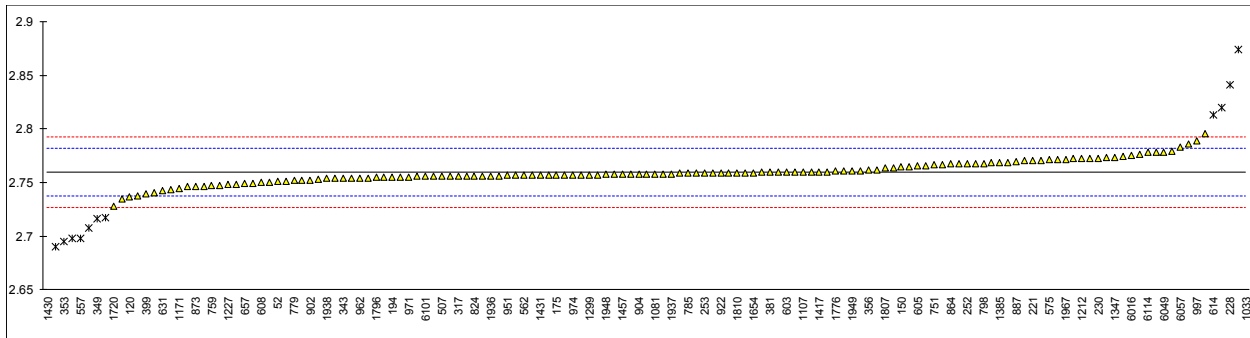
Determination of Kinematic Viscosity at 40°C, on sample #17170; results in mm²/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.751		-0.77	732	D445	2.754		-0.50
53				----	750	D445	2.759		-0.04
62	D445	2.762		0.23	751	D445	2.76615		0.61
90	D445	2.7168	R(0.05)	-3.88	759	D445	2.747		-1.13
92	D445	2.7345		-2.27	779	ISO3104	2.752		-0.68
120	D445	2.736		-2.13	781	D445	2.760		0.05
131	D445	2.752		-0.68	782		----		----
140	D445	2.767		0.68	785	D445	2.759		-0.04
150	D445	2.764	C	0.41	798	D445	2.7674		0.72
158	D445	2.754548		-0.45	823	D445	2.7576		-0.17
159	D445	2.874	R(0.01)	10.40	824	D445	2.756		-0.32
169	D445	2.7375		-2.00	825	D445	2.772		1.14
171	D445	2.756		-0.32	842		----		----
175	D445	2.757		-0.22	854	D445	2.7698		0.94
186				----	862	D445	2.767		0.68
194	D445	2.755		-0.41	863	D445	2.768		0.77
203	D445	2.78588	C	2.40	864	D445	2.767		0.68
217				----	872		----		----
218				----	873	D445	2.746		-1.22
221	D445	2.770		0.96	874	D445	2.749		-0.95
224	D445	2.7645		0.46	887	D445	2.769		0.87
228	D445	2.8405	R(0.01)	7.36	902	D445	2.752		-0.68
230	ISO3104	2.7722		1.16	904	D445	2.758		-0.13
237				----	912	D445	2.740		-1.77
238				----	922	D7042	2.759		-0.04
240	D445	2.7955		3.27	951	D445	2.7565	C	-0.27
252	D445	2.767		0.68	962	D445	2.754		-0.50
253	D445	2.759		-0.04	963	D445	2.760		0.05
254	D445	2.770		0.96	970	D445	2.757		-0.22
256	D445	2.753		-0.59	971	D445	2.755		-0.41
258	D445	2.76585		0.58	974	D445	2.757		-0.22
273	D445	2.771		1.05	994	D445	2.758		-0.13
312	D445	2.755		-0.41	995	D445	2.7484		-1.01
317	D445	2.756		-0.32	996	D445	2.774		1.32
323	D445	2.760		0.05	997	D445	2.789		2.68
333	D445	2.756		-0.32	998		----		----
335	D445	2.756		-0.32	1006	D445	2.7568		-0.24
336	D445	2.746		-1.22	1033	IP71	3.475	R(0.01)	64.99
337				----	1059	ISO3104	2.751		-0.77
338				----	1081	D445	2.758		-0.13
343	D445	2.754		-0.50	1090		----		----
344				----	1105	D445	2.761		0.14
349	D445	2.716	C,R(0.05)	-3.95	1107	D445	2.760		0.05
351	D445	2.7580		-0.13	1109	D445	2.7570		-0.22
353	IP71	2.6952	R(0.01)	-5.84	1121	D445	2.760	C	0.05
355	D445	2.7470	C	-1.13	1124	ISO3104	2.7562		-0.30
356	D445	2.762		0.23	1126		----		----
381	ISO3104	2.760		0.05	1134	D445	2.7765		1.55
399	D7042	2.739		-1.86	1146	D445	2.7639		0.40
431				----	1161	ISO3104	2.778		1.68
433				----	1171	ISO3104	2.7440		-1.40
440	D445	2.758983		-0.04	1182	D7042	2.7565		-0.27
446				----	1186		----		----
485	D445	2.759		-0.04	1199		----		----
495				----	1212	D7042	2.7719		1.13
507	D445	2.7560		-0.32	1213	D445	2.758		-0.13
511				----	1227	D445	2.748		-1.04
529	D445			----	1297	D7042	2.7538		-0.51
541	D445	2.7462		-1.21	1299	D445	2.757		-0.22
555	D445	2.69	R(0.01)	-6.31	1320		----		----
556				----	1347	D445	2.773		1.23
557	D445	2.69763	R(0.01)	-5.62	1348	D445	2.7786		1.74
558				----	1356	ISO3104	2.756		-0.32
562	D445	2.75658075		-0.26	1385	D445	2.768		0.77
575	D445	2.771		1.05	1399	D7042	2.7668		0.67
603	D445	2.760	C	0.05	1417	D445	2.760		0.05
604	D445	2.7603	C	0.08	1428	D445	2.754		-0.50
605	D445	2.765		0.50	1430	D445	2.315	R(0.01)	-40.37
608	D445	2.750		-0.86	1431	D7042	2.7567		-0.25
614	D445	2.813	R(0.01)	4.86	1457	D445	2.7576		-0.17
621				----	1498	D445	2.750		-0.86
631	D445	2.7426		-1.53	1544	D445	2.768	C	0.77
633				----	1588		----		----
634	D445	2.6975	R(0.01)	-5.63	1629		----		----
657	D445	2.749	C	-0.95	1634	D445	2.759		-0.04
671				----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D445	2.7566		-0.26	1937	ISO3104	2.758		-0.13
1654	D445	2.7591		-0.03	1938	ISO3104	2.7535		-0.54
1689		----		----	1948	ISO3104	2.7572		-0.21
1709		----		----	1949	D445	2.7606		0.10
1720	D7042	2.728		-2.86	1967	D445	2.771667		1.11
1724	D445	2.757		-0.22	1984	ISO3104	2.7433		-1.47
1776	ISO3104	2.7601	C	0.06	1995	D445	2.82	R(0.01)	5.50
1796	D445	2.7544		-0.46	2129	D445	2.760		0.05
1807	D445	2.763		0.32	6005	ISO3104	2.707	R(0.01)	-4.77
1810	D7042	2.759		-0.04	6016	D445	2.775		1.41
1811	D445	2.7717		1.11	6049	D445	2.778		1.68
1849	ISO3104	2.759		-0.04	6054	D445	2.77291		1.22
1857	D445	2.7553		-0.38	6057	ISO3104	2.783		2.14
1881		----		----	6101	D445	2.75534		-0.37
1906		----		----	6114	D445	2.7778		1.67
1936	ISO3104	2.756		-0.32	6142		----		----

normality suspect
n 134
outliers 13
mean (n) 2.7595
st.dev. (n) 0.01054
R(calc.) 0.0295
st.dev.(D445:17a) 0.01101
R(D445:17a) 0.0308

Lab 150 first reported: 2.795
Lab 203 first reported: 2.8156
Lab 349 first reported: 2.676
Lab 355 first reported: 2.715895
Lab 603 first reported: 2.806
Lab 604 first reported: 2.70278
Lab 657 first reported: 2.723
Lab 951 first reported: 2.8034
Lab 1121 first reported: 2.854
Lab 1544 first reported: 2.798
Lab 1776 first reported: 2.7248



Determination of Lubricity by HFRR at 60°C, rel. humidity 30-85% on sample #17170; results in µm

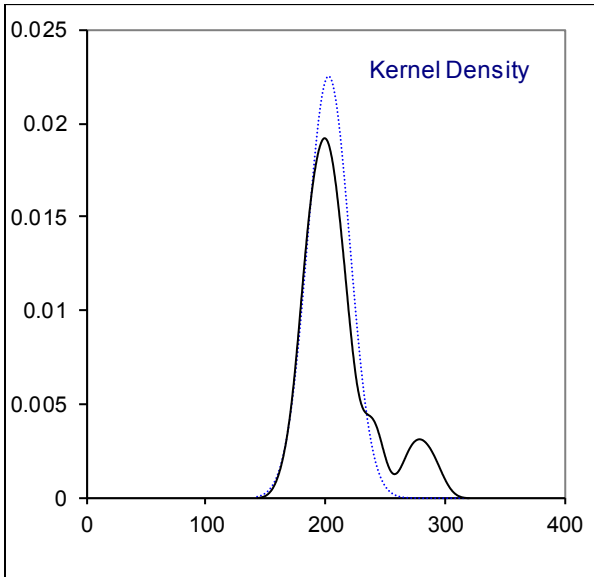
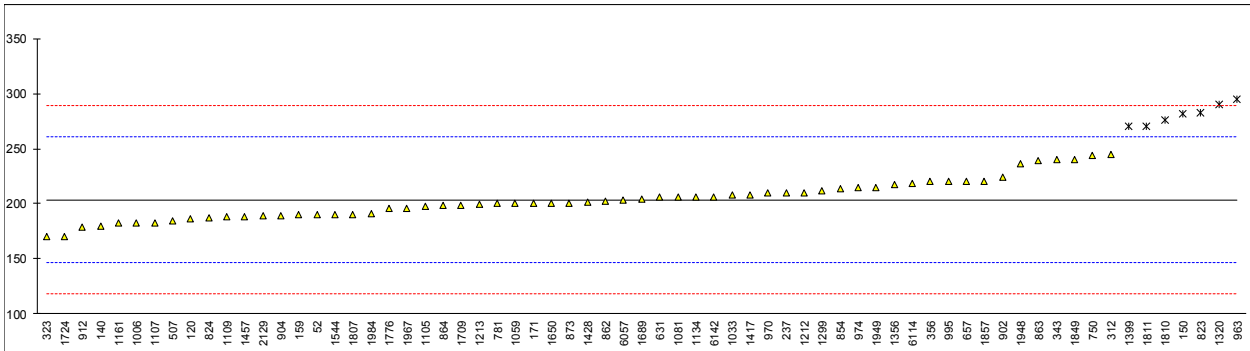
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6079	190		-0.48	732		----		----
53		----		----	750	ISO12156-1	244		1.41
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120	D6079	186		-0.62	781	D6079	200		-0.13
131		----		----	782		----		----
140	D6079	180		-0.83	785		----		----
150	D6079	282	R(0.05)	2.74	798		----		----
158		----		----	823	D6079	283	R(0.05)	2.78
159	D6079	190		-0.48	824	D6079	187		-0.58
169		----		----	825		----		----
171	D6079	200		-0.13	842		----		----
175		----		----	854	D6079	214		0.36
186		----		----	862	ISO12156-1:16	202		-0.06
194		----		----	863	ISO12156-1:16	239		1.24
203		----		----	864	D6079	199		-0.16
217		----		----	872		----		----
218		----		----	873	ISO12156-1:16	200.1		-0.12
221		----		----	874		----		----
224		----		----	887		----		----
228		----		----	902	D6079	224		0.71
230		----		----	904	D6079	189.5		-0.49
237	D6079	210		0.22	912	D6079	179		-0.86
238		----		----	922		----		----
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963	D6079	295	R(0.05)	3.20
254		----		----	970	ISO12156-1:16	210		0.22
256		----		----	971		----		----
258		----		----	974	ISO12156-1:16	215		0.40
273		----		----	994		----		----
312	ISO12156-1:16	245		1.45	995	D6079	220		0.57
317		----		----	996		----		----
323	D6079	170		-1.18	997		----		----
333		----		----	998		----		----
335		----		----	1006	D6079	183		-0.72
336		----		----	1033	ISO12156-1:16	208		0.15
337		----		----	1059	ISO12156-1:16	200		-0.13
338		----		----	1081	ISO12156-1:16	206		0.08
343	ISO12156-1:06	240		1.27	1090		----		----
344		----		----	1105	D6079	198.0		-0.20
349		----		----	1107	ISO12156-1:16	183		-0.72
351		----		----	1109	IP450	188		-0.55
353		----		----	1121		----		----
355		----		----	1124		----		----
356	ISO12156-1:16	220		0.57	1126		----		----
381		----		----	1134	ISO12156-1:06	206		0.08
399		----		----	1146		----		----
431		----		----	1161	ISO12156-1:16	182.5		-0.74
433		----		----	1171		----		----
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	ISO12156-1:16	210		0.22
507	D6079	184.5		-0.67	1213	D6079	199.6		-0.14
511		----		----	1227		----		----
529		----		----	1297		----		----
541		----		----	1299	ISO12156-1:16	212		0.29
555		----		----	1320	D6079	290	R(0.05)	3.02
556		----		----	1347		----		----
557		----		----	1348		----		----
558		----		----	1356	ISO12156-1:06	217		0.47
562		----		----	1385		----		----
575		----		----	1399	ISO12156-1:16	270	R(0.05)	2.32
603		----		----	1417	CEC F-06A96	208		0.15
604		----		----	1428	ISO12156-1:16	201		-0.09
605		----		----	1430		----		----
608		----		----	1431		----		----
614		----		----	1457	D6079	188		-0.55
621		----		----	1498		----		----
631	D7688	206		0.08	1544	D6079	190		-0.48
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D6079	220		0.57	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	EN12156-1	200		-0.13	1937		----		----
1654		----		----	1938		----		----
1689	ISO12156-1:16	204.0		0.01	1948	ISO12156-1:16	236		1.13
1709	D6079	199		-0.16	1949	ISO12156-2	215		0.40
1720		----		----	1967	ISO12156-1:06	196		-0.27
1724	IP450	170		-1.18	1984	ISO12156-1:06	191.3542		-0.43
1776	ISO12156-1:16	196.0		-0.27	1995		----		----
1796		----		----	2129	D6079	189		-0.51
1807	ISO12156-1:16	190		-0.48	6005		----		----
1810	D6079	276	R(0.05)	2.53	6016		----		----
1811	D6079	270	R(0.05)	2.32	6049		----		----
1849	ISO12156-1:16	240		1.27	6054		----		----
1857	ISO12156-1:16	220		0.57	6057	ISO12156-1:16	203		-0.02
1881		----		----	6101		----		----
1906		----		----	6114	D6079	218		0.50
1936		----		----	6142	IP450	206		0.08

normality OK
n 60
outliers 7
mean (n) 203.6
st.dev. (n) 17.72
R(calc.) 49.6
st.dev.(D6079:11) 28.6
R(D6079:11) 80

Only D6079
OK
26
6
196.7
14.23
39.8
28.6
80

Only ISO 12156/IP450
OK
33
1
209.0
18.75
52.5
28.6
80 (Digital Camera)
90 (Visual)



