

Results of Proficiency Test
Gasoil (ASTM Spec)
September 2015

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis15G04ASTM

November 2015

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1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies organizes every year proficiency tests for Gasoil. In the annual proficiency testing program of 2015-2016, it was decided to continue the proficiency test for the analysis of Gasoil in accordance with the latest applicable version of ASTM D975 specification.

In the main PT, 170 laboratories in 76 different countries have participated. In the PT for Cetane Number, 48 laboratories in 29 different countries participated. In the PT for the Total Contamination on Gasoil, 61 laboratories in 30 different countries and in the PT for the Oxidation Stability on Gasoil, 48 laboratories in 26 different countries participated. See appendix 3 for the number of participants per country. In this report, the results of the 2015 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 Spijkenisse, the Netherlands, was the organiser of this proficiency test. In this Gasoil round robin, dedicated to the ASTM specification, it was decided to send low sulphur gasoil samples for the regular round robin (1*1 L glass bottle and 1*0.5 L glass bottle, both labelled #15175), for the Cetane Number round robin (4*1L glass bottle, all labelled #15176) for the Total Contamination round robin (1*1L glass bottle, labelled #15177) and for the Oxidation stability round robin (1*0.5L glass bottle labelled #15178). Sample analyses for fit-for-use and homogeneity testing were subcontracted. Participants were requested to report rounded and unrounded results. The unrounded results were preferably used for the statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol is electronically available through the iis internet site www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

2.4.1 regular low sulphur winter Gasoil

From an 800 litre low sulphur Gasoil (automotive diesel) batch, which was purchased from the local market, approx. 350 litre for the regular samples was homogenized in a mixing vessel. Out of this batch, 220 amber glass bottles of 1L and 220 amber glass bottles of 0.5L, with inner and outer caps were filled and labelled #15175. 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 #15175-1	836.16	sample #15175-6	836.16
sample #15175-2	836.17	sample #15175-7	836.16
sample #15175-3	836.17	sample #15175-8	836.16
sample #15175-4	836.17	sample #15175-9	836.17
sample #15175-5	836.16	sample #15175-10	836.16

Table 1: homogeneity test results of subsamples #15175

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

	Density at 15°C in kg/m ³
r (sample #15175)	0.01
reference test	ASTM D4052:11
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples #15175

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #15175 was assumed.

2.4.2 Gasoil for Cetane Number

From the starting batch of 800 litre, another 350 litre was homogenized in the mixing vessel for the Gasoil Cetane Number samples. Out of this batch, 320 amber glass bottles of 1L, with inner and outer caps were filled and labelled #15176. 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 #15176-1	836.29	sample #15176-5	836.28
sample #15176-2	836.28	sample #15176-6	836.29
sample #15176-3	836.29	sample #15176-7	836.28
sample #15176-4	836.28	sample #15176-8	836.29

Table 3: homogeneity test results of subsamples #15176

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

	Density at 15°C in kg/m ³
r (sample #15176)	0.01
reference test	ASTM D4052:11
0.3*R (reference test)	0.15

Table 4: precision data of the subsamples #15176

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #15176 was assumed.

2.4.3 Total contamination

The remaining material (approx. 85 liter) of the low sulphur Gasoil batch was homogenized. From this batch, 82 amber glass bottles of 1L with inner and outer caps were filled and labelled #15177.

For the Total Contamination determination, each of the 82 filled bottles was spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (\varnothing 2.4-32 μ m) in oil suspension. The addition was checked by weighting each bottle before and after addition of the spike.

2.4.4 Oxidation Stability

For the Oxidation Stability determination, 40 liter of Gasoil retained from a previous round robin batch, was homogenised and subsequently divided over 78 amber glass bottles of 0.5L, with inner and outer caps and labelled #15178. 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 #15178-1	839.77	sample #15178-5	839.77
sample #15178-2	839.77	sample #15178-6	839.77
sample #15178-3	839.77	sample #15178-7	839.77
sample #15178-4	839.77	sample #15178-8	839.77

Table 5: homogeneity test results of subsamples #15178

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

	Density at 15°C in kg/m ³
r (sample #15178)	0.00
reference test	ASTM D4052:11
0.3*R (reference test)	0.15

Table 6: precision data of the subsamples #15178

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #15178 was assumed.

Depending on the registration of the participant: one bottle of 1L and one bottle of 0.5L, labelled #15175, four bottles of 1L #15176, one bottle of 1L #15177 and/or 1 bottle of 0.5L labelled #15178 were sent to the participating laboratories on September 2, 2015.

2.5 STABILITY OF THE SAMPLES

The stability of the low sulphur gasoil, packed in the brown glass bottles, was checked. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYSIS

The participants were asked to determine on the samples #15175: Acid number, Aromatics by FIA, Ash Content, Cetane Index (D976 and D4737), Cloudpoint, Cold Filter Plugging Point, 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/automatic), Sulphur content, Water content and Water & Sediment (D2709 & D1796).

On sample #15176: Cetane number, Air temperature, Derived Cetane number (D6890 and D7668), Ignition Delay (D6890 and D7668), Combustion Delay and Chamber Wall Temperature were requested to be determined. On sample #15177, only Total Contamination was requested to be determined and on sample #15178, only Oxidation Stability was requested to be determined. The participants were also requested to report additional information for some determinations.

To get comparable results a detailed report form, on which the units were prescribed as well as the required standards and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/.

A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were gathered via the data entry portal www.kmpd.co.uk./sgs-iis/. The original data are tabulated per determination in the appendix 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 results at that moment.

Shortly after the deadline, the available results were screened for suspect data. A 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 results. Additional or corrected results are used for data analysis and original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

Statistical calculations were performed as described in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' (iis-protocol, version 3.3) of April 2014.

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

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

According to ISO 5725 the original 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 (no. 16). 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 under 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 standard. Outliers and other data, which were excluded from the calculations, are represented as a "x". Accepted data are represented as a triangle. Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 4; nos.13 and 14). Also a normal Gauss curve was projected over the Kernel Density Graph.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This target standard deviation was calculated from the literature reproducibility by division with 2.8.

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

The z-scores were calculated according to:

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

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 regular Gasoil PT: eight participants reported test results after the final reporting date and fourteen participants did not report any test results at all.

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

For the Total Contamination PT: three participants reported the test results after the final reporting date and eight 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 eleven participants did not report any test results at all.

Finally, 165 participants reported in total 2994 numerical results. Observed were 55 outlying results, which is 1.8%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

The abbreviations, used in these tables, are listed in appendix 4.

In the iis PT reports, ASTM methods are referred to with a number (e.g. D976) and an added designation for the year that the 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 (2011)). In the results tables of Appendix 1 only the method number and year of adoption will be used.

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

4.1 EVALUATION PER TEST

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 methods are also in the tables together with the reported data.

Acid Number (Total): This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D974:12.

Aromatics (FIA): This determination was very problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the requirements of ASTM D1319:14. One should be aware that this Gasoil does not meet the scope of ASTM D1319 (petroleum fractions should be distilling below 315°C).

- Ash: Four statistical outliers were observed. Regretfully, the ash content for this sample was near or below the application range of the method. Therefore no significant conclusions were drawn.
- C.I. D976: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D976:80(1990)e1. This version should be used according to D975:15b table 1, detailed requirements of diesel fuel oils. Five participants probably made calculation errors.
- C.I. D4737: Regretfully, no reproducibility limits are mentioned in ASTM D4737:10. Two statistical outliers were observed. In this case, it appeared that not all participants used the same calculation method. Five participants reported results according ASTM D4737 procedure B. All other participants reported test results according procedure A of ISO4264:95/IP380:98/ASTM D4737. Up to 2003 ISO4264 and ASTM D4737 were equivalent test methods. However since 2003 only in ASTM D4737 two possible calculation methods for Cetane Index are given. The actual calculation method to be used depends on the type of Gasoil that is specified in table 1 of ASTM D975:15b. This makes it rather confusing because the latest version of ISO4264 is said to be similar to ASTM D4737:96a(01) and in this version only calculation A is described. Thirteen participants possibly made a calculation error.
- Cloud Point: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D2500:11.
- CFPP: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D6371:05(2010). Rounding to 1°C may explain part of the spread.
- Colour ASTM: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D1500:12.
- Conradson CR: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D189:06e1(2014).
- Ramsbottom CR: This determination was problematic. No statistical outliers were observed but three test results were excluded as the reported test methods were not equivalent to ASTM D524:15. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D524:15.

Copper Corrosion: This determination was not problematic. Almost all participants agreed on a result of 1 (or 1A). Three participants reported the Copper Corrosion as 1B.

Density at 15°C: This determination was not problematic. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D4052:11.

Distillation: This determination was not problematic. In total nine statistical outliers were observed. All calculated reproducibilities, except for 10% rec are after rejection of the statistical outliers in agreement with the requirements of ASTM D86:12 (auto). However, when evaluated against ASTM D86:12 (manual) only the calculated reproducibilities of 10%, 95% rec and FBP are not in agreement with the requirements of the test method.

FAME: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with ASTM D7371:14. It is remarkable to see that most laboratories used EN14078, which is not mentioned in ASTM D975:15b. However, in ASTM D7467 in 4.1.18 is mentioned that EN14078 may be used. When the results for EN14078 were evaluated separately, the calculated reproducibility was smaller but not at all in agreement with the requirements of EN14078:14B.

Flash Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D93:15 (procedure A).

Kinematic. Visc. 40°C: This determination was problematic for a number of laboratories. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D445:15.

Lubricity: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with ASTM D6079:11. When the calculated reproducibilities for ASTM D6079 and for ISO12156 (equal to ASTM D7688/IP450) were evaluated separately, both observed reproducibilities are not in agreement with the requirements of the respective standards.

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

Pour Point: For the manual mode, the determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in agreement with ASTM D97:12.

Also for the automated mode, the determination was not problematic. No statistical outliers were observed. Two results were excluded as the reported test methods were manual methods. These test results were placed under the manual test method. However, the calculated reproducibility after rejection of the suspect data is in agreement with ASTM D5950:14.

Sulphur: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5453:12.

Water: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility is in good agreement with the ASTM D6304:07. A number of laboratories used ASTM D95, which is not applicable for low water concentrations.

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

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

CN - D613: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D613:15ae1.

DCN - D6890: This determination may not be problematic. No statistical outliers were observed. The calculated reproducibility for DCN is in agreement with the ASTM D6890:15a. One participant reported a test result for ignition delay but did not report a test result for DCN. With this data, it was possible to calculate the DCN for this participant. The spread for DCN after recalculation of the results by iis is in agreement with the requirements of ASTM D6890:15a. The calculated reproducibility for “Ignition delay” is also in agreement with the requirements.

DCN - D7668: This determination may not be problematic. In total, two statistical outliers were observed. The calculated reproducibility for DCN and for “Ignition delay” after rejection of the statistical outliers is in agreement with the ASTM D7668:14a. The spread for DCN after recalculation of the results by iis is not in agreement with the requirements of ASTM D7668:14a. One participant may have made a calculation error. The calculated reproducibility for “Combustion delay” after rejection of the suspect test results is not in agreement with the requirements.

Total Contamination: As this proficiency test is based on ASTM D975 specification, the test method for evaluation of the results will be ASTM D6217:11. Major differences between ASTM D6217:11 and the EN12662:2014 are the volumes used for testing (1 liter vs 300 ml) and the reporting unit (mg/L vs mg/kg). When taken above into account the reported results were split up into two groups (one that reported in mg/L and one that reported in mg/kg). As the majority of the mg/kg group reported according EN12662, it was decided to use the precision data of EN12662:14. The samples of 1 liter were spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ϕ 1.0-20 μ m) in oil suspension.

The determination in mg/L was problematic. No statistical outliers were observed. Two results were excluded as the reporting laboratories did not find at least the spiked amount. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D6217:11. The determination in mg/kg was very problematic. One statistical outlier was observed. Two results were excluded, as the reporting laboratories did not find at least the spiked amount. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of EN12662:14.

Oxidation Stability: Filterable Insolubles (A)

This determination may not be problematic at this low level of 0.12 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 may not be problematic at this low level of 0.14 mg/100ml. No statistical outliers were observed. The calculated reproducibility is in full agreement with ASTM D2274:14.

Total Insolubles

This determination may not be problematic at this low level of 0.27 mg/100ml. One statistical outlier was observed. The calculated reproducibility 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 standard and the reproducibility as found for the group of participating laboratories that participated. The average results of the evaluated parameters, calculated reproducibilities and reproducibilities, derived from literature standards (in casu ASTM standards) are compared in the next tables.

Parameters	unit	n	average	2.8 * sd	R (lit)	
Acid Number (TAN)	mgKOH/g	74	0.026	0.031	0.040	
Aromatics by FIA	%V/V	28	24.18	6.96	3.70	
Ash content	%M/M	62	0.0008	0.0014	(0.0050)	
Cetane Index ASTM D976		79	53.22	0.64	2.00	
Cetane Index ASTM D4737		103	52.03	0.92	unknown	
Cloud Point	°C	121	-6.9	2.2	4.0	
Cold Filter Plugging Point	°C	99	-22.5	6.1	4.8	
Colour ASTM		58	1.2	0.5	1.0	
Conradson Carbon Residue	%M/M	66	0.030	0.033	0.033	
Ramsbottom Carbon Residue	%M/M	17	0.062	0.042	0.030	
Copper Corrosion 3hrs at 50°C		116	1(1A)	unknown	unknown	
Density at 15 °C	kg/m ³	140	836.1	0.3	0.5	
Distillation					Auto	Manual
-IBP	°C	140	168.6	8.2	9.3	8.8
-10% recovery	°C	137	209.2	5.2	4.6	4.6
-50% recovery	°C	138	273.5	3.1	3.0	3.9
-90% recovery	°C	140	333.9	4.3	5.0	4.0
-95% recovery	°C	136	348.7	6.5	8.8	5.1
-FBP	°C	137	358.3	5.7	7.1	3.9
-Volume at 250°C	%V/V	125	32.6	2.6	2.7	2.6
-Volume at 350°C	%V/V	126	95.4	1.7	2.7	2.4
FAME	%V/V	59	4.90	0.66	0.94	
Flash Point PMcc	°C	136	62.5	3.8	4.4	
Kinematic Viscosity at 40°C	mm ² /s	121	2.749	0.030	0.031	
Lubricity by HFRR	µm	62	222	122	80	
Nitrogen	mg/kg	34	62.8	9.6	6.8	
Pour Point, manual	°C	72	-26.7	4.9	6.6	
Pour Point, automated	°C	39	-25.6	4.2	6.1	
Total Sulphur	mg/kg	103	8.59	2.54	2.91	
Water	mg/kg	111	52.1	21.8	181.0	
Water and Sediment (D2709)	%V/V	44	<0.05	unknown	unknown	
Water and Sediment (D1796)	%V/V	27	<0.05	unknown	unknown	

Table 7: summary of tests results of Gasoil #14175. NB: results between brackets may be near or below the limit of detection

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		28	54.2	4.0	4.6
DCN (ASTM D6890)		5	55.6	2.9	2.8
Iginition delay (ASTM D6890)		6	3.67	0.21	0.20
DCN (ASTM D7668)		9	55.5	1.7	1.6
Ignition delay (ASTM D7668)		8	2.77	0.14	0.13
Combustion delay (ASTM D7668)		9	4.28	0.15	0.12

Table 8: summary of tests results of Gasoil #15176

Parameters	unit	n	average	2.8 * sd	R (lit)
Total Contamination	mg/L	8	16.3	7.4	4.6
Total Contamination	mg/kg	39	20.1	10.6	5.1

Table 9: summary of tests results of Gasoil #15177

Parameters	unit	n	average	2.8 * sd	R (lit)
Oxidation Stab. Filt. Insol. A	mg/100mL	27	0.11	0.34	0.38
Oxidation Stab. Adher. Insol B	mg/100mL	26	0.14	0.38	0.38
Oxidation Stab. Tot. Insol.	mg/100mL	31	0.27	0.59	0.76

Table 10: summary of tests results of Gasoil #15178

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 standards. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE INTERLABORATORY STUDY OF SEPTEMBER 2015 WITH PREVIOUS PTS.

	<i>September 2015</i>	<i>September 2014</i>	<i>September 2013</i>	<i>October 2012</i>
Number of reporting labs	165	163	160	158
Number of results reported	2996	3419	3123	3086
Statistical outliers	55	68	67	97
Percentage outliers	1.8%	2.0%	2.1%	3.1%

Table 11: comparison with previous proficiency tests.

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

The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given the following table:

	<i>September 2015</i>	<i>September 2014</i>	<i>September 2013</i>	<i>October 2012</i>
Acid Number (Total)	+	++	++	++
Aromatics (FIA)	--	--	--	--
Ash content	(++)	(++)	(++)	(++)
Cetane Index two variables	++	n.e.	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 content	-	--	--	--
Pour Point	+	++	+	++
Sulphur	+	++	+/-	+
Water content	++	++	++	++

Table 12: comparison determinations against the standard; result between brackets was out of application range

	<i>September 2015</i>	<i>September 2014</i>	<i>September 2013</i>	<i>October 2012</i>
Cetane Number	+	++	++	++
DCN (ASTM D6890)	+/-	-	++	++
Ignition Delay (D6890)	+/-	--	++	++
DCN (ASTM D7668)	+/-	--	n.e.	n.e.
Ignition Delay (D7668)	+/-	--	n.e.	n.e.
Combustion Delay (D7668)	-	n.e.	n.e.	n.e.
Total Contamination mg/L	--	n.e.	n.e.	n.e.
Total Contamination mg/kg	--	--	--	n.e.
Oxidation Stab. Filt. Insol. A	+/-	++	+	++
Oxidation Stab. Adher. Insol B	+/-	n.e.	n.e.	n.e.
Oxidation Stab. Tot. Insol.	+	n.e.	n.e.	n.e.

Table 13: comparison determinations against the standard

The performance of the determinations against the requirements of the respective standards is listed in the above table. The following performance categories were used:

- ++: group performed much better than the standard
- + : group performed better than the standard
- +/-: group performance similar to the standard
- : group performed worse than the standard
- : group performed much worse than the standard
- n.e.: not evaluated

APPENDIX 1

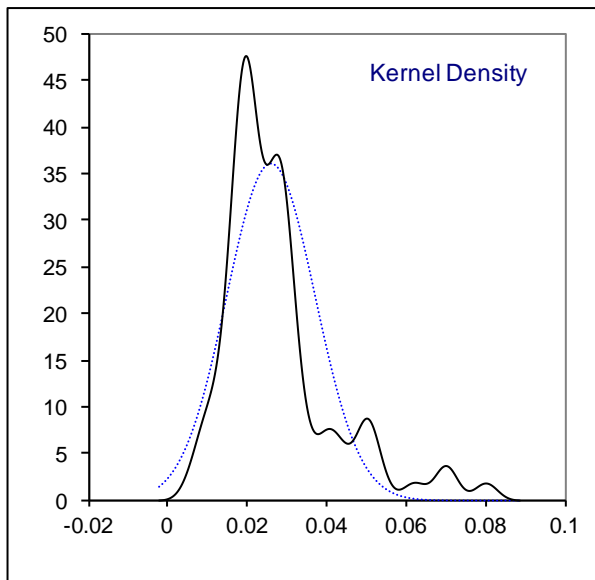
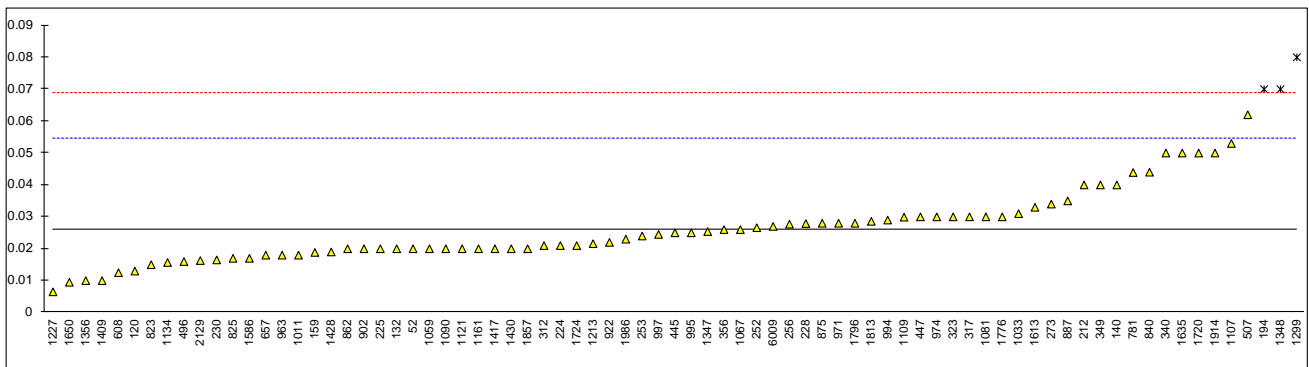
Determination of Acid Number (TAN) on sample #15175; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664	0.02		-0.42	951		----		----
53		----		----	962		----		----
62	D664	<0.1	C	----	963	D664	0.018		-0.56
92		----		----	970		----		----
120	D664	0.013		-0.91	971	D664	0.028		0.14
132	D664	0.02		-0.42	974	D974	0.03		0.28
140	D664	0.04	C	0.98	982		----		----
150		----		----	994	D664	0.029		0.21
159	D664	0.01885		-0.51	995	D664	0.025		-0.07
169		----		----	996		----		----
171	D664	<0.05		----	997	D974	0.0245		-0.11
175		----		----	998		----		----
186		----		----	1006		----		----
194	D664	0.07	R(0.05)	3.08	1011	D664	0.018		-0.56
212		0.04		0.98	1033	D664	0.031		0.35
217		----		----	1059	ISO6619	0.020		-0.42
221		----		----	1067	D974	0.026		0.00
224	D974	0.021		-0.35	1080		----		----
225	D974	0.02		-0.42	1081	D664	0.03		0.28
228	D974	0.0279		0.13	1090	D974	0.02		-0.42
230	D664	0.0165		-0.67	1107	D974	0.053		1.89
237	D664	<0.1		----	1109	D974	0.0299		0.27
238		----		----	1121	D664	0.020		-0.42
240		----		----	1126		----		----
242		----		----	1134	IP177	0.0157		-0.73
252	D974	0.0266		0.04	1146		----		----
253	D664	0.024		-0.14	1161	D664	0.02		-0.42
254		----		----	1167		----		----
256	D974	0.0277		0.11	1182		----		----
258		----		----	1186		----		----
273	D974	0.034		0.56	1213	D974	0.0216		-0.31
311	D664	<0.10		----	1227	D664	0.0065		-1.37
312	D974	0.021		-0.35	1297		----		----
317	D974	0.03		0.28	1299	D664	0.080	R(0.05)	3.78
323	D664	0.03		0.28	1347	D664	0.0254		-0.05
332		----		----	1348	D664	0.07	R(0.05)	3.08
333		----		----	1356	D664	0.01		-1.12
334		----		----	1385		----		----
335		----		----	1395		----		----
336		----		----	1397		----		----
337		----		----	1409	D664	0.01		-1.12
338		----		----	1417	IP177	0.02		-0.42
340	D664	0.05		1.68	1428	D664	0.019		-0.49
343		----		----	1430	D974	0.02		-0.42
344		----		----	1431		----		----
349	D664	0.04		0.98	1498		----		----
353		----		----	1512		----		----
356	D974	0.026		0.00	1586	D664	0.017		-0.63
381		----		----	1588		----		----
431		----		----	1613	D974	0.033		0.49
445	D664	0.025		-0.07	1616		----		----
446		----		----	1629		----		----
447	D664	0.03		0.28	1634		----		----
463		----		----	1635	D664	0.05		1.68
485		----		----	1636		----		----
494	D664	<0.10		----	1650	D664	0.0095	C	-1.16
496	D664	0.016		-0.70	1654		----		----
507	D664	0.062		2.52	1709		----		----
511		----		----	1720	D974	0.05		1.68
541	D664	<0.1		----	1724	D664	0.021		-0.35
557		----		----	1776	D664	0.03		0.28
558		----		----	1796	D664	0.028		0.14
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608	D664	0.0125		-0.95	1813	D974	0.0286		0.18
657	D974	0.018		-0.56	1846		----		----
663		----		----	1849		----		----
671		----		----	1857	D664	0.02		-0.42
732		----		----	1906		----		----
750		----		----	1914	D664	0.05		1.68
759		----		----	1936		----		----
781	D664	0.0439		1.25	1937		----		----
785		----		----	1938		----		----
823	D664	0.015		-0.77	1944		----		----
824	D664	<0.1		----	1953		----		----

825	D664	0.017		-0.63	1984	----	----
840	D664	0.044		1.26	1986	D664	0.023
854	D664	<0.1		----	1992	----	-0.21
862	D664	0.02		-0.42	2129	D974	0.0163
863	D664	<0.1		----	2146	----	----
875	D664	0.028		0.14	6005	----	----
887	D664	0.035		0.63	6009	D974	0.027
902	D664	0.02	C	-0.42	6016	----	----
922	D664	0.022		-0.28	9090	----	----

normality not OK
n 74
outliers 3
mean (n) 0.0261
st.dev. (n) 0.01108
R(calc.) 0.0310
R(D974:12) 0.0400

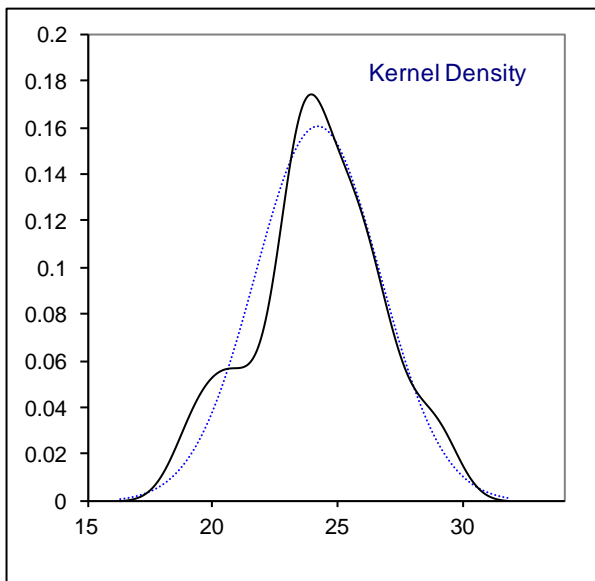
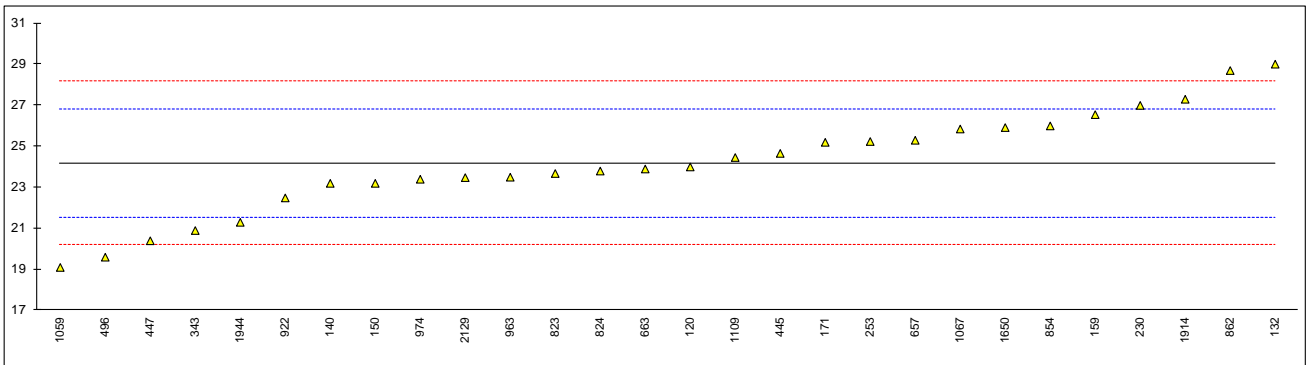
Lab 62: first reported 0.064
Lab 140: first reported 0.000
Lab 902: first reported 0.08
Lab 1650: first reported 0.095
Lab 6009: first reported 0.1089



Determination of Aromatics by FIA on sample #15175; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963	D1319	23.5		-0.52
92		----		----	970		----		----
120	D1319	24.0		-0.14	971		----		----
132	D1319	29.01		3.65	974	D1319	23.4		-0.59
140	D1319	23.2		-0.74	982		----		----
150	D1319	23.2		-0.74	994		----		----
159	D1319	26.55		1.79	995		----		----
169		----		----	996		----		----
171	D1319	25.2		0.77	997		----		----
175		----		----	998		----		----
186		----		----	1006		----		----
194		----		----	1011		----		----
212		----		----	1033		----		----
217		----		----	1059	D1319	19.1		-3.85
221		----		----	1067	D1319	25.85		1.26
224		----		----	1080		----		----
225		----		----	1081		----		----
228		----		----	1090		----		----
230	D1319	27.00		2.13	1107		----		----
237		----		----	1109	D1319	24.46		0.21
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134		----		----
252		----		----	1146		----		----
253	D1319	25.24		0.80	1161		----		----
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213		----		----
311		----		----	1227		----		----
312		----		----	1297		----		----
317		----		----	1299		----		----
323		----		----	1347		----		----
332		----		----	1348		----		----
333		----		----	1356		----		----
334		----		----	1385		----		----
335		----		----	1395		----		----
336		----		----	1397		----		----
337		----		----	1409		----		----
338		----		----	1417		----		----
340		----		----	1428		----		----
343	D1319	20.9		-2.48	1430		----		----
344		----		----	1431		----		----
349		----		----	1498		----		----
353		----		----	1512		----		----
356		----		----	1586		----		----
381		----		----	1588		----		----
431		----		----	1613		----		----
445	D1319	24.66		0.36	1616		----		----
446		----		----	1629		----		----
447	D1319	20.4		-2.86	1634		----		----
463		----		----	1635		----		----
485		----		----	1636		----		----
494		----		----	1650	D1319	25.92		1.31
496	D1319	19.60		-3.47	1654		----		----
507		----		----	1709		----		----
511		----		----	1720		----		----
541		----		----	1724		----		----
557		----		----	1776		----		----
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813		----		----
657	D1319	25.3		0.84	1846		----		----
663	D1319	23.9		-0.21	1849		----		----
671		----		----	1857		----		----
732		----		----	1906		----		----
750		----		----	1914	D1319	27.3		2.36
759		----		----	1936		----		----
781		----		----	1937		----		----
785		----		----	1938		----		----
823	D1319	23.68		-0.38	1944	D1319	21.3		-2.18
824	D1319	23.8		-0.29	1953		----		----

825		----	----	1984		----	----
840		----	----	1986		----	----
854	D1319	26.0	1.37	1992		----	----
862	D1319	28.70	3.42	2129	D1319	23.48	-0.53
863		----	----	2146		----	----
875		----	----	6005		----	----
887		----	----	6009		----	----
902		----	----	6016		----	----
922	D1319	22.49	-1.28	9090		----	----
normality		OK					
n		28					
outliers		0					
mean (n)		24.184					
st.dev. (n)		2.4862					
R(calc.)		6.961					
R(D1319:14)		3.700					



Determination of Ash on sample #15175; result in %M/M

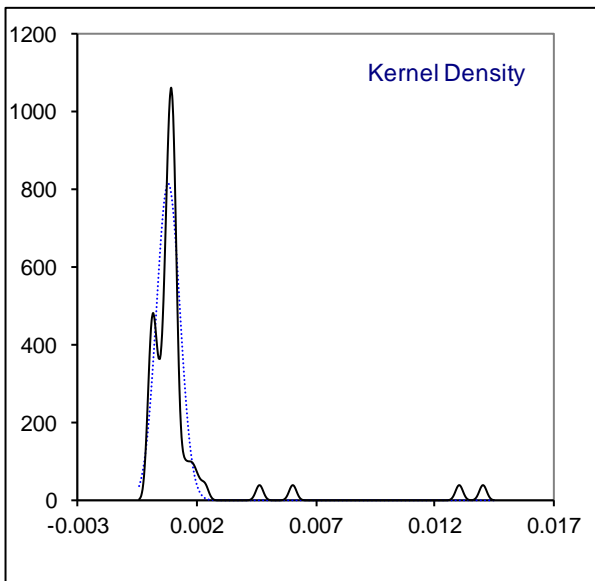
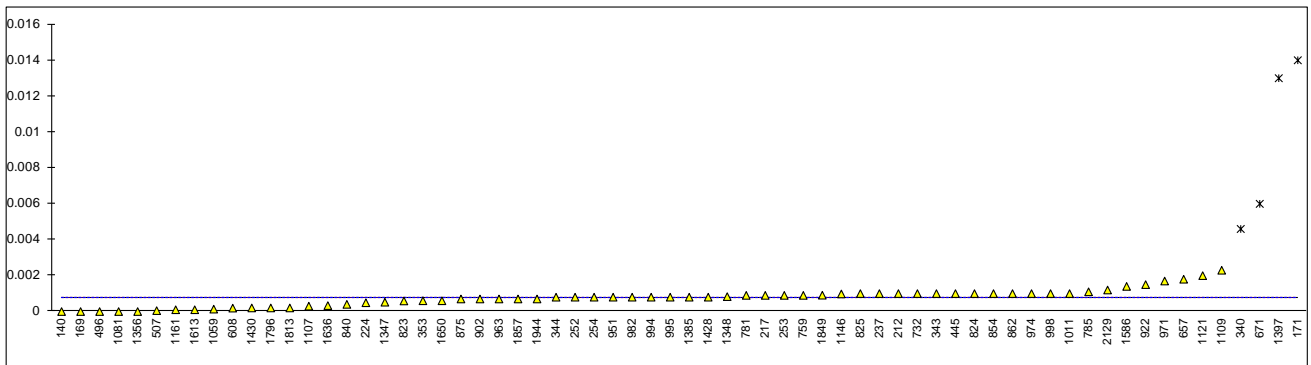
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	<0.001		----	951	D482	0.0008		----
53		----		----	962		----		----
62	D482	<0.001		----	963	D482	0.0007		----
92	D482	<0.001		----	970		----		----
120	D482	<0.001		----	971	D482	0.0017		----
132	D482	<0.001		----	974	D482	0.001		----
140	D482	0.000		----	982	D482	0.0008		----
150	D482	<0.001		----	994	D482	0.0008		----
159	D482	<0.001		----	995	D482	0.0008		----
169	D482	0.000		----	996		----		----
171	D482	0.014	R(0.01)	----	997		----		----
175		----		----	998	D482	0.001		----
186		----		----	1006	D482	<0.001		----
194	D482	<0.001		----	1011	D482	0.001		----
212	ISO6245	0.001		----	1033		----		----
217	D482	0.0009		----	1059	ISO6245	0.000134		----
221	D482	<0.01		----	1067		----		----
224	D482	0.00049		----	1080		----		----
225		----		----	1081	D482	0		----
228	D482	<0.01		----	1090		----		----
230	ISO6245	<0.001		----	1107	D482	0.0003		----
237	D482	0.001		----	1109	D482	0.0023		----
238		----		----	1121	IP4	0.002		----
240		----		----	1126		----		----
242		----		----	1134	D1319	<0.01		----
252	D482	0.0008		----	1146	D482	0.00098		----
253	D482	0.0009		----	1161	ISO6245	0.0001		----
254	D482	0.0008		----	1167		----		----
256	D482	<0.001		----	1182		----		----
258		----		----	1186		----		----
273	D482	<0.005		----	1213	D482	<0.005		----
311	D482	<0.001		----	1227		----		----
312		----		----	1297		----		----
317	D482	<0.001		----	1299	D482	<0.001		----
323	D482	<0.001		----	1347	D482	0.00052		----
332		----		----	1348	D482	0.00083		----
333		----		----	1356	ISO6245	0.0000		----
334		----		----	1385	D482	0.0008		----
335		----		----	1395		----		----
336		----		----	1397	D482	0.013	R(0.01)	----
337		----		----	1409		----		----
338		----		----	1417		----		----
340	D482	0.0046	R(0.01)	----	1428	ISO6245	0.0008		----
343	D482	0.001		----	1430	D482	0.0002		----
344	D482	0.000799		----	1431		----		----
349		----		----	1498		----		----
353	IP4	0.0006		----	1512		----		----
356	D482	<0.001		----	1586	D482	0.0014		----
381		----		----	1588		----		----
431		----		----	1613	D482	0.0001		----
445	D482	0.001		----	1616		----		----
446	D482	<0.001		----	1629		----		----
447	D482	<0.001		----	1634		----		----
463	D482	<0.001		----	1635		----		----
485		----		----	1636	D482	0.00033		----
494	D482	<0.001		----	1650	D482	0.0006		----
496	D482	0.000		----	1654		----		----
507	D482	0.00005		----	1709		----		----
511		----		----	1720		----		----
541	D482	<0.001		----	1724	D482	<0.001		----
557		----		----	1776		----		----
558		----		----	1796	D482	0.0002		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607	D482	<0.001		----	1811		----		----
608	D482	0.00019		----	1813	D482	0.0002		----
657	D482	0.0018		----	1846		----		----
663	D482	<0.001		----	1849	ISO6245	0.00091		----
671	D482	0.006	C,R(0.01)	----	1857	D482	0.0007		----
732	D482	0.0010		----	1906		----		----
750		----		----	1914	D482	<0.001		----
759	D483	0.0009		----	1936		----		----
781	D482	0.0009		----	1937		----		----
785	D482	0.0011		----	1938		----		----
823	D482	0.00059		----	1944	D482	0.0007		----
824	D482	0.001		----	1953		----		----

825	D482	0.001	-----	1984	-----	-----
840	D482	0.0004	-----	1986	-----	-----
854	D482	0.001	-----	1992	-----	-----
862	D482	0.0010	-----	2129	D482	0.0012
863	D482	<0.001	-----	2146	-----	-----
875	D482	0.0007	-----	6005	-----	-----
887		-----	-----	6009	-----	-----
902	D482	0.0007	-----	6016	-----	-----
922	D482	0.0015	-----	9090	-----	-----

normality suspect
 n 62
 outliers 4
 mean (n) 0.00076
 st.dev. (n) 0.000490
 R(calc.) 0.00137
 R(D482:13) (0.00500)

Application range: 0.001 – 0.180 mass%

Lab 671: first reported 0.056



Determination of Calculated Cetane Index, two variables ASTM D976 on sample #15175

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	53.3		0.11	951	D976	53.20		-0.03
53		----		----	962		----		----
62	D976	53.6		0.53	963	D976	53.3		0.11
92	D976	53.337		0.16	970	D976	53.1		-0.17
120	D976	53.3		0.11	971	D976	53.4		0.25
132	D976	53.14	E	-0.12	974	D976	53.5		0.39
140	D976	53.0		-0.31	982		----		----
150	D976	53.0		-0.31	994	D976	53.3		0.11
159	D976	53.43		0.29	995	D976	53.15		-0.10
169		----		----	996		----		----
171	D976	53.3		0.11	997		----		----
175	D976	53.0		-0.31	998	D976	52.9		-0.45
186		----		----	1006		----		----
194		----		----	1011		----		----
212		----		----	1033		----		----
217	D976	53.27		0.06	1059		----		----
221	D976	52.95		-0.38	1067		----		----
224	D976	53.14		-0.12	1080		----		----
225		----		----	1081	D976	53.1		-0.17
228	D976	53.2		-0.03	1090		----		----
230	D976	53.26		0.05	1107	D976	53.3		0.11
237	D976	52.9		-0.45	1109		----		----
238		----		----	1121		----		----
240	D976	53.12		-0.15	1126		----		----
242		----		----	1134	D976	53.3		0.11
252		----		----	1146	D976	53.4		0.25
253	D976	53.5		0.39	1161		----		----
254		----		----	1167		----		----
256	D976	52.9		-0.45	1182		----		----
258		----		----	1186		----		----
273		----		----	1213	D976	52.9	E	-0.45
311	D976	53.15		-0.10	1227	D976	53.11	E	-0.16
312	D976	53.5		0.39	1297	D976	53.17		-0.08
317	D976	53.5		0.39	1299		----		----
323	D976	53.5		0.39	1347		----		----
332		----		----	1348		----		----
333		----		----	1356		----		----
334		----		----	1385		----		----
335		----		----	1395		----		----
336	D976	53.2		-0.03	1397		----		----
337		----		----	1409		----		----
338		----		----	1417		----		----
340		----		----	1428		----		----
343		----		----	1430		----		----
344		----		----	1431		----		----
349		----		----	1498	D976	53.7		0.67
353		----		----	1512		----		----
356	D976	53.5		0.39	1586	D976	53.0		-0.31
381		----		----	1588		----		----
431		----		----	1613	D976	53.45		0.32
445	D976	53.2		-0.03	1616		----		----
446		----		----	1629		----		----
447	D976	53.2		-0.03	1634		----		----
463	D976	53.3		0.11	1635		----		----
485		----		----	1636	D976	53.3		0.11
494		----		----	1650	D976	53.2		-0.03
496	D976	53.0		-0.31	1654		----		----
507	D976	53.39		0.23	1709	D976	53.38		0.22
511	D976	52.6		-0.87	1720		----		----
541	D976	53.3		0.11	1724		----		----
557		----		----	1776		----		----
558		----		----	1796	D976	53.3		0.11
562		----		----	1807	D976	53.2		-0.03
604	D976	53.32		0.13	1810		----		----
607		----		----	1811	D976	52.6	E	-0.87
608	D976	53.19		-0.05	1813		----		----
657	D976	52.8	E	-0.59	1846		----		----
663	D976	53.4		0.25	1849		----		----
671		----		----	1857	D976	53.2		-0.03
732	D976	53.15		-0.10	1906		----		----
750		----		----	1914	D976	52.8		-0.59
759	D976	53.6		0.53	1936		----		----
781	D976	53.3		0.11	1937		----		----
785		----		----	1938		----		----
823	D976	53.4		0.25	1944	D976	53.05		-0.24
824	D976	53.4		0.25	1953		----		----

825	D976	53.5	0.39	1984	-----	-----	
840	D976	53.19	-0.05	1986	D976	53.3	0.11
854	D976	53.4	0.25	1992	D976	53.15	-0.10
862	D976	53.17	-0.08	2129	D976	53.6	0.53
863	D976	53.4	0.25	2146	-----	-----	
875		-----	-----	6005	-----	-----	
887	D976	52.70	-0.73	6009	D976	53.50	0.39
902		-----	-----	6016	-----	-----	
922	D976	52.95	-0.38	9090	-----	-----	

normality OK
 n 79
 outliers 0
 mean (n) 53.224
 st.dev. (n) 0.2290
 R(calc.) 0.641
 R(D976:80) 2.000

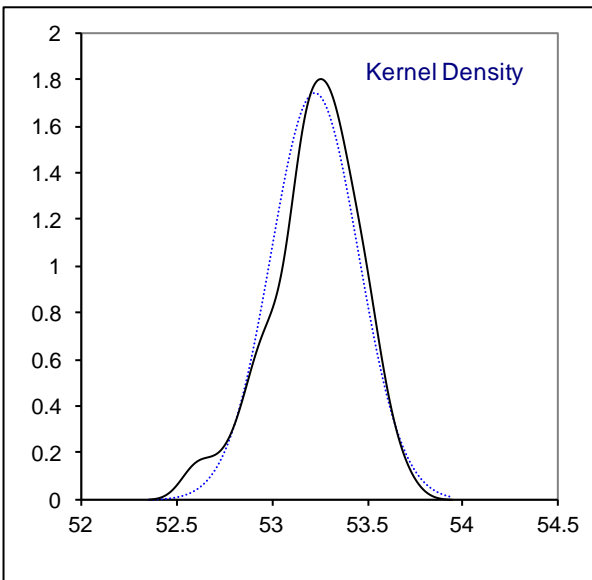
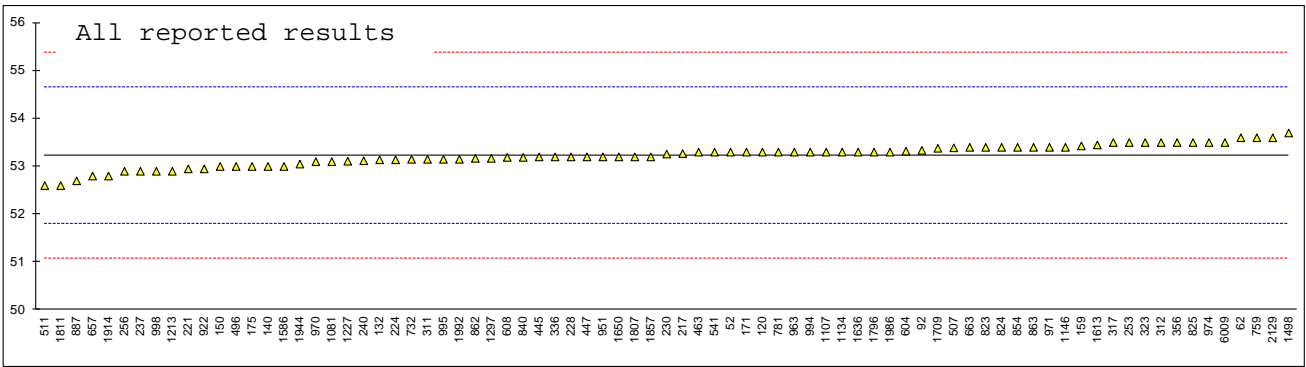
recalculated by iis

OK
 79
 0
 53.250
 0.2115
 0.592
 2.000

Compare R(iis14G04ASTM) = 0.733

iis calculated values (=E):

Lab 132: 52.91
 Lab 657: 53.39
 Lab 1213: 53.28
 Lab 1227: 53.52
 Lab 1811: 52.97



Determination of Calculated Cetane Index, four variables D4737 on sample #15175

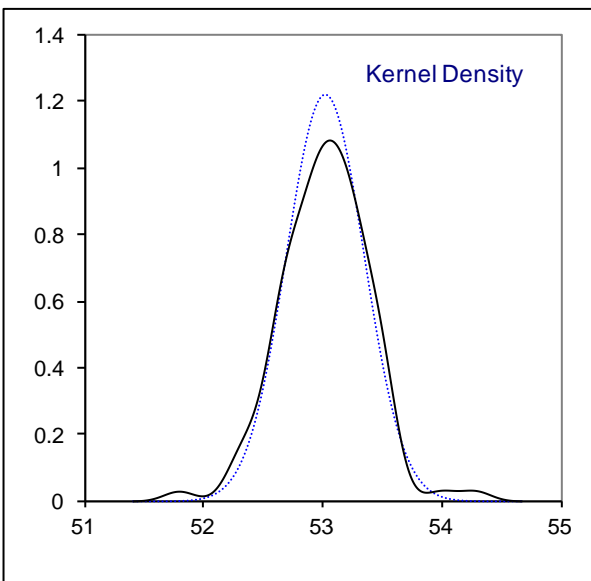
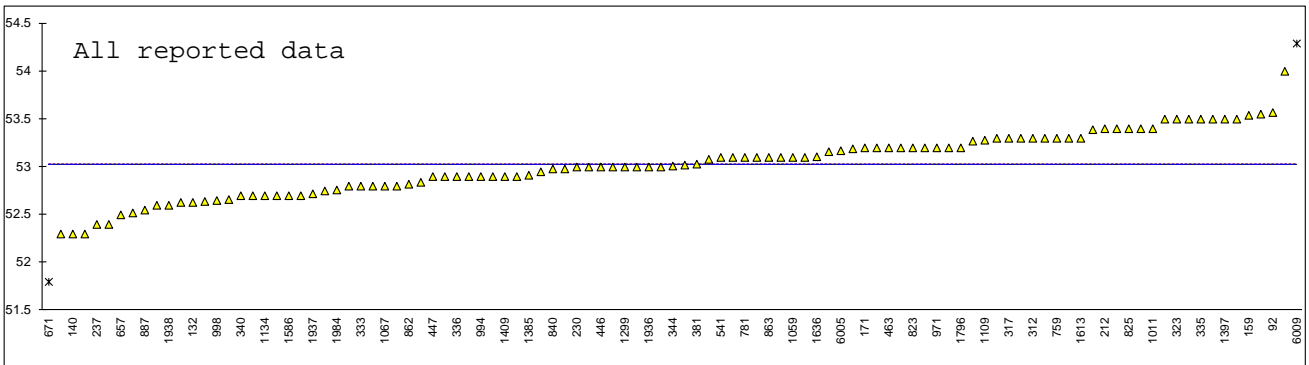
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	53.0		----	951		----		----
53		----		----	962		----		----
62	D4737-A	53.4		----	963		----		----
92	D4737-B	53.569	E	----	970	D4737-A	52.3	E	----
120	D4737-A	53.3		----	971	D4737-A	53.2		----
132	D4737-A	52.63		----	974	D4737-A	53.4		----
140	D4737-A	52.3	E	----	982		----		----
150	D4737-A	52.7		----	994	D4737-A	52.9		----
159	D4737-A	53.54		----	995	D4737-A	52.75		----
169		----		----	996		----		----
171	D4737-A	53.2		----	997		----		----
175	D4737-A	52.8		----	998	D4737-A	52.65		----
186		----		----	1006	D4737-A	53.1		----
194		----		----	1011	ISO4264	53.4		----
212	ISO4264	53.4		----	1033		----		----
217	D4737-A	53.08		----	1059	ISO4264	53.1		----
221	D4737-A	52.66		----	1067	D4737-B	52.8		----
224		----		----	1080		----		----
225		----		----	1081	ISO4264	52.9		----
228	D4737-A	53.1		----	1090		----		----
230	ISO4264	53.0		----	1107	D4737-A	53.2		----
237	D4737-A	52.4		----	1109	D4737-A	53.28		----
238		----		----	1121		----		----
240	D4737-A	52.63		----	1126		----		----
242		----		----	1134	D4737	52.7		----
252		----		----	1146		----		----
253		----		----	1161	ISO4264	52.95		----
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213	D4737-A	52.7	E	----
311	D4737-A	52.8		----	1227		----		----
312	D4737-A	53.3		----	1297		----		----
317	D4737-A	53.3		----	1299	D4737-A	53.0		----
323	D4737-A	53.5		----	1347	D4737-A	53.19		----
332		----		----	1348	D4737-A	53.552	E	----
333	ISO4264	52.8		----	1356	ISO4264	54	C, E	----
334		----		----	1385	D4737-A	52.914		----
335	D4264	53.5		----	1395		----		----
336	ISO4264	52.9		----	1397	ISO4264	53.5		----
337		----		----	1409	ISO4264	52.9		----
338	ISO4264	53.5	C, E	----	1417		----		----
340	ISO4264	52.7		----	1428	ISO4264	53.1		----
343	D4737-A	53.0		----	1430	D4737-A	53.3		----
344	D4737-A	53.01		----	1431		----		----
349		----		----	1498		----		----
353	IP380	53.39		----	1512		----		----
356	ISO4264	53.5		----	1586	D4737-A	52.7		----
381	D4737-B	53.03	E	----	1588		----		----
431		----		----	1613	D4734-A	53.30		----
445	IP380	52.9		----	1616		----		----
446	D4737-A	53.0		----	1629		----		----
447	D4737-A	52.9		----	1634	ISO4264	53.16		----
463	ISO4264	53.2		----	1635	D4737-A	52.52		----
485	D4737-A	53.1		----	1636	D4737-A	53.107		----
494	D4737-A	52.9		----	1650	ISO4264	52.8		----
496	D4737-A	52.64		----	1654		----		----
507	D4737-A	53.50		----	1709	D4737-A	53.27		----
511	D4737-A	52.3		----	1720		----		----
541	D4737-A	53.1		----	1724	IP380	53.0		----
557		----		----	1776	ISO4264	52.6	C	----
558		----		----	1796	D4737-A	53.2		----
562		----		----	1807	D4737-B	52.4		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813	D4737-A	53.02		----
657	D4737-A	52.5	E	----	1846		----		----
663	D4737-A	53.3		----	1849	ISO4264	52.98		----
671	D4737-B	51.8	C, E, R(0.05)	----	1857	D4737-A	52.9		----
732		----		----	1906		----		----
750		----		----	1914	ISO4264	52.7		----
759	D4737-A	53.3		----	1936	ISO4264	53.0	E	----
781	D4737-A	53.1		----	1937	ISO4264	52.72	E	----
785	ISO4264	53.2		----	1938	ISO4264	52.6		----
823	D4737-A	53.2		----	1944	D4737-A	52.84		----
824	D4737-A	53.2		----	1953		----		----

825	D4737-A	53.4	----	1984	ISO4264	52.76	----
840	D4737-A	52.98	----	1986	D4737-A	53.0	----
854	D4737-A	53.3	----	1992		----	----
862	D4737-A	52.82	----	2129	ISO4264	53.5	----
863	D4737-A	53.1	----	2146		----	----
875	D4737-A	53.2	----	6005	ISO4264	53.17	----
887	D4737-A	52.55	----	6009	ISO4264	54.29	E, R(0.05)
902		----	----	6016		----	----
922		----	----	9090		----	----
	normality	OK	----		<u>calculated by iis</u>		
	n	103	----		OK		
	outliers	2	----		101		
	mean (n)	53.026	----		3		
	st.dev. (n)	0.3268	----		52.994		
	R(calc.)	0.915	----		0.2960		
	R(D4737:10)	unknown	----		0.829		
					unknown		Compare R(iis14G04ASTM) = 1.160

Lab 338: first reported 54
 Lab 671: first reported 48.1
 Lab 1356: first reported 51
 Lab 1776: first reported 0.42.3

iis calculated values (=E)

Lab 92 : 52.87	Lab 1213 : 53.13
Lab 140 : 52.93	Lab 1348 : 52.36
Lab 338 : 53.16	Lab 1356 : 54.32
Lab 381 : 52.35	Lab 1936 : 52.70
Lab 657 : 53.36	Lab 1937 : 52.49
Lab 671 : 52.70	Lab 6009 : 53.22
Lab 970 : 52.72	

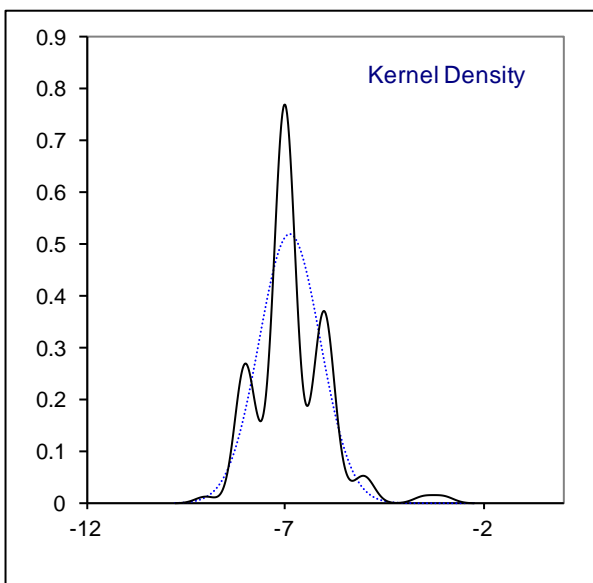
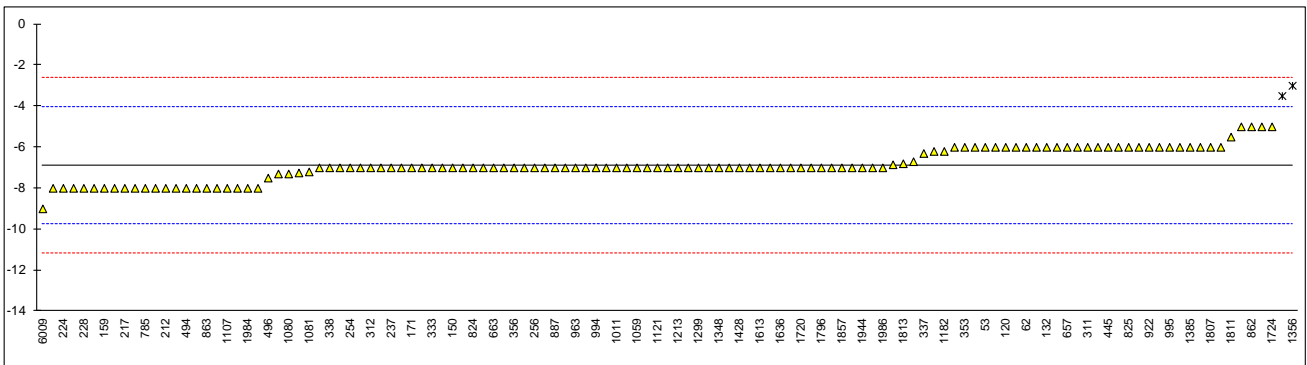


Determination of Cloud Point on sample #15175; result in °C,

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2500	-7		-0.09	951	D2500	-7		-0.09
53	D2500	-6		0.61	962	D2500	-6		0.61
62	D2500	-6		0.61	963	D2500	-7		-0.09
92	D2500	-7		-0.09	970		----		----
120	D2500	-6		0.61	971	D2500	-8		-0.79
132	D2500	-6		0.61	974	D2500	-7		-0.09
140	D5771	-6.0		0.61	982		----		----
150	D5771	-7.0		-0.09	994	D2500	-7		-0.09
159	D2500	-8.0		-0.79	995	D2500	-6		0.61
169	D2500	-5		1.31	996		----		----
171	D2500	-7		-0.09	997	D2500	-6		0.61
175	D2500	-7		-0.09	998	D2500	-7.0		-0.09
186		----		----	1006		----		----
194	D2500	-6		0.61	1011	D2500	-7		-0.09
212	ISO3015	-8		-0.79	1033	IP219	-7		-0.09
217	D2500	-8		-0.79	1059	ISO3015	-7		-0.09
221	D2500	-6		0.61	1067	D5771	-7		-0.09
224	D2500	-8.0		-0.79	1080	D2500	-7.3		-0.30
225	D2500	-7		-0.09	1081	D5771	-7.2		-0.23
228	D2500	-8		-0.79	1090		----		----
230	D2500	-8.0		-0.79	1107	D2500	-8		-0.79
237	D2500	-7		-0.09	1109	D5773	-6.85		0.02
238		----		----	1121	D2500	-7.0		-0.09
240	D2500	-8		-0.79	1126		----		----
242		----		----	1134	D2500	-5		1.31
252	D2500	-8		-0.79	1146	D2500	-3.5	R(0.01)	2.36
253	D2500	-6		0.61	1161	D2500	-7		-0.09
254	D2500	-7.0		-0.09	1167		----		----
256	D2500	-7		-0.09	1182	D5773	-6.2		0.47
258		----		----	1186		----		----
273	D2500	-7		-0.09	1213	D2500	-7		-0.09
311	D5771	-6		0.61	1227	D2500	-7		-0.09
312	D2500	-7		-0.09	1297	D5771	-7.25		-0.26
317	D5771	-8		-0.79	1299	D2500	-7		-0.09
323	D2500	-8		-0.79	1347	D2500	-7		-0.09
332		----		----	1348	D2500	-7		-0.09
333	EN23015	-7		-0.09	1356	ISO3015	-3	C,R(0.01)	2.71
334	EN23015	-7.3		-0.30	1385	D2500	-6		0.61
335	D2500	-7		-0.09	1395		----		----
336	EN23015	-6		0.61	1397	D5771	-7		-0.09
337	D2500	-6.3		0.40	1409		----		----
338	EN23015	-7		-0.09	1417	IP444	-6		0.61
340	EN23015	-6		0.61	1428	EN23015	-7		-0.09
343	D2500	-7		-0.09	1430	D5771	-6.7		0.12
344	D2500	-6.2		0.47	1431		----		----
349		----		----	1498	D2500	-8		-0.79
353	IP219	-6		0.61	1512		----		----
356	D2500	-7		-0.09	1586	D5771	-7		-0.09
381		----		----	1588		----		----
431		----		----	1613	D2500	-7		-0.09
445	D2500	-6		0.61	1616		----		----
446		----		----	1629		----		----
447	D2500	-8		-0.79	1634		----		----
463	D2500	-8.0		-0.79	1635	D2500	-7		-0.09
485		----		----	1636	D2500	-7		-0.09
494	ISO3015	-8		-0.79	1650	D5771	-7		-0.09
496	D2500	-7.5		-0.44	1654		----		----
507	D2500	-6		0.61	1709		----		----
511		----		----	1720	D5771	-7.0		-0.09
541	D2500	-7		-0.09	1724	D2500	-5		1.31
557		----		----	1776	ISO3015	-7		-0.09
558		----		----	1796	D2500	-7		-0.09
562		----		----	1807	D2500	-6		0.61
604	D2500	-8		-0.79	1810	D2500	-7		-0.09
607		----		----	1811	D2500	-5.5		0.96
608		----		----	1813	D5773	-6.8		0.05
657	D5771	-6		0.61	1846		----		----
663	D2500	-7		-0.09	1849		----		----
671	D2500	-6	C	0.61	1857	D2500	-7		-0.09
732	D2500	-7		-0.09	1906		----		----
750		----		----	1914	D2500	-7		-0.09
759	D2500	-7		-0.09	1936		----		----
781	D2500	-6		0.61	1937		----		----
785	D5771	-8		-0.79	1938		----		----
823	D2500	-7		-0.09	1944	D2500	-7		-0.09
824	D2500	-7		-0.09	1953	D7683	-7		-0.09

825	D2500	-6	0.61	1984	EN23015	-8	-0.79
840	D2500	-7	-0.09	1986	D2500	-7	-0.09
854	D2500	-6	0.61	1992	D2500	-6	0.61
862	D2500	-5	1.31	2129	D2500	-8	-0.79
863	D2500	-8	-0.79	2146		----	----
875		----	----	6005		----	----
887	D2500	-7	-0.09	6009	D2500	-9.0	-1.49
902		----	----	6016		----	----
922	D2500	-6	0.61	9090		----	----
normality		OK					
n		121					
outliers		2					
mean (n)		-6.88					
st.dev. (n)		0.768					
R(calc.)		2.15					
R(D2500:11)		4.00					

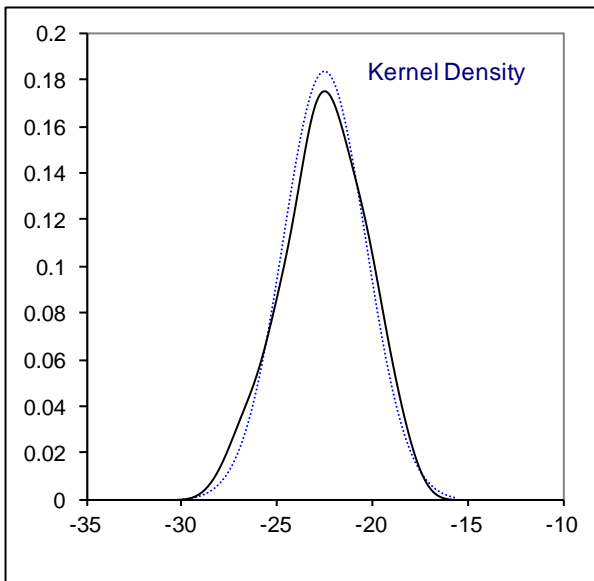
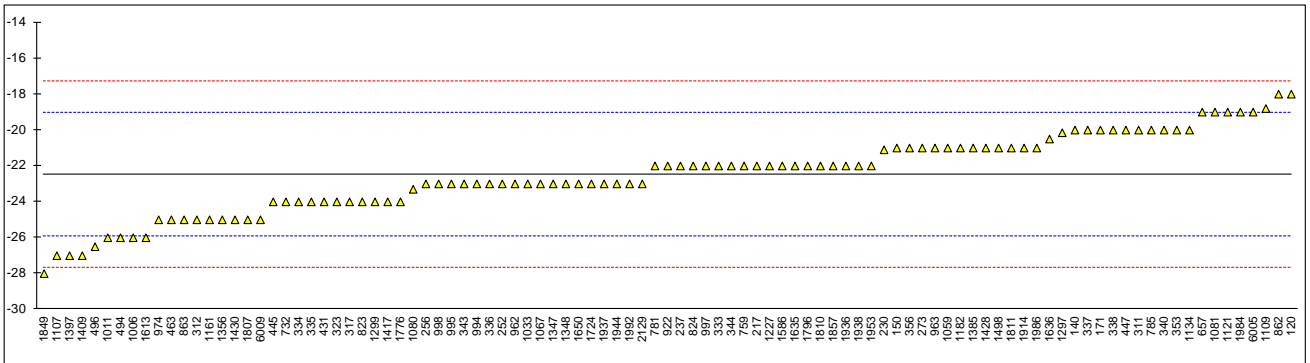
Lab 671: first reported -3
 Lab 1356: first reported 0