Determination of Nitrogen on sample #17170; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	59		1.67	732		----		----
53		----		----	750	D4629	53.4		-0.78
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120		----		----	781	D4629	58.4		1.41
131	D5762	61		2.55	782		----		----
140	D4629	55		-0.08	785		----		----
150	D4629	52.3		-1.27	798		----		----
158	D4629	43.6	R(0.05)	-5.08	823	D4629	51.8		-1.49
159	D4629	49		-2.71	824	D4629	57		0.80
169		----		----	825	D4629	57		0.80
171	D4629	49		-2.71	842		----		----
175		----		----	854		----		----
186		----		----	862	D4629	52.6		-1.13
194		----		----	863		----		----
203		----		----	864		----		----
217		----		----	872		----		----
218		----		----	873		----		----
221		----		----	874		----		----
224		----		----	887		----		----
228		----		----	902		----		----
230		----		----	904		----		----
237	D4629	55.0		-0.08	912		----		----
238		----		----	922	D4629	55		-0.08
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963		----		----
254		----		----	970		----		----
256		----		----	971	D4629	52.0	C	-1.40
258		----		----	974		----		----
273		----		----	994	D4629	56.0		0.36
312		----		----	995		56		0.36
317		----		----	996		----		----
323	D4629	52		-1.40	997		----		----
333	D4629	52		-1.40	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059		----		----
338		----		----	1081	D4629	37.97	R(0.05)	-7.55
343		----		----	1090	D4629	45.15	R(0.05)	-4.40
344		----		----	1105	D4629	48.65		-2.87
349		----		----	1107	D4629	52.5		-1.18
351		----		----	1109	D4629	57		0.80
353		----		----	1121		----		----
355		----		----	1124		----		----
356		----		----	1126		----		----
381		----		----	1134	D4629	43.652	R(0.05)	-5.06
399	D4629	56		0.36	1146		----		----
431		----		----	1161		----		----
433		----		----	1171		----		----
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	D4629	56.2		0.44
507		----		----	1213		----		----
511		----		----	1227	D4629	54.4		-0.34
529		----		----	1297	D4629	54.845		-0.15
541		----		----	1299	D4629	56.7		0.66
555		----		----	1320	D4629	54.65		-0.24
556		----		----	1347		----		----
557		----		----	1348		----		----
558		----		----	1356		----		----
562		----		----	1385		----		----
575		----		----	1399	D4629	65		4.30
603		----		----	1417		----		----
604		----		----	1428		----		----
605		----		----	1430		----		----
608	D5762	55.6	C	0.18	1431		----		----
614		----		----	1457	D4629	53.1		-0.92
621		----		----	1498		----		----
631		----		----	1544		----		----
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D4629	56		0.36	1634		----		----
671		----		----	1636		----		----

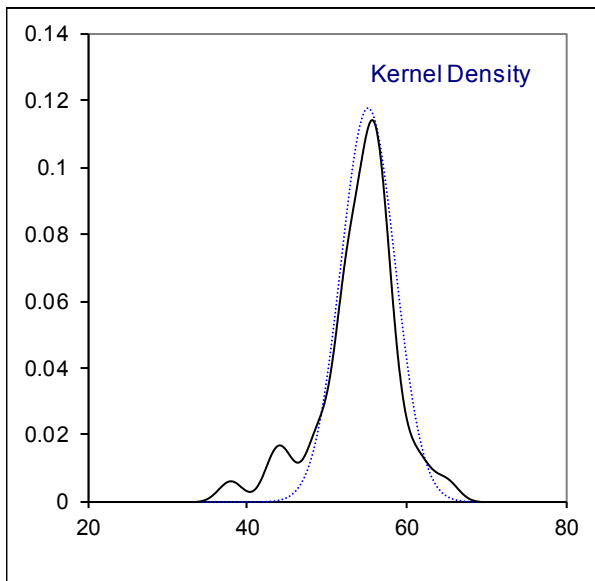
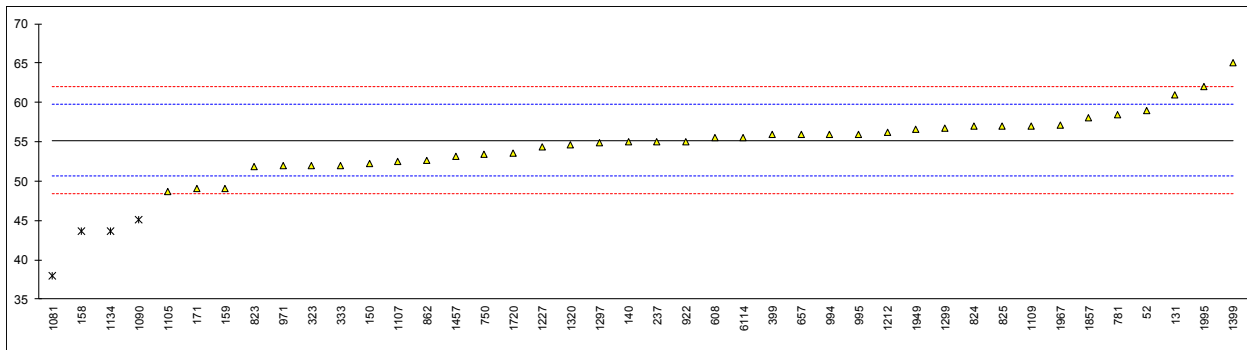
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650		----		----	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D4629	56.60		0.62
1720	D4629	53.5		-0.74	1967	D4629	57.14		0.86
1724		----		----	1984		----		----
1776		----		----	1995	D5762	62		2.99
1796		----		----	2129		----		----
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049		----		----
1849		----		----	6054		----		----
1857	D4629	58.1		1.28	6057		----		----
1881		----		----	6101		----		----
1906		----		----	6114	D5762	55.6	C	0.18
1936		----		----	6142		----		----

normality suspect
n 38
outliers 4
mean (n) 55.19
st.dev. (n) 3.396
R(calc.) 9.51
std.dev.(D4629:12) 2.280
R(D4629:12) 6.38

Only D4629:

not OK
34
4
54.79
3.214
9.00
2.279
6.36

Lab 608 first reported: 32
Lab 971 first reported: 66.4
Lab 6114 first reported: 69.1

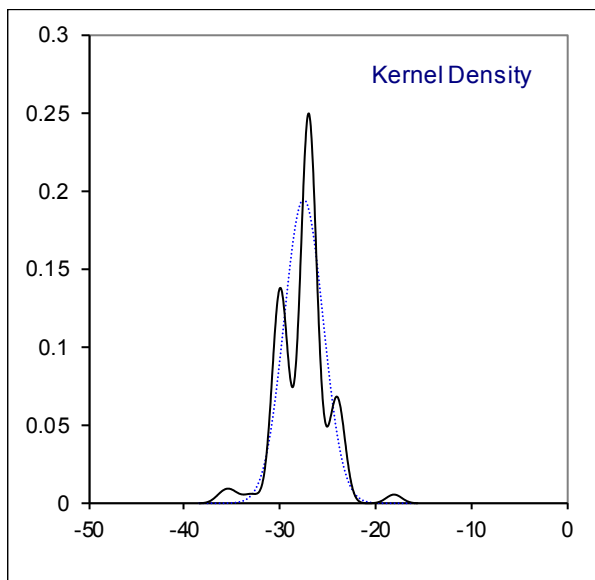
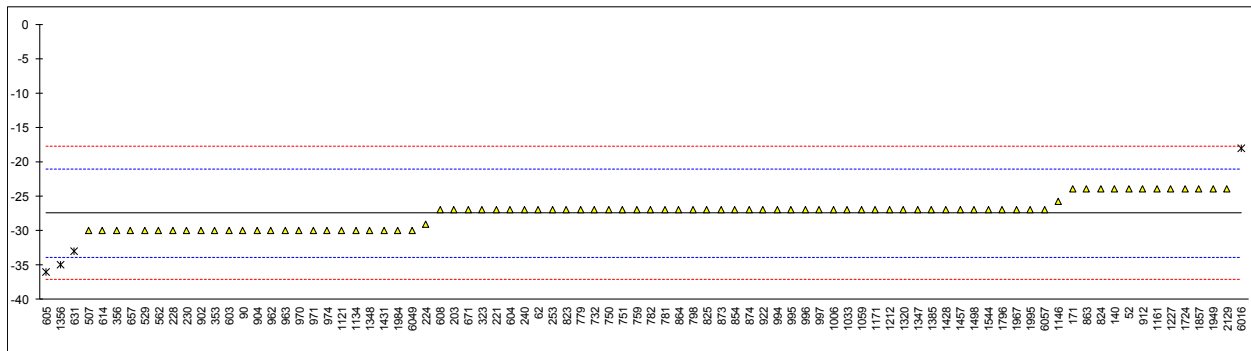


Determination of Pour Point, Manual on sample #17170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	-24		1.07	732	D97	-27		0.14
53		----		----	750	D97	-27		0.14
62	D97	-27		0.14	751	D97	-27		0.14
90	D97	-30		-0.79	759	D97	-27		0.14
92	D97	<-30		----	779	D97	-27		0.14
120		----		----	781	D97	-27		0.14
131	D97	<-31		----	782	D97	-27		0.14
140	D97	-24		1.07	785		----		----
150		----		----	798	D97	-27		0.14
158		----		----	823	D97	-27		0.14
159		----		----	824	D97	-24		1.07
169		----		----	825	D97	-27		0.14
171	D97	-24		1.07	842		----		----
175		----		----	854	D97	-27		0.14
186		----		----	862		----		----
194	D97	<-24		----	863	D97	-24		1.07
203	D97	-27		0.14	864	D97	-27		0.14
217		----		----	872		----		----
218		----		----	873	D97	-27		0.14
221	D97	-27		0.14	874	D97	-27		0.14
224	D97	-29.0		-0.48	887		----		----
228	D97	-30		-0.79	902	D97	-30		-0.79
230	ISO3016	-30		-0.79	904	D97	-30		-0.79
237	D97	<-21		----	912	D97	-24		1.07
238		----		----	922	D97	-27		0.14
240	D97	-27		0.14	951	D97	<-21		----
252		----		----	962	D97	-30		-0.79
253	D97	-27		0.14	963	D97	-30		-0.79
254		----		----	970	D97	-30		-0.79
256		----		----	971	D97	-30		-0.79
258		----		----	974	D97	-30		-0.79
273	D97	<-24		----	994	D97	-27		0.14
312		----		----	995	D97	-27		0.14
317		----		----	996	D97	-27		0.14
323	D97	-27		0.14	997	D97	-27		0.14
333		----		----	998		----		----
335		----		----	1006	D97	-27		0.14
336		----		----	1033	IP15	-27.0		0.14
337		----		----	1059	ISO3016	-27		0.14
338		----		----	1081		----		----
343		----		----	1090		----		----
344		----		----	1105		----		----
349		----		----	1107		----		----
351		----		----	1109		----		----
353	IP15	-30		-0.79	1121	D97	-30.0		-0.79
355		----		----	1124		----		----
356	D97	-30		-0.79	1126		----		----
381		----		----	1134	D97	-30		-0.79
399		----		----	1146	D97	-25.8		0.51
431		----		----	1161	ISO3016	-24		1.07
433		----		----	1171	ISO3016	-27.0		0.14
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	D97	-27		0.14
507	D97	-30		-0.79	1213	D97	<-27		----
511		----		----	1227	D97	-24		1.07
529	D97	-30		-0.79	1297		----		----
541		----		----	1299		----		----
555		----		----	1320	D97	-27		0.14
556		----		----	1347	D97	-27		0.14
557		----		----	1348	D97	-30		-0.79
558		----		----	1356	ISO3016	-35	R(0.05)	-2.35
562	D97	-30		-0.79	1385	D97	-27		0.14
575		----		----	1399		----		----
603	D97	-30		-0.79	1417		----		----
604	D97	-27		0.14	1428	D97	-27		0.14
605	D97	-36	R(0.05)	-2.66	1430		----		----
608	D97	-27		0.14	1431	D97	-30		-0.79
614	D97	-30		-0.79	1457	D97	-27		0.14
621		----		----	1498	D97	-27		0.14
631	D97	-33	R(0.05)	-1.73	1544	D97	-27		0.14
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D97	-30		-0.79	1634		----		----
671	D97	-27		0.14	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650		----		----	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D97	-24		1.07
1720		----		----	1967	D97	-27		0.14
1724	D97	-24		1.07	1984	ISO3016	-30		-0.79
1776		----		----	1995	D97	-27		0.14
1796	D97	-27		0.14	2129	D97	-24		1.07
1807		----		----	6005		----		----
1810		----		----	6016	D97	-18	R(0.01)	2.94
1811		----		----	6049	D97	-30		-0.79
1849		----		----	6054		----		----
1857	D97	-24		1.07	6057	D97	-27		0.14
1881		----		----	6101		----		----
1906		----		----	6114		----		----
1936		----		----	6142		----		----

normality OK
 n 82
 outliers 4
 mean (n) -27.45
 st.dev. (n) 1.966
 R(calc.) 5.50
 st.dev.(D97:17a) 3.2
 R(D97:17a) 9

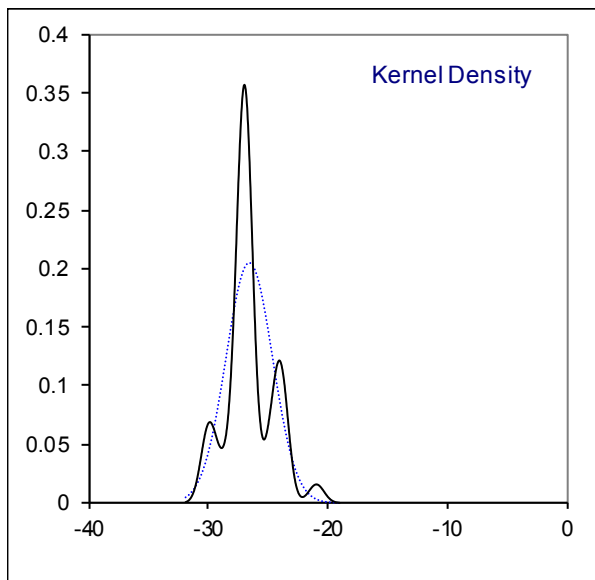
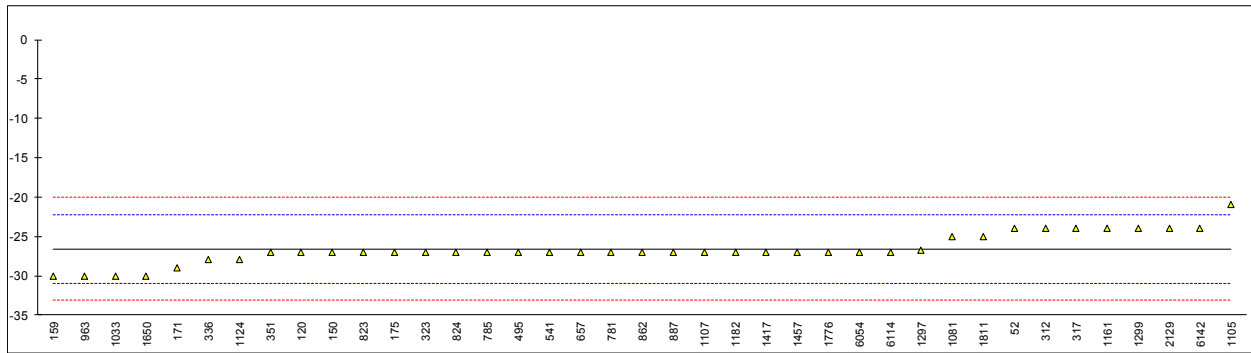