Determination of Cold Filter Plugging Point on sample #15175; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962	IP309	-23		-0.30
62		----		----	963	D6371	-21		0.85
92		----		----	970		----		----
120	D6371	-18		2.59	971		----		----
132		----		----	974	IP309	-25		-1.46
140	D6371	-20		1.43	982		----		----
150	D6371	-21.0		0.85	994	D6371	-23		-0.30
159		----		----	995	D6371	-23		-0.30
169		----		----	996		----		----
171	D6371	-20		1.43	997	IP309	-22		0.28
175		----		----	998	D6371	-23.0		-0.30
186		----		----	1006	D6371	-26		-2.04
194		----		----	1011	EN116	-26		-2.04
212		----		----	1033	IP309	-23		-0.30
217	D6371	-22		0.28	1059	EN116	-21		0.85
221		----		----	1067	IP309	-23		-0.30
224		----		----	1080	EN116	-23.3		-0.48
225		----		----	1081	EN116	-19		2.01
228		----		----	1090		----		----
230	IP309	-21.1		0.80	1107	IP309	-27		-2.61
237	D6371	-22		0.28	1109	IP309	-18.8		2.13
238		----		----	1121	IP309	-19.0		2.01
240		----		----	1126		----		----
242		----		----	1134	D6371	-20		1.43
252	IP309	-23		-0.30	1146		----		----
253		----		----	1161	EN116	-25		-1.46
254		----		----	1167		----		----
256	IP309	-23		-0.30	1182	EN116	-21		0.85
258		----		----	1186		----		----
273	IP309	-21		0.85	1213		----		----
311	EN116	-20		1.43	1227	EN116	-22		0.28
312	D6371	-25		-1.46	1297	D6371	-20.15		1.35
317	D6371	-24		-0.88	1299	IP309	-24		-0.88
323	D6371	-24		-0.88	1347	D6371	-23		-0.30
332		----		----	1348	D6371	-23		-0.30
333	EN116	-22		0.28	1356	D6371	-25		-1.46
334	EN116	-24		-0.88	1385	D6371	-21		0.85
335	D6371	-24		-0.88	1395		----		----
336	EN116	-23		-0.30	1397	D6371	-27		-2.61
337	EN116	-20.0		1.43	1409	EN116	-27		-2.61
338	EN116	-20		1.43	1417	IP309	-24		-0.88
340	EN116	-20		1.43	1428	EN116	-21		0.85
343	EN116	-23		-0.30	1430	EN116	-25		-1.46
344	EN116	-22		0.28	1431		----		----
349		----		----	1498	D6371	-21		0.85
353	IP309	-20		1.43	1512		----		----
356	D6371	-21		0.85	1586	D6371	-22		0.28
381		----		----	1588		----		----
431	EN116	-24		-0.88	1613	D6371	-26		-2.04
445	IP309	-24		-0.88	1616		----		----
446		----		----	1629		----		----
447	IP309	-20		1.43	1634		----		----
463	EN116	-25		-1.46	1635	EN116	-22		0.28
485		----		----	1636	D6371	-20.5		1.14
494	EN116	-26		-2.04	1650	EN116	-23		-0.30
496	D6371	-26.5		-2.33	1654		----		----
507		----		----	1709		----		----
511		----		----	1720		----		----
541	D6371	<-20		----	1724	IP309	-23		-0.30
557		----		----	1776	EN116	-24		-0.88
558		----		----	1796	D6371	-22		0.28
562		----		----	1807	D6371	-25		-1.46
604		----		----	1810	EN116	-22		0.28
607		----		----	1811	D6371	-21.0		0.85
608		----		----	1813		----		----
657	IP309	-19		2.01	1846		----		----
663		----		----	1849	EN116	-28		-3.19
671		----		----	1857	D6371	-22		0.28
732	D6371	-24		-0.88	1906		----		----
750		----		----	1914	EN116	-21		0.85
759	D6371	-22		0.28	1936	EN116	-22		0.28
781	D6371	-22		0.28	1937	EN116	-23		-0.30
785	D6371	-20		1.43	1938	EN116	-22		0.28
823	D6371	-24		-0.88	1944	D6371	-23		-0.30
824	D6371	-22		0.28	1953	EN116	-22		0.28

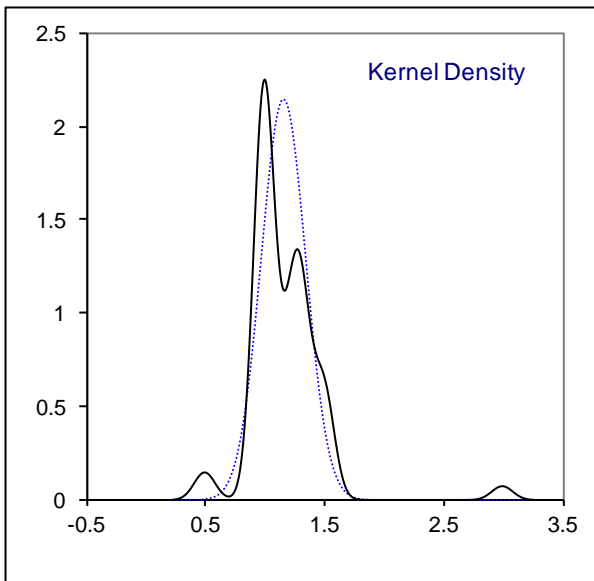
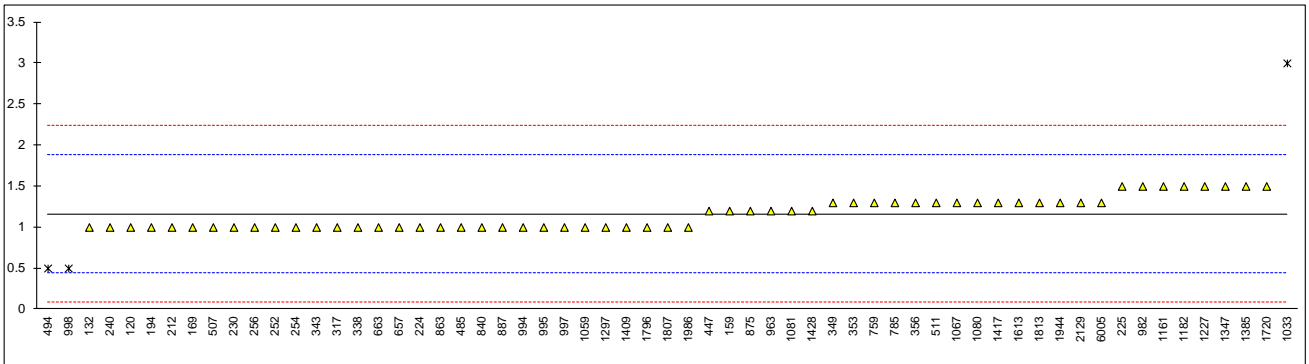
825		----	----	1984	EN116	-19	2.01
840		----	----	1986	EN116	-21	0.85
854		----	----	1992	D6371	-23	-0.30
862	D6371	-18	2.59	2129	EN116	-23	-0.30
863	IP309	-25	-1.46	2146		----	----
875		----	----	6005	EN116	-19.0	2.01
887		----	----	6009	EN116	-25.0	-1.46
902		----	----	6016		----	----
922	D6371	-22	0.28	9090		----	----
normality		OK					
n		99					
outliers		0					
mean (n)		-22.48					
st.dev. (n)		2.174					
R(calc.)		6.09					
R(D6371:05)		4.84					



Determination of Colour ASTM on sample #15175;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6045	<1.5		----	951	D1500	L1.0		----
53		----		----	962	D1500	L1.5		----
62	D1500	L1.5		----	963	D1500	1.2		0.11
92	D1500	L1.5		----	970	D1500	L1.0		----
120	D1500	1.0		-0.45	971	D1500	L1.0		----
132	D1500	1		-0.45	974	D1500	L1.0		----
140	D1500	L1.5		----	982	D1500	1.5		0.95
150	D6045	L1.5		----	994	D1500	1.0		-0.45
159	D6045	1.2		0.11	995	D1500	1.0		-0.45
169	D1500	1.0		-0.45	996		----		----
171	D1500	L1.5		----	997	D1500	1		-0.45
175		----		----	998	D1500	0.5	R(0.05)	-1.85
186		----		----	1006		----		----
194	D1500	1.0		-0.45	1011	D1500	L1.5		----
212	D1500	1.0		-0.45	1033	D1500	3.0	R(0.01)	5.15
217	D1500	<1.5		----	1059	D1500	1.0		-0.45
221	D1500	L1.0		----	1067	D6045	1.3		0.39
224	D1500	1.0		-0.45	1080	D1500	1.3		0.39
225	D1500	1.5		0.95	1081	D6045	1.2		0.11
228	D1500	L1.5		----	1090	D6045	<1.5		----
230	D1500	1.0		-0.45	1107	D1500	L1.5		----
237	D1500	L1.5		----	1109	D1500	L1.5		----
238		----		----	1121	D1500	<1.5		----
240	D1500	1.0		-0.45	1126		----		----
242		----		----	1134	D1500	<1.5		----
252	D1500	1.0		-0.45	1146		----		----
253	D1500	<1.5		----	1161	D6045	1.5		0.95
254	D1500	1.0		-0.45	1167		----		----
256	D1500	1.0		-0.45	1182	D1500	1.5		0.95
258		----		----	1186		----		----
273	D1500	<1.0		----	1213	D1500	L1.0		----
311	D1500	L1.0		----	1227	D1500	1.5		0.95
312	D6045	<1.5		----	1297	D1500	1.0		-0.45
317	D1500	1.0		-0.45	1299	D6045	L1.5		----
323	D1500	L1.5		----	1347	D1500	1.5		0.95
332		----		----	1348		----		----
333		----		----	1356		----		----
334	D1500	L1.0		----	1385	D1500	1.5		0.95
335		----		----	1395		----		----
336	D1500	L1.0		----	1397		----		----
337	D1500	L1.5		----	1409	D1500	1		-0.45
338	D1500	1.0		-0.45	1417	D6045	1.3		0.39
340	D1500	L1.5		----	1428	D6045	1.2		0.11
343	D1500	1		-0.45	1430	D1500	L1.5		----
344	D1500	<1.5		----	1431		----		----
349	D6045	1.3		0.39	1498		----		----
353	D6045	1.3		0.39	1512		----		----
356	D1500	1.3		0.39	1586		----		----
381		----		----	1588		----		----
431		----		----	1613	D1500	1.3		0.39
445	D1500	<1.5		----	1616		----		----
446	D1500	L1.5		----	1629		----		----
447	D6045	1.2		0.11	1634		----		----
463	D1500	<1.5		----	1635	D1500	L1.5		----
485	D1500	1.0		-0.45	1636	D1500	L1.5		----
494	D1500	0.5	R(0.05)	-1.85	1650		----		----
496	D1500	L1.5		----	1654		----		----
507	D1500	1.0		-0.45	1709		----		----
511	D6045	1.3		0.39	1720	D1500	1.5		0.95
541	D1500	L1.0		----	1724		----		----
557		----		----	1776		----		----
558		----		----	1796	D1500	1.0		-0.45
562		----		----	1807	D1500	1		-0.45
604	D1500	L1.5		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813	D6045	1.3		0.39
657	D1500	1.0		-0.45	1846		----		----
663	D1500	1.0		-0.45	1849		----		----
671		----		----	1857	D1500	L1.0		----
732	D1500	L1.5		----	1906		----		----
750		----		----	1914	D1500	<1.5		----
759	D6045	1.3		0.39	1936		----		----
781	D1500	L1.5		----	1937		----		----
785	D1500	1.3		0.39	1938		----		----
823	D1500	L0.5		----	1944	D1500	1.3		0.39
824	D1500	L1.5		----	1953		----		----

825		----		----	1984		----		----
840	D1500	1.0		-0.45	1986	D1500	1.0		-0.45
854	D1500	L1.0		----	1992		----		----
862	D1500	L1.0		----	2129	D6045	1.3		0.39
863	D1500	1.0		-0.45	2146		----		----
875	D6045	1.2		0.11	6005	D1500	1.3		0.39
887	D1500	1.0		-0.45	6009	D1500	L1.0		----
902	D1500	L1.5		----	6016		----		----
922	D1500	L1.5		----	9090		----		----
	normality	OK			<u>Only D6045</u>				
	n	58				not OK			
	outliers	3				14			
	mean (n)	1.16				1.28			
	st.dev. (n)	0.186				0.080			
	R(calc.)	0.52				0.22			
	R(D1500:12)	1.00				1.00			

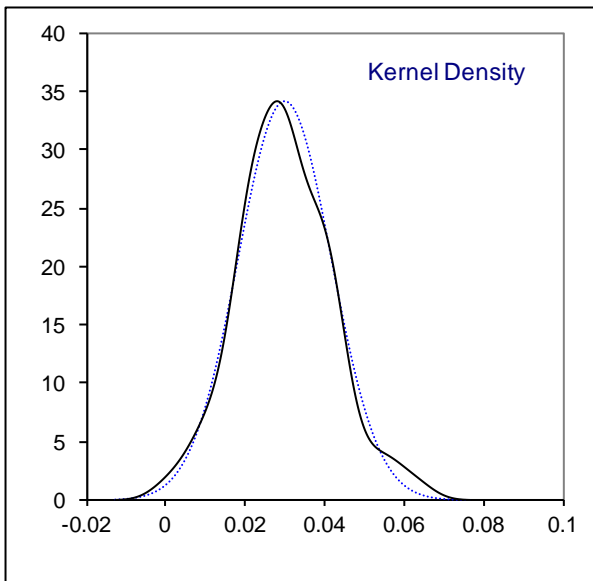
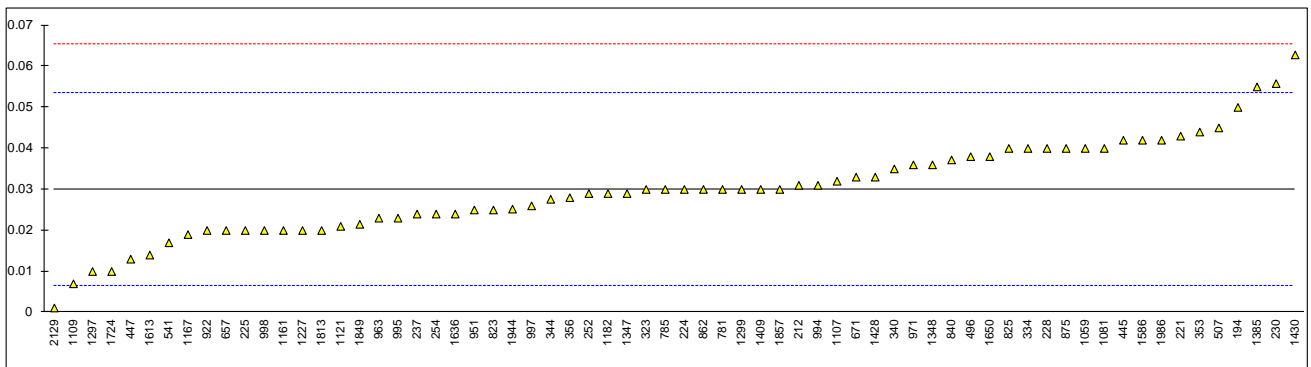


Determination of Conradson Carbon Residue on 10% residue on sample #15175; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	<0.1		----	951	D189	0.025		-0.42
53		----		----	962		----		----
62		----		----	963	D189	0.023		-0.59
92	D4530	<0.05		----	970		----		----
120		----		----	971	D189	0.036		0.51
132		----		----	974		----		----
140		----		----	982		----		----
150		----		----	994	D189	0.031		0.09
159		----		----	995	D189	0.023		-0.59
169		----		----	996		----		----
171		----		----	997	D189	0.026		-0.34
175		----		----	998	D189	0.02		-0.84
186		----		----	1006		----		----
194	D4530	0.05		1.70	1011	ISO10370	<0.05		----
212	ISO10370	0.031		0.09	1033		----		----
217		----		----	1059	ISO10370	0.04		0.85
221	D189	0.043		1.10	1067		----		----
224	D189	0.03		0.00	1080		----		----
225	D4530	0.02		-0.84	1081	ISO10370	0.04		0.85
228	D189	0.04		0.85	1090		----		----
230	D189	0.0558		2.19	1107	D4530	0.032		0.17
237	D189	0.024		-0.50	1109	D4530	0.007		-1.94
238		----		----	1121	IP398	0.021		-0.76
240		----		----	1126		----		----
242		----		----	1134		----		----
252	D4530	0.029		-0.08	1146		----		----
253		----		----	1161	ISO10370	0.02		-0.84
254	D189	0.024		-0.50	1167	ISO10370	0.019		-0.93
256		----		----	1182	ISO10370	0.029		-0.08
258		----		----	1186		----		----
273	D4530	<0.01		----	1213	D4530	<0.1		----
311		----		----	1227	D4530	0.02		-0.84
312		----		----	1297	D4530	0.010		-1.69
317	D4530	<0.10		----	1299	D4530	0.03		0.00
323	D4530	0.03		0.00	1347	D189	0.029		-0.08
332		----		----	1348	D189	0.036		0.51
333		----		----	1356		----		----
334	ISO10370	0.04		0.85	1385	D4530	0.055		2.12
335		----		----	1395		----		----
336		----		----	1397		----		----
337		----		----	1409	ISO10370	0.03		0.00
338		----		----	1417		----		----
340	ISO10370	0.035		0.43	1428	ISO10370	0.033		0.26
343	D4530	<0.1		----	1430	D189	0.0628		2.78
344	D4530	0.0276		-0.20	1431		----		----
349		----		----	1498		----		----
353	IP13	0.044		1.19	1512		----		----
356	D189	0.028		-0.17	1586	D189	0.042		1.02
381		----		----	1588		----		----
431		----		----	1613	D189	0.014		-1.35
445	D189	0.042		1.02	1616		----		----
446		----		----	1629		----		----
447	IP398	0.013		-1.44	1634		----		----
463		----		----	1635	D4530	<0.01		----
485		----		----	1636	ISO10370	0.024		-0.50
494	D4530	<0.1		----	1650	D189	0.038		0.68
496	D4530	0.0380		0.68	1654		----		----
507	D4530	0.045		1.27	1709		----		----
511		----		----	1720		----		----
541	D189	0.017		-1.10	1724	D4530	0.01		-1.69
557		----		----	1776		----		----
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813	D4530	0.02		-0.84
657	D4530	0.02		-0.84	1846		----		----
663		----		----	1849	ISO10370	0.0215		-0.72
671	D4530	0.033		0.26	1857	D4530	0.03		0.00
732		----		----	1906		----		----
750		----		----	1914	D4530	<0.10		----
759		----		----	1936		----		----
781	D4530	0.030		0.00	1937		----		----
785	D4530	0.03		0.00	1938		----		----
823	D189	0.025		-0.42	1944	D189	0.0252		-0.40
824		----		----	1953		----		----

825	D4530	0.04	0.85	1984	----	----
840	D189	0.0372	0.61	1986	D4530	0.042
854	D4530	<0.1	----	1992	----	1.02
862	D4530	0.03	0.00	2129	ISO10370	0.0011
863	D4530	<0.1	----	2146	----	----
875	D4530	0.04	0.85	6005	----	----
887		----	----	6009	----	----
902	D4530	<0.1	----	6016	----	----
922	D189	0.020	-0.84	9090	----	----

normality OK
 n 66
 outliers 0
 mean (n) 0.0300
 st.dev. (n) 0.01167
 R(calc.) 0.0327
 R(D189:06e1) 0.0331

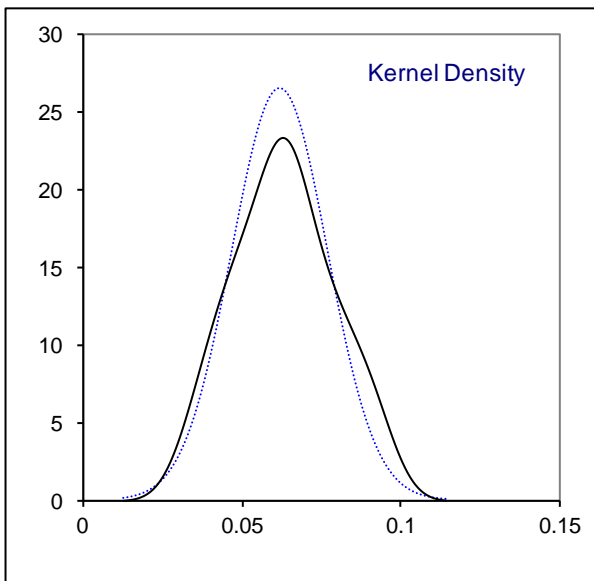
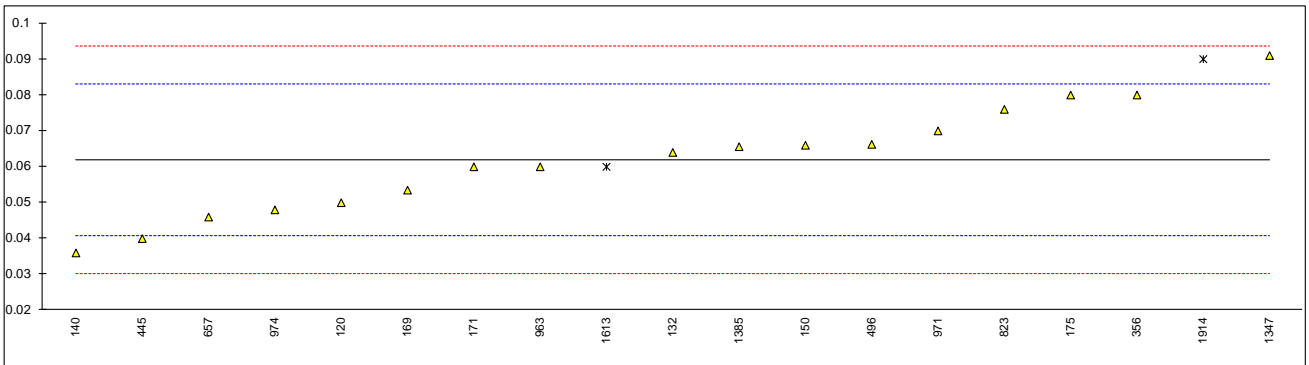


Determination of Ramsbottom Carbon Residue on 10% residue on sample #15175; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963	D524	0.060		-0.18
92		----		----	970		----		----
120	D524	0.05		-1.13	971	D524	0.07		0.77
132	D524	0.064		0.20	974	D524	0.048		-1.32
140	D524	0.036		-2.45	982		----		----
150	D524	0.066		0.39	994		----		----
159		----		----	995		----		----
169	D524	0.0535		-0.80	996		----		----
171	D524	0.06		-0.18	997		----		----
175	D524	0.08		1.71	998		----		----
186		----		----	1006		----		----
194		----		----	1011		----		----
212		----		----	1033		----		----
217		----		----	1059		----		----
221		----		----	1067		----		----
224		----		----	1080		----		----
225		----		----	1081		----		----
228		----		----	1090		----		----
230		----		----	1107		----		----
237		----		----	1109		----		----
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134		----		----
252		----		----	1146		----		----
253		----		----	1161		----		----
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213		----		----
311		----		----	1227		----		----
312		----		----	1297		----		----
317		----		----	1299		----		----
323		----		----	1347	D524	0.091		2.76
332		----		----	1348		----		----
333		----		----	1356		----		----
334		----		----	1385	D524	0.0656		0.35
335		----		----	1395		----		----
336		----		----	1397		----		----
337		----		----	1409		----		----
338		----		----	1417		----		----
340		----		----	1428		----		----
343		----		----	1430		----		----
344		----		----	1431		----		----
349		----		----	1498		----		----
353		----		----	1512		----		----
356	D524	0.08		1.71	1586		----		----
381		----		----	1588		----		----
431		----		----	1613	D189	0.06	ex, see §4.1	-0.18
445	D524	0.04		-2.07	1616		----		----
446		----		----	1629		----		----
447		----		----	1634		----		----
463	ISO10370	<0.10	ex, see §4.1	----	1635		----		----
485		----		----	1636		----		----
494		----		----	1650		----		----
496	D524	0.06625		0.41	1654		----		----
507		----		----	1709		----		----
511		----		----	1720		----		----
541		----		----	1724		----		----
557		----		----	1776		----		----
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813		----		----
657	D524	0.046		-1.51	1846		----		----
663		----		----	1849		----		----
671		----		----	1857		----		----
732		----		----	1906		----		----
750		----		----	1914	D189	0.09	ex, see §4.1	2.66
759		----		----	1936		----		----
781		----		----	1937		----		----
785		----		----	1938		----		----
823	D524	0.076		1.33	1944		----		----
824		----		----	1953		----		----

825	----	----	1984	----	----
840	----	----	1986	----	----
854	----	----	1992	----	----
862	----	----	2129	----	----
863	----	----	2146	----	----
875	----	----	6005	----	----
887	----	----	6009	----	----
902	----	----	6016	----	----
922	----	----	9090	----	----

normality OK
 n 17
 outliers 0 + 2 excl.
 mean (n) 0.0619
 st.dev. (n) 0.01508
 R(calc.) 0.0422
 R(D524:10) 0.0296



Determination of Copper Corrosion (3 hrs at 50°C) on sample #15175;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1A		----	951	D130	1		----
53		----		----	962	D130	1A		----
62	D130	1A		----	963	D130	1A		----
92	D130	1A		----	970	D130	1A		----
120	D130	1A		----	971	D130	1A		----
132	D130	1A		----	974	D130	1A		----
140	D130	1A		----	982		----		----
150	D130	1A		----	994	D130	1A		----
159	D130	1A		----	995	D130	1A		----
169	D130	1A		----	996		----		----
171	D130	1A		----	997		----		----
175	D130	1A		----	998	D130	1A		----
186		----		----	1006	D130	1A		----
194		----		----	1011	D130	1A		----
212	D130	1A		----	1033	IP154	1A		----
217	D130	1a		----	1059	D130	1A		----
221	D130	1A		----	1067	D130	1A		----
224	D130	1A		----	1080		----		----
225	D130	1A		----	1081	D130	1A		----
228	D130	1A		----	1090	ISO2160	1		----
230	D130	1A		----	1107	D130	1A		----
237	D130	1A		----	1109	D130	1A		----
238		----		----	1121	D130	1A		----
240	D130	1A		----	1126		----		----
242		----		----	1134	D130	1B		----
252	D130	1A		----	1146		----		----
253	D130	1A		----	1161	D130	1A		----
254	D130	1A		----	1167		----		----
256	D130	1A		----	1182	D130	1A		----
258		----		----	1186	D130	1A		----
273	D130	1A		----	1213	D130	1A		----
311	D130	1A		----	1227	D130	1A		----
312	D130	1A		----	1297	D130	1A		----
317	D130	1A		----	1299	D130	1A		----
323	D130	1A		----	1347	D130	1A		----
332		----		----	1348	D130	1A		----
333		----		----	1356		----		----
334	D130	1A		----	1385		----		----
335		----		----	1395		----		----
336	D130	1		----	1397	D130	1		----
337	D130	1B		----	1409	D130	1A		----
338		----		----	1417	IP154	1B		----
340	D130	1A		----	1428	ISO2160	1A		----
343	D130	1A		----	1430	D130	1A		----
344	D130	1A		----	1431		----		----
349		----		----	1498		----		----
353	IP154	1A		----	1512		----		----
356	D130	1A		----	1586	D130	1A		----
381		----		----	1588		----		----
431		----		----	1613	D130	1A		----
445	D130	1A		----	1616		----		----
446	D130	1A		----	1629		----		----
447	D130	1A		----	1634	D130	1A		----
463	D130	1A		----	1635	D130	1A		----
485	ISO2160	1		----	1636	D130	1A		----
494	D130	1A		----	1650	D130	1A		----
496	D130	1A		----	1654	ISO2160	1A		----
507	D130	1A		----	1709		----		----
511	D130	1A		----	1720		----		----
541	D130	1A		----	1724	D130	1A		----
557		----		----	1776		----		----
558		----		----	1796	D130	1A		----
562		----		----	1807	D130	1A		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608	D130	1A		----	1813	D130	1A		----
657	D130	1A		----	1846		----		----
663	D130	1A		----	1849	ISO2160	1A		----
671	D130	1A		----	1857	D130	1A		----
732		----		----	1906		----		----
750		----		----	1914	D130	1A		----
759		----		----	1936		----		----
781	D130	1A		----	1937		----		----
785		----		----	1938		----		----
823	D130	1A		----	1944	D130	1A		----
824	D130	1A		----	1953	ISO2160	1A		----

825	D130	1A	-----	1984		-----	-----
840	D130	1A	-----	1986	D130	1A	-----
854	D130	1A	-----	1992			-----
862	D130	1A	-----	2129	ISO2160	1A	-----
863	D130	1A	-----	2146			-----
875	D130	1A	-----	6005	ISO2160	1A	-----
887	D130	1A	-----	6009	D130	1A	-----
902		-----	-----	6016			-----
922	D130	1A	-----	9090			-----
n		116					
mean (n)		1(A)					

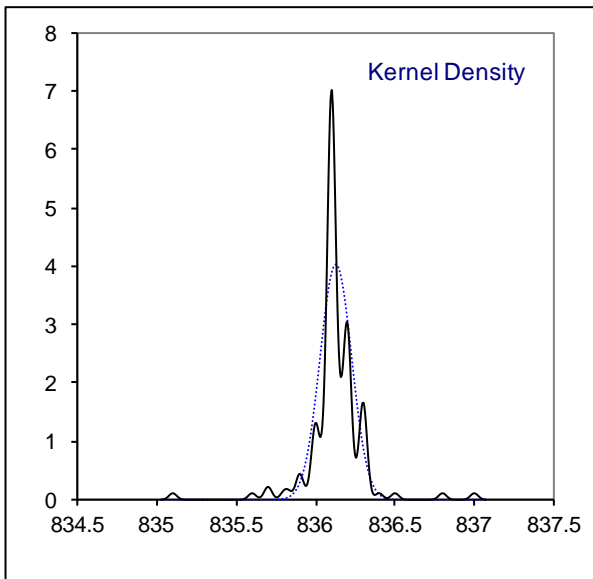
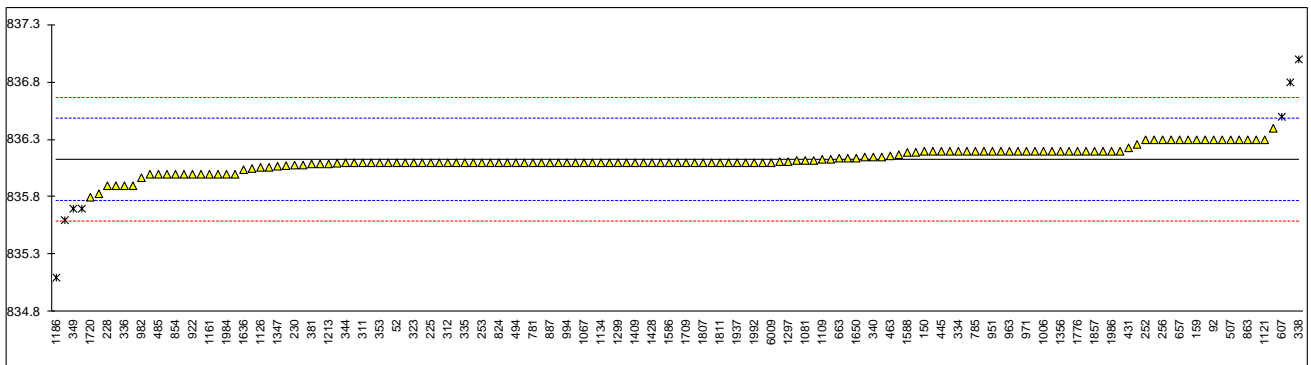
Determination of Density at 15 °C on sample #15175; result in kg/m³

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	836.1		-0.15	951	D1298	836.2		0.41
53	D4052	836.1		-0.15	962	D4052	836.2		0.41
62	D4052	836.1		-0.15	963	D4052	836.2		0.41
92	D4052	836.3		0.97	970	D4052	836.2		0.41
120	D4052	835.9		-1.27	971	D4052	836.2		0.41
132	D4052	836.26		0.74	974	D1298	836.1		-0.15
140	D4052	836.2		0.41	982	D4052	835.97		-0.88
150	D4052	836.2		0.41	994	D4052	836.1		-0.15
159	D4052	836.3		0.97	995	D4052	836.1		-0.15
169	D4052	836.3		0.97	996		----		----
171	D4052	836		-0.71	997	D4052	836.2		0.41
175	D4052	836.1		-0.15	998	D4052	835.9		-1.27
186	D4052	836.8	R(0.01)	3.77	1006	D4052	836.2		0.41
194		----		----	1011	ISO12185	836.2		0.41
212	ISO12185	836.3		0.97	1033	IP365	836.3		0.97
217	D4052	836.1		-0.15	1059	ISO12185	836.0		-0.71
221	D4052	836.1		-0.15	1067	D4052	836.1		-0.15
224	D1298	835.83		-1.67	1080	D4052	836.1		-0.15
225	D4052	836.1		-0.15	1081	D4052	836.12		-0.04
228	D1298	835.9		-1.27	1090		----		----
230	ISO12185	836.08		-0.27	1107	D4052	836.14		0.07
237	D4052	836.0	C	-0.71	1109	D4052	836.13		0.01
238		----		----	1121	D4052	836.3		0.97
240	D4052	836.15		0.13	1126	D4052	836.06		-0.38
242		----		----	1134	IP365	836.1		-0.15
252	D1298	836.3		0.97	1146	D4052	836.06		-0.38
253	D4052	836.1		-0.15	1161	ISO12185	836.0		-0.71
254	D4052	836.3		0.97	1167		----		----
256	D4052	836.3		0.97	1182	ISO12185	836.075		-0.29
258		----		----	1186	D1298	835.1	R(0.01)	-5.75
273	D4052	836.2		0.41	1213	D4052	836.09		-0.21
311	D4052	836.1		-0.15	1227	D4052	836.1		-0.15
312	D4052	836.1		-0.15	1297	D4052	836.11		-0.10
317	D4052	836.1		-0.15	1299	D4052	836.1		-0.15
323	D4052	836.1		-0.15	1347	D4052	836.07		-0.32
332	ISO12185	836.08		-0.27	1348	D4052	836.1		-0.15
333	D4052	836.1		-0.15	1356	ISO12185	836.2		0.41
334	D4052	836.2		0.41	1385	D4052	836.2		0.41
335	D4052	836.1		-0.15	1395		----		----
336	D4052	835.9		-1.27	1397		----		----
337	D4052	836.2		0.41	1409	ISO12185	836.1		-0.15
338	D4052	837	R(0.01)	4.89	1417	IP365	836.1		-0.15
340	D4052	836.15		0.13	1428	ISO12185	836.1		-0.15
343	D4052	836.3		0.97	1430	D4052	836.1		-0.15
344	D4052	836.1		-0.15	1431		----		----
349	D4052	835.7	R(0.01)	-2.39	1498	D1298	835.6	R(0.01)	-2.95
353	IP365	836.1		-0.15	1512		----		----
356	D4052	836.1		-0.15	1586	D4052	836.1		-0.15
381	ISO12185	836.09		-0.21	1588	ISO12185	836.19		0.35
431	ISO12185	836.23		0.57	1613	D4052	836.0		-0.71
445	D4052	836.2		0.41	1616		----		----
446	D4052	835.7	R(0.01)	-2.39	1629		----		----
447	D4052	836.0		-0.71	1634	ISO12185	836.096		-0.18
463	D4052	836.16		0.18	1635	ISO12185	836.1		-0.15
485	D4052	836.0		-0.71	1636	D4052	836.04		-0.49
494	D4052	836.1		-0.15	1650	D4052	836.14		0.07
496	D4052	836.09		-0.21	1654		----		----
507	D4052	836.30		0.97	1709	D4052	836.1		-0.15
511	D4052	836.15		0.13	1720	D4052	835.8		-1.83
541	D4052	836.1		-0.15	1724	D4052	836.1		-0.15
557		----		----	1776	ISO12185	836.2		0.41
558		----		----	1796	D4052	836.13		0.01
562		----		----	1807	D4052	836.1		-0.15
604	D4052	836.17		0.24	1810	ISO12185	836.1		-0.15
607	D1298	836.5	R(0.05)	2.09	1811	D4052	836.1		-0.15
608	D4052	836.4		1.53	1813	D4052	836.2		0.41
657	D4052	836.3		0.97	1846		----		----
663	D4052	836.14		0.07	1849	ISO12185	836.191		0.36
671	D4052	836.3		0.97	1857	D4052	836.2		0.41
732	D4052	836.1		-0.15	1906		----		----
750		----		----	1914	D4052	836.1		-0.15
759	D4052	836.05		-0.43	1936	ISO12185	836.12		-0.04
781	D4052	836.1		-0.15	1937	ISO12185	836.1		-0.15
785	D4052	836.2		0.41	1938	ISO12185	836.2		0.41
823	D4052	836.11		-0.10	1944	D4052	836.1		-0.15
824	D4052	836.1		-0.15	1953		----		----

825	D4052	836.1	-0.15	1984	ISO12185	836.0	-0.71
840	D4052	836.12	-0.04	1986	D4052	836.2	0.41
854	D4052	836.0	-0.71	1992	D1298	836.1	-0.15
862	D4052	836.10	-0.15	2129	D4052	836.0	-0.71
863	D4052	836.3	0.97	2146	ISO12185	836.1	-0.15
875	D4052	836.3	0.97	6005	ISO12185	836.2	0.41
887	D4052	836.1	-0.15	6009	D4052	836.10	-0.15
902	D4052	836.2	0.41	6016	----	----	----
922	D4052	836.0	-0.71	9090	----	----	----

normality suspect
 n 140
 outliers 7
 mean (n) 836.13
 st.dev. (n) 0.099
 R(calc.) 0.28
 R(D4052:11) 0.50

Lab 237 probably unit error, reported 0.8360 kg/m³



Determination of Distillation on sample #15175; result in °C

lab	method	mode	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52	D86	Auto	171.1		208.5		273.8		331.9		345.9		356.1	
53			----		----		----		----		----		----	
62	D86	Auto	167.9		209.6		275.2		337.3		354.5	C	358.9	
92	D86	Auto	173.8		213.1		275.2		333.4		347.1		358.9	
120	D86	Auto	170.6		209.8		274.2		334.4		352.1		357.8	
132	D86	Auto	161.2		208.2		272.1		334.0		350.5		357.6	
140	D86	Auto	168.9		209.6		273.0		333.5		348.6		358.1	
150	D86	Auto	164.0		208.6		272.5		332.7		347.3		358.4	
159	D86	Auto	168.6		211.9		275.6		333.9		348.2		357.4	
169	D86	Auto	164.7	C	209.0	C	274.0	C	334.4	C	349.5	C	354.8	C
171	D86	Auto	170.5		210.5		273.5		333.0		346.9		357.5	
175	D86	Auto	168.2		207.0		273.0		334.7		351.1		357.4	
186			----		----		----		----		----		----	
194	D86		163.2		209.4		273.6		337.8		----		358.4	
212	D86	Auto	168.5		211.9		274.5		337.1		351.5		360.0	
217	D86	Auto	169.8		209.7		273.6		333.4		348.3		357.8	
221	D86	Man	164.0		208.0		272.0		333.0		349.0		359.0	
224	D86	Man	169.90		205.93		272.49		334.55		349.56		357.57	
225	D86	Man	173.0		209.0		273.0		332.5		346.0		353.5	
228	D86	Man	175.0		210.0		273.0		334.0		348.0		358.0	
230	D86	Auto	168.5		208.9		273.5		334.8		350.3		360.2	
237	D86	Man	168.0		205.0		271.5		331.0		344.0		358.0	
238			----		----		----		----		----		----	
240	D86	Man	171.0		206.0		273.0		333.0		347.0		350.0	R(1)
242			----		----		----		----		----		----	
252	D86	Man	171.0		209.0		273.0		333.0		----		358.0	
253	D86	Man	170.0		210.0		274.5		334.5		349.0		358.0	
254	D86	Man	171		207		273		334		350		357	
256	D86	Man	171.0		208.0		272.0		334.0		----		357.0	
258			----		----		----		----		----		----	
273	D86	Auto	166.9		207.7		272.4		332.8		347.3		354.0	C
311	D86	Auto	165.9		207.9		273.0		333.8		348.6		358.1	
312	D86	Auto	167.7		210.0		274.6		333.8		348.4		356.9	
317	D86	Auto	170.0		210.3		274.5		334.1		349.2		358.3	
323	D86	Auto	169.5		211.8		274.8		335.0		351.6		356.8	
332			----		----		----		----		----		----	
333	D86	Auto	166.3		208.7		272.9		333.0		348.1		358.9	
334	D86	Auto	168.8		208.4		273.5		334.3		349.0		358.6	
335	D86	Auto	167.8		210.4		275.3		337.8		356.2		361.8	
336	D86	Auto	166.3		208.2		272.9		333.2		347.4		360.1	
337			----		----		----		----		----		----	
338	D86	Auto	173		212		275		336		353		360	
340	D86	Auto	166.0		208.1		272.6		332.7		348.6		356.3	
343	D86	Auto	166.6		209.5		273.4		334.9		349.0		357.9	
344	D86	Auto	173.1		210.8		272.8		330.9		343.4		352.9	
349			----		----		----		----		----		----	
353	IP123	Auto	169.1		209.3		275.4		337.2		354.9		361.9	
356	D86	Auto	170.5		212.0		274.8		335.9		352.5		360.1	
381	ISO3405	Auto	167.3		209.8		273.2		333.5		348.3		359.8	
431	D86	Auto	162.3		207.9		273.9		333.9		350.1		355.7	
445	D86	Auto	167.9		209.2		273.2		333.3		349.2		358.0	
446	D86	Auto	165.5		207.0		273.5		334.4		349.1		354.9	
447	D86	Auto	163.9		208.6		273.1		333.0		346.9		357.7	
463	D86	Auto	170.4		210.0		274.1		335.5		350.2		361.0	
485	D86	Auto	168.2		209.9		273.55		332.5		346.1		355.75	
494	D86	Auto	161.3		209.2		273.0		332.3		346.3		357.6	
496	D86	Auto	168.6		207.2		272.3		331.9		346.4		356.0	
507	D86	Man	172.40		211.50		274.50		336.60		347.60		357.60	
511	D86	Man	169.0		206.8		270.5		332.0		347.1		356.8	
541	D86	Auto	169.6		209.6		273.9		333.9		349.3		358.9	
557			----		----		----		----		----		----	
558			----		----		----		----		----		----	
562			----		----		----		----		----		----	
604	D86	Auto	169.3		210.4		274.0		334.1		348.8		356.5	
607			----		----		----		----		----		----	
608	D86	Auto	167.6		207.3		272.8		332.1		345.8		357.7	
657	D86	Auto	169.4	C	212.1	C	274.5	C	333.0	C	346.9	C	358.0	C
663	D86	Auto	169.4		210.4		273.8		332.8		347.0		357.2	
671	D86	Auto	166.8		212.3		275.4		331.7	C	----		354.8	
732	D86	Man	171.0		208.0		273.0		333.5		348.0		359.5	
750			----		----		----		----		----		----	
759	D86	Auto	166.5		209.0		274.5		336.5		351.5		362.5	
781	D86	Auto	167.7		210.3		273.6		334.3		350.1		358.6	
785	D86	Auto	168.0		210.4		274.4		334.6		349.4		360.1	
823	D86	Auto	169.4		209.8		274.2		331.1		346.2		355.4	
824	D86	Auto	168.9		210.4		274.1		333.8		347.7		357.6	

825	D86	Auto	169.1	211.6		274.5	335.1	351.1	359.5		
840	D86	Auto	166.71	209.47		273.21	333.19	347.62	357.72		
854	D86	Man	170.1	210.5		274.1	334.1	348.5	358.9		
862	D86	Auto	162.0	207.6		273.1	333.2	348.0	358.4		
863	D86	Man	173.0	209.0		274.5	334.5	349.0	360.0		
875	D86	Auto	170.3	211.4		273.9	333.4	349.4	358.8		
887	D86		171.0	209.0		271.0	332.0	347.5	352.5		
902	D86	Man	168.4	210.2		276.0	336.5	351.5	364.0		
922	D86	Man	173.0	208.0		272.0	333.0	350.0	359.0		
951	D86	Man	171.03	208.95		273.42	333.69	348.65	359.33		
962		Man	----	----		----	----	----	----		
963	D86	Auto	166.4	210.5		274.1	332.9	347.0	357.6		
970	D86	Man	165.0	207	C	273.0	334.0	348.0	359.0		
971	D86	Auto	170.0	210.1		274.2	334.0	349.2	359.2		
974	D86	Autom	171.5	210.1		274.9	335.3	351.7	359.6		
982	D86	Man	169.9	207.0		274.0	333.0	344.0	362.1		
994	D86	Man	171.5	208.0		273.5	333.0	348.0	359.5		
995	D86	Man	168.5	207.0		273.0	333.0	349.0	357.0		
996			----	----		----	----	----	----		
997	D86	Man	168	206.5	C	272	333.5	348.5	357.5		
998	D86	Man	169.5	207.0		272.0	332.5	348.0	358.0		
1006	D86	Auto	168.7	209.1		274.1	333.6	346.8	359.7		
1011	ISO3405	Auto	168.6	212.3		274.4	333.9	349.2	360.5		
1033			----	----		----	----	----	----		
1059	ISO3405		171.4	209.8		273.7	332.1	346.6	355.7		
1067	D86	Auto	170.7	211.5		274.5	334.4	348.6	358.9		
1080			----	----		----	----	----	----		
1081	D86	Auto	166.1	209.1		272.9	333.1	346.0	359.4		
1090			----	----		----	----	----	----		
1107	D86	Auto	169.4	210.9		273.5	333.4	348.4	354.8		
1109	D86	Auto	170.4	210.6		274.3	334.4	349.5	357.8		
1121	IP123	Man	165.0	197.0	C,R(1)	271.0	C	331.5	C	349.1	359.6
1126	in house	Auto	172.6	212.7		275.3	336.9	351.3	364.5		
1134	IP123	Auto	163.1	204.7		273.7	334.5	349.3	360.7		
1146	D86	Auto	169.2	208.4		274.3	335.3	350.1	360.9		
1161	D86	Auto	167.5	208.6		273.2	331.6	347.5	356.5		
1167			----	----		----	----	----	----		
1182	D86	Auto	170.7	210.7		274.5	336.4	345.4	361.3		
1186	D86	Man	160.22	204.30		272.56	335.87	350.87	360.20		
1213	D86	Auto	169.8	210.2		273.6	333.0	348.4	356.3		
1227	D86	Auto	172.4	211.0		274.8	334.2	348.4	359.6		
1297	D86	Auto	163.7	209.1		272.9	332.5	346.2	355.9		
1299	D86	Auto	170.8	208.9		273.4	333.6	348.4	357.1		
1347	D86		172	210		274	335	350	361		
1348	D86	Auto	171.1	205.5		271.5	332.9	346.5	360.3		
1356	ISO3405	Man	168	205	C	283	C,R(1)	335	348	358	C
1385	D86	Manl	170	205		275	335	348	357		
1395			----	----		----	----	----	----		
1397	D86	Auto	174.7	212.6		274.5	334.5	350.4	360.4		
1409	ISO3405	Auto	167.4	208.8		271.9	333.6	348.5	358.3		
1417	D86	Auto	169.5	212.5		276.6	337.2	355.5	360.2		
1428	ISO3405	Auto	170.6	210.1		273.3	332.8	347.3	357.7		
1430	D86	Auto	169.5	210.1		274.8	335.5	352.2	361.0		
1431			----	----		----	----	----	----		
1498	D86		166.3	210.3		274.7	336.2	352.9	360.8		
1512			----	----		----	----	----	----		
1586	D86		167.8	208.5		272.2	332.4	346.6	358.2		
1588			----	----		----	----	----	----		
1613	D86	Auto	170.3	210.2		274.3	335.0	350.2	360.2		
1616			----	----		----	----	----	----		
1629			----	----		----	----	----	----		
1634	ISO3405	Auto	167.9	209.8		274.0	333.7	348.1	359.2		
1635	D86	Man	169.0	204.0		273.0	334.0	349.0	358.0		
1636	D86	Auto	167.3	210.3		273.45	333.4	347.2	358.55		
1650	D86	Auto	171.2	207.1		273.2	334.1	349.0	360.7		
1654			----	----		----	----	----	----		
1709	D86		170.8	210.3		274.3	333.7	347.0	356.1		
1720	D86	Auto	166.9	209.2		274.7	C	335.8	352.2	----	
1724	D86	Auto	166.3	209.6		273.2	333.3	348.4	358.0		
1776	ISO3405	Auto	161.0	207.5		272.0	332.5	346.7	355.9		
1796	D86	Auto	168.2	210.4		273.9	334.2	350.3	358.5		
1807	D86	Auto	172.2	210.0		273.2	333.6	347.9	359.8		
1810	D86	Auto	168.8	210.0		273	331.9	345.0	356.2		
1811	D86	Auto	167.8	207.0		272.1	332.4	345.9	357.8		
1813	D86	Auto	165.12	209.45		273.60	332.82	346.37	----		
1846			----	----		----	----	----	----		
1849	ISO3405	Auto	167.3	209.7		273.2	332.8	346.8	359.7		
1857	D86		168.3	209.4		273.2	333.6	349.5	358.6		
1906			----	----		----	----	----	----		
1914	D86	Man	171.5	209.5		271.5	331.0	344.0	360.0		

1936	ISO3405	Auto	169.4	207.5		272.6	332.0	345.4	357.9
1937	ISO3405	Auto	167.3	206.1		272.0	332.0	345.5	356.8
1938	ISO3405	Auto	161.9	206.7		272.1	332.8	347.7	357.0
1944	D86	Man	169.9	208.9		272.5	334.5	348.2	358.9
1953	ISO3405	Auto	164.5	201.9	C,R(5)	271.0	332.9	347.0	356.6
1984	ISO3405	Auto	172.2	211.3		270.9	331.7	346.8	355.0
1986	D86	Man	168.0	208.5		274.0	332.5	347.0	359.0
1992	D86	Man.	167.05	207.228		273.43	333.1744	348.5	357.469
2129	ISO3405	Auto	175.9	211.2		274.8	335.8	351.2	361.1
2146	ISO3405	Auto	172.7	217.3	R(1)	278.0	R(5) 338.8	356.0	360.1
6005	ISO3405	Auto	167.8	210.1		274.1	335.1	351.6	358.7
6009	D86	Auto	167.70	208.40		274.90	336.30	351.7	362.0
6016			-----	-----		-----	-----	-----	-----
9090			-----	-----		-----	-----	-----	-----
	normality		OK	OK		OK	OK	suspect	OK
	n		140	137		138	140	136	137
	outliers		0	3		2	0	0	1
	mean (n)		168.63	209.16		273.52	333.87	348.68	358.35
	st.dev. (n)		2.941	1.847		1.113	1.528	2.332	2.019
	R(calc.)		8.23	5.17		3.12	4.28	6.53	5.65
	R(D86:12-A)		9.27	4.60		2.97	5.01	8.83	7.10
	R(D86:12-M)		8.79	4.59		3.87	4.02	5.06	3.91

Lab 62: 95% rec: 356.9

Lab 169: IBP: first reported 73.7, 10% rec: first reported 98.3, 50% rec: first reported 104.4, 90% rec: first reported 168.0, 95% rec: first reported 176.4, FBP: first reported : 179.3

Lab 273: FBP: first reported :351.1

Lab 657: IBP: first reported 163.0, 10% rec: first reported 208.1, 50% rec: first reported 271.5, 90% rec: first reported 329.6, 95% rec: first reported: 343.4, FBP first reported : 354.7

Lab 671: 90% rec: first reported :338.0

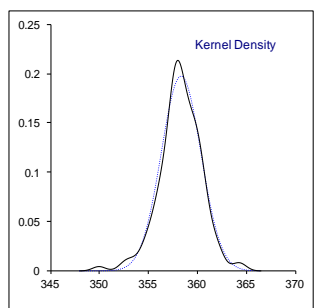
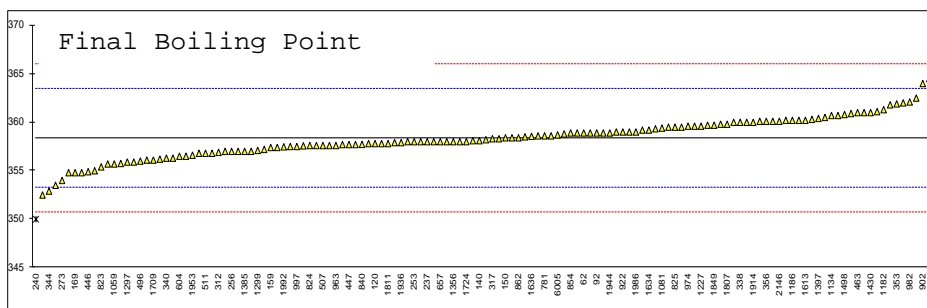
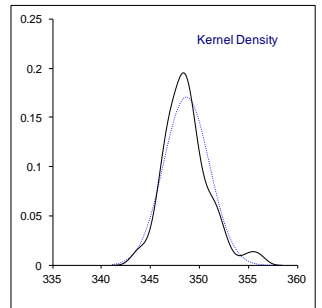
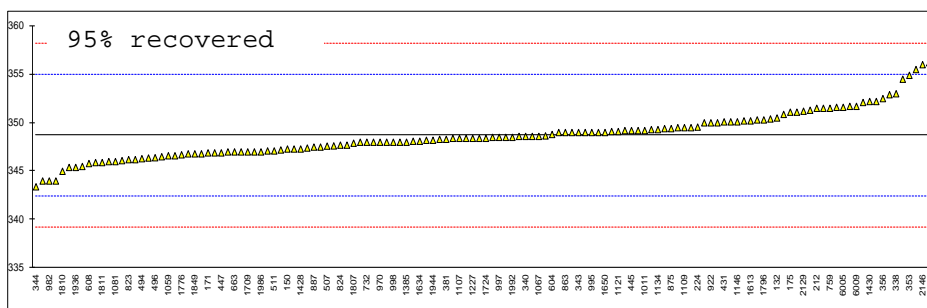
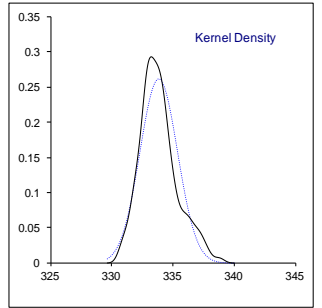
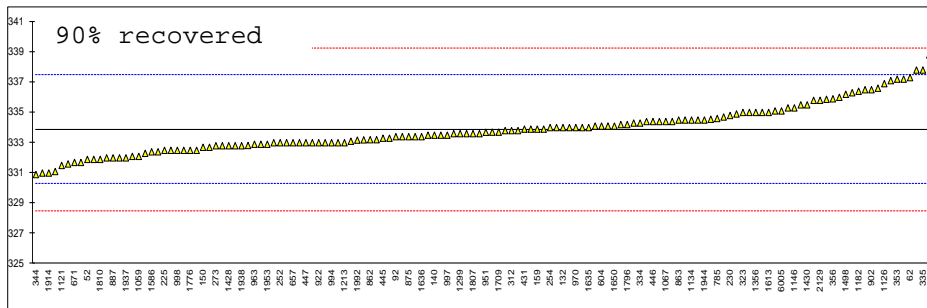
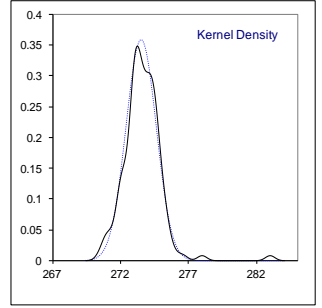
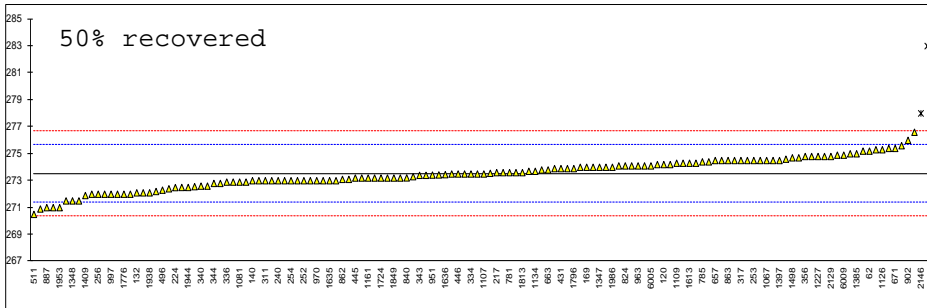
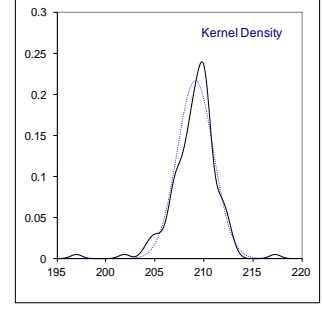
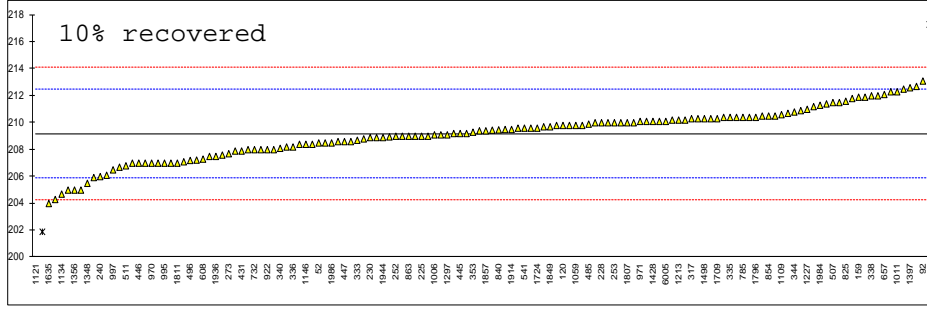
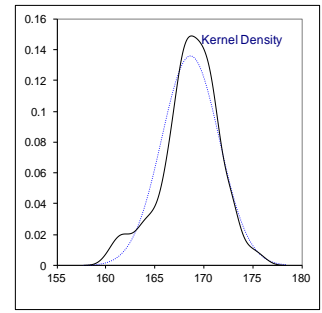
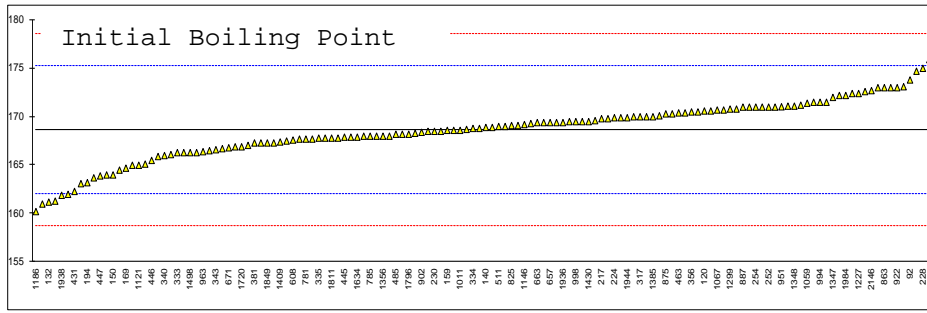
Lab 970: 10% rec first reported: 202

Lab 1121: 10% rec first reported 165.1, 50% rec first reported: 197.1, 90% rec first reported: 271.6,

Lab 1356: 10% rec first reported 197, 50% rec first reported: 270, FBP first reported: 349