Determination of Pour Point, Automated, 3°C interval on sample #17170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5949	-24		1.20	732		----		----
53		----		----	750		----		----
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120	D5950	-27		-0.18	781	D5950	-27		-0.18
131		----		----	782		----		----
140		----		----	785	D6749	-27.0		-0.18
150	D5950	-27		-0.18	798		----		----
158		----		----	823	D5950	-27		-0.18
159	D5950	-30		-1.56	824	D6749	-27		-0.18
169		----		----	825		----		----
171	D5950	-29		-1.10	842		----		----
175	D5950	-27		-0.18	854		----		----
186		----		----	862	D5950	-27		-0.18
194		----		----	863		----		----
203		----		----	864		----		----
217		----		----	872		----		----
218		----		----	873		----		----
221		----		----	874		----		----
224		----		----	887	D6749	-27		-0.18
228		----		----	902		----		----
230		----		----	904		----		----
237		----		----	912		----		----
238		----		----	922		----		----
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963	D5950	-30		-1.56
254		----		----	970		----		----
256		----		----	971		----		----
258		----		----	974		----		----
273		----		----	994		----		----
312	D5950	-24		1.20	995		----		----
317	D6749	-24		1.20	996		----		----
323	D5950	-27		-0.18	997		----		----
333		----		----	998		----		----
335		----		----	1006		----		----
336	D5950	-28		-0.64	1033	D7346	-30.0		-1.56
337		----		----	1059		----		----
338		----		----	1081	D5950	-25		0.74
343		----		----	1090		----		----
344		----		----	1105	D5950	-21.0		2.57
349		----		----	1107	D5950	-27		-0.18
351	D6749	-27.0		-0.18	1109		----		----
353		----		----	1121		----		----
355		----		----	1124	ISO3016	-28		-0.64
356		----		----	1126		----		----
381		----		----	1134		----		----
399		----		----	1146		----		----
431		----		----	1161	D6749	-24		1.20
433		----		----	1171		----		----
440		----		----	1182	D5949	-27		-0.18
446		----		----	1186		----		----
485		----		----	1199		----		----
495	D7346	-27		-0.18	1212		----		----
507	D5950	n/a		----	1213		----		----
511		----		----	1227		----		----
529	D5950	----		----	1297	D5950	-26.7		-0.04
541	D5950	-27		-0.18	1299	D97	-24		1.20
555		----		----	1320		----		----
556		----		----	1347		----		----
557		----		----	1348		----		----
558		----		----	1356		----		----
562		----		----	1385		----		----
575		----		----	1399		----		----
603		----		----	1417	D5950	-27		-0.18
604		----		----	1428		----		----
605		----		----	1430		----		----
608		----		----	1431		----		----
614		----		----	1457	D5950	-27		-0.18
621		----		----	1498		----		----
631		----		----	1544		----		----
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D5950	-27		-0.18	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D5950	-30.0		-1.56	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949		----		----
1720		----		----	1967		----		----
1724		----		----	1984		----		----
1776	D5950	-27		-0.18	1995		----		----
1796		----		----	2129	D5950	-24		1.20
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811	D5950	-25		0.74	6049		----		----
1849		----		----	6054	D5950	-27		-0.18
1857		----		----	6057		----		----
1881		----		----	6101		----		----
1906		----		----	6114	D5950	-27		-0.18
1936		----		----	6142	D5950	-24		1.20

normality OK
 n 39
 outliers 0
 mean (n) -26.61
 st.dev. (n) 1.940
 R(calc.) 5.43
 st.dev.(D5950:14) 2.179
 R(D5950:14) 6.1

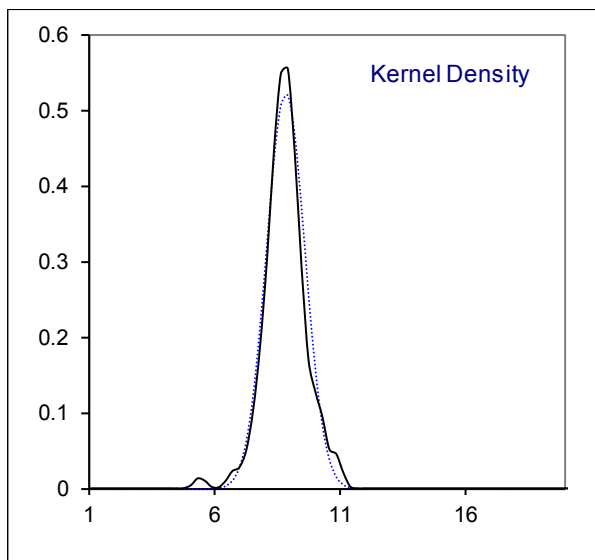
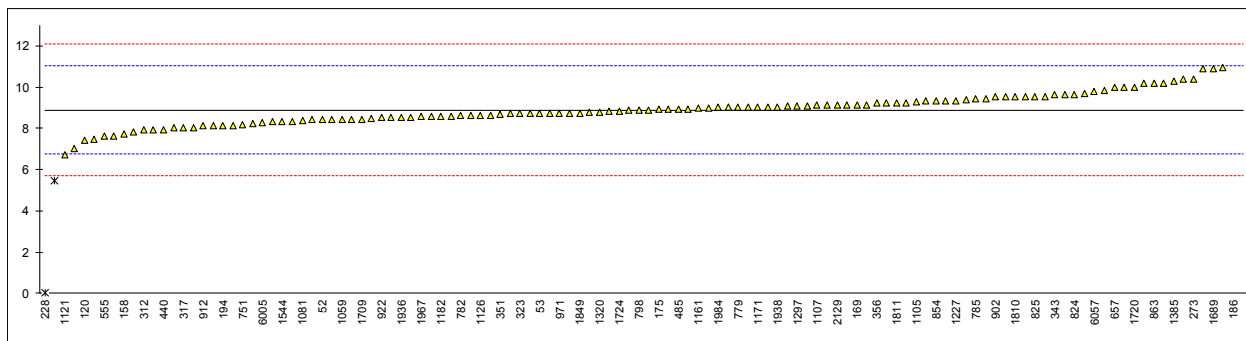


Determination of Sulphur Content on sample #17170; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	8.4		-0.46	732	D4294	less 17		----
53	D5453	8.7		-0.18	750	ISO20884	8.1		-0.74
62	D5453	9.0	C	0.11	751	D2622	8.1681		-0.67
90		----		----	759		----		----
92		----		----	779	ISO20846	9.0		0.11
120	D2622	7.4		-1.40	781	D5453	8.60		-0.27
131	D5453	9.3		0.39	782	D2622	8.6		-0.27
140	D5453	9.2		0.29	785	ISO20884	9.4		0.48
150	D5453	8.57		-0.30	798	ISO20846	8.87		-0.02
158	D5453	7.7		-1.11	823	D5453	8.98		0.09
159	D5453	8.7		-0.18	824	D5453	9.6		0.67
169	D5453	9.126		0.22	825	D5453	9.53		0.60
171	D5453	9.6		0.67	842		----		----
175	D5453	8.9		0.01	854	D5453	9.3		0.39
186	D4294	24	R(0.01)	14.18	862	D5453	9.0		0.11
194	D7039	8.1		-0.74	863	D5453	10.2		1.23
203		----		----	864	D5453	10.2		1.23
217		----		----	872		----		----
218		----		----	873	ISO20846	9.14		0.24
221		----		----	874	D2622	9.7		0.76
224	D4294	8.4		-0.46	887		----		----
228	D4294	0.0037	R(0.01)	-8.34	902	D5453	9.5		0.58
230		----		----	904	D5453	9.5		0.58
237	D5453	8.4		-0.46	912	D5453	8.1		-0.74
238		----		----	922	D5453	8.5		-0.36
240		----		----	951	D4294	<17		----
252		----		----	962		----		----
253		----		----	963		----		----
254	D4294	<20		----	970	D5453	8.7		-0.18
256	D4294	<20		----	971	D5453	8.71		-0.17
258	D5453	10.4		1.42	974		----		----
273	D5453	10.4		1.42	994	D5453	8.5		-0.36
312	D5453	7.9		-0.93	995	D5453	8.1		-0.74
317	D5453	8.0		-0.83	996	D5453	8.74		-0.14
323	D5453	8.7		-0.18	997		----		----
333	D5453	9.3		0.39	998		----		----
335	ISO20846	8.3		-0.55	1006	D5453	8.8		-0.08
336	D5453	8.7		-0.18	1033		----		----
337		----		----	1059	ISO20846	8.4		-0.46
338	D5453	9.38		0.46	1081	ISO20846	8.35		-0.50
343	ISO20846	9.6		0.67	1090		----		----
344		----		----	1105	D5453	9.27		0.36
349		----		----	1107	D5453	9.1		0.20
351	D5453	8.66		-0.21	1109	D7039	8.89		0.00
353	IP600	8.0		-0.83	1121	D5453	6.72		-2.03
355		----		----	1124	ISO20846	8.64		-0.23
356	ISO20846	9.2		0.29	1126	ISO20846	8.6		-0.27
381	ISO20846	8.47		-0.39	1134	D5453	9.40		0.48
399	D5453	8.0		-0.83	1146		----		----
431		----		----	1161	ISO20846	8.95		0.06
433		----		----	1171	ISO20846	9.00		0.11
440	D5453	7.938		-0.89	1182	ISO20846	8.576		-0.29
446		----		----	1186	D5453	9.85		0.90
485	ISO20846	8.91		0.02	1199		----		----
495	D5453	9.06		0.16	1212	D5453	8.4		-0.46
507	D5453	n/a		----	1213		----		----
511		----		----	1227	D5453	9.3		0.39
529	D5453	----		----	1297	D5453	9.065		0.17
541	D5453	7.63		-1.18	1299	ISO20884	7.8		-1.02
555	D7039	7.6		-1.21	1320	ISO20846	8.79		-0.09
556		----		----	1347	D5453	7.93		-0.90
557		----		----	1348	D5453	10.94		1.93
558		----		----	1356	ISO8754	<300		----
562	D5453	10.2		1.23	1385	D5453	10.28		1.31
575	D4294	69	R(0.01)	56.41	1399	D5453	10	C	1.04
603		----		----	1417		----	W	----
604		----		----	1428	D5453	8.9		0.01
605		----		----	1430		----		----
608	D5453	9.12		0.22	1431	D7220	5.47	R(0.01)	-3.21
614		----		----	1457	D5453	8.85		-0.03
621		----		----	1498	D5453	9.1		0.20
631	D5453	7.46		-1.34	1544	D5453	8.3		-0.55
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D5453	10		1.04	1634	ISO20846	8.3		-0.55
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	D5453	9.08		0.18	1937	ISO20846	8.5		-0.36
1654		-----			1938	ISO20846	9.0		0.11
1689	SH/T0689	10.9		1.89	1948	ISO20846	8.77		-0.11
1709	D5453	8.4		-0.46	1949	D5453	8.94		0.05
1720	D5453	10.0		1.04	1967	ISO20846	8.55		-0.32
1724	D5453	8.8		-0.08	1984	ISO20846	8.998		0.10
1776	ISO20846	10.87		1.86	1995	D5453	8.2		-0.64
1796	D4294	less 17		-----	2129	D5453	9.11		0.21
1807		-----		-----	6005	ISO20846	8.28		-0.57
1810	D5453	9.5		0.58	6016		-----		-----
1811	D5453	9.20		0.29	6049	D5453	9.5		0.58
1849	ISO20846	8.74		-0.14	6054	D4294	9.2		0.29
1857	D5453	9.0		0.11	6057	ISO20846	9.8		0.86
1881	D5453	8.58		-0.29	6101	D1266	7.0		-1.77
1906		-----		-----	6114	D5453	9.53		0.60
1936	ISO20846	8.5		-0.36	6142		-----		-----
normality		OK							
n		118							
outliers		4							
mean (n)		8.886							
st.dev. (n)		0.7639							
R(calc.)		2.139							
st.dev.(D5453:16e1)		1.0656							
R(D5453:16e1)		2.984							

Lab 62 first reported: 39
 Lab 1399 first reported: 13
 Lab 1417 result withdrawn, reported 90 mg/kg

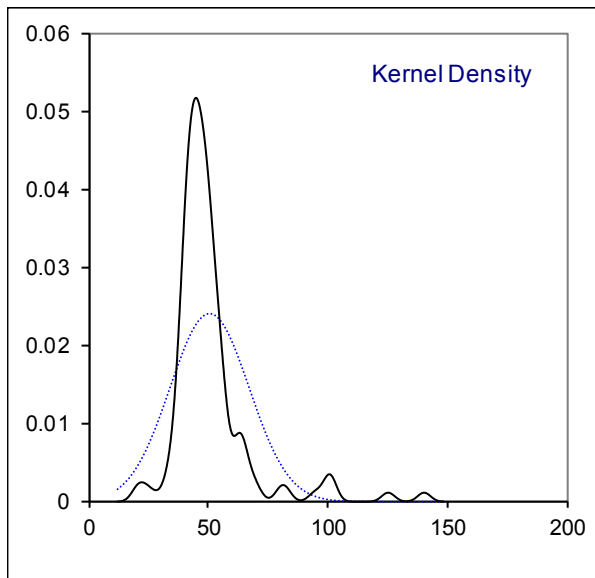
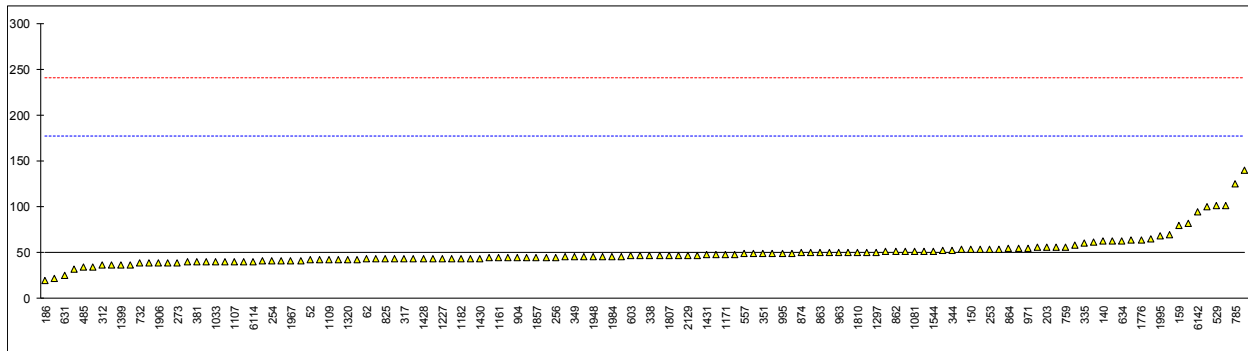