Lab 1720: 50% rec first reported :247.7

Lab 1953: 10% rec first reported :201.9



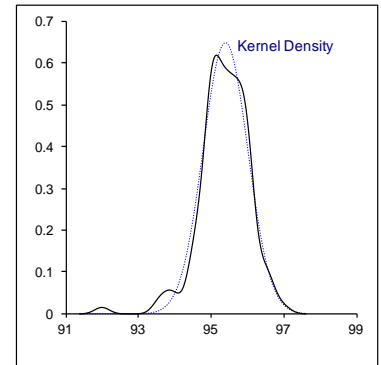
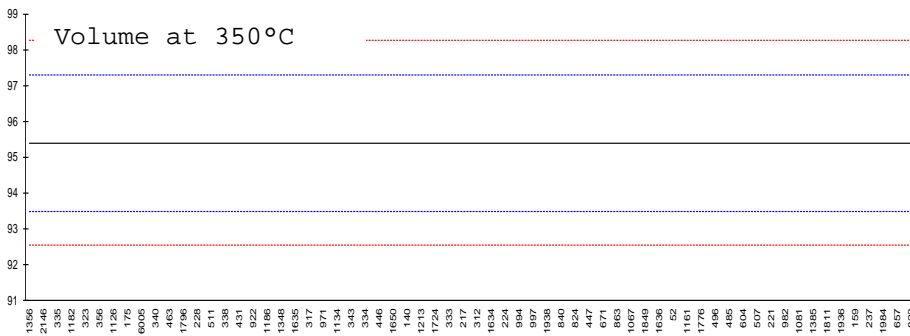
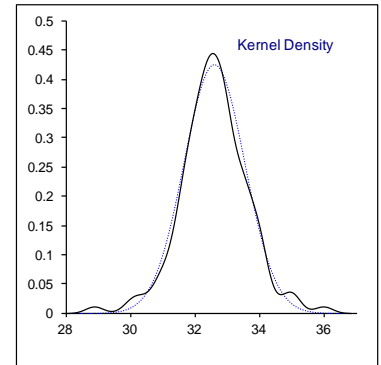
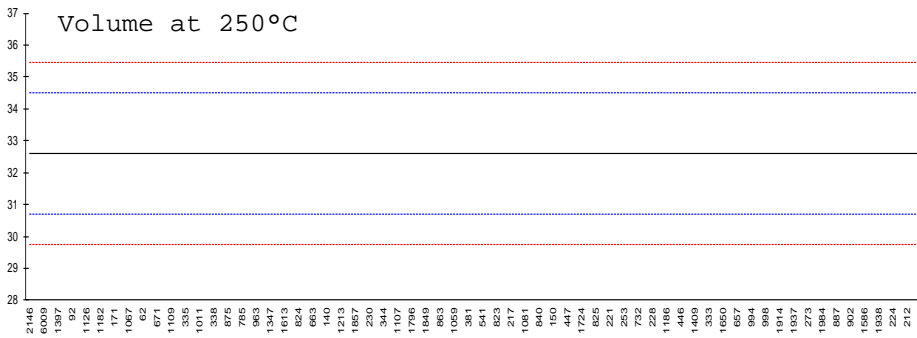
Determination of Distillation on sample #15175; result in %V/V

lab	method	mode	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue
52	D86	Auto	32.7		0.09	95.8		0.42	1.0
53			----		----	----		----	----
62	D86	Auto	31.6		-1.06	93.6		-1.89	1.1
92	D86	Auto	31.0		-1.69	95.7		0.32	1.8
120	D86	Auto	32.3		-0.33	94.5		-0.94	1.3
132	D86	Auto	33.4		0.83	94.9		-0.52	1.5
140	D86	Auto	32.3		-0.33	95.3		-0.10	1.4
150	D86	Auto	32.8		0.20	95.6		0.21	1.2
159	D86	Auto	30.9	C	-1.80	96.2		0.85	1.3
169		Auto	----		----	----		----	1.5
171	D86	Auto	31.5		-1.17	95.0		-0.42	1.5
175	D86	Auto	33.5		0.94	94.7		-0.73	1.4
186			----		----	----		----	----
194			----		----	----		----	1.5
212	D86	Auto	35		2.52	96.3		0.95	1.3
217	D86	Auto	32.7		0.09	95.4		0.00	1.4
221	D86	Manual	33		0.41	96		0.64	1.8
224	D86	Manual	34.50		1.99	95.50		0.11	1.3
225		Manual	----		----	----		----	----
228	D86	Manual	33.0		0.41	95.0		-0.42	0.4
230	D86	Auto	32.4		-0.22	94.9		-0.52	1.4
237	D86	Manual	34.0		1.46	96.5		1.16	1.0
238			----		----	----		----	----
240	D86	Manual	34.0		1.46	96.0		0.64	2.7
242			----		----	----		----	----
252		Manual	----		----	----		----	----
253	D86	Manual	33.0		0.41	95.1		-0.31	1.6
254		Manual	----		----	95		-0.42	----
256		Manual	----		----	----		----	----
258			----		----	----		----	----
273	D86	Auto	33.6		1.04	----		----	3.1
311	D86	Auto	33.0		0.41	95.3		-0.10	1.4
312	D86	Auto	31.6		-1.06	95.4		0.00	2.3
317	D86	Auto	32.0		-0.64	95.1		-0.31	1.7
323	D86	Auto	31.5		-1.17	94.5		-0.94	1.8
332			----		----	----		----	----
333	D86	Auto	33.2		0.62	95.4		0.00	1.4
334	D86	Auto	32.7		0.09	95.2		-0.21	0.8
335	D86	Auto	31.8		-0.85	93.9		-1.58	1.2
336	D86	Auto	33.0		0.41	95.7		0.32	0.6
337			----		----	----		----	----
338	D86	Auto	32		-0.64	95		-0.42	1
340	D86	Auto	32.4		-0.22	94.9		-0.52	1.4
343	D86	Auto	31.8		-0.85	95.2		-0.21	1.5
344	D86	Auto	32.4		-0.22	96.7		1.37	1.0
349			----		----	----		----	----
353	IP123	Auto	31.6		-1.06	93.9		-1.58	1.2
356	D86	Auto	31.7		-0.96	94.6		-0.84	1.8
381	ISO3405	Auto	32.56		-0.05	95.38		-0.02	1.9
431	D86	Auto	32.8		0.20	95.0		-0.42	2.8
445	D86	Auto	32.5		-0.12	95.2		-0.21	1.4
446	D86	Auto	33.1		0.52	95.2		-0.21	2.2
447	D86	Auto	32.8		0.20	95.7		0.32	1.4
463	D86	Auto	32.4		-0.22	94.9		-0.52	1.6
485	D86	Auto	32.6		-0.01	96.0		0.64	1.2
494	D86	Auto	32.5		-0.12	95.9		0.53	1.4
496	D86	Auto	32.8		0.20	95.9		0.53	1.4
507	D86	Manual	33		0.41	96		0.64	1.62
511	D86	Manual	35.0		2.52	95.0		-0.42	1.0
541	D86	Auto	32.6		-0.01	95.1		-0.31	1.4
557			----		----	----		----	----
558			----		----	----		----	----
562			----		----	----		----	----
604	D86	Auto	32		-0.64	96		0.64	1.4
607			----		----	----		----	----
608		Auto	----		----	----		----	1.4
657	D86	Auto	33.5		0.94	96.6		1.27	1.0
663	D86	Auto	32.25		-0.38	95.80		0.42	1.9
671	D86	Auto	31.7		-0.96	95.7		0.32	1.0
732	D86	Manual	33.0		0.41	95.5		0.11	0.5
750			----		----	----		----	----
759	D86	Auto	32.0		-0.64	94.5		-0.94	1.8
781	D86	Auto	32.9		0.31	95.0		-0.42	1.3
785	D86	Auto	32.0		-0.64	95.2		-0.21	1.1
823	D86	Auto	32.7		0.09	97.0		1.69	1.0
824	D86	Auto	32.1		-0.54	95.6		0.21	1.2

825	D86	Auto	32.9	0.31	96.0	0.64	0.9
840	D86	Auto	32.72	0.12	95.51	0.12	1.8
854	D86	Manual	32.1	-0.54	95.4	0.00	1.4
862	D86	Auto	32.8	0.20	95.4	0.00	1.4
863	D86	Manual	32.5	-0.12	95.7	0.32	1.6
875	D86	Automated	32.0	-0.64	95.0	-0.42	0.9
887	D86		34	1.46	96	0.64	1.95
902	D86	Manual	34	1.46	96	0.64	1.75
922	D86	Manual	33.0	0.41	95.0	-0.42	1.4
951	D86	Manual	31.0	-1.69	95.0	-0.42	1.6
962		Manual	----	----	----	----	----
963	D86	Auto	32.0	-0.64	95.7	0.32	1.2
970	D86	Manual	33.5	0.94	95.5	0.11	1.0
971	D86	Auto	32.2	-0.43	95.1	-0.31	1.2
974	D86	Autom	31.8	-0.85	94.6	-0.84	1.2
982	D86	Manual	32.0	-0.64	96.0	0.64	1.7
994	D86	Manual	33.5	0.94	95.5	0.11	1.4
995	D86	Manual	33.5	0.94	95.5	0.11	1.3
996			----	----	----	----	----
997	D86	Manual	34	1.46	95.5	0.11	1.3
998	D86	Manual	33.5	0.94	96.0	0.64	1.4
1006		Auto	----	----	----	----	1.4
1011	ISO3405	Auto	31.8	-0.85	95.2	-0.21	1.1
1033			----	----	----	----	----
1059	ISO3405		32.5	-0.12	95.8	0.42	1.4
1067	D86	Auto	31.5	-1.17	95.7	0.32	1.7
1080			----	----	----	----	----
1081	D86	Auto	32.7	0.09	96.0	0.64	0.8
1090			----	----	----	----	----
1107	D86	Auto	32.4	-0.22	95.3	-0.10	1.7
1109	D86	Auto	31.7	-0.96	95.1	-0.31	1.4
1121	IP123	Manual	35.0	2.52	96.0	0.64	1.7
1126	in house	Auto	31.1	-1.59	94.6	-0.84	----
1134	IP123	Auto	33.1	0.52	95.1	-0.31	1.2
1146	D86	Auto	32.27	-0.36	94.95	-0.47	1.1
1161	D86	Auto	32.7	0.09	95.8	0.42	1.7
1167			----	----	----	----	----
1182	D86	Auto	31.4	-1.27	94.4	-1.05	1.8
1186	D86	Manual	33	0.41	95	-0.42	5
1213	D86	Auto	32.3	-0.33	95.3	-0.10	----
1227	D86	Auto	31.4	-1.27	95.4	0.00	1.0
1297	D86	Auto	32.98	0.39	95.89	0.52	1.4
1299		Auto	----	----	----	----	1.4
1347	D86		32	-0.64	95	-0.42	2
1348	D86	Auto	32	-0.64	95	-0.42	1.5
1356	ISO3405	Manual	30	-2.75	92	-3.58	2.2
1385	D86	Manual	36	R(0.05) 3.57	96	R(0.01) 0.64	0.5
1395			----	----	----	----	----
1397	D86	Auto	30.8	-1.91	94.9	-0.52	1.1
1409	ISO3405	Auto	33.1	0.52	95.3	-0.10	1.4
1417	D86	Auto	30.4	-2.33	94.0	-1.47	1.4
1428	ISO3405	Auto	32.4	-0.22	95.6	0.21	1.6
1430		Auto	----	----	----	----	1.4
1431			----	----	----	----	----
1498	D86		33	0.41	96	0.64	----
1512			----	----	----	----	----
1586	D86		34.0	1.46	95.7	0.32	1.4
1588			----	----	----	----	----
1613	D86	Auto	32	-0.64	95	-0.42	1.4
1616			----	----	----	----	----
1629			----	----	----	----	----
1634	ISO3405	Auto	32.45	-0.17	95.4	0.00	1.2
1635	D86	Manual	34.0	1.46	95.0	-0.42	1.8
1636	D86	Auto	32.3	-0.33	95.75	0.37	1.4
1650	D86	Auto	33.4	0.83	95.2	-0.21	1.5
1654			----	----	----	----	----
1709	D86		31.8	-0.85	95.8	0.42	1.6
1720		Auto	----	----	----	----	----
1724	D86	Auto	32.8	0.20	95.3	-0.10	1.6
1776	ISO3405	Auto	33.5	0.94	95.8	0.42	1.4
1796	D86	Auto	32.4	-0.22	94.9	-0.52	1.4
1807	D86	Auto	33.1	0.52	95.5	0.11	1.4
1810	D86	Auto	32.6	-0.01	96.1	0.74	1.4
1811	D86	Auto	33.7	1.15	96.0	0.64	1.4
1813		Auto	----	----	----	----	1.4
1846			----	----	----	----	----
1849	ISO3405	Auto	32.45	-0.17	95.7	0.32	1.5
1857	D86		32.3	-0.33	95.1	-0.31	1.4
1906			----	----	----	----	----
1914	D86	Manual	33.5	0.94	96.5	1.16	2.0

1936	ISO3405	Auto	33.5		0.94	96.1	0.74	1.4
1937	ISO3405	Auto	33.5		0.94	96.1	0.74	1.4
1938	ISO3405	Auto	34.0		1.46	95.5	0.11	1.4
1944	D86	Manual	33.5		0.94	95.7	0.32	1.7
1953		Auto	-----		-----	-----	-----	1.5
1984	ISO3405	Auto	33.9		1.36	96.5	1.16	1.4
1986	D86	Manual	32.5		-0.12	96.5	1.16	1.8
1992	D86	Manual	34		1.46	95.5	0.11	1.4
2129	ISO3405	Auto	31.3		-1.38	94.7	-0.73	1.4
2146	ISO3405	Auto	28.9	R(0.05)	-3.91	93.6	-1.89	1.5
6005	ISO3405	Auto	32.3		-0.33	94.7	-0.73	0.6
6009	D86	Auto	30.20		-2.54	94.60	-0.84	1.80
6016			-----		-----	-----	-----	-----
9090			-----		-----	-----	-----	-----
normality			OK		OK			
n			125		126			
outliers			2		1			
mean (n)			32.61		95.40			
st.dev. (n)			0.940		0.615			
R(calc.)			2.63		1.72			
R(D86:12-A)			2.66		2.66			
R(D86:12-M)			2.61		2.42			

Lab 159 vol 250°C: first reported: 20.9
 Lab 1356 vol 250°C: first reported: 42



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Determination of FAME Content on sample #15175; result in %V/V

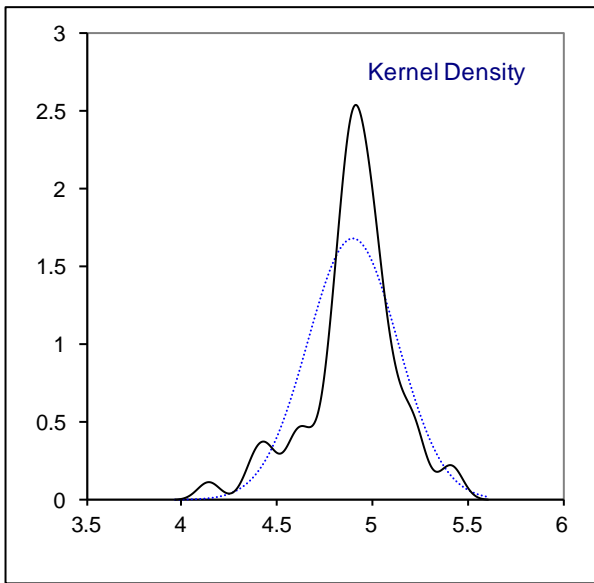
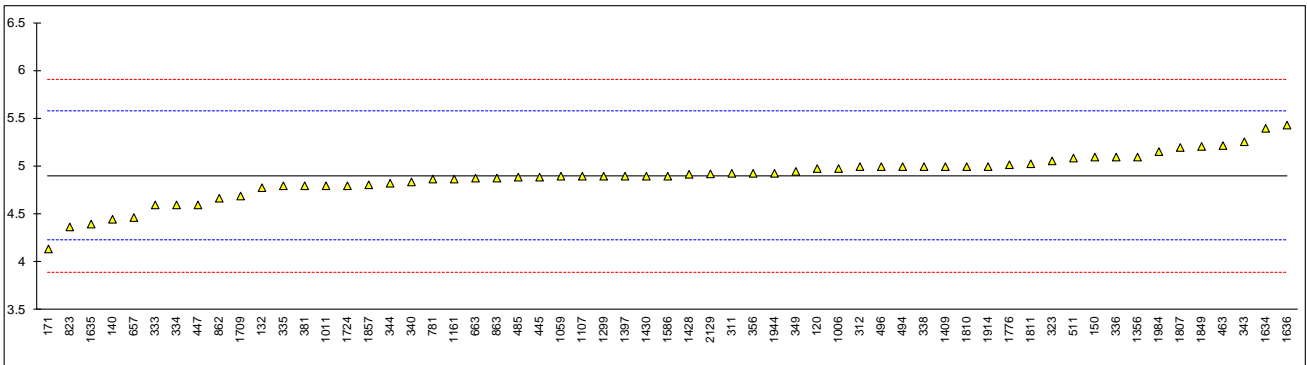
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963		----		----
92		----		----	970		----		----
120	D7371	4.98		0.24	971		----		----
132	D7371	4.78		-0.35	974		----		----
140	D7371	4.45		-1.33	982		----		----
150	D7371	5.1		0.60	994		----		----
159		----		----	995		----		----
169		----		----	996		----		----
171	D7371	4.14		-2.25	997		----		----
175		----		----	998		----		----
186		----		----	1006	D7371	4.98		0.24
194		----		----	1011	EN14078	4.8		-0.29
212		----		----	1033		----		----
217		----		----	1059	EN14078	4.9		0.00
221		----		----	1067		----		----
224		----		----	1080		----		----
225		----		----	1081		----		----
228		----		----	1090		----		----
230		----		----	1107	EN14078	4.9		0.00
237		----		----	1109		----		----
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134		----		----
252		----		----	1146		----		----
253		----		----	1161	EN14078	4.87		-0.09
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213		----		----
311	EN14078	4.93		0.09	1227		----		----
312	EN14078	5.00		0.30	1297		----		----
317		----		----	1299	EN14078	4.9		0.00
323	D7371	5.06		0.48	1347		----		----
332		----		----	1348		----		----
333	EN14078	4.6		-0.89	1356	EN14078	5.1		0.60
334	EN14078	4.6		-0.89	1385		----		----
335	EN14078	4.8		-0.29	1395		----		----
336	EN14078	5.1		0.60	1397	EN14078	4.9		0.00
337		----		----	1409	EN14078	5.0		0.30
338	EN14078	5		0.30	1417		----		----
340	EN14078	4.84		-0.18	1428	EN14078	4.92		0.06
343	EN14078	5.26		1.07	1430	D7806	4.9		0.00
344	EN14078	4.8265		-0.22	1431		----		----
349	EN14078	4.95		0.15	1498		----		----
353		----		----	1512		----		----
356	EN14078	4.93		0.09	1586	EN14078	4.9		0.00
381	EN14078	4.80		-0.29	1588		----		----
431		----		----	1613		----		----
445	EN14078	4.89		-0.03	1616		----		----
446		----		----	1629		----		----
447	EN14078	4.6		-0.89	1634	EN14078	5.4		1.48
463	EN14078	5.22		0.95	1635	EN14078	4.4		-1.48
485	EN14078	4.89		-0.03	1636	EN14078	5.434		1.59
494	EN14078	5.0		0.30	1650		----		----
496	EN14078	5.0		0.30	1654		----		----
507		----		----	1709	EN14078	4.693		-0.61
511	D7371	5.0895		0.56	1720		----		----
541		----		----	1724	EN14078	4.80		-0.29
557		----		----	1776	EN14078	5.02		0.36
558		----		----	1796		----		----
562		----		----	1807	EN14078	5.2		0.89
604		----		----	1810	EN14078	5.0		0.30
607		----		----	1811	D7371	5.03		0.39
608		----		----	1813		----		----
657	EN14078	4.468		-1.28	1846		----		----
663	EN14078	4.88		-0.06	1849	EN14078	5.211		0.92
671		----		----	1857	EN14078	4.81		-0.26
732		----		----	1906		----		----
750		----		----	1914	EN14078	5.0		0.30
759		----		----	1936		----		----
781	EN14078	4.87		-0.09	1937		----		----
785		----		----	1938		----		----
823	EN14078	4.37		-1.57	1944	EN14078	4.93		0.09
824		----		----	1953		----		----

825		----	----	1984	EN14078	5.157	0.76
840		----	----	1986		----	----
854		----	----	1992		----	----
862	EN14078	4.67	-0.68	2129	EN14078	4.924	0.07
863	EN14078	4.88	-0.06	2146		----	----
875		----	----	6005		----	----
887		----	----	6009		----	----
902		----	----	6016		----	----
922		----	----	9090		----	----

normality suspect
n 59
outliers 0
mean (n) 4.899
st.dev. (n) 0.2371
R(calc.) 0.664
R(D7371:14) 0.945

Only D7371 Only EN14078
suspect OK
9 49
0 0
4.845 4.909
0.3352 0.2203
0.939 0.617
0.942 0.348

Application Range: 1- 20 % V/V Compare R(EN14078:14B) = 0.347

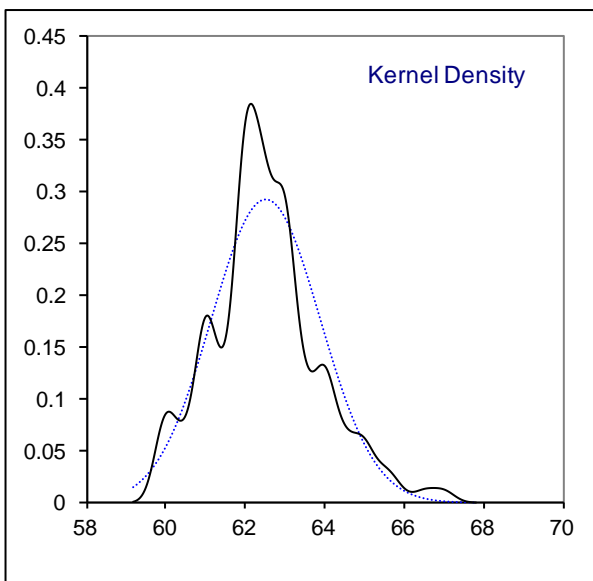
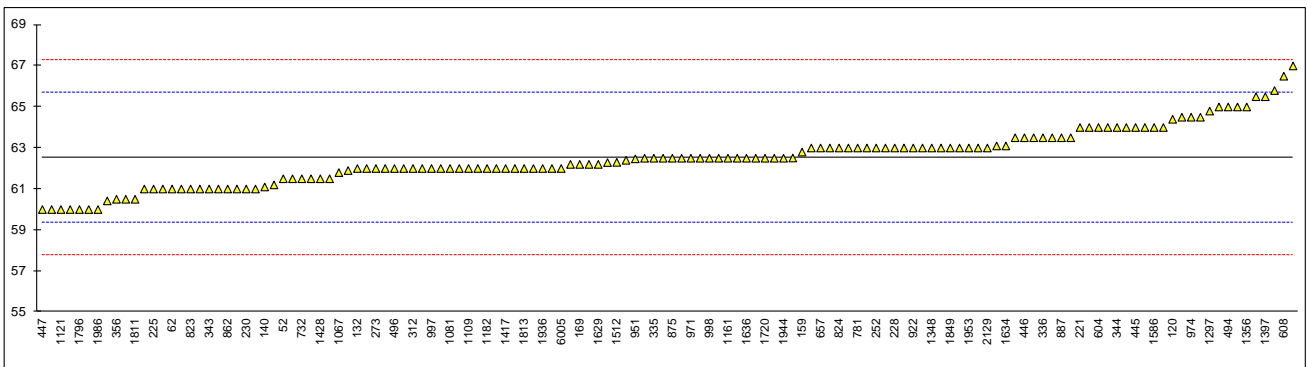


Determination of Flash Point PMcc, on sample #15175; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	61.5		-0.65	951	D93-A	62.47		-0.03
53	D93	61.0		-0.96	962		----		----
62	D93-A	61.0		-0.96	963	D93-A	61.0		-0.96
92	D93-A	61.0		-0.96	970	D93-A	62.5		-0.01
120	D93-A	64.4		1.18	971	D93-A	62.5		-0.01
132	D93-A	62.0		-0.33	974	D93-A	64.5		1.25
140	D93-A	61.1		-0.90	982	D93-A	61.5		-0.65
150	D93-A	61.0		-0.96	994	D93	62.0		-0.33
159	D93-A	62.8		0.17	995	D93-A	62.5		-0.01
169	D93-A	62.2		-0.20	996		----		----
171	D93-B	63.5		0.62	997	D93-A	62		-0.33
175	D93-A	64		0.93	998	D93	62.5		-0.01
186	D93-A	62.2		-0.20	1006	D93-A	62.5		-0.01
194		----		----	1011	ISO2719-A	64.0		0.93
212	ISO2719-A	65.8		2.07	1033	IP34-A	63.5		0.62
217		----		----	1059	ISO2719-A	62.0		-0.33
221	D93-A	64		0.93	1067	D93-A	61.8		-0.46
224	D93-A	62.29		-0.15	1080		----		----
225	D93-A	61.0		-0.96	1081	D93-A	62.0		-0.33
228	D93-A	63.0		0.30	1090		----		----
230	ISO2719	61.0		-0.96	1107	D93-A	62.0		-0.33
237	D93	61.0		-0.96	1109	D93-A	62.0		-0.33
238		----		----	1121	D93-A	60.0		-1.59
240	D93-A	63.0		0.30	1126		----		----
242		----		----	1134	D93	63.0		0.30
252	D93-A	63.0		0.30	1146	D93-A	60.42		-1.33
253	D93-A	62.0		-0.33	1161	D93-A	62.5		-0.01
254	D93-A	61.5		-0.65	1167	ISO2719-A	62.0		-0.33
256	D93-A	62.0		-0.33	1182	D93-A	62		-0.33
258		----		----	1186		----		----
273	D93-A	62.0		-0.33	1213		----		----
311	D93-A	63.5		0.62	1227	D93-A	65		1.56
312	D93-A	62.0		-0.33	1297	D93-A	64.8		1.44
317	D93-A	63.0		0.30	1299	D93-A	62.5		-0.01
323	D93-A	61.0		-0.96	1347	D93-A	62.2		-0.20
332		----		----	1348	D93-A	63		0.30
333	D93-A	64.0		0.93	1356	ISO2719-A	65		1.56
334	D93-B	63.0		0.30	1385	D93-A	62		-0.33
335	D93	62.5		-0.01	1395		----		----
336	D93-A	63.5		0.62	1397	D93-A	65.5		1.88
337	D93-A	64.5		1.25	1409	ISO2719-B	63.0		0.30
338		----		----	1417	IP34-A	62		-0.33
340	D93-A	65.0		1.56	1428	ISO2719-A	61.5		-0.65
343	D93-A	61.0		-0.96	1430	D93-A	67.0		2.82
344	D93-A	64.0		0.93	1431		----		----
349	D93-A	64		0.93	1498	D93-A	62		-0.33
353	IP34-A	63.100		0.36	1512	D93-B	62.3		-0.14
356	D93-A	60.5		-1.28	1586	D93-A	64.0		0.93
381		----		----	1588		----		----
431		----		----	1613	D93	60.0		-1.59
445	D93	64.0		0.93	1616		----		----
446	D93-A	63.5		0.62	1629	D93-A	62.2		-0.20
447	D93-A	60.0		-1.59	1634	D93-A	63.1		0.36
463	D93-A	63.5		0.62	1635	D93-A	64		0.93
485	D93-A	62.5		-0.01	1636	ISO2719-A	62.5		-0.01
494	D93-A	65	C	1.56	1650	D93-A	62.5		-0.01
496	D93-A	62.0		-0.33	1654		----		----
507	D93-A	65.5		1.88	1709		----		----
511	D93-A	61.2		-0.83	1720	D93-B	62.5		-0.01
541	D93-A	61.0		-0.96	1724	D93-A	61.5		-0.65
557		----		----	1776	ISO2719-A	62.5		-0.01
558		----		----	1796	D93-A	60.0		-1.59
562		----		----	1807	D93-A	64.5		1.25
604	D93-A	64.0		0.93	1810	ISO2719-A	60.5		-1.28
607	D93-A	63.0		0.30	1811	D93-A	60.5		-1.28
608	D93-A	66.5		2.51	1813	D93-A	62.0		-0.33
657	D93-A	63.0		0.30	1846		----		----
663	D93-A	62.4		-0.08	1849	ISO2719-A	63.0		0.30
671	D93-A	60		-1.59	1857	D93-A	60.0		-1.59
732	D93-A	61.5		-0.65	1906		----		----
750		----		----	1914	D93-A	62.0		-0.33
759	D93-A	62.0		-0.33	1936	ISO2719-B	62		-0.33
781	D93-A	63.0		0.30	1937	ISO2719-A	63		0.30
785	D93-A	63.0		0.30	1938	ISO2719-A	62		-0.33
823	D93-A	61.0		-0.96	1944	D93-A	62.5		-0.01
824	D93-A	63.0		0.30	1953	ISO2719-A	63		0.30

825		-----					
840	D93-A	61.9	-0.39	1984	ISO2719-A	63.0	0.30
854	D93-A	62.5	-0.01	1986	D93-A	60.0	-1.59
862	D93-A	61.0	-0.96	1992	D93-A	62.511	-0.01
863	D93-A	63.0	0.30	2129	D93-A	63.0	0.30
875	D93-A	62.5	-0.01	2146		-----	-----
887	D93-A	63.5	0.62	6005	ISO2719-A	62.0	-0.33
902		-----	-----	6009		-----	-----
922	D93-A	63.0	0.30	6016		-----	-----
				9090		-----	-----
normality		OK					
n		136					
outliers		0					
mean (n)		62.523					
st.dev. (n)		1.3671					
R(calc.)		3.828					
R(D93:15-A)		4.439					

Lab 494 first reported: 58.0



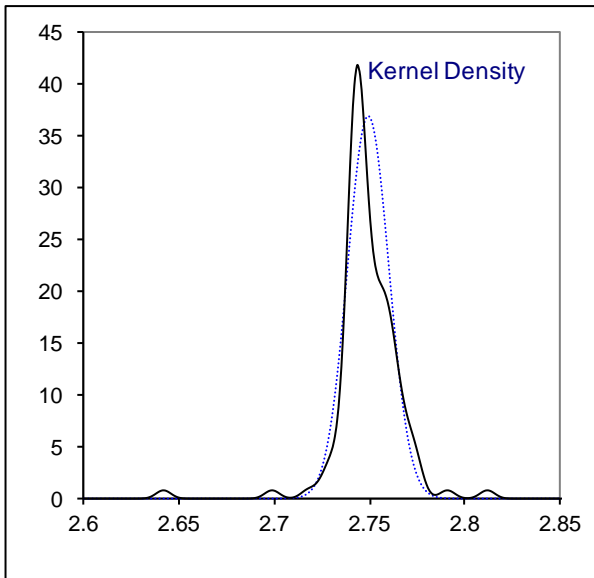
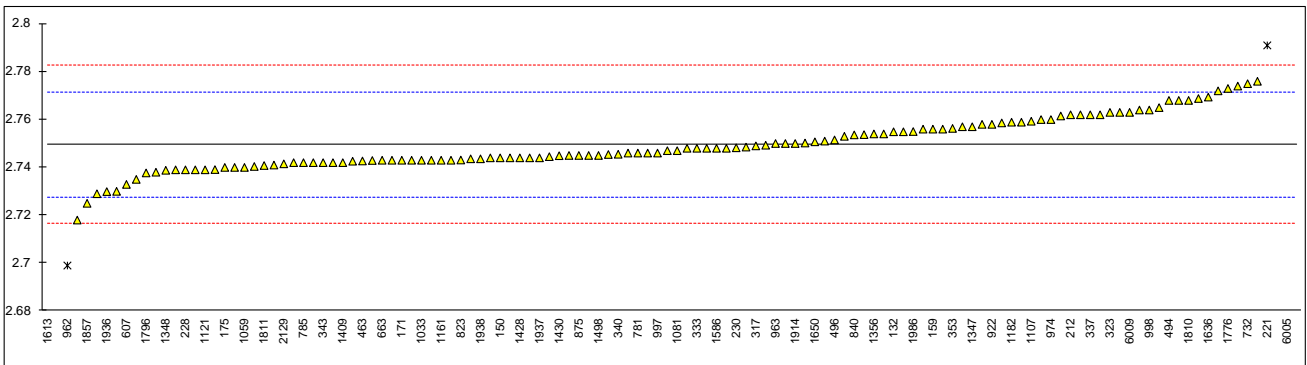
Determination of Kinematic Viscosity at 40°C, on sample #15175; result in mm²/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.746		-0.32	951	D445	2.7537		0.39
53		----		----	962	D445	2.699	R(0.01)	-4.60
62	D445	2.742		-0.68	963	D445	2.750		0.05
92	D445	2.7688		1.76	970	D7042	2.747		-0.22
120	D445	2.740		-0.86	971	D445	2.756		0.60
132	D445	2.7549		0.50	974	D445	2.760		0.96
140	D445	2.763		1.23	982	D445	2.944	C,R(0.01)	17.72
150	D445	2.744		-0.50	994	D445	2.765		1.41
159	D445	2.756		0.60	995	D445	2.750		0.05
169	D445	2.730		-1.77	996		----		----
171	D445	2.743		-0.59	997	D445	2.746		-0.32
175	D445	2.740		-0.86	998	D445	2.764		1.32
186		----		----	1006	D445	2.7390		-0.95
194		----		----	1011	ISO3104	2.741		-0.77
212	ISO3104	2.762		1.14	1033	IP71	2.743		-0.59
217		----		----	1059	ISO3104	2.740		-0.86
221	D445	2.791	R(0.05)	3.78	1067	D445	2.743		-0.59
224	D445	2.772		2.05	1080		----		----
225	D445	2.735		-1.32	1081	D445	2.747		-0.22
228	D445	2.739		-0.95	1090		----		----
230	ISO3104	2.7482		-0.12	1107	D445	2.7593		0.90
237	D445	2.768		1.69	1109	D445	2.7404		-0.83
238		----		----	1121	D445	2.739	C	-0.95
240	D445	2.7615		1.10	1126		----		----
242		----		----	1134	D445	2.762		1.14
252	D445	2.7485		-0.09	1146	D445	2.7445		-0.45
253	D445	2.760		0.96	1161	ISO3104	2.743		-0.59
254		----		----	1167		----		----
256	D445	2.764		1.32	1182	D7042	2.7589		0.86
258		----		----	1186		----		----
273	D445	2.757		0.69	1213	D445	2.748		-0.13
311	D445	2.742		-0.68	1227	D445	2.7426		-0.63
312	D445	2.745		-0.41	1297	D7042	2.7429		-0.60
317	D445	2.749		-0.04	1299	D445	2.745		-0.41
323	D445	2.763		1.23	1347	D445	2.757		0.69
332		----		----	1348	D445	2.7388		-0.97
333	D445	2.748		-0.13	1356	ISO3104	2.754		0.41
334	D445	2.744		-0.50	1385	D445	2.642	R(0.01)	-9.79
335	D445	2.748		-0.13	1395		----		----
336	D445	2.744		-0.50	1397	D445	2.743		-0.59
337	D445	2.762		1.14	1409	ISO3104	2.742		-0.68
338		----		----	1417	IP71	2.754		0.41
340	D445	2.7455		-0.36	1428	ISO3104	2.744		-0.50
343	D445	2.742		-0.68	1430	D445	2.7449	C	-0.42
344		----		----	1431		----		----
349		----		----	1498	D445	2.745		-0.41
353	IP71	2.7563		0.62	1512		----		----
356	D445	2.776	C	2.42	1586	D445	2.748		-0.13
381		----		----	1588		----		----
431		----		----	1613	D445	2.5813	R(0.01)	-15.31
445	D445	2.746		-0.32	1616		----		----
446		----		----	1629		----		----
447	D445	2.743		-0.59	1634		----		----
463	D445	2.7427		-0.62	1635	D445	2.748		-0.13
485	ISO3104	2.7436		-0.53	1636	D445	2.7694	C	1.82
494	D445	2.768		1.69	1650	D445	2.7507		0.11
496	D445	2.7515		0.19	1654		----		----
507	D445	2.7560		0.60	1709		----		----
511		----		----	1720	D7042	2.753		0.32
541	D445	2.729		-1.86	1724	D445	2.744		-0.50
557		----		----	1776	ISO3104	2.773		2.14
558		----		----	1796	D445	2.7377		-1.07
562		----		----	1807	D445	2.751		0.14
604	D445	2.7454		-0.37	1810	ISO3104	2.768		1.69
607	D445	2.7329		-1.51	1811	D445	2.7408		-0.79
608	D445	2.74928		-0.02	1813	D445	2.8120	R(0.01)	5.70
657	D445	2.762	C	1.14	1846		----		----
663	D445	2.7430		-0.59	1849	D445	2.7502		0.07
671	D445	2.739		-0.95	1857	D445	2.725		-2.23
732	D445	2.775		2.33	1906		----		----
750		----		----	1914	D445	2.750		0.05
759	D445	2.743		-0.59	1936	ISO3104	2.7299		-1.78
781	D445	2.746		-0.32	1937	ISO3104	2.744		-0.50
785	D445	2.742		-0.68	1938	ISO3104	2.7436	C	-0.53
823	D445	2.7431		-0.58	1944	D445	2.7586		0.83
824	D445	2.742		-0.68	1953		----		----

825	D445	2.738	-1.04	1984	ISO3104	2.7589	0.86
840	D445	2.7536	0.38	1986	D445	2.755	0.50
854	D445	2.774	2.23	1992	D445	2.7549	0.50
862	D445	2.7391	-0.94	2129	D445	2.7415	-0.73
863	D445	2.758	0.78	2146	-----	-----	-----
875	D445	2.745	-0.41	6005	ISO3104	2.9396	R(0.01) 17.32
887	-----	-----	-----	6009	ISO3104	2.7630	1.23
902	D445	2.718	-2.87	6016	-----	-----	-----
922	D445	2.758	0.78	9090	-----	-----	-----

normality OK
 n 121
 outliers 7
 mean (n) 2.7495
 st.dev. (n) 0.01083
 R(calc.) 0.0303
 R(D445:15) 0.0307

Lab 356 first reported: 2.716
 Lab 657 first reported: 2.716
 Lab 982 first reported: 2.856
 Lab 1121 first reported: 2.798
 Lab 1430 first reported: 2.8449
 Lab 1636 first reported: 2.9066
 Lab 1938 first reported: 2.4986



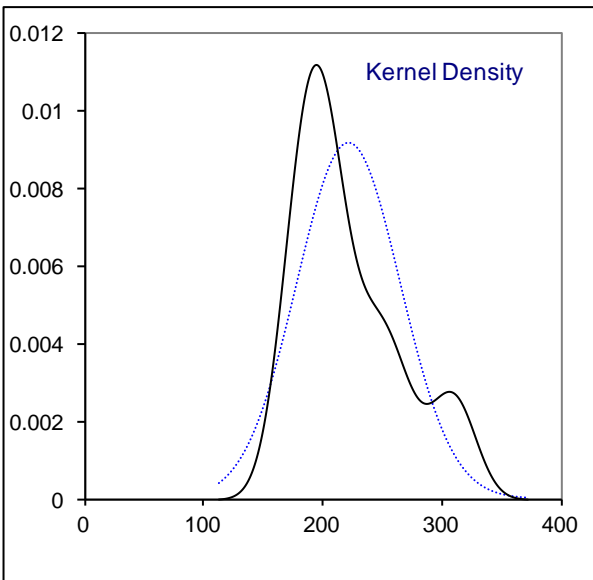
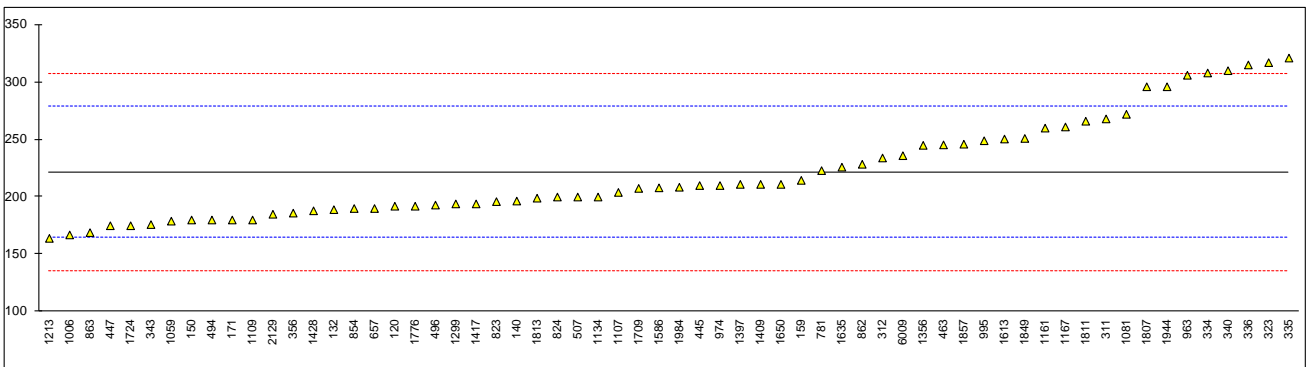
Determination of Lubricity by HFRR at 60°C on sample #15175; result in µm

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963	D6079	306		2.96
92		----		----	970		----		----
120	D6079	192		-1.03	971		----		----
132	D6079	189		-1.14	974	D6079	210		-0.40
140	D6079	196.5		-0.88	982		----		----
150	D6079	180		-1.45	994		----		----
159	D6079	214.5		-0.25	995	D6079	249		0.96
169		----		----	996		----		----
171	D6079	180		-1.45	997		----		----
175		----		----	998		----		----
186		----		----	1006	D6079	167.0		-1.91
194		----		----	1011		----		----
212		----		----	1033		----		----
217		----		----	1059	ISO12156-1	179		-1.49
221		----		----	1067		----		----
224		----		----	1080		----		----
225		----		----	1081	ISO12156-1	272		1.77
228		----		----	1090		----		----
230		----		----	1107	ISO12156-1	204		-0.61
237		----		----	1109	IP450	180		-1.45
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134	D6079	200		-0.75
252		----		----	1146		----		----
253		----		----	1161	ISO12156-1	260.00	C	1.35
254		----		----	1167	ISO12156-1	261		1.38
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213	D6079	164		-2.01
311	ISO12156-1	268		1.63	1227		----		----
312	ISO12156-1	234		0.44	1297		----		----
317		----		----	1299	ISO12156-1	194		-0.96
323	ISO12156-1	317		3.34	1347		----		----
332		----		----	1348		----		----
333		----		----	1356	ISO12156-1	245		0.82
334	ISO12156-1	308		3.03	1385		----		----
335	ISO12156-1	321		3.48	1395		----		----
336	ISO12156-1	315		3.27	1397	D6079	211		-0.37
337		----		----	1409	ISO12156-1	211		-0.37
338		----		----	1417	CEC F-06A96	194		-0.96
340	ISO12156-1	310		3.10	1428	ISO12156-1	188		-1.17
343	ISO12156-1	176		-1.59	1430		----		----
344		----		----	1431		----		----
349		----		----	1498		----		----
353		----		----	1512		----		----
356	D6079	186		-1.24	1586	ISO12156-1	208		-0.47
381		----		----	1588		----		----
431		----		----	1613	D6079	250.5		1.01
445	ISO12156	210		-0.40	1616		----		----
446		----		----	1629		----		----
447	ISO12156-1	175		-1.63	1634		----		----
463	ISO12156-1	245.4		0.84	1635	ISO12156-1	226		0.16
485		----		----	1636		----		----
494	D6079	180		-1.45	1650	ISO12156-1	211		-0.37
496	D6079	193		-1.00	1654		----		----
507	D6079	200.0		-0.75	1709	D6079	207.5		-0.49
511		----		----	1720		----		----
541		----		----	1724	D6079	175		-1.63
557		----		----	1776	ISO12156-1	192		-1.03
558		----		----	1796		----		----
562		----		----	1807	ISO12156-1	296		2.61
604		----		----	1810		----		----
607		----		----	1811	D6079	266		1.56
608		----		----	1813	IP450	199		-0.79
657	D6079	190		-1.10	1846		----		----
663		----		----	1849	ISO12156-1	251		1.03
671		----		----	1857	ISO12156-1	246		0.86
732		----		----	1906		----		----
750		----		----	1914	ISO12156-1	<360		----
759		----		----	1936		----		----
781	D6079	223		0.05	1937		----		----
785		----		----	1938		----		----
823	D6079	196		-0.89	1944	ISO12156-1	296		2.61

824	D6079	200	-0.75	1953	----	----
825		----	----	1984	ISO12156-1	208.51
840		----	----	1986		----
854	D6079	190	-1.10	1992		----
862	D6079	228.5	0.24	2129	ISO12156-1	185
863	ISO12156-1	169	-1.84	2146		----
875		----	----	6005		----
887		----	----	6009	ISO12156-1	236.0
902		----	----	6016		----
922		----	----	9090		----

normality	OK	<u>Only D6079</u>	<u>Only ISO12156/IP450</u>
n	62	not OK	OK
outliers	0	27	34
mean (n)	221.5	0	0
st.dev. (n)	43.47	205.4	235.2
R(calc.)	121.7	31.91	47.56
R(D6079:11)	80.0	89.3	133.2
		80.0	102.0

Lab 1161 first reported: 362.12

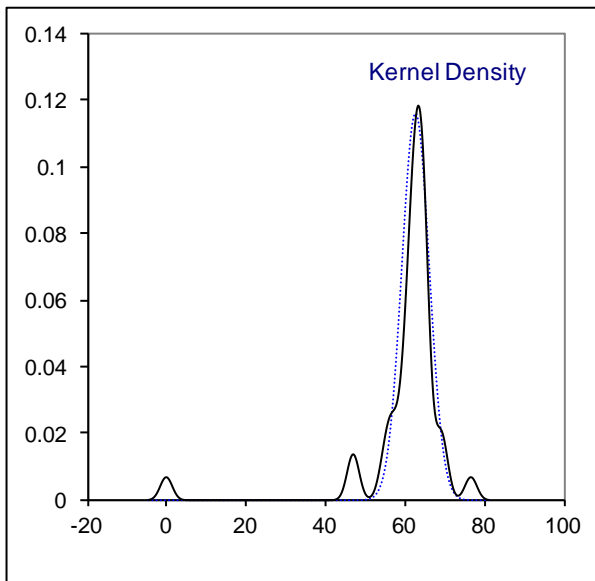
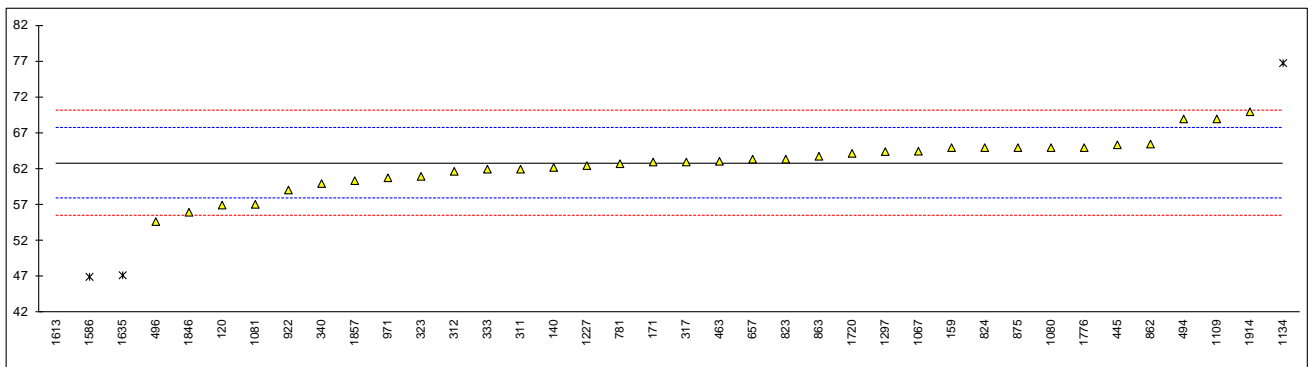


Determination of Nitrogen on sample #15175; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963		----		----
92		----		----	970		----		----
120	D4629	57	C	-2.39	971	D4629	60.8		-0.83
132		----		----	974		----		----
140	D4629	62.24		-0.24	982		----		----
150		----		----	994		----		----
159	D4629	65		0.89	995		----		----
169		----		----	996		----		----
171	D4629	63		0.07	997		----		----
175		----		----	998		----		----
186		----		----	1006		----		----
194		----		----	1011		----		----
212		----		----	1033		----		----
217		----		----	1059		----		----
221		----		----	1067	D4629	64.5		0.69
224		----		----	1080	D4629	65		0.89
225		----		----	1081	D4629	57.1		-2.35
228		----		----	1090		----		----
230		----		----	1107		----		----
237		----		----	1109	D4629	69		2.53
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134	D5762	76.78	R(0.01)	5.73
252		----		----	1146		----		----
253		----		----	1161		----		----
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213		----		----
311	D4629	62		-0.34	1227	D4629	62.5		-0.13
312	D4629	61.7		-0.46	1297	D4629	64.45		0.67
317	D4629	63		0.07	1299		----		----
323	D4629	61		-0.75	1347		----		----
332		----		----	1348		----		----
333	D4629	62		-0.34	1356		----		----
334		----		----	1385		----		----
335		----		----	1395		----		----
336		----		----	1397		----		----
337		----		----	1409		----		----
338		----		----	1417		----		----
340	D4629	60		-1.16	1428		----		----
343		----		----	1430		----		----
344		----		----	1431		----		----
349		----		----	1498		----		----
353		----		----	1512		----		----
356		----		----	1586	D5762	47	R(0.01)	-6.49
381		----		----	1588		----		----
431		----		----	1613	D4629	0.0	R(0.01)	-25.78
445	D4629	65.4		1.06	1616		----		----
446		----		----	1629		----		----
447		----		----	1634		----		----
463	D4629	63.1		0.11	1635	D4629	47.22	R(0.01)	-6.40
485		----		----	1636		----		----
494	D4629	69		2.53	1650		----		----
496	D4629	54.7		-3.33	1654		----		----
507		----		----	1709		----		----
511		----		----	1720	D4629	64.2		0.56
541		----		----	1724		----		----
557		----		----	1776	D4629	65		0.89
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813		----		----
657	D4629	63.4	C	0.24	1846	D4629	56.0		-2.80
663		----		----	1849		----		----
671		----		----	1857	D4629	60.4		-1.00
732		----		----	1906		----		----
750		----		----	1914	D4629	70		2.94
759		----		----	1936		----		----
781	D4629	62.76		-0.03	1937		----		----
785		----		----	1938		----		----
823	D4629	63.4		0.24	1944		----		----
824	D4629	65		0.89	1953		----		----

825		----	----	1984	----	----
840		----	----	1986	----	----
854		----	----	1992	----	----
862	D4629	65.5	1.10	2129	----	----
863	D4629	63.8	0.40	2146	----	----
875	D4629	65	0.89	6005	----	----
887		----	----	6009	----	----
902		----	----	6016	----	----
922	D4629	59.1	-1.53	9090	----	----
normality		OK				
n		34				
outliers		4				
mean (n)		62.83				
st.dev. (n)		3.446				
R(calc.)		9.65				
R(D4629:12)		6.82				

Lab 120 first reported:41
 Lab 657 first reported:48.46

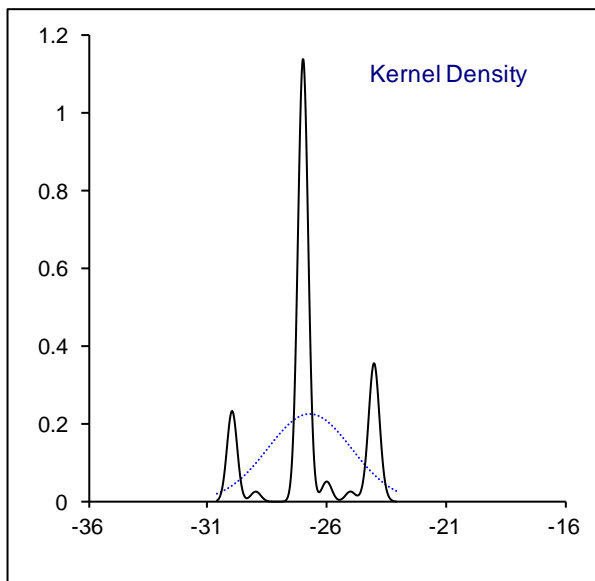
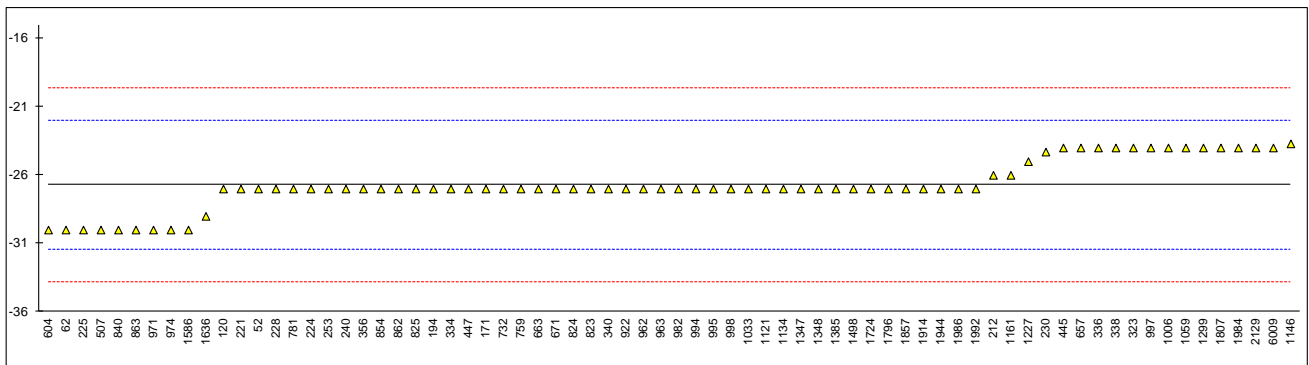


Determination of Pour Point, Manual on sample #15175; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	-27		-0.12	951	D97	<-21		----
53		----		----	962	D97	-27		-0.12
62	D97	-30		-1.39	963	D97	-27		-0.12
92		----		----	970		----		----
120	D97	-27		-0.12	971	D97	-30		-1.39
132	D97	<-27		----	974	D97	-30		-1.39
140		----		----	982	D97	-27		-0.12
150		----		----	994	D97	-27		-0.12
159		----		----	995	D97	-27		-0.12
169	D97	<27		----	996		----		----
171	D97	-27		-0.12	997	D97	-24		1.15
175		----		----	998	D97	-27.0		-0.12
186		----		----	1006	D97	-24		1.15
194	D97	-27		-0.12	1011	D97	<-24		----
212	ISO3016	-26		0.31	1033	IP15	-27		-0.12
217		----		----	1059	ISO3016	-24		1.15
221	D97	-27		-0.12	1067		----		----
224	D97	-27		-0.12	1080		----		----
225	D97	-30		-1.39	1081		----		----
228	D97	-27		-0.12	1090		----		----
230	ISO3016	-24.3		1.03	1107		----		----
237	D97	<-24		----	1109		----		----
238		----		----	1121	D97	-27.0		-0.12
240	D97	-27		-0.12	1126		----		----
242		----		----	1134	D97	-27		-0.12
252		----		----	1146	D97	-23.7		1.28
253	D97	-27		-0.12	1161	ISO3016	-26		0.31
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213	D97	<-24		----
311		----		----	1227	D97	-25		0.73
312		----		----	1297		----		----
317		----		----	1299	D97	-24		1.15
323	D97	-24		1.15	1347	D97	-27		-0.12
332		----		----	1348	D97	-27		-0.12
333		----		----	1356		----		----
334	D97	-27		-0.12	1385	D97	-27		-0.12
335		----		----	1395		----		----
336	D97	-24	C	1.15	1397		----		----
337		----		----	1409		----		----
338	D97	-24		1.15	1417		----		----
340	D97	-27	C	-0.12	1428		----		----
343		----		----	1430		----		----
344		----		----	1431		----		----
349		----		----	1498	D97	-27		-0.12
353		----		----	1512		----		----
356	D97	-27		-0.12	1586	D97	-30		-1.39
381		----		----	1588		----		----
431		----		----	1613	D97	<-24		----
445	D97	-24		1.15	1616		----		----
446		----		----	1629		----		----
447	D97	-27		-0.12	1634		----		----
463		----		----	1635		----		----
485		----		----	1636	D97	-29		-0.97
494		----		----	1650		----		----
496		----		----	1654		----		----
507	D97	-30		-1.39	1709		----		----
511		----		----	1720		----		----
541	D97	<-21		----	1724	D97	-27		-0.12
557		----		----	1776		----		----
558		----		----	1796	D97	-27		-0.12
562		----		----	1807	D97	-24		1.15
604	D97	-30		-1.39	1810		----		----
607		----		----	1811		----		----
608		----		----	1813		----		----
657	D97	-24		1.15	1846		----		----
663	D97	-27		-0.12	1849		----		----
671	D97	-27		-0.12	1857	D97	-27		-0.12
732	D97	-27		-0.12	1906		----		----
750		----		----	1914	D97	-27		-0.12
759	D97	-27		-0.12	1936		----		----
781	D97	-27		-0.12	1937		----		----
785		----		----	1938		----		----
823	D97	-27		-0.12	1944	D97	-27		-0.12
824	D97	-27		-0.12	1953		----		----

825	D97	-27	-0.12	1984	ISO3016	-24	1.15
840	D97	-30	-1.39	1986	D97	-27	-0.12
854	D97	-27	-0.12	1992	D97	-27	-0.12
862	D97	-27	-0.12	2129	ISO3016	-24	1.15
863	D97	-30	-1.39	2146		----	----
875		----	----	6005		----	----
887		----	----	6009	D97	-24.0	1.15
902		----	----	6016		----	----
922	D97	-27	-0.12	9090		----	----
normality		OK					
n		72					
outliers		0					
mean (n)		-26.72					
st.dev. (n)		1.763					
R(calc.)		4.94					
R(D97:12)		6.60					

Labs 336 and 340: test results were reported under the automated test method.

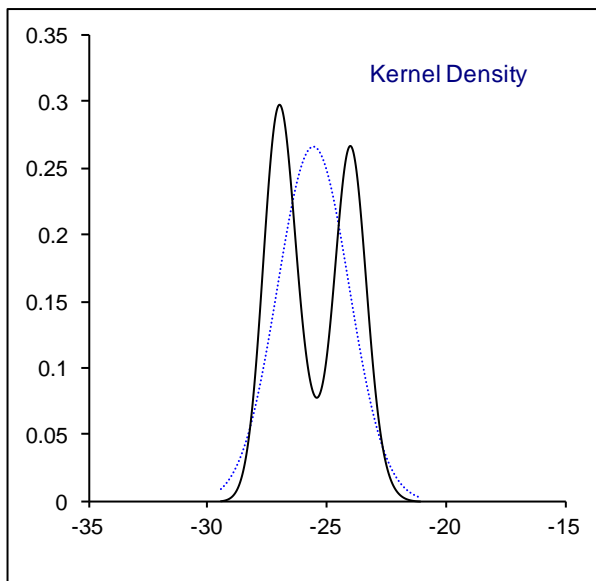
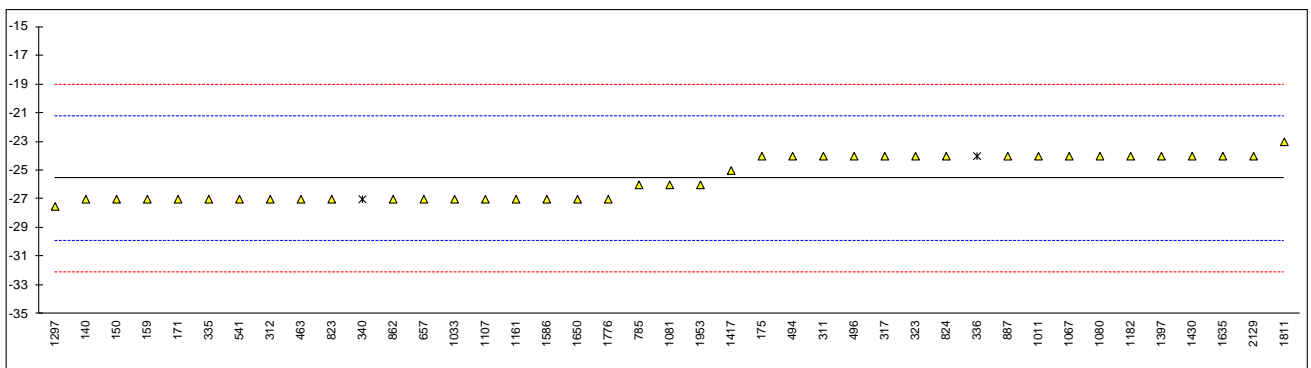


Determination of Pour Point, Automated, 3 °C interval on sample #15175; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963		----		----
92		----		----	970		----		----
120		----		----	971		----		----
132		----		----	974		----		----
140	D5950	-27		-0.66	982		----		----
150	D5950	-27.0		-0.66	994		----		----
159	D5950	-27		-0.66	995		----		----
169		----		----	996		----		----
171	D5950	-27		-0.66	997		----		----
175	D5950	-24		0.71	998		----		----
186		----		----	1006		----		----
194		----		----	1011	D6892	-24		0.71
212		----		----	1033	D5950	-27		-0.66
217		----		----	1059		----		----
221		----		----	1067	D5950	-24		0.71
224		----		----	1080	D6749	-24		0.71
225		----		----	1081	D5950	-26		-0.21
228		----		----	1090		----		----
230		----		----	1107	D5950	-27		-0.66
237		----		----	1109		----		----
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134		----		----
252		----		----	1146		----		----
253		----		----	1161	D6749	-27		-0.66
254		----		----	1167		----		----
256		----		----	1182	D5949	-24		0.71
258		----		----	1186		----		----
273		----		----	1213		----		----
311	D5950	-24		0.71	1227		----		----
312	D5950	-27		-0.66	1297	D5950	-27.5		-0.89
317	D6749	-24		0.71	1299		----		----
323	D5950	-24		0.71	1347		----		----
332		----		----	1348		----		----
333		----		----	1356		----		----
334		----		----	1385		----		----
335	D5950	-27		-0.66	1395		----		----
336	D97	-24	ex	0.71	1397	D5950	-24		0.71
337		----		----	1409		----		----
338		----		----	1417	D5950	-25		0.25
340	D97	-27	ex	-0.66	1428		----		----
343		----		----	1430	D5950	-24		0.71
344		----		----	1431		----		----
349		----		----	1498		----		----
353		----		----	1512		----		----
356		----		----	1586	D5950	-27		-0.66
381		----		----	1588		----		----
431		----		----	1613		----		----
445		----		----	1616		----		----
446		----		----	1629		----		----
447		----		----	1634		----		----
463	D6892	-27		-0.66	1635	D5950	-24		0.71
485		----		----	1636		----		----
494	D6892	-24		0.71	1650	D5950	-27		-0.66
496	D6892	-24		0.71	1654		----		----
507		----		----	1709		----		----
511		----		----	1720		----		----
541	D5950	-27		-0.66	1724		----		----
557		----		----	1776	D5950	-27		-0.66
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811	D5950	-23		1.17
608		----		----	1813		----		----
657	D5950	-27		-0.66	1846		----		----
663		----		----	1849		----		----
671		----		----	1857		----		----
732		----		----	1906		----		----
750		----		----	1914		----		----
759		----		----	1936		----		----
781		----		----	1937		----		----
785	D6749	-26		-0.21	1938		----		----
823	D5950	-27		-0.66	1944		----		----
824	D6749	-24		0.71	1953	D6749	-26		-0.21

825		----	----	1984		----	----
840		----	----	1986		----	----
854		----	----	1992		----	----
862	D5950	-27	-0.66	2129	D5950	-24	0.71
863		----	----	2146		----	----
875		----	----	6005		----	----
887	D6749	-24	0.71	6009		----	----
902		----	----	6016		----	----
922		----	----	9090		----	----
normality	OK						
n	39						
outliers	0 + 2 excl.						
mean (n)	-25.55						
st.dev. (n)	1.4991						
R(calc.)	4.20						
R(D5950:14)	6.10						

Lab 336: test result excluded, used test method is not an automated method, test result placed under manual test method.
 Lab 340: test result excluded, used test method is not an automated method, test result placed under manual test method.