Determination of Water Content by KF on sample #17170; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304-A	42		-0.13	732	ISO12937	39		-0.18
53		----		----	750		----		----
62	D6304-A	43.0		-0.12	751		----		----
90	D6304-A	42		-0.13	759	D6304-A	56.5		0.10
92	E203	140		1.42	779	ISO12937	43		-0.12
120		----		----	781	D6304-A	43.1		-0.11
131	D6304-A	32		-0.29	782		----		----
140	D6304-A	62.5		0.19	785	ISO12937	125		1.18
150	D6304-A	53.8		0.05	798		----		----
158		----		----	823	D6304-A	51		0.01
159	D6304-B	80		0.47	824	D6304-A	50		-0.01
169	D6304-A	58		0.12	825	D6304-A	43		-0.12
171	D6304-A	63		0.20	842		----		----
175		----		----	854	D6304-A	55.1		0.08
186	D4928	20		-0.48	862	D6304-A	51		0.01
194		----		----	863	D6304-A	50		-0.01
203	D4928	55.6180		0.08	864	D6304-A	55		0.07
217		----		----	872		----		----
218		----		----	873	D6304-A	43.0		-0.12
221		----		----	874	D6304-A	50		-0.01
224	ISO12937	65.0		0.23	887	D6304-A	54		0.06
228		----		----	902	D6304-A	48		-0.04
230		----		----	904	D6304-A	45		-0.08
237	D6304-A	55.6		0.08	912	D6304-C	39.65		-0.17
238		----		----	922	D6304-A	44		-0.10
240		----		----	951		----		----
252		----		----	962	D6304-A	52		0.03
253	D6304-A	54		0.06	963	D6304-A	50		-0.01
254	D6304-A	41.0		-0.15	970	D6304-A	51		0.01
256	D6304-B	45.1		-0.08	971	D6304-A	55.2		0.08
258	E203	46.24		-0.06	974	D6304-A	54		0.06
273	D6304-A	39.4		-0.17	994	D6304-A	43		-0.12
312	ISO12937	37		-0.21	995	D6304-A	49		-0.02
317	D6304-A	43		-0.12	996	D6304-A	48.3		-0.03
323	D6304-A	37		-0.21	997		----		----
333		----		----	998		----		----
335	ISO12937	60		0.15	1006	D6304-A	52.1		0.03
336	ISO12937	50		-0.01	1033	IP438	40		-0.16
337	D6304-A	40		-0.16	1059	ISO12937	40		-0.16
338	ISO12937	46.73		-0.06	1081	ISO12937	51.73		0.02
343	ISO12937	41.0		-0.15	1090		----		----
344	ISO12937	53.1		0.04	1105	D6304-A	39.0		-0.18
349	D6304-A	46		-0.07	1107	ISO12937	40		-0.16
351	ISO12937	49		-0.02	1109	D6304-C	42		-0.13
353	IP438	101		0.80	1121	D6304-A	62		0.18
355		----		----	1124	ISO12937	45.6		-0.07
356	D6304-A	45		-0.08	1126		----		----
381	ISO12937	40		-0.16	1134	IP439	37.06		-0.21
399		----		----	1146	D6304-C	22		-0.45
431		----		----	1161	ISO12937	44.56		-0.09
433		----		----	1171	ISO12937	48.23		-0.03
440	IP438	82.14		0.50	1182	ISO12937	43.5		-0.11
446	D6304-A	41		-0.15	1186		----		----
485	D6304-A	34		-0.26	1199		----		----
495	ISO12937	47.2		-0.05	1212	D6304-A	44.5		-0.09
507	D6304-A	n/a		----	1213	D6304-A	63.75		0.21
511		----		----	1227	D6304-A	43.2		-0.11
529	D6304-A	100.76		0.80	1297	D6304-A	50.46		0.00
541	D6304-A	43.5		-0.11	1299	ISO12937	40		-0.16
555		----		----	1320	ISO12937	42.7		-0.12
556	D6304	48.9		-0.02	1347		----		----
557	D6304	48.7309645		-0.03	1348		----		----
558	D6304	39.3		-0.17	1356	D6304-A	<200		----
562		----		----	1385		----		----
575	E203	100		0.79	1399	IP438	37		-0.21
603	D6304-A	46.4		-0.06	1417	D6304-A	50		-0.01
604		----		----	1428	D6304-A	43		-0.12
605		----		----	1430	D6304-A	44		-0.10
608	D6304-A	50.2		0.00	1431	D6304-A	47.91		-0.04
614	D6304-C	35		-0.24	1457	ISO12937	42		-0.13
621		----		----	1498		----		----
631	D6304-A	25.7		-0.39	1544	ISO12937	52.0		0.03
633		----		----	1588		----		----
634	D6304	63.255		0.20	1629		----		----
657	D6304-A	49		-0.02	1634	ISO12937	41.6		-0.14
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650	EN12937	45		-0.08	1937	ISO12937	47		-0.05
1654		----		----	1938	ISO12937	46		-0.07
1689		----		----	1948	ISO12937	46		-0.07
1709		----		----	1949		----		----
1720		----		----	1967	D6304-A	41.05		-0.15
1724	D6304-A	47		-0.05	1984	ISO12937	46.03		-0.07
1776	ISO12937	64.4		0.22	1995	D6304	68		0.28
1796	IP439	53.2		0.05	2129	IP439	47		-0.05
1807	ISO12937	47		-0.05	6005	ISO12937	42.8		-0.12
1810	D6304-A	50		-0.01	6016		----		----
1811	D6304-A	49		-0.02	6049	D6304-A	55.85		0.09
1849	ISO12937	46.7		-0.06	6054		----		----
1857	D6304-A	45		-0.08	6057	ISO12937	46		-0.07
1881		----		----	6101	D6304-A	70.0		0.31
1906	D6304-C	39.09		-0.18	6114	D6304-A	40.1		-0.16
1936	ISO12937	45		-0.08	6142	ISO12937	94.5		0.70

normality not OK
n 128
outliers 0
mean (n) 50.32
st.dev. (n) 16.528
R(calc.) 46.28
St.dev.(D6304A:16e1) 63.327
R(D6304A:16e1) 177.13



Determination of Water and Sediment (D2709) on sample #17170; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	<0.01		----	732		----		----
53		----		----	750		----		----
62		----		----	751		----		----
90		----		----	759		----		----
92	D2709	<0.01		----	779		----		----
120	D2709	<0.025		----	781	D2709	0.000		-0.05
131	D2709	0		-0.05	782		----		----
140	D2709	<0.01		----	785		----		----
150	D2709	0		-0.05	798		----		----
158		----		----	823	D2709	<0.05		----
159	D2709	0		-0.05	824	D2709	<0.01		----
169	D2709	0.000		-0.05	825	D2709	0		-0.05
171		----		----	842		----		----
175		----		----	854	D2709	<0.01		----
186		----		----	862	D2709	<0.01		----
194		----		----	863	D2709	<0.01		----
203	D2709	<0.05		----	864	D2709	<0.01		----
217		----		----	872		----		----
218		----		----	873		----		----
221		----		----	874	D2709	0		-0.05
224		----		----	887		----		----
228		----		----	902		----		----
230		----		----	904		----		----
237	D2709	<0.01		----	912		----		----
238		----		----	922		----		----
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963	D2709	0		-0.05
254		----		----	970	D2709	0		-0.05
256		----		----	971	D2709	<0.01		----
258		----		----	974	D2709	0		-0.05
273		----		----	994	D2709	0.00		-0.05
312		----		----	995		----		----
317		----		----	996		----		----
323	D2709	<0.01		----	997		----		----
333		----		----	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059	D2709	<0,05		----
338		----		----	1081		----		----
343	D2709	0		-0.05	1090		----		----
344	D2709	<0,05		----	1105	D2709	<0.01		----
349		----		----	1107		----		----
351		----		----	1109	D2709	0.000		-0.05
353		----		----	1121		----		----
355		----		----	1124		----		----
356	D2709	Below 0.05		----	1126		----		----
381		----		----	1134	D2709	0.0005		-0.02
399		----		----	1146		----		----
431		----		----	1161		----		----
433		----		----	1171		----		----
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212		----		----
507	D2709	0.000		-0.05	1213	D2709	0		-0.05
511		----		----	1227		----		----
529	D2709	0.005		0.29	1297		----		----
541	D2709	<0.05		----	1299	D2709	<0.01		----
555		----		----	1320		----		----
556		----		----	1347	D2709	0		-0.05
557	D2709	0		-0.05	1348		----		----
558		----		----	1356		----		----
562	D2709	<0.01		----	1385		----		----
575		----		----	1399		----		----
603		----		----	1417		----		----
604		----		----	1428		----		----
605		----		----	1430		----		----
608		----		----	1431		----		----
614		----		----	1457	D2709	0		-0.05
621		----		----	1498	D2709	0.005		0.29
631	D2709	0		-0.05	1544	D2709	less 0.05		----
633		----		----	1588		----		----
634	D2709	0.005		0.29	1629		----		----
657	D2709	<0.01		----	1634		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
671		----		----	1636		----		----
1650	D2709	0		-0.05	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949	D2709	0.0025		0.12
1720		----		----	1967		----		----
1724		----		----	1984		----		----
1776		----		----	1995		----		----
1796		----		----	2129		----		----
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049		----		----
1849		----		----	6054		----		----
1857		----		----	6057		----		----
1881		----		----	6101	D2709	<0.005		----
1906		----		----	6114		----		----
1936		----		----	6142		----		----
normality		n.a.							
n		49							
outliers		0							
mean (n)		<0.05							
st.dev. (n)		n.a.							
R(calc.)		n.a.							
st.dev.(D2709:16)		n.a.							
R(D2709:16)		n.a.							

Determination of Water and Sediment (D1796) on sample #17170; results in %V/V

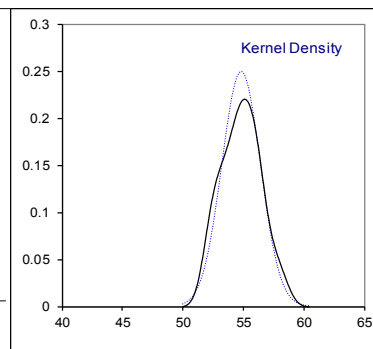
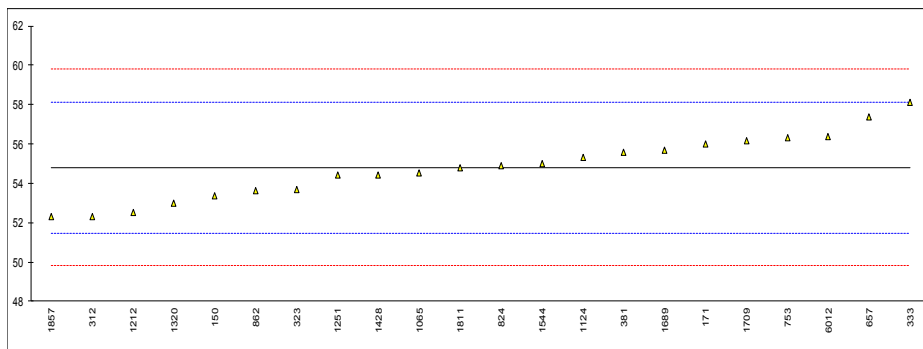
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	732		----		----
53		----		----	750		----		----
62		----		----	751		----		----
90		----		----	759		----		----
92		----		----	779		----		----
120		----		----	781	D1796	0.00		-0.02
131	D1796	0		-0.02	782		----		----
140	D1796	0.00		-0.02	785		----		----
150	D1796	0		-0.02	798		----		----
158		----		----	823	D1796	<0.05		----
159		----		----	824	D1796	0		-0.02
169	D1796	0.000		-0.02	825	D1796	0		-0.02
171	D1796	0.00		-0.02	842		----		----
175		----		----	854	D1796	0		-0.02
186		----		----	862		----		----
194	D1796	0		-0.02	863		----		----
203		----		----	864		----		----
217		----		----	872		----		----
218		----		----	873		----		----
221		----		----	874		----		----
224		----		----	887		----		----
228		----		----	902		----		----
230		----		----	904		----		----
237	D1796	<0.01		----	912		----		----
238		----		----	922	D1796	<0.05		----
240		----		----	951		----		----
252		----		----	962		----		----
253		----		----	963		----		----
254		----		----	970	D1796	0		-0.02
256		----		----	971	D1796	0.0		-0.02
258		----		----	974	D1796	0		-0.02
273		----		----	994	D1796	0.00		-0.02
312		----		----	995		----		----
317		----		----	996		----		----
323	D1796	0.00		-0.02	997	D1796	<0.05		----
333		----		----	998		----		----
335		----		----	1006		----		----
336		----		----	1033		----		----
337		----		----	1059		----		----
338		----		----	1081		----		----
343	D1796	<0,001		----	1090		----		----
344		----		----	1105		----		----
349		----		----	1107		----		----
351		----		----	1109		----		----
353		----		----	1121		----		----
355		----		----	1124		----		----
356		----		----	1126		----		----
381		----		----	1134	D1796	0.006		0.04
399		----		----	1146		----		----
431		----		----	1161		----		----
433		----		----	1171		----		----
440		----		----	1182		----		----
446		----		----	1186		----		----
485		----		----	1199		----		----
495		----		----	1212	D1796	0.00		-0.02
507	D1796	0.00		-0.02	1213		----		----
511		----		----	1227		----		----
529	D1796	0.025		0.23	1297		----		----
541		----		----	1299		----		----
555		----		----	1320		----		----
556		----		----	1347	D1796	0		-0.02
557		----		----	1348	D1796	0.005		0.03
558		----		----	1356		----		----
562		----		----	1385	D1796	less 0.05	----	----
575		----		----	1399		----		----
603		----		----	1417		----		----
604		----		----	1428		----		----
605		----		----	1430		----		----
608	D1796	0.00		-0.02	1431		----		----
614	D1796	<0.025		----	1457		----		----
621		----		----	1498		----		----
631	D1796	0		-0.02	1544	D1796	less 0.05		----
633		----		----	1588		----		----
634		----		----	1629		----		----
657	D1796	<0.025		----	1634		----		----
671		----		----	1636		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1650		----		----	1937		----		----
1654		----		----	1938		----		----
1689		----		----	1948		----		----
1709		----		----	1949		----		----
1720		----		----	1967		----		----
1724		----		----	1984		----		----
1776		----		----	1995		----		----
1796		----		----	2129		----		----
1807		----		----	6005		----		----
1810		----		----	6016		----		----
1811		----		----	6049		----		----
1849		----		----	6054		----		----
1857		----		----	6057		----		----
1881		----		----	6101	D1796	<0.05		----
1906		----		----	6114		----		----
1936		----		----	6142		----		----

normality n.a.
 n 33
 outliers 0
 mean (n) <0.05
 st.dev. (n) n.a.
 R(calc.) n.a.
 st.dev.(D1796:11) n.a.
 R(D1796:11) n.a.