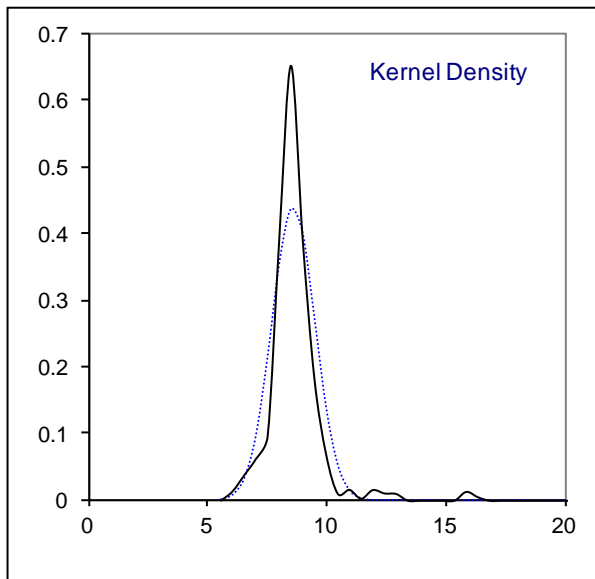
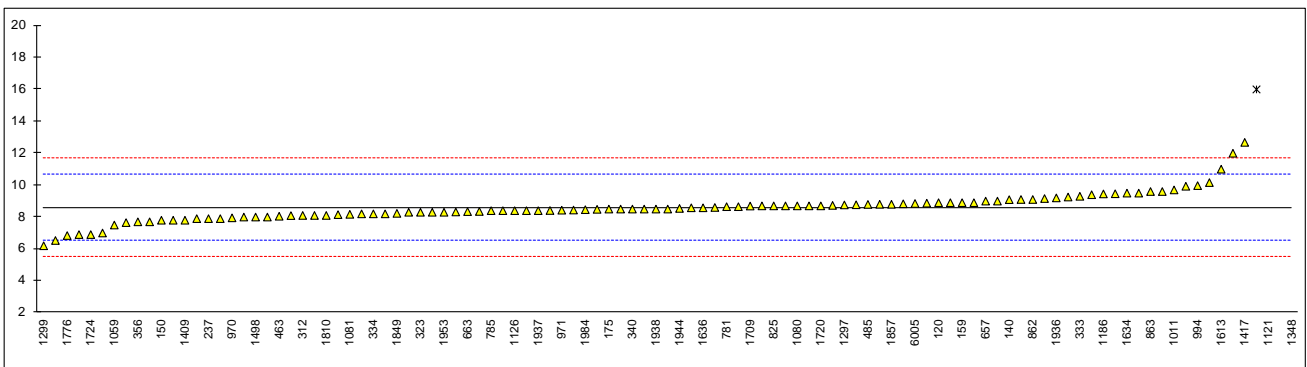
Determination of Sulphur Content on sample #15175; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951	D4294	<17		----
53	D5453	8.2		-0.37	962		----		----
62	D5453	9.1		0.49	963	D5453	8.3		-0.28
92	D5453	10.16		1.51	970	D5453	7.950		-0.61
120	D5453	8.9		0.30	971	D5453	8.43		-0.15
132	D5453	9.16		0.55	974		----		----
140	D5453	9.09		0.48	982		----		----
150	D5453	7.8		-0.76	994	D5453	9.97		1.33
159	D5453	8.9		0.30	995	D5453	8.5		-0.08
169	D5453	8.09		-0.48	996		----		----
171	D5453	9.4		0.78	997		----		----
175	D5453	8.5		-0.08	998		----		----
186	D4294	91	R(0.01)	79.36	1006	D5453	8.83		0.23
194	D5453	8.9		0.30	1011	ISO20846	9.7		1.07
212		----		----	1033		----		----
217		----		----	1059	ISO20846	7.5		-1.05
221		----		----	1067	D5453	8.4		-0.18
224	D4294	9.6		0.98	1080	D5453	8.7		0.11
225		----		----	1081	ISO20846	8.17		-0.40
228		----		----	1090		----		----
230	D5453	16	R(0.01)	7.14	1107	D5453	8.41		-0.17
237	D4294	7.9		-0.66	1109	D7039	8.32		-0.26
238		----		----	1121	D4294	30	C,R(0.01)	20.62
240		----		----	1126	ISO20846	8.4		-0.18
242		----		----	1134	D5453	9.255		0.64
252		----		----	1146	D4294	<100		----
253		----		----	1161	ISO20846	8.65		0.06
254		----		----	1167		----		----
256	D4294	<17		----	1182	ISO20846	8.7		0.11
258		----		----	1186	D5453	9.45		0.83
273	D5453	7.9		-0.66	1213		----		----
311	D5453	7.9		-0.66	1227	D5453	8.3		-0.28
312	D5453	8.1		-0.47	1297	D5453	8.76		0.17
317	D2622	6.9		-1.62	1299	ISO20884	6.2		-2.30
323	D5453	8.3		-0.28	1347		----		----
332		----		----	1348	D4294	130	R(0.01)	116.91
333	ISO20846	9.3		0.69	1356		----		----
334	D5453	8.2		-0.37	1385	D4294	<100		----
335	ISO20846	8.7		0.11	1395		----		----
336	D5453	8.5		-0.08	1397	D5453	7.65		-0.90
337		----		----	1409	ISO20846	7.8		-0.76
338		----		----	1417	INH-183	12.68	C	3.94
340	D5453	8.5		-0.08	1428	ISO20846	7.0		-1.53
343	ISO20846	8.0		-0.57	1430	D5185	12		3.29
344	D5453	8.483		-0.10	1431		----		----
349	D2622	6.53		-1.98	1498	D5453	8.0		-0.57
353		----		----	1512		----		----
356	ISO20846	7.7		-0.85	1586	D5453	8.1		-0.47
381	ISO20846	9.46		0.84	1588		----		----
431		----		----	1613	D4294	11		2.32
445	D5453	8.35		-0.23	1616		----		----
446		----		----	1629		----		----
447	D5453	8.580		-0.01	1634	ISO20846	9.5		0.88
463	D5453	8.05		-0.52	1635	D5453	8.0		-0.57
485	D5453	8.79		0.20	1636	ISO20846	8.58		-0.01
494	D5453	7.8		-0.76	1650		----		----
496	D5453	8.77		0.18	1654		----		----
507		----		----	1709	D5453	8.69		0.10
511		----		----	1720	D5453	8.7		0.11
541	D5453	8.6		0.01	1724	D5453	6.9		-1.62
557		----		----	1776	ISO20846	6.84		-1.68
558		----		----	1796		----		----
562		----		----	1807	D5453	7.7		-0.85
604		----		----	1810	D5453	8.1		-0.47
607		----		----	1811	D5453	8.15		-0.42
608		----		----	1813		----		----
657	D5453	9.0		0.40	1846		----		----
663	D5453	8.34		-0.24	1849	ISO20846	8.23		-0.34
671	D5453	8.73		0.14	1857	ISO20846	8.8		0.21
732	D4294	<17		----	1906		----		----
750		----		----	1914	D5453	8.4		-0.18
759		----		----	1936	ISO20846	9.2		0.59
781	D5453	8.65		0.06	1937	ISO20846	8.4		-0.18
785	ISO20846	8.4		-0.18	1938	ISO20846	8.5		-0.08
823	D5453	8.87		0.27	1944	D5453	8.54		-0.05
824	D5453	8.7		0.11	1953	D4294	8.3		-0.28

825	D5453	8.7	0.11	1984	ISO20846	8.462	-0.12
840	D4294	<15	----	1986	D4294	9.0	0.40
854	D5453	8.8	0.21	1992	D4294	8.5	-0.08
862	D5453	9.1	0.49	2129	ISO20846	8.44	-0.14
863	D5453	9.60	0.98	2146	ISO20846	9.5	0.88
875	ISO20846	8.9	0.30	6005	ISO20846	8.85	0.25
887		----	----	6009	D5453	9.93	1.29
902		----	----	6016		----	----
922	D5453	8.2	-0.37	9090		----	----
normality		not OK					
n		103					
outliers		4					
mean (n)		8.587					
st.dev. (n)		0.9064					
R(calc.)		2.538					
R(D5453:12)		2.908					

Lab 1121 reported : 0.003 % M/M

Lab 1417 first reported: 300

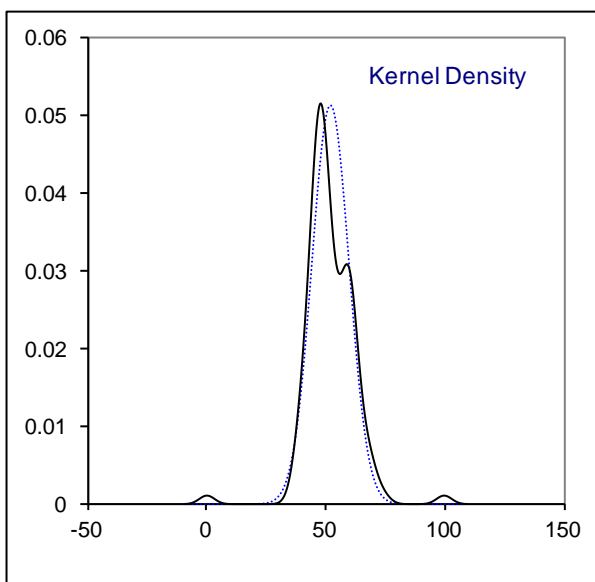
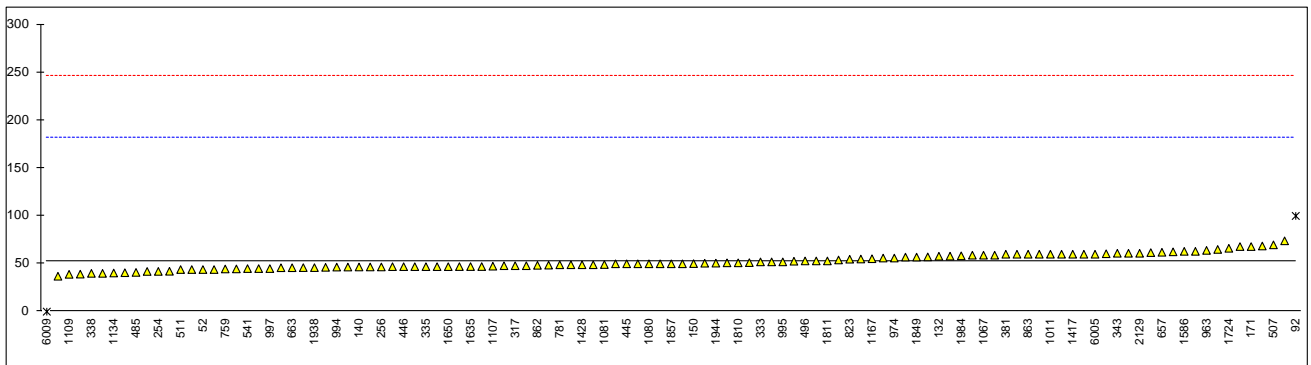


Determination of Water Content on sample #15175; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304-A	44		-0.12	951		----		----
53		----		----	962	D6304-A	61		0.14
62	D6304-A	49		-0.05	963	D6304-A	64		0.18
92	E203	100	R(0.01)	0.74	970	D6304-A	58		0.09
120	D6304-A	65		0.20	971	D6304-A	56		0.06
132	D6304-A	57.9		0.09	974	D6304-A	56		0.06
140	D6304-A	46.68		-0.08	982		----		----
150	D6304-A	50.2		-0.03	994	D6304	46.56		-0.09
159	D6304-A	68		0.25	995	D6304-A	52		0.00
169		----		----	996		----		----
171	D6304-A	68		0.25	997	D6304-A	45		-0.11
175		----		----	998	D6304	57.2		0.08
186		----		----	1006		----		----
194		----		----	1011	ISO12937	60		0.12
212		----		----	1033	IP438	61.69		0.15
217		----		----	1059	ISO12937	50		-0.03
221		----		----	1067	ISO12937	59		0.11
224	ISO12937	62.5	C	0.16	1080	ISO12937	50		-0.03
225		----		----	1081	ISO12937	49.22		-0.04
228		----		----	1090		----		----
230	ISO3733	<500	C	----	1107	D6304-A	47.5		-0.07
237		----		----	1109	D6304-C	39		-0.20
238		----		----	1121	D6304-A	60		0.12
240		----		----	1126		----		----
242		----		----	1134	IP438	40.39		-0.18
252		----		----	1146	D6304-C	37		-0.23
253	D6304-A	60.0		0.12	1161	ISO12937	47.082		-0.08
254	D6304-A	42.05		-0.15	1167	ISO12937	55.3		0.05
256	D6304-B	46.71		-0.08	1182		----		----
258		----		----	1186		----		----
273	D6304-A	47.0		-0.08	1213	D6304-A	68.6		0.26
311	D6304-A	45		-0.11	1227	D6304-A	59		0.11
312	ISO12937	55		0.05	1297	D6304-A	50.6		-0.02
317	D6304-A	48		-0.06	1299	ISO12937	40		-0.19
323	D6304-A	48		-0.06	1347		----		----
332	ISO12937	48.6		-0.05	1348		----		----
333	D6304-A	52		0.00	1356	D6304-A	<100	C	----
334	D6304-A	60		0.12	1385		----		----
335	D6304	47		-0.08	1395		----		----
336	ISO12937	50		-0.03	1397	ISO12937	48		-0.06
337	ISO12937	46.3		-0.09	1409	ISO12937	47		-0.08
338	D6304-A	40		-0.19	1417	D6304-A	60		0.12
340	D6304-A	46.6		-0.08	1428	ISO12937	49		-0.05
343	ISO12937	61		0.14	1430	D6304-A	60		0.12
344	ISO12937	44.66		-0.11	1431		----		----
349	D6304-A	40.7		-0.18	1498		----		----
353	IP438	54		0.03	1512		----		----
356	D6304-A	59		0.11	1586	ISO12937	63		0.17
381	ISO12937	60		0.12	1588		----		----
431		----		----	1613	D95	<500		----
445	D6304-A	50.0		-0.03	1616		----		----
446	D6304-A	47		-0.08	1629		----		----
447	IP438	44		-0.12	1634	ISO12937	46.7		-0.08
463	D6304-A	42		-0.16	1635	D6304-A	47.1		-0.08
485	D6304-A	41		-0.17	1636	D6304-A	52.7		0.01
494	D6304-A	47		-0.08	1650	ISO12937	47		-0.08
496	D6304-A	53		0.01	1654		----		----
507	D6304-A	69.80		0.27	1709		----		----
511	D6304-A	44.00		-0.12	1720		----		----
541	D6304-A	45		-0.11	1724	D6304-A	66.2		0.22
557		----		----	1776	ISO12937	50		-0.03
558		----		----	1796		----		----
562		----		----	1807	ISO12937	46		-0.09
604		----		----	1810	ISO12937	51		-0.02
607	D95	<500		----	1811	D6304-A	53		0.01
608		----		----	1813		----		----
657	D6304-A	62.05		0.15	1846		----		----
663	D6304-A	45.9		-0.10	1849	ISO12937	57		0.08
671		----		----	1857	D6304-A	50		-0.03
732		----		----	1906	D6304-A	45.89		-0.10
750		----		----	1914	IP438	49		-0.05
759	D6304	44.6		-0.12	1936	ISO12937	44		-0.12
781	D6304-A	48.95		-0.05	1937	ISO12937	50		-0.03
785	D6304-A	47.12		-0.08	1938	ISO12937	46		-0.09
823	D6304-A	54.8		0.04	1944	D6304-A	50.7		-0.02
824	D6304-A	52		0.00	1953	ISO12937	60.49		0.13

825		-----		1984	ISO12937	58.34		0.10
840	D6304-A	42.2	-0.15	1986	IP439	63		0.17
854	D6304-A	74	0.34	1992	D6304-A	51.21		-0.01
862	D6304-A	48.4	-0.06	2129	IP439	61		0.14
863	D6304-A	60	0.12	2146		-----		-----
875	D6304-A	51	-0.02	6005	ISO12937	60		0.12
887	D6304-A	57	0.08	6009	D95	0	R(0.01)	-0.81
902	D6304-A	53	0.01	6016		-----		-----
922	D6304-A	39.2	-0.20	9090		-----		-----
normality		OK						
n		111						
outliers		2						
mean (n)		52.07						
st.dev. (n)		7.803						
R(calc.)		21.85						
R(D6304:07)		180.97						

Lab 224 first reported: 0.625 mg/kg
 Lab 230: probably unit error, reported <0.05
 Lab 1356 first reported: 0.01% M/M
 Lab 1613 reported : <0.05 vol %
 Lab 6009 reported % V/V



Determination of Water and sediment (D2709) on sample #15175; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	0		----	951		----		----
53		----		----	962		----		----
62		----		----	963	D2709	0.005		----
92	D2709	0		----	970		----		----
120	D2709	<0.05		----	971		----		----
132	D2709	0		----	974	D2709	0.005		----
140		----		----	982		----		----
150	D2709	<0.005		----	994		----		----
159	D2709	0		----	995		----		----
169		----		----	996		----		----
171	D2709	0		----	997	D2709	0		----
175		----		----	998		----		----
186		----		----	1006		----		----
194		----		----	1011	D2709	<0.005		----
212		----		----	1033		----		----
217		----		----	1059	D2709	<0.05		----
221		----		----	1067		----		----
224		----		----	1080		----		----
225		----		----	1081		----		----
228		----		----	1090		----		----
230		----		----	1107		----		----
237	D2709	0.005		----	1109	D2709	0.000		----
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134	D2709	0.001		----
252		----		----	1146		----		----
253		----		----	1161		----		----
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213	D2709	0		----
311		----		----	1227		----		----
312		----		----	1297		----		----
317		----		----	1299	D2709	0.005		----
323	D2709	0.005		----	1347	D2709	0		----
332		----		----	1348	D2709	0.005		----
333		----		----	1356		----		----
334		----		----	1385	D2709	0.005		----
335		----		----	1395		----		----
336		----		----	1397		----		----
337		----		----	1409		----		----
338		----		----	1417		----		----
340	D2709	0		----	1428		----		----
343	D2709	0		----	1430		----		----
344	D2709	<0.05		----	1431		----		----
349		----		----	1498	D2709	0.005		----
353		----		----	1512		----		----
356	D2709	<0.05		----	1586	D2709	0.05	false pos?	----
381		----		----	1588		----		----
431		----		----	1613	D2709	<0.005		----
445		----		----	1616		----		----
446		----		----	1629		----		----
447		----		----	1634		----		----
463		----		----	1635		----		----
485		----		----	1636	D2709	<0.05		----
494	D2709	0		----	1650	D2709	<0.005		----
496		----		----	1654		----		----
507	D2709	0.000		----	1709		----		----
511	D2709	0.005		----	1720		----		----
541	D2709	<0.05		----	1724		----		----
557		----		----	1776		----		----
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813	D2709	0.050	false pos?	----
657	D2709	<0.005		----	1846		----		----
663	D2709	0.005		----	1849		----		----
671		----		----	1857		----		----
732		----		----	1906		----		----
750		----		----	1914	D2709	0		----
759		----		----	1936		----		----
781	D2709	0.000		----	1937		----		----
785		----		----	1938		----		----
823	D2709	0		----	1944		----		----
824	D2709	0		----	1953		----		----

825	D2709	0	----	1984	----	----
840	D2709	<0.005	----	1986	----	----
854	D2709	0	----	1992	----	----
862	D2709	<0.005	----	2129	----	----
863		----	----	2146	----	----
875		----	----	6005	----	----
887		----	----	6009	----	----
902		----	----	6016	----	----
922		----	----	9090	----	----
	normality	n.a.				
	n	44				
	outliers	0				
	mean (n)	<0.05				
	st.dev. (n)	n.a.				
	R(calc.)	n.a.				
	R(D2709:96e1)	n.a.				

Determination of Water and sediment (D1796) on sample #15175; result in %V/V

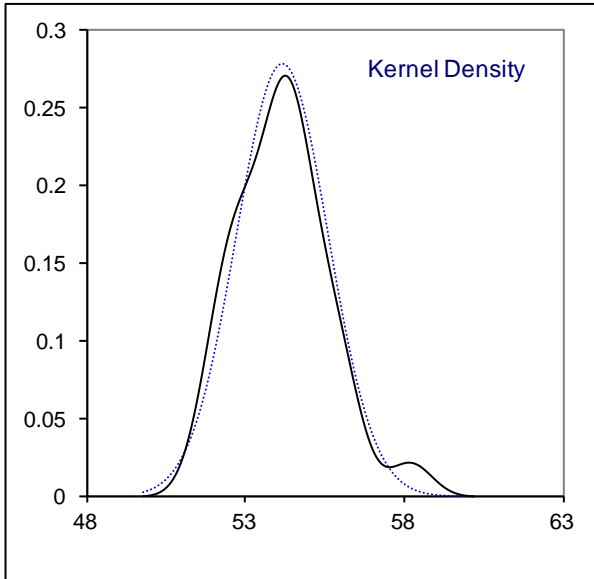
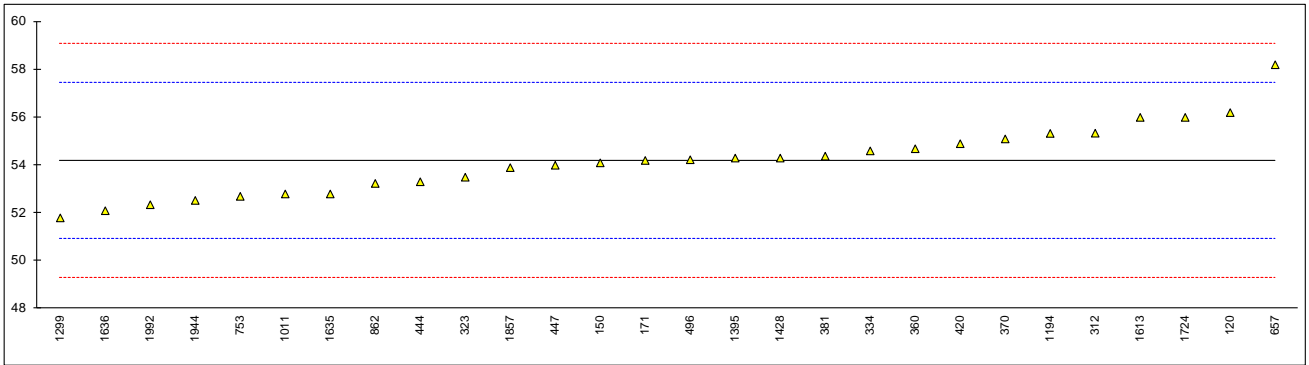
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	951		----		----
53		----		----	962		----		----
62		----		----	963		----		----
92		----		----	970		----		----
120	D1796	<0.05		----	971		----		----
132	D1796	0.00		----	974	D1796	0		----
140	D1796	0.00		----	982		----		----
150	D1796	0		----	994		----		----
159		----		----	995		----		----
169	D1796	0.000		----	996		----		----
171		----		----	997		----		----
175		----		----	998		----		----
186		----		----	1006	D1796	0		----
194	D1796	0.00		----	1011		----		----
212		----		----	1033		----		----
217		----		----	1059		----		----
221		----		----	1067		----		----
224		----		----	1080		----		----
225		----		----	1081		----		----
228		----		----	1090		----		----
230		----		----	1107		----		----
237		----		----	1109	D1796	0.00		----
238		----		----	1121		----		----
240		----		----	1126		----		----
242		----		----	1134	D1796	0.008		----
252		----		----	1146		----		----
253		----		----	1161		----		----
254		----		----	1167		----		----
256		----		----	1182		----		----
258		----		----	1186		----		----
273		----		----	1213		----		----
311		----		----	1227		----		----
312		----		----	1297		----		----
317		----		----	1299	D1796	0.05	false pos?	----
323	D1796	0.00		----	1347	D1796	0		----
332		----		----	1348	D1796	0.005		----
333		----		----	1356		----		----
334		----		----	1385		----		----
335		----		----	1395		----		----
336		----		----	1397	D1796	0		----
337		----		----	1409		----		----
338		----		----	1417		----		----
340		----		----	1428		----		----
343	D1796	0		----	1430		----		----
344		----		----	1431		----		----
349		----		----	1498		----		----
353		----		----	1512		----		----
356		----		----	1586		----		----
381		----		----	1588		----		----
431		----		----	1613	D1796	0.00		----
445		----		----	1616		----		----
446		----		----	1629		----		----
447		----		----	1634		----		----
463		----		----	1635		----		----
485		----		----	1636		----		----
494		----		----	1650	D1796	<0.005		----
496		----		----	1654		----		----
507	D1796	0.00		----	1709		----		----
511		----		----	1720		----		----
541	D1796	<0.1		----	1724		----		----
557		----		----	1776		----		----
558		----		----	1796		----		----
562		----		----	1807		----		----
604		----		----	1810		----		----
607		----		----	1811		----		----
608		----		----	1813		----		----
657	D1796	0.00		----	1846		----		----
663		----		----	1849		----		----
671		----		----	1857		----		----
732		----		----	1906		----		----
750		----		----	1914	D1796	0		----
759		----		----	1936		----		----
781	D1796	0.00		----	1937		----		----
785		----		----	1938		----		----
823	D1796	0		----	1944		----		----
824	D1796	0.00		----	1953		----		----

825	D1796	0	----	1984		----	----
840	D1796	0.00	----	1986		----	----
854		----	----	1992		----	----
862		----	----	2129		----	----
863		----	----	2146		----	----
875		----	----	6005		----	----
887		----	----	6009	D1796	0.00	----
902		----	----	6016		----	----
922	D1796	<0.05	----	9090		----	----
	normality	n.a.					
	n	27					
	outliers	0					
	mean (n)	<0.05					
	st.dev. (n)	n.a.					
	R(calc.)	n.a.					
	R(D1796:11e1)	n.a.					

Lab 1134 reported in % V/V

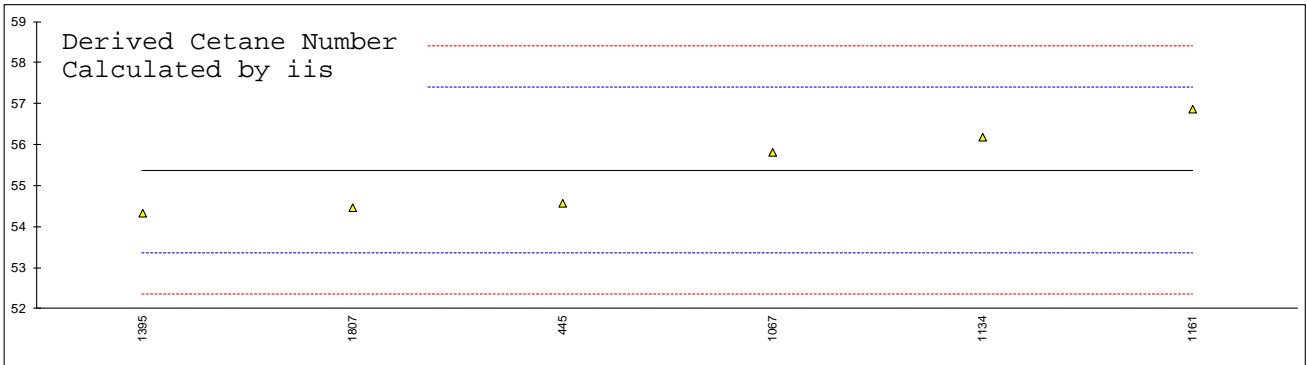
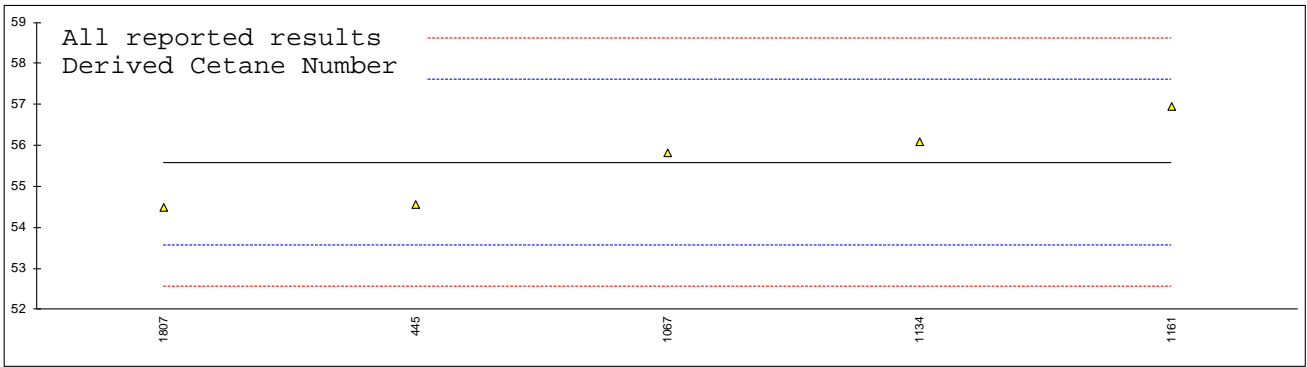
Determination of Cetane Number (ASTM D613) of sample #15176

lab	method	value	mark	z(targ)	remarks
120	D613	56.2		1.24	
150	D613	54.1		-0.05	
171	D613	54.2		0.02	
311		----		----	
312	D613	55.34		0.71	
323	D613	53.5		-0.41	
334	D613	54.6		0.26	
336		----		----	
343		----		----	
356		----		----	
360	D613	54.69		0.32	
370	D613	55.1		0.57	
381	D613	54.38		0.13	
420	ISO5165	54.9		0.44	
444	D613	53.31		-0.53	
445		----		----	
447	D613	54.0		-0.11	
496	D613	54.23		0.03	
657	D613	58.2		2.47	
753	D613	52.70		-0.90	
862	D613	53.24		-0.57	
1006		----		----	
1011	ISO5165	52.8		-0.84	
1059		----		----	
1065		----		----	
1067		----		----	
1080		----		----	
1081		----		----	
1107		----		----	
1134		----		----	
1161		----		----	
1167		----		----	
1194	INH-613	55.33		0.71	
1299	D613	51.8		-1.45	
1395	EN15195	54.3		0.08	
1428	D613	54.3		0.08	
1586		----		----	
1613	D613	56.0		1.12	
1616		----		----	
1635	D613	52.8		-0.84	
1636	ISO5165	52.1		-1.27	
1724	D613	56		1.12	
1776		----		----	
1807		----		----	
1810		----		----	
1857	D613	53.9		-0.17	
1944	D613	52.53		-1.01	
1992	D613	52.35		-1.12	
	normality	OK			
	n	28			
	outliers	0			
	mean (n)	54.175			
	st.dev. (n)	1.4361			
	R(calc.)	4.021			
	R(D613:15ae1)	4.572			



Determination of Derived Cetane Number (D6890) of sample #15176

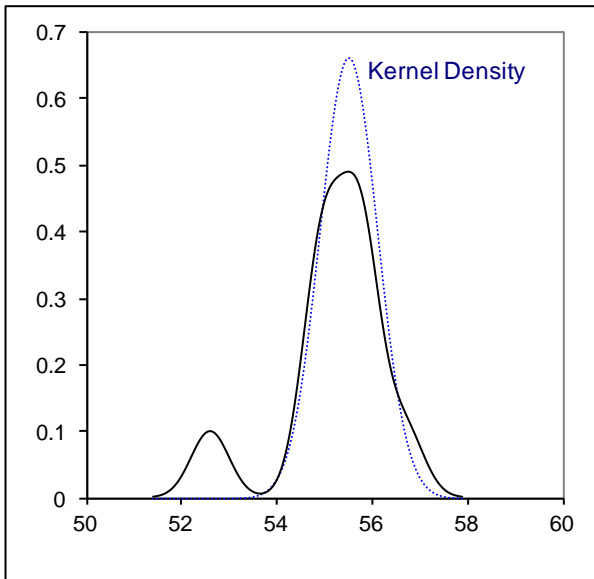
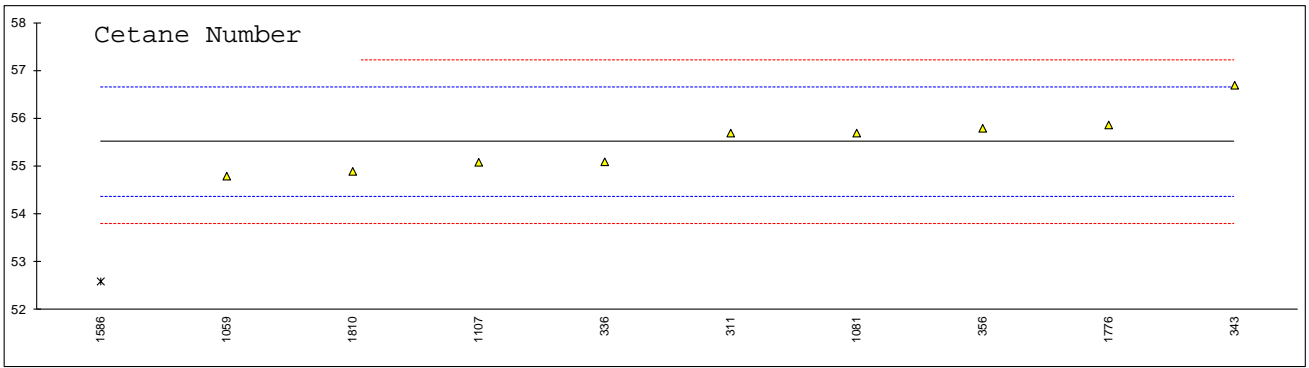
lab	method	value	mark	z(targ)	Ignition delay	Air Temp.	Remarks
120		----		----	----	----	
150		----		----	----	----	
171		----		----	----	----	
311		----		----	----	----	
312		----		----	----	----	
323		----		----	----	----	
334		----		----	----	----	
336		----		----	----	----	
343		----		----	----	----	
356		----		----	----	----	
360		----		----	----	----	
370		----		----	----	----	
381		----		----	----	----	
420		----		----	----	----	
444		----		----	----	----	
445	D6890/IP498	54.57		-1.01	3.723	547.1	DCN calculated by iis:54.58
447		----		----	----	----	
496		----		----	----	----	
657		----		----	----	----	
753		----		----	----	----	
862		----		----	----	----	
1006		----		----	----	----	
1011		----		----	----	----	
1059		----		----	----	----	
1065		----		----	----	----	
1067	D6890	55.83		0.24	3.633	543.3	DCN calculated by iis:55.82
1080		----		----	----	----	
1081		----		----	----	----	
1107		----		----	----	----	
1134	D6890	56.1		0.50	3.607	574.6	DCN calculated by iis:55.82
1161	EN15195	56.96		1.35	3.56	586.5	DCN calculated by iis:56.88
1167		----		----	----	----	
1194		----		----	----	----	
1299		----		----	----	----	
1395		----		----	3.741	597.6	DCN calculated by iis: 54.34
1428		----		----	----	----	
1586		----		----	----	----	
1613		----		----	----	----	
1616		----		----	----	----	
1635		----		----	----	----	
1636		----		----	----	----	
1724		----		----	----	----	
1776		----		----	----	----	
1807	EN15195	54.5		-1.08	3.731	588.3	DCN calculated by iis:54.5
1810		----		----	----	----	
1857		----		----	----	----	
1944		----		----	----	----	
1992		----		----	----	----	
	normality	unknown			unknown	Range:	<u>DCN after recalculation by iis</u>
	n	5			6	515 °C- 575°C	unknown
	outliers	0			0		0
	mean (n)	55.59			3.67		55.38
	st.dev. (n)	1.052			0.076		1.062
	R(calc.)	2.94			0.21		2.97
	R(D6890:15)	2.83			0.20		2.82