Determination of Cetane Number (ASTM D613) of sample #17171

lab	method	value	mark	z(targ)	remarks
120		----		----	
140		----		----	
150	D613	53.37		-0.87	
171	D613	56.0		0.72	
312	D613	52.32		-1.50	
323	D613	53.7		-0.67	
333	D613	58.1		1.98	
336		----		----	
356		----		----	
381	ISO5165	55.6		0.48	
575		----		----	
657	D613	57.38		1.55	
753	D613	56.34		0.92	
824	D613	54.9		0.06	
862	D613	53.6		-0.73	
904		----		----	
1059		----		----	
1065	D613	54.5		-0.18	
1081		----		----	
1107		----		----	
1124	ISO5165	55.34		0.32	
1134		----		----	
1161		----		----	
1212	D613	52.5		-1.39	
1251	ISO5165	54.4		-0.24	
1320	ISO5165	53.0		-1.09	
1356		----		----	
1428	D613	54.4		-0.24	
1457		----		----	
1544	D613	55.0		0.12	
1636		----		----	
1689	GB/T386	55.68		0.53	
1709	D613	56.16		0.81	
1776		----		----	
1787		----		----	
1807		----		----	
1810		----		----	
1811	D613	54.8		0.00	
1857	D613	52.3		-1.51	
6012	D613	56.36		0.94	
6049		----		----	
6057		----		----	
6101		----		----	
6142		----		----	
normality		OK			
n		22			
outliers		0			
mean (n)		54.81			
st.dev. (n)		1.595			
R(calc.)		4.47			
st.dev.(D613:16e1)		1.661			
R(D613:16e1)		4.65			



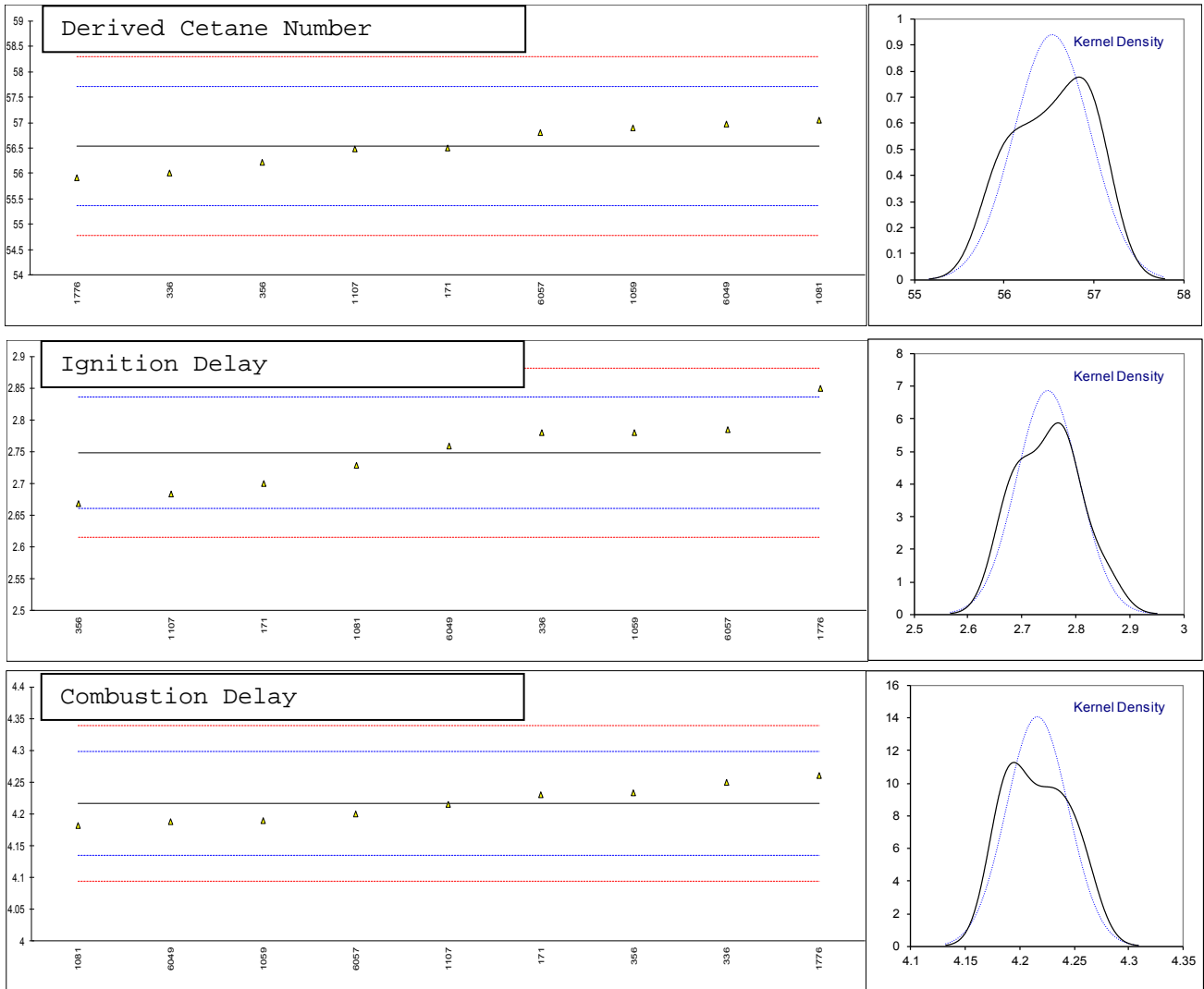
Determination of Derived Cetane Number (D6890) of sample #17171

lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	Air Temp.
120		----		----	----		----	----
140		----		----	----		----	----
150		----		----	----		----	----
171		----		----	----		----	----
312		----		----	----		----	----
323		----		----	----		----	----
333		----		----	----		----	----
336		----		----	----		----	----
356		----		----	----		----	----
381		----		----	----		----	----
575		----		----	----		----	----
657		----		----	----		----	----
753		----		----	----		----	----
824		----		----	----		----	----
862		----		----	----		----	----
904	D6890	57.5		----	3.520		----	----
1059		----		----	----		----	----
1065		----		----	----		----	----
1081		----		----	----		----	----
1107		----		----	----		----	----
1124		----		----	----		----	----
1134		----		----	----		----	----
1161		----		----	----		----	----
1212		----		----	----		----	----
1251		----		----	----		----	----
1320		----		----	----		----	----
1356		----		----	----		----	----
1428		----		----	----		----	----
1457	D6890	55.63		----	3.647		----	555.0
1544		----		----	----		----	----
1636		----		----	----		----	----
1689		----		----	----		----	----
1709		----		----	----		----	----
1776		----		----	----		----	----
1787		----		----	----		----	----
1807		----		----	----		----	----
1810		----		----	----		----	----
1811		----		----	----		----	----
1857		----		----	----		----	----
6012		----		----	----		----	----
6049		----		----	----		----	----
6057		----		----	----		----	----
6101		----		----	----		----	----
6142	IP498	58.935		----	3.4255		----	----
	normality	unknown			unknown			
	n	3			3			
	outliers	n.a.			n.a.			
	mean (n)	57.355			3.531			
	st.dev. (n)	1.6573			0.1111			
	R(calc.)	4.640			0.311			
	st.dev.(D6890:16)	1.0361			0.0689			
	R(D6890:16)	(2.901)			(0.193)			

Determination of Derived Cetane Number (D7668) of sample #17171

lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	CD	mark	z(targ)	W. T.
120		----		----	----		----	----		----	----
140		----		----	----		----	----		----	----
150		----		----	----		----	----		----	----
171	D7668	56.5		-0.06	2.70		-1.09	4.23		0.33	591.45
312		----		----	----		----	----		----	----
323		----		----	----		----	----		----	----
333		----		----	----		----	----		----	----
336	D7668	56.0		-0.91	2.78		0.72	4.25		0.82	599.0
356	D7668	56.21		-0.56	2.6690		-1.80	4.2333		0.41	611.14
381		----		----	----		----	----		----	----
575		----		----	----		----	----		----	----
657		----		----	----		----	----		----	----
753		----		----	----		----	----		----	----
824		----		----	----		----	----		----	----
862		----		----	----		----	----		----	----
904		----		----	----		----	----		----	----
1059	D7668	56.9		0.62	2.78		0.72	4.19		-0.65	603.2
1065		----		----	----		----	----		----	----
1081	D7668	57.05		0.87	2.7285		-0.45	4.1819		-0.85	598.07
1107	D7668	56.49		-0.08	2.6836		-1.47	4.2155		-0.03	605.05
1124		----		----	----		----	----		----	----
1134		----		----	----		----	----		----	----
1161		----		----	----		----	----		----	----
1212		----		----	----		----	----		----	----
1251		----		----	----		----	----		----	----
1320		----		----	----		----	----		----	----
1356		----		----	----		----	----		----	----
1428		----		----	----		----	----		----	----
1457		----		----	----		----	----		----	----
1544		----		----	----		----	----		----	----
1636		----		----	----		----	----		----	----
1689		----		----	----		----	----		----	----
1709		----		----	----		----	----		----	----
1776	D7668	55.91		-1.07	2.85		2.31	4.26		1.06	594.5
1787		----		----	----		----	----		----	----
1807		----		----	----		----	----		----	----
1810		----		----	----		----	----		----	----
1811		----		----	----		----	----		----	----
1857		----		----	----		----	----		----	----
6012		----		----	----		----	----		----	----
6049	D7668	56.97		0.74	2.7583		0.23	4.1883		-0.69	601.73
6057	D7668	56.80		0.45	2.785		0.83	4.20		-0.40	591.9
6101		----		----	----		----	----		----	----
6142		----		----	----		----	----		----	----
normality		OK			OK			OK			
n		9			9			9			
outliers		0			0			0			
mean (n)		56.537			2.748			4.217			
st.dev. (n)		0.4248			0.0581			0.0284			
R(calc.)		1.189			0.163			0.079			
st.dev.(D7668:14a)		0.5875			0.0439			0.0407			
R(D7668:14a)		1.645			0.123			0.114			

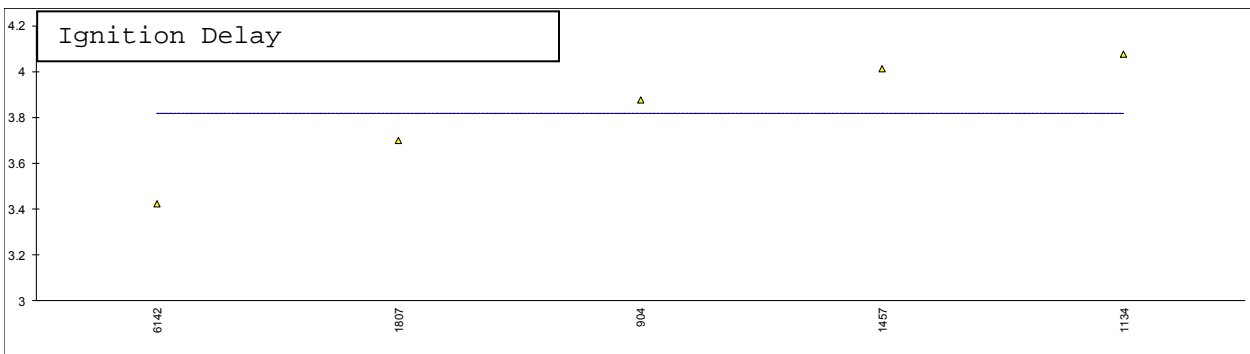
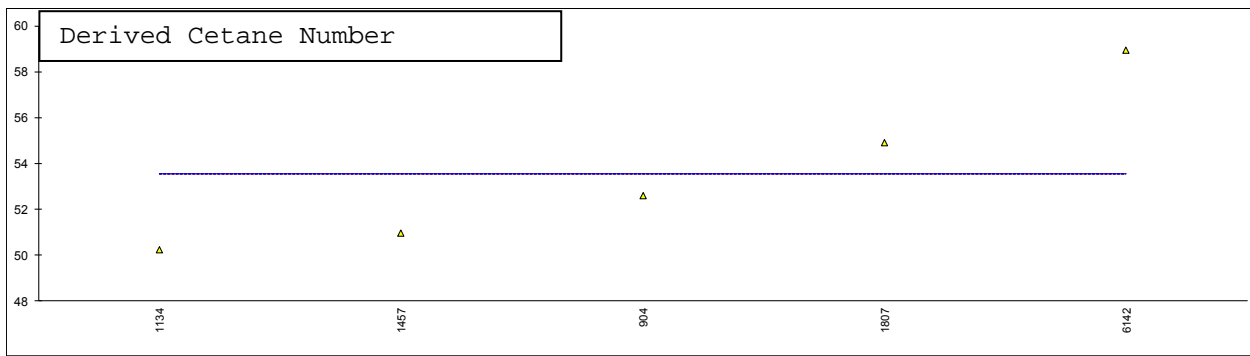
W.T. = Chamber Wall Temperature



Determination of Derived Cetane Number (D6890) of sample #17174

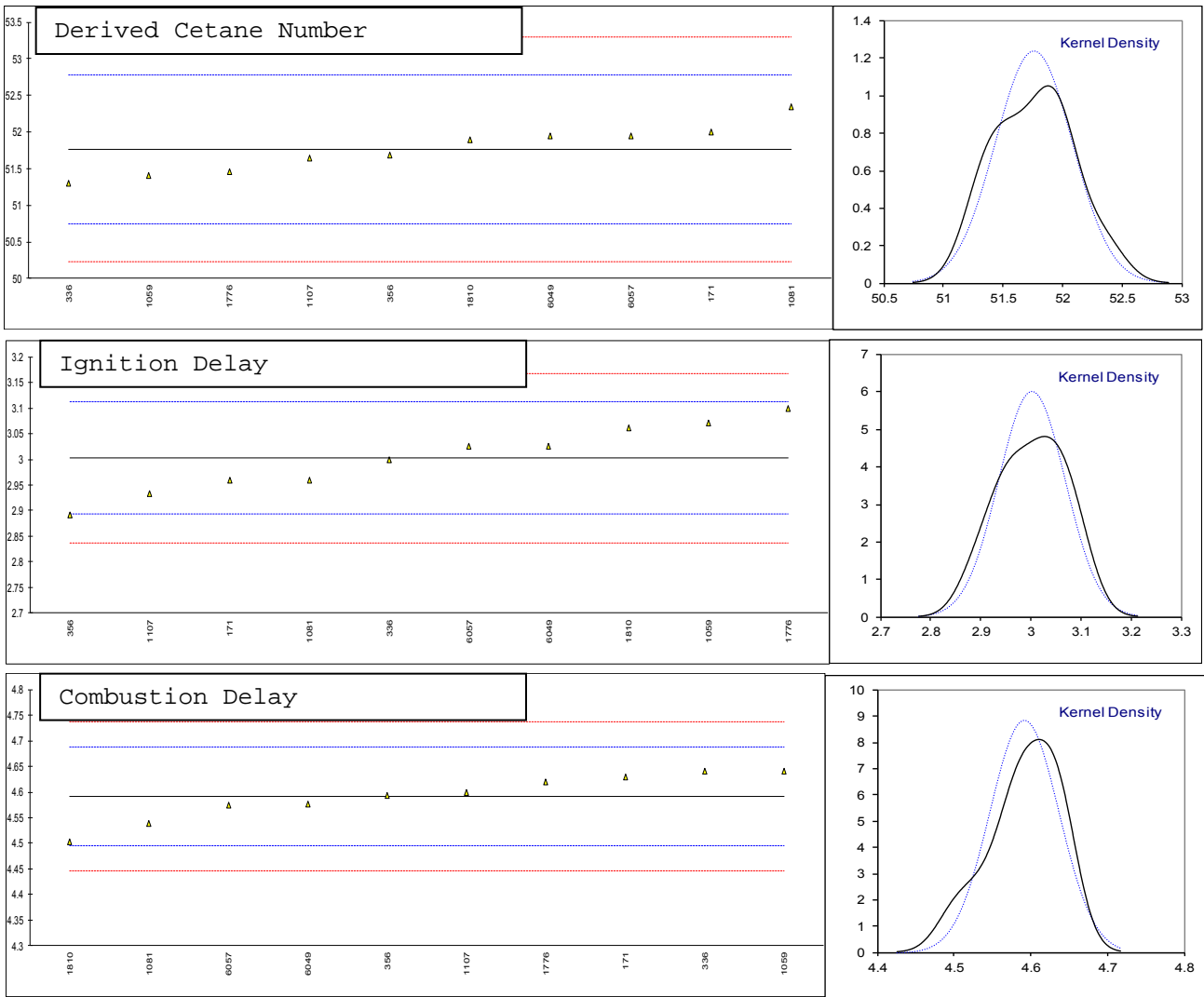
lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	Air Temp.
120		----		----	----		----	----
140		----		----	----		----	----
150		----		----	----		----	----
171		----		----	----		----	----
312		----		----	----		----	----
323		----		----	----		----	----
333		----		----	----		----	----
336		----		----	----		----	----
356		----		----	----		----	----
381		----		----	----		----	----
575		----		----	----		----	----
657		----		----	----		----	----
753		----		----	----		----	----
824		----		----	----		----	----
862		----		----	----		----	----
904	D6890	52.6		----	3.876		----	----
1059		----		----	----		----	----
1065		----		----	----		----	----
1081		----		----	----		----	----
1107		----		----	----		----	----
1124		----		----	----		----	----
1134	IP498	50.25		----	4.075		----	580.5
1161		----		----	----		----	----
1212		----		----	----		----	----
1251		----		----	----		----	----
1320		----		----	----		----	----
1356		----		----	----		----	----
1428		----		----	----		----	----
1457	D6890	50.97		----	4.012		----	555.2
1544		----		----	----		----	----
1636		----		----	----		----	----
1689		----		----	----		----	----
1709		----		----	----		----	----
1776		----		----	----		----	----
1787		----		----	----		----	----
1807	EN15195	54.89		----	3.700		----	576.9
1810		----		----	----		----	----
1811		----		----	----		----	----
1857		----		----	----		----	----
6012		----		----	----		----	----
6049		----		----	----		----	----
6057		----		----	----		----	----
6101		----		----	----		----	----
6142	IP498	58.935	C	----	3.4255	C	----	----
	normality	unknown			unknown			
	n	5			5			
	outliers	0			0			
	mean (n)	53.529			3.818			
	st.dev. (n)	3.5086			0.2622			
	R(calc.)	9.824			0.734			
	st.dev.(D6890:16)	(0.9836)			(0.0768)			
	R(D6890:16)	(2.754)			(0.215)			

Lab 6142 reported test results in wrong column



Determination of Derived Cetane Number (D7668) of sample #17174

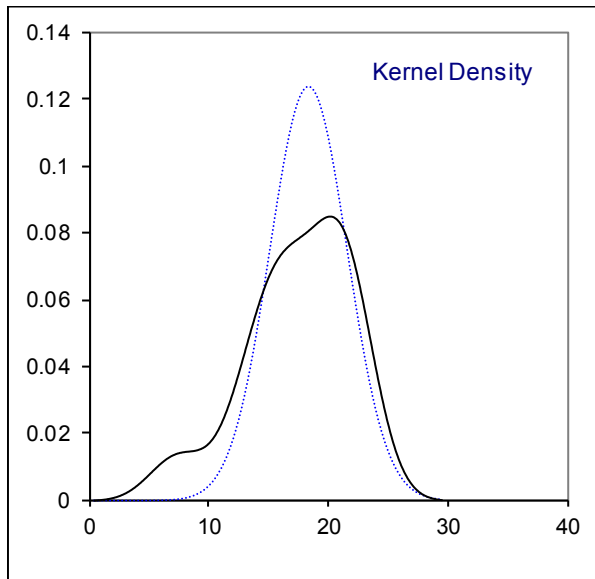
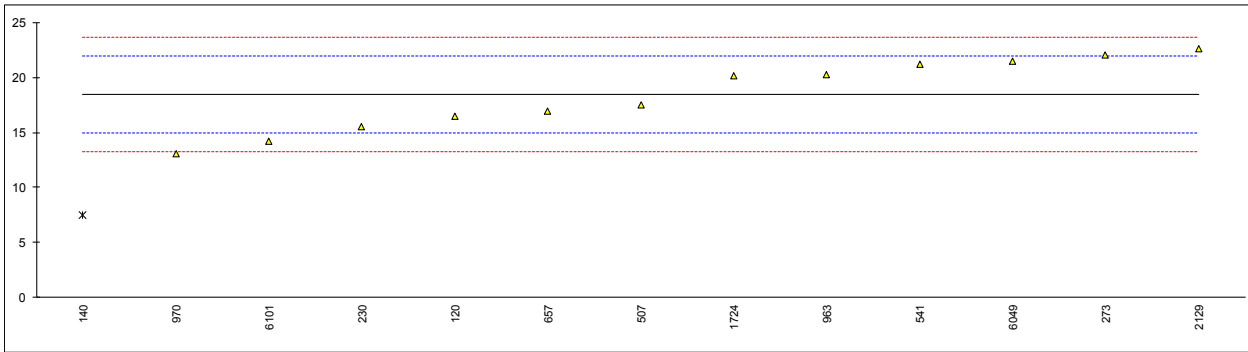
lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	CD	mark	z(targ)	WT
120		----		----	----		----	----		----	----
140		----		----	----		----	----		----	----
150		----		----	----		----	----		----	----
171	D7668	52.0		0.47	2.96		-0.78	4.63		0.80	591.46
312		----		----	----		----	----		----	----
323		----		----	----		----	----		----	----
333		----		----	----		----	----		----	----
336	D7668	51.3		-0.91	3.00		-0.05	4.64		1.00	599.0
356	D7668	51.68		-0.16	2.8906		-2.04	4.5930		0.03	611.13
381		----		----	----		----	----		----	----
575		----		----	----		----	----		----	----
657		----		----	----		----	----		----	----
753		----		----	----		----	----		----	----
824		----		----	----		----	----		----	----
862		----		----	----		----	----		----	----
904		----		----	----		----	----		----	----
1059	D7668	51.4		-0.71	3.07		1.22	4.64		1.00	597.1
1065		----		----	----		----	----		----	----
1081	D7668	52.34		1.13	2.9601		-0.77	4.5392		-1.08	598.08
1107	D7668	51.65		-0.22	2.9332		-1.26	4.5982		0.14	605.06
1124		----		----	----		----	----		----	----
1134		----		----	----		----	----		----	----
1161		----		----	----		----	----		----	----
1212		----		----	----		----	----		----	----
1251		----		----	----		----	----		----	----
1320		----		----	----		----	----		----	----
1356		----		----	----		----	----		----	----
1428		----		----	----		----	----		----	----
1457		----		----	----		----	----		----	----
1544		----		----	----		----	----		----	----
1636		----		----	----		----	----		----	----
1689		----		----	----		----	----		----	----
1709		----		----	----		----	----		----	----
1776	D7668	51.46		-0.60	3.10		1.77	4.62		0.59	594.5
1787		----		----	----		----	----		----	----
1807		----		----	----		----	----		----	----
1810	D7668	51.9		0.27	3.062		1.08	4.502		-1.84	595
1811		----		----	----		----	----		----	----
1857		----		----	----		----	----		----	----
6012		----		----	----		----	----		----	----
6049	D7668	51.95		0.37	3.0262		0.43	4.5764		-0.31	601.69
6057	D7668	51.95		0.37	3.025		0.41	4.575		-0.34	591.9
6101		----		----	----		----	----		----	----
6142		----		----	----		----	----		----	----
normality		OK			OK			OK			
n		10			10			10			
outliers		0			0			0			
mean (n)		51.763			3.003			4.591			
st.dev. (n)		0.3224			0.0663			0.0451			
R(calc.)		0.903			0.186			0.126			
st.dev.(D7668:14a)		0.5086			0.0550			0.0486			
R(D7668:14a)		1.424			0.154			0.136			



Determination of Particulate Contamination on sample #17172; results in mg/L

lab	method	Part.C	mark	z(targ)	Vol. filtered	mark	No. of filtrations	remarks
120	D6217	16.42		-1.16	950		----	
140	D6217	7.5	G(0.05)	-6.31	960		----	
150		----		----	----		----	
171		----		----	----		----	
230	D6217	15.50		-1.69	1000		2	
237		----		----	----		----	
273	IP440	22.0		2.06	----		----	
312		----		----	----		----	
317		----		----	----		----	
323		----		----	----		----	
333		----		----	----		----	
335		----		----	----		----	
336		----		----	----		----	
349		----		----	----		----	
351		----		----	----		----	
353		----		----	----		----	
356		----		----	----		----	
381		----		----	----		----	
399		----		----	----		----	
440		----		----	----		----	
507	D6217	17.50		-0.53	960		2	
541	D6217	21.14		1.57	960		1	
575		----		----	----		----	
614		----		----	----		----	
657	D6217	16.9		-0.88	960		1	
825		----		----	----		----	
842		----		----	----		----	
862		----		----	----		----	
873		----		----	----		----	
874		----		----	----		----	
902		----		----	----		----	
904		----		----	----		----	
912		----		----	----		----	
962		----		----	----		----	
963	D6217	20.2		1.02	970		1	
970	D6217	13.1		-3.07	1000		1	
974		----		----	----		----	
1006		----		----	----		----	
1033		----		----	----		----	
1059		----		----	----		----	
1081		----		----	----		----	
1134		----		----	----		----	
1161		----		----	----		----	
1171		----		----	----		----	
1251		----		----	----		----	
1320		----		----	----		----	
1428		----		----	----		----	
1544		----		----	----		----	
1650		----		----	----		----	
1654		----		----	----		----	
1724	D6217	20.1		0.97	----		----	
1807		----		----	----		----	
1849		----		----	----		----	
1857		----		----	----		----	
1936		----		----	----		----	
1937		----		----	----		----	
1938		----		----	----		----	
1948		----		----	----		----	
1949		----		----	----		----	
1967		----		----	----		----	
1984		----		----	----		----	
2129	D6217	22.60		2.41	500		----	
6005		----		----	----		----	
6049	D6217	21.46		1.75	960		1	
6057		----		----	----		----	
6075		----		----	----		----	
6101	D6217	14.2		-2.44	1 L		----	
9090		----		----	----		----	

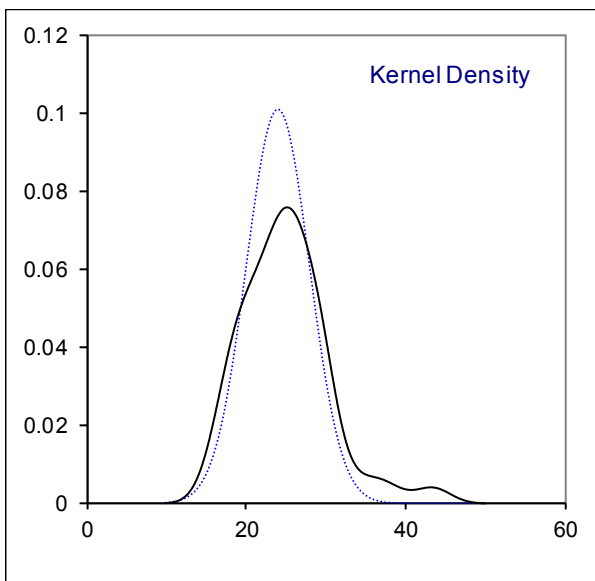
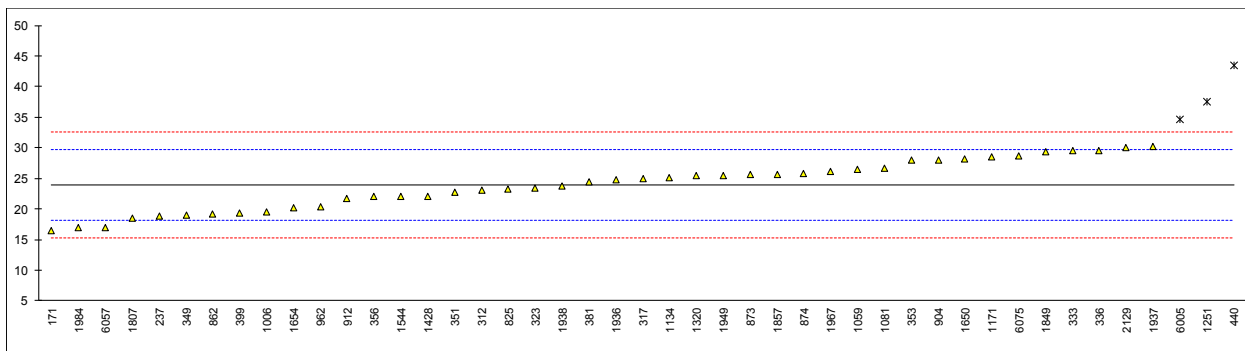
normality OK
 n 12
 outliers 1 spiked
 mean (n) 18.43 12.4 Recovery <149%
 st.dev. (n) 3.229
 R(calc.) 9.04
 st.dev.(D6217:11) 1.732
 R(D6217:11) 4.85



Determination of Total Contamination on sample #17172; results in mg/kg

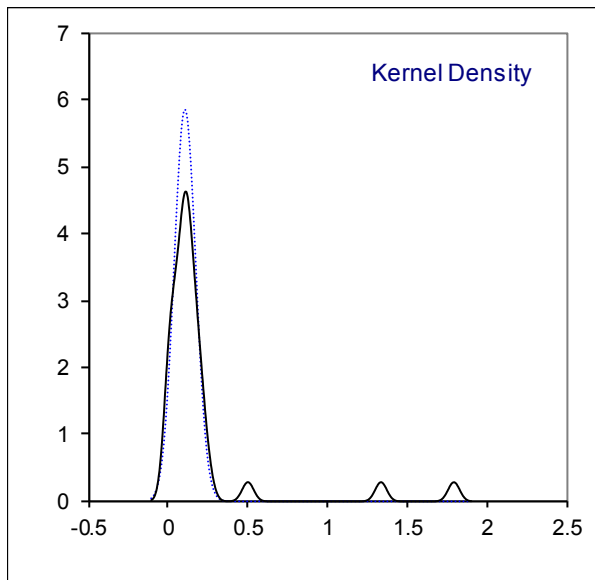
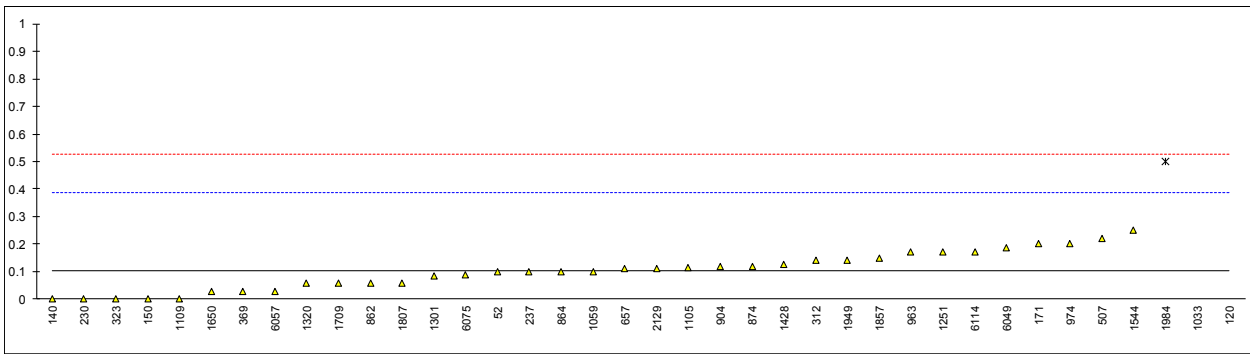
lab	method	Total C.	mark	z(targ)	Incomplete	Vol. filtered	stopped	remarks
120		----		----		----	----	
140		----		----		----	----	
150	EN12662:2014	<12.0	C, f(-)	<-4.16	NO	300	----	first reported 6
171	EN12662:2014	16.5		-2.60	NO	300	----	
230		----		----		----	----	
237	EN12662:2014	18.786		-1.80	NO	361.21	NO	
273		----		----		----	----	
312	EN12662:2014	23.0	C	-0.34	NO	300	----	first reported 5.5
317	EN12662:2014	25.0		0.36	NO	300	3	
323	EN12662:2014	23.5		-0.16		----	----	
333	EN12662:2014	29.5		1.93		----	----	
335		----		----		----	----	
336	EN12662:2014	29.6		1.96	NO	300	----	
349	EN12662:2014	19		-1.73	NO	303	----	
351	EN12662:2014	22.80		-0.40	NO	300	----	
353	IP440	27.99		1.40	NO	300	n.a.	
356	IP440	22.0		-0.68	NO	300	----	
381	EN12662:2014	24.46		0.17	NO	290	----	
399	EN12662:2014	19.37		-1.60	NO	300	----	
440	IP440	43.42534	R(0.05)	6.77	NO	----	----	
507		----		----		----	----	
541		----		----		----	----	
575		----		----		----	----	
614		----		----		----	----	
657		----		----		----	----	
825	EN12662:2014	23.2		-0.27	NO	300	----	
842		----		----		----	----	
862	EN12662:2014	19.1		-1.69		----	----	
873	EN12662:2014	25.57		0.56	NO	----	----	
874	EN12662:2014	25.8		0.64	NO	----	----	
902		----		----		----	----	
904	EN12662:2014	28.0		1.40	NO	300	16	
912	EN12662:2014	21.69		-0.79	NO	----	----	
962	IP440	20.4		-1.24	NO	488	11	
963		----		----		----	----	
970		----		----		----	----	
974		----		----		----	----	
1006	EN12662:2014	19.6		-1.52		300	----	
1033		----		----		----	----	
1059	EN12662:2014	26.5		0.88		283.8	----	
1081	EN12662:2014	26.65		0.93	NO	365	----	
1134	EN12662:2014	25.10		0.40	NO	300	Completed	
1161		----		----		----	----	
1171	EN12662:2014	28.59		1.61		360	3.5 min	
1251	EN12662:2014	37.6	R(0.05)	4.74	NO	----	----	
1320	EN12662:2014	25.5		0.53		----	----	
1428	EN12662:2014	22.1		-0.65		300	----	
1544	EN12662:2014	22.0		-0.68		----	----	
1650	EN12662:2014	28.24		1.49		----	----	
1654	EN12662:2014	20.20		-1.31	NO	----	----	
1724		----		----		----	----	
1807	EN12662:2014	18.5		-1.90	NO	280	----	
1849	EN12662:2014	29.4		1.89		----	----	
1857	EN12662:2008	25.7		0.60	NO	245	7	
1936	EN12662:2014	24.8		0.29	NO	300	11	
1937	EN12662:2014	30.2		2.17		----	----	
1938	EN12662:2014	23.8		-0.06		----	----	
1948		----		----		----	----	
1949	EN12662:2014	25.5		0.53	NO	----	----	
1967	EN12662:2014	26.079		0.74		----	----	
1984	EN12662:2014	17.0		-2.42	NO	300.0	----	
2129	EN12662:2014	30.03		2.11	NO	300	----	
6005	EN12662:2014	34.6	R(0.05)	3.70	NO	300	----	
6049		----		----		----	----	
6057	EN12662:2014	17.0		-2.42		----	----	
6075	EN12662:2014	28.72		1.65	NO	----	----	
6101		----		----		----	----	
9090		----		----		----	----	

normality	OK		
n	42		
outliers	3	spiked	
mean (n)	23.96	14.9	Recovery < 161%
st.dev. (n)	3.956		
R(calc.)	11.08		
st.dev.(EN12662:14)	2.875		
R(EN12662:14)	8.05		



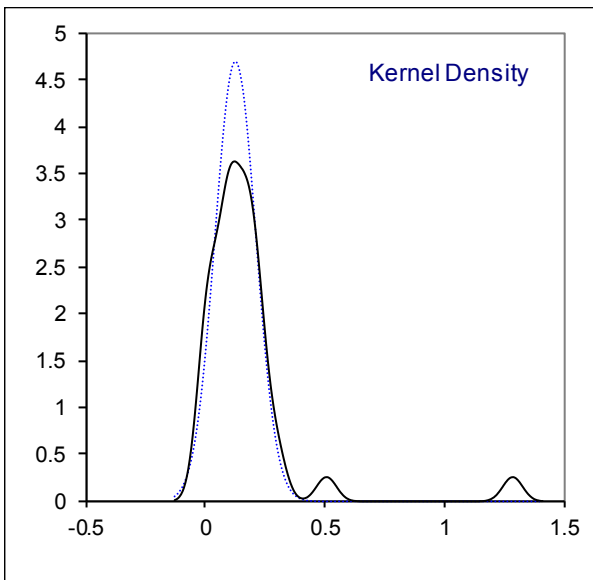
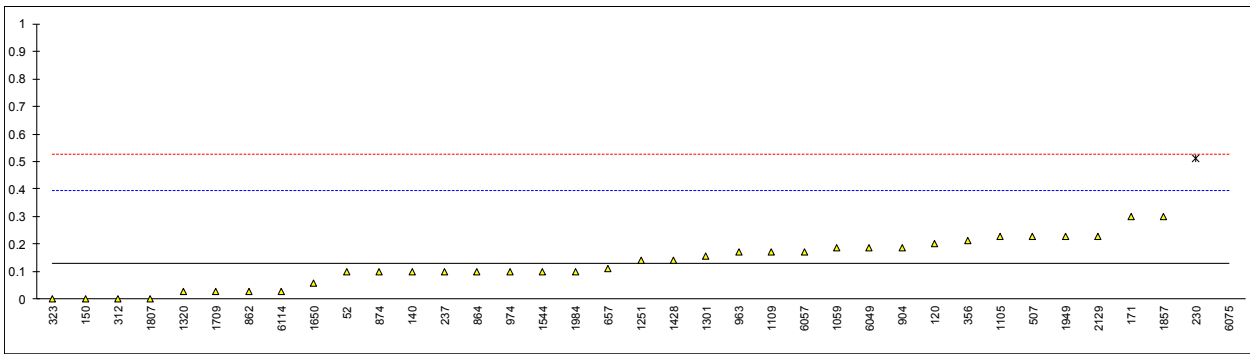
Determination of Oxidation Stability Filterable Insolubles (A) on sample #17173; results in mg/100ml

lab	method	value	mark	z(targ)	remarks
52	D2274	0.1		-0.02	
120	D2274	1.8	R(0.01)	12.74	
140	D2274	0.0		-0.72	
150	D2274	0		-0.72	
158		----		----	
159		----		----	
171	D2274	0.2		0.69	
230	D2274	0.0		-0.72	
237	D2274	0.1		-0.02	
312	D2274	0.14		0.26	
323	D2274	0.0	C	-0.72	first reported 0.6
344		----		----	
356	ISO12205	Below 0.1		----	
369	D2274	0.03		-0.51	
507	D2274	0.22		0.83	
657	D2274	0.11		0.05	
862	D2274	0.06		-0.30	
864	D2274	0.1		-0.02	
874	D2274	0.12		0.12	
904	D2274	0.117	C	0.10	first reported 2.943
963	D2274	0.17		0.48	
974	D2274	0.2		0.69	
1033	D2274	1.34	R(0.01)	8.74	
1059	D2274	0.1000		-0.02	
1105	D2274	0.1143		0.08	
1109	D2274	0.00		-0.72	
1134		----		----	
1161		----		----	
1251	ISO12205	0.17		0.48	
1301	D2274	0.086		-0.12	
1320	ISO12205	0.057		-0.32	
1428	ISO12205	0.126		0.17	
1544	ISO12205	0.25		1.04	
1650	D2274	0.0286		-0.52	
1654		----		----	
1689		----		----	
1709	D2274	0.057		-0.32	
1724		----		----	
1807	ISO12205	0.06		-0.30	
1811		----		----	
1857	D2274	0.15		0.33	
1948		----		----	
1949	D2274	0.14		0.26	
1967		----		----	
1984	ISO12205	0.5	R(0.01)	2.81	
2129	D2274	0.11		0.05	
6049	D2274	0.185		0.58	
6057	ISO12205	0.03		-0.51	
6075	ISO12205	0.089		-0.10	
6114	D2274	0.17		0.48	
	normality	OK			
	n	35			
	outliers	3			
	mean (n)	0.103			
	st.dev. (n)	0.0682			
	R(calc.)	0.191			
	st.dev.(D2274:14)	0.1332			
	R(D2274:14)	0.373			



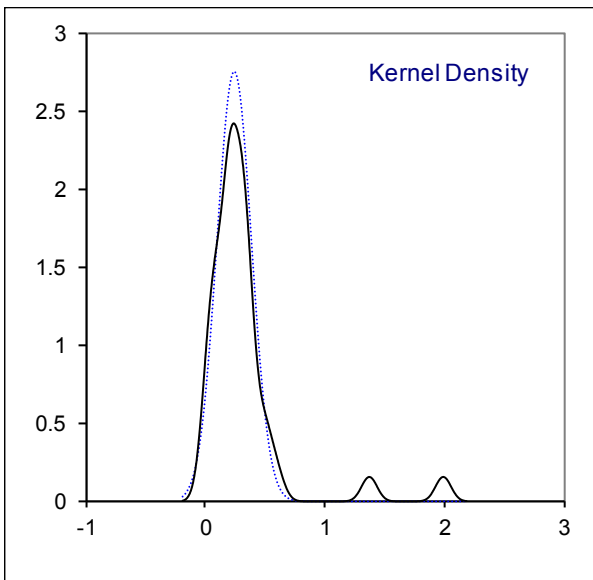
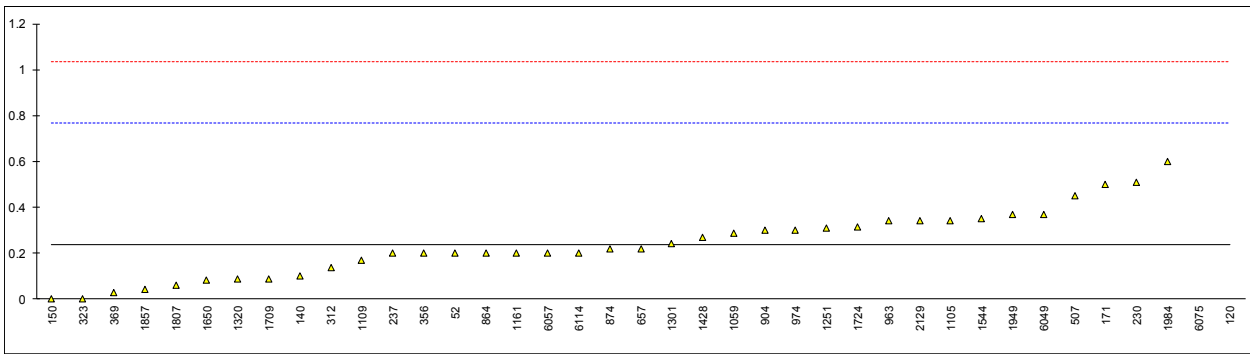
Determination of Oxidation Stability Adherent Insolubles (B) on sample #17173; results in mg/100ml

lab	method	value	mark	z(targ)	remarks
52	D2274	0.1		-0.22	
120	D2274	0.2		0.53	
140	D2274	0.1		-0.22	
150	D2274	0		-0.98	
158		----		----	
159		----		----	
171	D2274	0.3		1.29	
230	D2274	0.51	R(0.01)	2.88	
237	D2274	0.1		-0.22	
312	D2274	0		-0.98	
323	D2274	0.0	C	-0.98	first reported 4.0
344		----		----	
356	ISO12205	0.213		0.63	
369	D2274	<0.1		----	
507	D2274	0.23		0.76	
657	D2274	0.11		-0.15	
862	D2274	0.03		-0.75	
864	D2274	0.1		-0.22	
874	D2274	0.10		-0.22	
904	D2274	0.188	C	0.44	first reported 1.886
963	D2274	0.17		0.31	
974	D2274	0.1		-0.22	
1033		----		----	
1059	D2274	0.1857		0.43	
1105	D2274	0.2286		0.75	
1109	D2274	0.17		0.31	
1134		----		----	
1161		----		----	
1251	ISO12205	0.14		0.08	
1301	D2274	0.155		0.19	
1320	ISO12205	0.029		-0.76	
1428	ISO12205	0.143		0.10	
1544	ISO12205	0.10		-0.22	
1650	D2274	0.0571		-0.55	
1654		----		----	
1689		----		----	
1709	D2274	0.029		-0.76	
1724		----		----	
1807	ISO12205	0		-0.98	
1811		----		----	
1857	D2274	0.3		1.29	
1948		----		----	
1949	D2274	0.23		0.76	
1967		----		----	
1984	ISO12205	0.1		-0.22	
2129	D2274	0.23		0.76	
6049	D2274	0.186		0.43	
6057	ISO12205	0.17		0.31	
6075	ISO12205	1.288	R(0.01)	8.76	
6114	D2274	0.03		-0.75	
	normality	OK			
	n	35			
	outliers	2			
	mean (n)	0.129			
	st.dev. (n)	0.0850			
	R(calc.)	0.238			
	st.dev.(D2274:14)	0.1325			
	R(D2274:14)	0.373			



Determination of Oxidation Stability Total Insolubles on sample #17173; results in mg/100ml

lab	method	value	mark	z(targ)	remarks
52	D2274	0.2		-0.15	
120	D2274	2.0	R(0.01)	6.65	
140	D2274	0.1		-0.52	
150	D2274	0		-0.90	
158		----		----	
159		----		----	
171	D2274	0.5		0.99	
230	D2274	0.51		1.02	
237	D2274	0.2		-0.15	
312	D2274	0.14		-0.37	
323	D2274	0.0	C	-0.90	first reported 4.6
344		----		----	
356	ISO12205	0.2		-0.15	
369	D2274	0.03		-0.79	
507	D2274	0.45		0.80	
657	D2274	0.22		-0.07	
862	D2274	<0.1		----	
864	D2274	0.2		-0.15	
874	D2274	0.22		-0.07	
904	D2274	0.30	C	0.23	first reported 4.829
963	D2274	0.34		0.38	
974	D2274	0.3		0.23	
1033		----		----	
1059	D2274	0.2857		0.18	
1105	D2274	0.3429		0.39	
1109	D2274	0.17		-0.26	
1134		----		----	
1161	ISO12205	0.2		-0.15	
1251	ISO12205	0.31		0.27	
1301	D2274	0.24		0.00	
1320	ISO12205	0.086		-0.58	
1428	ISO12205	0.27		0.12	
1544	ISO12205	0.35		0.42	
1650	D2274	0.0857		-0.58	
1654		----		----	
1689		----		----	
1709	D2274	0.086		-0.58	
1724	D2274	0.314		0.28	
1807	ISO12205	0.06		-0.68	
1811		----		----	
1857	D2274	0.045		-0.73	
1948		----		----	
1949	D2274	0.37		0.50	
1967		----		----	
1984	ISO12205	0.6	C	1.36	first reported 6 g/m ³
2129	D2274	0.34		0.38	
6049	D2274	0.371		0.50	
6057	ISO12205	0.20		-0.15	
6075	ISO12205	1.377	R(0.01)	4.30	
6114	D2274	0.20		-0.15	
	normality	OK			
	n	37			
	outliers	2			
	mean (n)	0.239			
	st.dev. (n)	0.1451			
	R(calc.)	0.407			
	st.dev.(D2274:14)	0.2643			
	R(D2274:14)	0.741			



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	-0.66	0.77	-0.33	-0.24	0.03	0.17	732	0.90	0.65	0.98	0.54	0.38	0.45
53	----	----	----	----	----	----	750	-1.61	-0.88	0.05	-0.02	0.38	-0.15
62	-0.37	-1.18	-0.61	0.88	0.68	0.80	751	----	----	----	----	----	----
90	-1.34	-2.46	-1.45	-0.63	-3.88	-7.68	759	0.16	0.04	0.51	0.54	0.22	0.64
92	0.16	-0.51	0.14	-0.47	-0.30	-3.06	779	0.16	0.34	0.05	0.82	-0.10	0.84
120	1.52	0.46	-0.14	0.37	0.32	-0.15	781	0.19	0.34	-0.23	-0.30	-0.33	-0.11
131	0.49	-1.00	0.14	1.21	1.16	-2.32	782	0.31	-0.27	-0.42	-0.58	-0.92	0.64
140	-1.02	-0.02	-0.42	-0.80	-0.72	-0.74	785	0.99	0.95	1.73	1.32	1.26	0.96
150	-2.02	-0.94	-1.91	-1.47	-0.92	-0.62	798	-0.43	-0.57	-0.42	-0.58	0.06	0.25
158	0.28	-0.94	-0.51	0.82	0.61	-0.93	823	0.96	1.07	0.70	-0.19	-0.23	1.00
159	1.29	1.56	1.73	0.20	1.00	0.09	824	0.64	1.07	0.89	0.93	0.77	0.88
169	-0.10	2.17	3.78	1.49	1.49	0.25	825	1.02	1.26	-0.05	-0.58	-0.40	0.84
171	-0.31	0.89	0.79	0.60	0.81	-0.70	842	----	----	----	----	----	----
175	0.40	-0.21	1.35	2.10	2.14	-0.15	854	0.34	0.22	0.70	0.60	0.61	0.52
186	----	----	----	----	----	----	862	-0.19	0.40	-0.33	-0.30	-0.04	-0.34
194	0.25	-0.87	-0.23	0.04	0.09	0.52	863	0.61	-0.88	0.51	0.26	0.06	0.05
203	----	----	----	----	----	----	864	0.16	0.53	-0.14	0.04	0.25	0.37
217	----	----	----	----	----	----	872	-0.43	-0.88	0.51	1.10	1.03	0.64
218	----	----	----	----	----	----	873	-0.13	-0.57	0.98	-0.02	0.06	0.05
221	-0.72	0.04	0.51	1.66	1.36	1.04	874	0.02	0.65	0.98	0.26	0.06	-0.15
224	-0.41	-0.54	0.26	-0.08	-0.73	-1.30	887	0.46	-1.79	-2.29	-0.86	-0.76	-0.74
228	0.75	0.04	-1.35	-2.25	-2.22	0.25	902	-0.40	0.16	0.61	0.43	0.45	0.29
230	0.58	0.65	0.89	0.65	0.16	0.96	904	-0.13	-0.81	-0.33	-0.80	-0.63	-0.19
237	0.75	-0.57	-1.35	-2.25	-1.89	-0.15	912	-0.43	-0.57	0.51	-0.58	0.06	0.25
238	0.46	0.04	-0.42	0.54	0.38	0.25	922	-1.37	0.46	-0.51	-0.41	0.16	-0.34
240	----	----	----	----	----	----	951	-0.18	0.48	1.03	0.20	-0.48	-0.80
252	-0.13	-0.57	-0.42	-0.02	----	0.64	962	0.02	0.34	0.61	0.54	0.55	-0.11
253	-0.13	-0.27	-0.89	-0.02	0.06	-0.15	963	0.75	0.65	1.35	0.20	0.32	0.45
254	-0.72	-0.57	-0.42	-0.02	----	0.64	970	0.10	0.04	0.23	-0.30	-0.04	0.45
256	-0.72	-0.57	-0.42	-0.02	----	-0.54	971	0.10	1.07	0.98	0.48	0.38	0.41
258	0.67	2.11	2.29	0.20	-0.30	-0.54	974	0.19	0.34	0.98	0.48	0.51	0.33
273	-0.16	-0.69	-1.82	-0.74	-0.82	-1.17	994	0.61	0.04	0.05	-0.30	-0.27	0.64
312	0.05	0.28	0.89	-0.07	-0.17	-0.19	995	0.31	0.04	-0.89	0.54	-0.10	0.45
317	-0.63	0.16	0.42	0.15	0.35	0.21	996	0.31	-0.88	-0.89	-0.02	0.06	-0.54
323	0.78	0.65	0.42	0.60	0.90	-0.23	997	0.16	-0.27	-1.82	-0.02	-0.43	-0.15
333	-1.19	-0.87	-0.79	-0.58	-0.27	-0.34	998	----	----	----	----	----	----
335	-0.13	-1.73	0.23	1.66	1.69	0.64	1006	0.28	1.14	0.98	-0.41	-0.69	-0.38
336	0.22	-0.27	-0.05	0.37	0.51	0.48	1033	-0.16	0.22	-0.05	-0.24	-0.14	0.09
337	----	----	----	----	----	----	1059	1.40	0.89	0.51	0.43	0.35	0.13
338	-0.40	0.04	-2.10	-0.24	0.12	-0.86	1081	-0.28	0.16	0.51	0.04	-0.20	0.60
343	-0.57	1.99	-1.82	-1.08	-1.34	-2.08	1090	----	----	----	----	----	----
344	0.46	1.62	1.82	0.93	0.77	0.17	1105	-0.01	1.01	0.51	0.93	1.36	0.25
349	----	----	----	----	----	----	1107	0.10	0.04	1.17	0.60	0.58	-0.74
351	-0.13	-0.94	-0.79	0.20	0.77	0.68	1109	-0.28	-0.39	-0.89	-0.69	-0.72	-0.38
353	-0.87	-0.94	0.51	1.71	1.52	0.80	1121	-0.72	-1.18	-0.42	0.54	1.03	1.23
355	-0.98	-2.32	-0.75	0.07	1.42	0.32	1124	0.46	-0.57	1.45	1.66	2.34	0.25
356	-0.07	0.65	0.98	0.65	0.51	0.88	1126	0.31	0.95	1.26	1.38	0.68	2.18
381	-1.40	-1.97	-1.35	-0.86	-0.76	-0.11	1134	-1.11	-1.36	0.33	0.48	0.42	0.48
399	-2.11	-0.51	-0.42	-0.52	-0.69	-0.03	1146	0.61	0.10	0.14	-0.30	-0.66	0.52
431	-0.52	-1.61	-0.42	0.26	0.25	0.05	1161	0.40	-0.21	0.70	0.93	0.22	-0.30
433	----	----	----	----	----	----	1171	1.03	-1.68	-2.13	-1.47	-1.52	-0.38
440	0.13	-0.65	-2.43	-1.50	-1.62	0.38	1182	0.46	-0.88	0.51	1.60	1.65	-0.54
446	-1.81	-0.69	0.05	-1.58	-1.96	-2.71	1186	1.93	-1.18	-2.29	-2.25	-4.17	3.01
485	-0.50	0.19	0.28	-0.27	-0.25	-0.56	1199	----	----	----	----	----	----
495	----	----	----	----	----	----	1212	0.84	1.07	0.89	0.09	0.03	-0.15
507	0.58	1.68	-0.14	-0.07	-0.43	-0.26	1213	----	----	----	----	----	----
511	----	----	----	----	----	----	1227	-1.05	-0.21	0.79	0.99	1.52	-0.03
529	0.16	1.47	2.24	1.07	0.82	0.76	1297	-1.84	-0.88	-0.79	-0.80	-0.85	-2.12
541	-0.31	-0.54	0.37	0.37	0.63	0.11	1299	-1.61	-0.45	-1.26	-4.04	-3.16	-4.17
555	----	----	----	----	----	----	1320	0.16	0.65	-0.61	-2.09	-1.44	-1.76
556	----	----	----	----	----	----	1347	0.75	0.65	-0.42	-0.02	0.06	-0.54
557	-1.16	0.28	-2.94	-1.53	-0.82	-0.07	1348	1.20	1.74	0.33	-0.63	-0.98	0.37
558	0.75	1.87	1.45	0.54	0.06	0.25	1356	----	0.04	8.91	5.01	----	----
562	11.68	0.04	0.79	0.93	1.65	1.51	1385	0.96	1.99	-0.14	-0.97	-0.50	0.37
575	----	----	----	----	----	----	1399	-0.66	-0.21	1.35	-0.24	-0.72	0.41
603	----	----	----	----	----	----	1417	0.10	1.68	1.82	1.15	1.69	-0.15
604	----	----	----	----	----	----	1428	0.72	0.83	0.79	-0.63	-0.59	-0.23
605	----	----	----	----	----	----	1430	-0.72	-1.36	-1.63	-1.92	-1.93	-1.13
608	0.16	0.04	1.45	2.22	2.17	-1.13	1431	-2.97	-0.57	-0.70	0.09	0.16	-0.46
614	----	----	----	----	----	----	1457	0.93	1.01	0.70	-0.24	-0.36	0.33
621	----	----	----	----	----	----	1498	-0.34	0.59	1.82	1.60	1.65	1.16
631	0.61	0.04	0.51	0.54	0.71	0.64	1544	0.16	-0.57	-0.42	-1.14	-1.24	-0.54
633	----	----	----	----	----	----	1588	----	----	----	----	----	----
634	-0.13	-0.57	-1.82	0.26	-0.27	-1.72	1629	----	----	----	----	----	----
657	0.40	1.13	-0.33	-1.47	-1.54	0.09	1634	0.55	0.65	0.70	-0.58	-0.63	0.37
671	----	----	----	----	----	----	1636	----	----	----	----	----	----

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP	lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
1650	-0.49	-1.18	-0.05	0.20	0.25	-0.19	1937	0.31	0.34	-0.33	-0.58	-0.50	-0.23
1654	----	----	----	----	----	----	1938	-0.43	-0.02	-0.42	-0.63	-0.63	-0.15
1689	----	0.34	-0.70	-0.86	-0.98	----	1948	0.87	-0.81	-0.89	-0.80	-0.56	0.09
1709	-0.46	-0.45	0.33	-0.07	-0.30	0.64	1949	0.46	0.95	-0.89	-0.30	-0.92	-0.74
1720	-2.20	2.11	0.61	0.43	0.42	0.37	1967	-0.72	0.04	0.05	0.26	0.71	-0.34
1724	0.58	1.07	0.33	-0.30	-0.01	0.48	1984	1.39	0.28	0.65	0.34	1.91	0.54
1776	-0.60	-1.12	-0.89	0.04	0.42	-0.11	1995	0.46	0.04	0.51	1.66	<u>-31.19</u>	-0.93
1796	0.10	1.14	0.70	0.32	-0.76	0.09	2129	0.87	-2.28	-1.63	-1.64	-1.70	0.33
1807	0.40	-2.28	-1.54	-1.19	-1.24	0.05	6005	-1.11	-1.85	1.91	-0.63	-0.07	-0.03
1810	0.99	1.32	0.42	-0.19	-0.30	0.45	6016	-1.67	-1.18	-0.98	-1.42	-0.92	-2.39
1811	-0.40	-0.21	-0.61	-0.58	-0.69	-0.07	6049	0.08	-0.33	-0.05	-0.41	-0.04	-1.33
1849	0.31	0.53	-0.14	-1.02	-1.18	-0.54	6054	-0.63	-0.02	-0.23	0.04	0.35	0.05
1857	0.40	0.77	-0.14	0.82	-0.82	-0.74	6057	2.17	2.48	1.91	1.15	0.58	1.47
1881	----	----	----	----	----	----	6101	0.61	0.10	-0.39	0.09	-0.76	-0.26
1906	----	----	----	----	----	----	6114	0.93	-0.51	0.61	0.82	1.16	0.37
1936	0.37	-0.02	-0.42	-0.63	-0.50	-0.15	6142	-1.55	-1.15	-1.31	-0.80	-0.38	0.01

Z- scores underlined and bold are marked as statistical outliers

APPENDIX 3**Participants per country of main round**

2 labs in AFGHANISTAN	4 labs in MALAYSIA
1 lab in ALBANIA	1 lab in MALTA
1 lab in ARGENTINA	1 lab in MAURITIUS
2 labs in AUSTRALIA	1 lab in MEXICO
2 labs in AUSTRIA	1 lab in MOZAMBIQUE
1 lab in AZERBAIJAN	1 lab in MYANMAR
2 labs in BELGIUM	6 labs in NETHERLANDS
1 lab in BOSNIA and HERZEGOVINA	2 labs in NIGERIA
4 labs in BRAZIL	2 labs in NORWAY
1 lab in BULGARIA	1 lab in OMAN
5 labs in CANADA	1 lab in PAKISTAN
2 labs in CHILE	1 lab in PANAMA
5 labs in CHINA, People's Republic	1 lab in PERU
1 lab in COLOMBIA	3 labs in PHILIPPINES
1 lab in COTE D'IVOIRE	1 lab in POLAND
1 lab in CYPRUS	3 labs in PORTUGAL
2 labs in CZECH REPUBLIC	15 labs in RUSSIAN FEDERATION
1 lab in DENMARK	2 labs in SAUDI ARABIA
1 lab in DJIBOUTI	1 lab in SENEGAL
2 labs in EGYPT	1 lab in SERBIA
1 lab in EQUATORIAL GUINEA	1 lab in SINGAPORE
6 labs in FRANCE	1 lab in SLOVAKIA
2 labs in GEORGIA	1 lab in SLOVENIA
2 labs in GERMANY	2 labs in SOUTH AFRICA
5 labs in GREECE	3 labs in SOUTH KOREA
1 lab in GUAM	6 labs in SPAIN
1 lab in GUINEA REPUBLIC	1 lab in ST. LUCIA - WEST INDIES
2 labs in HONG KONG	1 lab in SUDAN
1 lab in INDIA	2 labs in SWEDEN
1 lab in INDONESIA	3 labs in TAIWAN
2 labs in IRELAND	1 lab in TANZANIA
1 lab in ISRAEL	1 lab in TOGO
1 lab in ITALY	2 labs in TUNISIA
2 labs in KAZAKHSTAN	11 labs in TURKEY
2 labs in KENYA	1 lab in TURKMENISTAN
1 lab in LATVIA	3 labs in UNITED ARAB EMIRATES
3 labs in LEBANON	8 labs in UNITED KINGDOM
1 lab in LITHUANIA	10 labs in UNITED STATES OF AMERICA
2 labs in MACEDONIA	2 labs in VIETNAM

APPENDIX 4**Abbreviations:**

C	= final test result after checking of first reported suspect test result
D(0.01), D(1)	= outlier in Dixon's outlier test
D(0.05), D(5)	= straggler in Dixon's outlier test
G(0.01), G(1)	= outlier in Grubbs' outlier test
G(0.05), G(5)	= straggler in Grubbs' outlier test
DG(0.01), DG(1)	= outlier in Double Grubbs' outlier test
DG(0.05), DG(5)	= straggler in Double Grubbs' outlier test
R(0.01), R(1)	= outlier in Rosner's outlier test
R(0.05), R(5)	= straggler in Rosner's outlier test
E	= 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 statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported
SDS	= Safety Data Sheet

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