Determination of Derived Cetane Number (D7668) of sample #15176

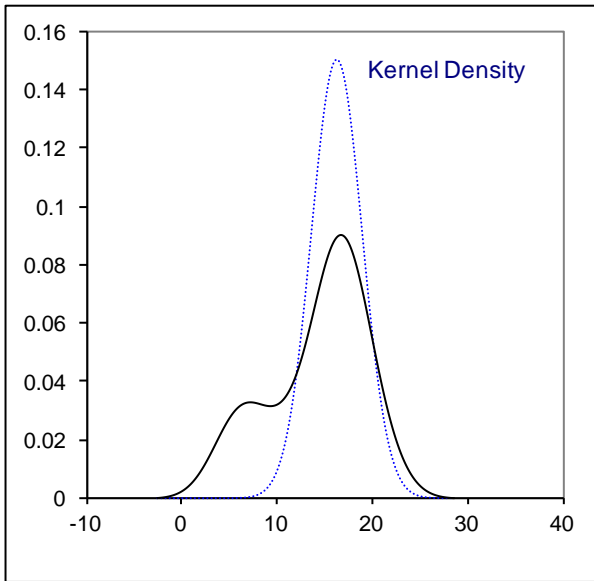
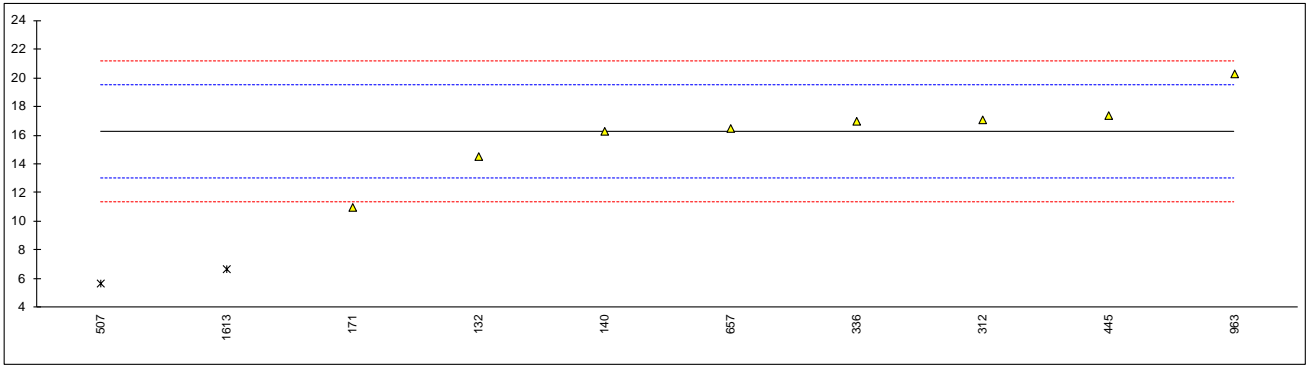
lab	method	value	mark	z(targ)	Ignition delay	Combustion delay	Wall Temp.	Remarks
120		----		----	----	----	----	
150		----		----	----	----	----	
171		----		----	----	----	----	
311	D7668	55.7		0.32	2.7754	C 4.2695	595	DCN calculated by iis:55.7
312		----		----	----	----	----	
323		----		----	----	----	----	
334		----		----	----	----	----	
336	D7668	55.1		-0.73	2.78	4.32	602.1	DCN calculated by iis:55.0
343	D7668	56.7		2.07	2.67	4.20	595	DCN calculated by iis:56.7
356	D7668	55.80		0.49	2.7547	4.3254	611.23	DCN calculated by iis:54.92
360		----		----	----	----	----	
370		----		----	----	----	----	
381		----		----	----	----	----	
420		----		----	----	----	----	
444		----		----	----	----	----	
445		----		----	----	----	----	
447		----		----	----	----	----	
496		----		----	----	----	----	
657		----		----	----	----	----	
753		----		----	----	----	----	
862		----		----	----	----	----	
1006		----		----	----	----	----	
1011		----		----	----	----	----	
1059	D7668	54.8		-1.26	2.85	4.34	598.5	DCN calculated by iis:54.8
1065		----		----	----	----	----	
1067		----		----	----	----	----	
1080		----		----	----	----	----	
1081	D7668	55.7		0.32	2.7564	4.2722	595.15	DCN calculated by iis:55.7
1107	D7668	55.09		-0.75	2.75	4.32	603.28	DCN calculated by iis:55.00
1134		----		----	----	----	----	
1161		----		----	----	----	----	
1167		----		----	----	----	----	
1194		----		----	----	----	----	
1299		----		----	----	----	----	
1395		----		----	----	----	----	
1428		----		----	----	----	----	
1586	D7668	52.6	G(0.01)	-5.11	----	----	----	no calc. ignition delay unknown
1613		----		----	----	----	----	
1616		----		----	----	----	----	
1635		----		----	----	----	----	
1636		----		----	----	----	----	
1724		----		----	----	----	----	
1776	D7668	55.87		0.62	2.8052	4.2621	592.87	DCN calculated by iis:55.87
1807		----		----	----	----	----	
1810	D7668	54.9	E	-1.08	2.227	G(1) 4.187	600.2	DCN calculated by iis:56.5
1857		----		----	----	----	----	
1944		----		----	----	----	----	
1992		----		----	----	----	----	
	normality	OK			suspect	OK	Range:	DCN after recalculation by iis
	n	9			8	9	560 °C- 640 °C	OK
	outliers	1			1	0		9
	mean (n)	55.52			2.77	4.28		0
	st.dev. (n)	0.604			0.051	0.055		55.59
	R(calc.)	1.69			0.14	0.15		0.711
	R(D7668:14a)	1.60			0.13	0.12		1.99
								1.60

iis calculated values (=E)
 Lab 1810 : 56.5
 Lab 311first reported: 2.65



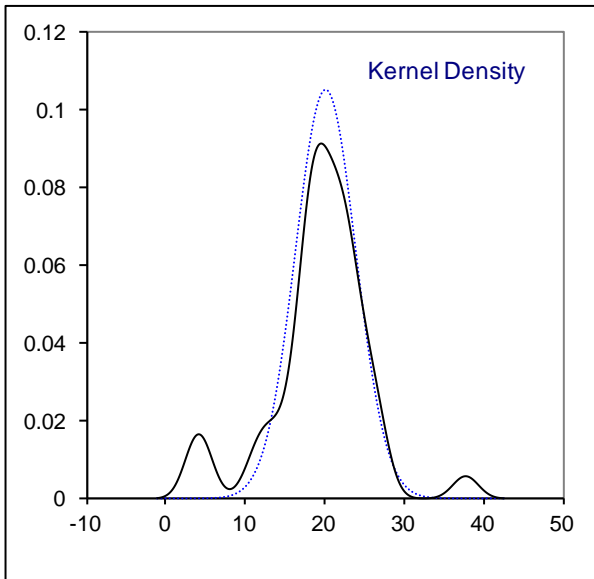
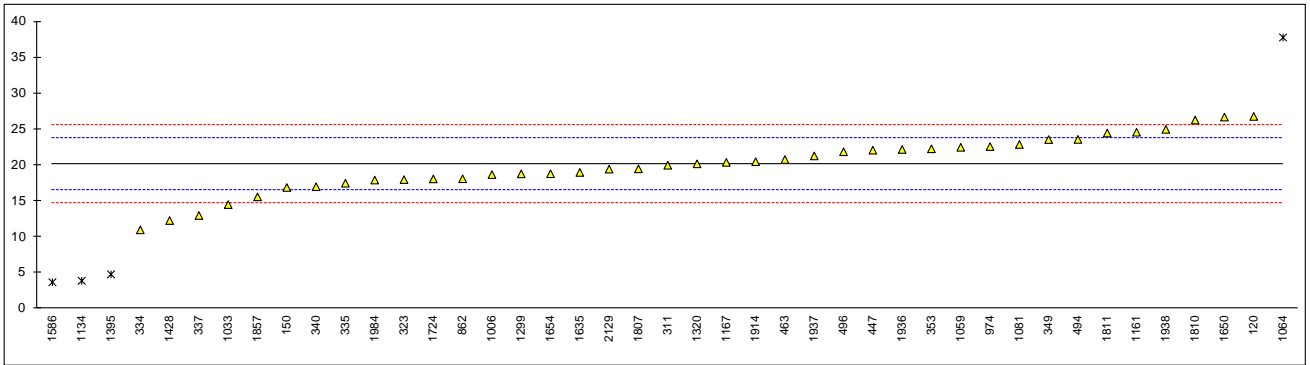
Determination of Total Contamination on sample #15177; result in mg/L

lab	method	value	mark	z(targ)	remarks
120		----		----	
132	D6217	14.545		-1.06	
140	D6217	16.3		0.02	
150		----		----	
159		----		----	
171	D6217	11.0		-3.24	
237		----		----	
311		----		----	
312	D6217	17.1		0.51	
323		----		----	
334		----		----	
335		----		----	
336	EN12662	17.0		0.45	
337		----		----	
340		----		----	
349		----		----	
353		----		----	
445	IP440	17.4		0.70	
447		----		----	
463		----		----	
494		----		----	
496		----		----	
507	D6217	5.70	ex	-6.49	test result excluded, see §4.1
657	D6217	16.5		0.14	
663		----		----	
862		----		----	
963	D6217	20.3		2.48	
974		----		----	
994		----		----	
1006		----		----	
1011		----		----	
1033		----		----	
1059		----		----	
1064		----		----	
1081		----		----	
1107		----		----	
1134		----		----	
1161		----		----	
1167		----		----	
1299		----		----	
1320		----		----	
1395		----		----	
1428		----		----	
1586		----		----	
1613	D6217	6.7	ex	-5.88	test result excluded , see §4.1
1616		----		----	
1635		----		----	
1650		----		----	
1654		----		----	
1724		----		----	
1807		----		----	
1810		----		----	
1811		----		----	
1857		----		----	
1914		----		----	
1936		----		----	
1937		----		----	
1938		----		----	
1984		----		----	
2129		----		----	
9090		----		----	
	normality	not OK			
	n	8			
	outliers	2	<u>Spike:</u>		
	mean (n)	16.27	9.00	(mg/L)	
	st.dev. (n)	2.660			
	R(calc.)	7.45			
	R(D6217:11)	4.56			



Determination of Total Contamination on sample #15177; result in mg/kg

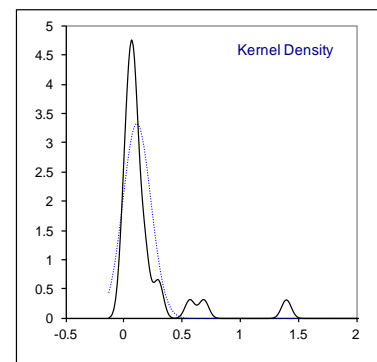
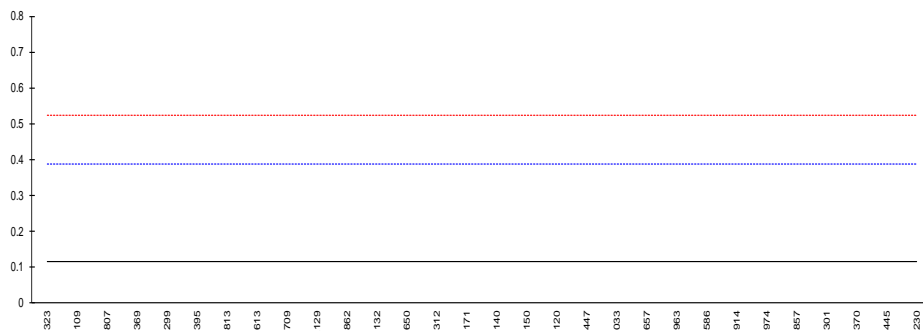
lab	method	value	mark	z(targ)	remarks
120	D6217	26.8		3.68	
132		----		----	
140		----		----	
150	EN12662:2014	16.9		-1.78	
159		----		----	
171		----		----	
237		----		----	
311	D6217	20		-0.07	
312		----		----	
323	EN12662:2014	18.0		-1.18	
334	EN12662:2014	11		-5.04	
335	EN12662:2014	17.5		-1.45	
336		----		----	
337	EN12662:2014	13.0		-3.94	
340	EN12662:2014	17.01		-1.72	
349	EN12662:1998	23.58		1.91	
353	IP440	22.29		1.19	
445		----		----	
447	IP440	22.1		1.09	
463	EN12662:2008	20.8		0.37	
494	EN12662:2014	23.6		1.92	
496	EN12662:2014	21.88		0.97	
507		----		----	
657		----		----	
663		----		----	
862	EN12662:2014	18.12		-1.11	
963		----		----	
974	D6217	22.6		1.36	
994		----		----	
1006	EN12662:2014	18.7		-0.79	
1011	EN12662:2014	<12		----	false negative test result?
1033	IP440	14.52		-3.10	
1059	EN12662:2014	22.5		1.31	
1064	EN12662:2014	37.8	R(0.05)	9.76	
1081	EN12662:2014	22.9		1.53	
1107		----		----	
1134	EN12662	3.9	ex	-8.96	test result excluded , see §4.1
1161	EN12662:2014	24.6		2.47	
1167	EN12662:2014	20.4		0.15	
1299	EN12662:2014	18.8		-0.73	
1320	EN12662:2014	20.2		0.04	
1395	EN12662:2008	4.8		-8.47	
1428	EN12662:2014	12.3		-4.32	
1586	EN12662:2014	3.7	ex	-9.07	test result excluded , see §4.1
1613		----		----	
1616		----		----	
1635	EN12662:2014	19		-0.62	
1650	EN12662:2014	26.71	C	3.63	first reported: 41.3
1654	EN12662:2014	18.82		-0.72	
1724	D6217	18.10		-1.12	
1807	EN12662:2014	19.5		-0.35	
1810	EN12662:2014	26.3	C	3.41	first reported: 36.3
1811	EN12662:2014	24.49		2.41	
1857	EN12662:2008	15.6		-2.50	
1914	EN12662:2014	20.5		0.21	
1936	EN12662:2014	22.2		1.14	
1937	EN12662:2008	21.3		0.65	
1938	EN12662:2014	25.0		2.69	
1984	EN12662:2014	17.94		-1.21	
2129	EN12662:2014	19.46		-0.37	
9090		----		----	
				<u>Spike</u>	<u>Only IP440/EN12662 data</u>
	normality	OK			OK
	n	39			35
	outliers	1 (+2 excl)			1 (+2 excl)
	mean (n)	20.13		10.77	19.93
	st.dev. (n)	3.803			3.810
	R(calc.)	10.65			10.67
	R(EN12662:14)	5.07			7.38



Determination of Oxidation Stability Filterable Insolubles (A) on sample #15178; result in mg/100ml

lab	method	value	mark	z(targ)	remarks
120	D2274	0.10		-0.11	
132	D2274	0.08		-0.26	
140	D2274	0.1		-0.11	
150	D2274	0.1		-0.11	
159		----		----	
171	D2274	0.1		-0.11	
230	ISO12205	3.9	R(0.01)	27.74	
237		----		----	
311	D2274	<1		----	
312	D2274	0.086		-0.21	
323	D2274	0.0		-0.84	
334		----		----	
340		----		----	
369	D2274	0.03		-0.62	
370	D2274	0.69	R(0.01)	4.21	
445	D2274	1.4	R(0.01)	9.42	
447	D2274	0.1		-0.11	
496		----		----	
507		----		----	
657	D2274	0.17		0.40	
862	D2274	0.06		-0.40	
963	D2274	0.17		0.40	
974	D2274	0.3		1.36	
1011		----		----	
1033	D2274	0.1		-0.11	
1059		----		----	
1081		----		----	
1107		----		----	
1109	D2274	0.0		-0.84	
1134		----		----	
1167		----		----	
1299	D2274	0.03		-0.62	reported: 0.3 g/m ³
1301	D2274	0.57		3.34	
1395	D2274	0.03		-0.62	reported: 0.3 g/m ³
1409	ISO12205	<0.1		----	reported: 1 g/m ³
1428		----		----	
1586	ISO12205	0.171		0.41	reported: 1.71 g/m ³
1613	D2274	0.057		-0.42	
1616		----		----	
1650	D2274	0.0857		-0.21	reported: 0.857 g/m ³
1654		----		----	
1709	D2274	0.057		-0.42	
1724		----	C	----	first reported:2.86 g/m ³
1807	ISO12205	0.0		-0.84	
1813	D2274	0.0486		-0.49	
1857	D2274	0.3	C	1.36	first reported:3 g/m ³
1914	D2274	0.2		0.62	
2129	D2274	0.057		-0.42	

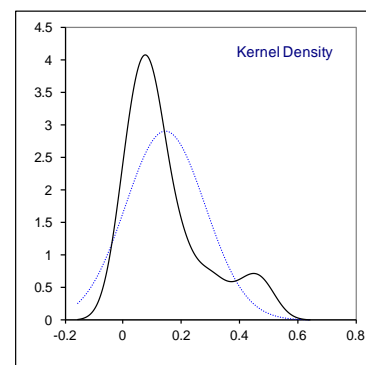
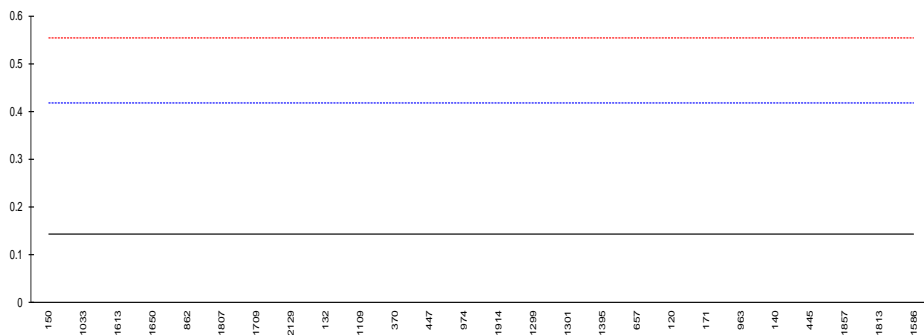
normality not OK
n 27
outliers 3
mean (n) 0.115
st.dev. (n) 0.1201
R(calc.) 0.336
R(D2274:14) 0.382



Determination of Oxidation Stability Adherent Insolubles (B) on sample #15178; result in mg/100ml

lab	method	value	mark	z(targ)	remarks
120	D2274	0.19		0.33	
132	D2274	0.06		-0.62	
140	D2274	0.3		1.14	
150	D2274	0		-1.06	
159		----		----	
171	D2274	0.2		0.40	
230		----		----	
237		----		----	
311	D2274	<1		----	
312		----		----	
323		----		----	
334		----		----	
340		----		----	
369	D2274	<0.1		----	
370	D2274	0.09		-0.40	
445	D2274	0.3		1.14	
447	D2274	0.1		-0.33	
496		----		----	
507		----		----	
657	D2274	0.14		-0.04	
862	D2274	0.03		-0.84	
963	D2274	0.20		0.40	
974	D2274	0.1		-0.33	
1011		----		----	
1033	D2274	0.0		-1.06	
1059		----		----	
1081		----		----	
1107		----		----	
1109	D2274	0.086		-0.43	
1134		----		----	
1167		----		----	
1299	D2274	0.11		-0.25	reported: 1.1 g/m ³
1301	D2274	0.11		-0.25	
1395	D2274	0.11		-0.25	reported: 1.1 g/m ³
1409	ISO12205	<0.1		----	reported: < 1 g/m ³
1428		----		----	
1586	ISO12205	0.486		2.50	reported:4.86 g/m ³
1613	D2274	0.023		-0.89	
1616		----		----	
1650	D2274	0.0286		-0.85	reported:0.286 g/m ³
1654		----		----	
1709	D2274	0.057		-0.64	
1724		----		----	
1807	ISO12205	0.03		-0.84	reported:0.3 g/m ³
1813	D2274	0.4571		2.29	
1857	D2274	0.4	C	1.87	first reported: 4
1914	D2274	0.1		-0.33	
2129	D2274	0.057		-0.64	

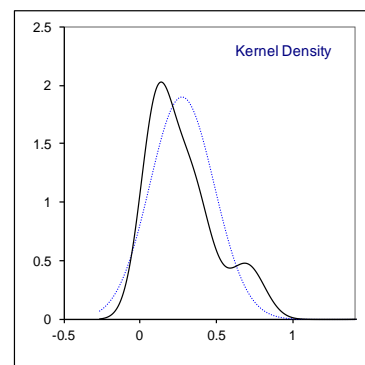
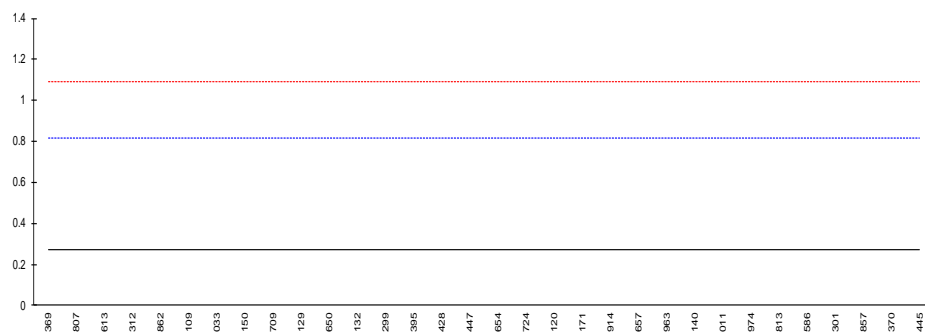
normality suspect
n 26
outliers 0
mean (n) 0.145
st.dev. (n) 0.1372
R(calc.) 0.384
R(D2274:14) 0.382



Determination of Oxidation Stability Total Insolubles on sample #15178; result in mg/100ml

lab	method	value	mark	z(targ)	remarks
120	D2274	0.29		0.07	
132	D2274	0.14		-0.48	
140	D2274	0.4		0.48	
150	D2274	0.1		-0.62	
159		----		----	
171	D2274	0.3		0.11	
230		----		----	
237		----		----	
311	D2274	<1		----	
312	D2274	0.086		-0.67	
323		----		----	
334		----		----	
340		----		----	
369	D2274	0.03		-0.88	
370	D2274	0.78		1.87	
445	D2274	1.7	R(0.01)	5.24	
447	D2274	0.2		-0.26	
496		----		----	
507		----		----	
657	D2274	0.31		0.15	
862	D2274	0.09		-0.66	
963	D2274	0.37		0.37	
974	D2274	0.4		0.48	
1011	ISO12205	0.4		0.48	reported: 4 g/m ³
1033	D2274	0.1		-0.62	
1059		----		----	
1081	D2274	<0.01	false neg?	<-0.95	reported: < 0.1g/m ³
1107		----		----	
1109	D2274	0.09		-0.66	
1134		----		----	
1167		----		----	
1299	D2274	0.14		-0.48	reported: 1.4 g/m ³
1301	D2274	0.68		1.50	
1395	D2274	0.14		-0.48	reported: 1.4 g/m ³
1409	ISO12205	<0.1		----	reported: < 1g/m ³
1428	ISO12205	0.17		-0.37	
1586	ISO12205	0.657		1.42	reported: 6.57 g/m ³
1613	D2274	0.080		-0.70	
1616		----		----	
1650	D2274	0.1143		-0.57	reported: 1.143 g/m ³
1654	ISO12205	0.257		-0.05	
1709	D2274	0.114		-0.57	
1724	D2274	0.286		0.06	reported: 2.86 g/m ³
1807	ISO12205	0.03		-0.88	reported: 0.3 g/m ³
1813	D2274	0.5057		0.86	
1857	D2274	0.7	C	1.58	first reported: 7
1914	D2274	0.3		0.11	
2129	D2274	0.114		-0.57	

normality suspect
n 31
outliers 1
mean (n) 0.270
st.dev. (n) 0.2105
R(calc.) 0.589
R(D2274:14) 0.764



APPENDIX 2 z-scores Distillation (automated and manual)

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP	lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
52	0.75	-0.40	0.27	-1.10	-0.88	-0.89	951	0.73	-0.13	-0.09	-0.10	-0.01	0.39
53	----	----	----	----	----	----	962	----	----	----	----	----	----
62	-0.22	0.27	1.59	1.92	1.85	0.22	963	-0.67	0.82	0.55	-0.54	-0.53	-0.29
92	1.56	2.40	1.59	-0.26	-0.50	0.22	970	-1.09	-1.31	-0.49	0.08	-0.22	0.26
120	0.60	0.39	0.64	0.30	1.09	-0.22	971	0.41	0.57	0.64	0.08	0.17	0.34
132	-2.24	-0.58	-1.34	0.08	0.58	-0.29	974	0.87	0.57	1.30	0.80	0.96	0.49
140	0.08	0.27	-0.49	-0.20	-0.03	-0.10	982	0.38	-1.31	0.45	-0.48	-1.48	1.48
150	-1.40	-0.34	-0.96	-0.65	-0.44	0.02	994	0.87	-0.70	-0.02	-0.48	-0.22	0.46
159	-0.01	1.67	1.96	0.02	-0.15	-0.37	995	-0.04	-1.31	-0.49	-0.48	0.10	-0.53
169	-1.19	-0.10	0.45	0.30	0.26	-1.40	996	----	----	----	----	----	----
171	0.57	0.82	-0.02	-0.48	-0.56	-0.33	997	-0.19	-1.62	-1.43	-0.20	-0.06	-0.33
175	-0.13	-1.31	-0.49	0.47	0.77	-0.37	998	0.26	-1.31	-1.43	-0.76	-0.22	-0.14
186	----	----	----	----	----	----	1006	0.02	-0.03	0.55	-0.15	-0.60	0.53
194	-1.64	0.15	0.08	2.20	----	0.02	1011	-0.01	1.91	0.83	0.02	0.17	0.85
212	-0.04	1.67	0.93	1.81	0.89	0.65	1033	----	----	----	----	----	----
217	0.35	0.33	0.08	-0.26	-0.12	-0.22	1059	0.84	0.39	0.17	-0.99	-0.66	-1.04
221	-1.40	-0.70	-1.43	-0.48	0.10	0.26	1067	0.63	1.43	0.93	0.30	-0.03	0.22
224	0.38	-1.96	-0.97	0.38	0.28	-0.31	1080	----	----	----	----	----	----
225	1.32	-0.10	-0.49	-0.76	-0.85	-1.91	1081	-0.76	-0.03	-0.58	-0.43	-0.85	0.42
228	1.92	0.51	-0.49	0.08	-0.22	-0.14	1090	----	----	----	----	----	----
230	-0.04	-0.16	-0.02	0.52	0.51	0.73	1107	0.23	1.06	-0.02	-0.26	-0.09	-1.40
237	-0.19	-2.53	-1.90	-1.60	-1.48	-0.14	1109	0.54	0.88	0.74	0.30	0.26	-0.22
238	----	----	----	----	----	----	1121	-1.09	-7.40	-2.37	-1.32	0.13	0.49
240	0.72	-1.92	-0.49	-0.48	-0.53	-3.29	1126	1.20	2.16	1.68	1.70	0.83	2.43
242	----	----	----	----	----	----	1134	-1.67	-2.71	0.17	0.35	0.20	0.93
252	0.72	-0.10	-0.49	-0.48	----	-0.14	1146	0.17	-0.46	0.74	0.80	0.45	1.01
253	0.41	0.51	0.93	0.35	0.10	-0.14	1161	-0.34	-0.34	-0.30	-1.27	-0.37	-0.73
254	0.72	-1.31	-0.49	0.08	0.42	-0.53	1167	----	----	----	----	----	----
256	0.72	-0.70	-1.43	0.08	----	-0.53	1182	0.63	0.94	0.93	1.42	-1.04	1.16
258	----	----	----	----	----	----	1186	-2.54	-2.96	-0.90	1.12	0.69	0.73
273	-0.52	-0.89	-1.05	-0.60	-0.44	-1.71	1213	0.35	0.63	0.08	-0.48	-0.09	-0.81
311	-0.82	-0.76	-0.49	-0.04	-0.03	-0.10	1227	1.14	1.12	1.21	0.19	-0.09	0.49
312	-0.28	0.51	1.02	-0.04	-0.09	-0.57	1297	-1.49	-0.03	-0.58	-0.76	-0.79	-0.96
317	0.41	0.70	0.93	0.13	0.17	-0.02	1299	0.66	-0.16	-0.11	-0.15	-0.09	-0.49
323	0.26	1.61	1.21	0.63	0.93	-0.61	1347	1.02	0.51	0.45	0.63	0.42	1.05
332	----	----	----	----	----	----	1348	0.75	-2.22	-1.90	-0.54	-0.69	0.77
333	-0.70	-0.28	-0.58	-0.48	-0.18	0.22	1356	-0.19	-2.53	8.94	0.63	-0.22	-0.14
334	0.05	-0.46	-0.02	0.24	0.10	0.10	1385	0.41	-2.53	1.40	0.63	-0.22	-0.53
335	-0.25	0.76	1.68	2.20	2.39	1.36	1395	----	----	----	----	----	----
336	-0.70	-0.58	-0.58	-0.37	-0.41	0.69	1397	1.83	2.10	0.93	0.35	0.55	0.81
337	----	----	----	----	----	----	1409	-0.37	-0.22	-1.53	-0.15	-0.06	-0.02
338	1.32	1.73	1.40	1.19	1.37	0.65	1417	0.26	2.03	2.91	1.86	2.16	0.73
340	-0.79	-0.64	-0.87	-0.65	-0.03	-0.81	1428	0.60	0.57	-0.21	-0.60	-0.44	-0.25
343	-0.61	0.21	-0.11	0.58	0.10	-0.18	1430	0.26	0.57	1.21	0.91	1.12	1.05
344	1.35	1.00	-0.68	-1.66	-1.67	-2.15	1431	----	----	----	----	----	----
349	----	----	----	----	----	----	1498	-0.70	0.70	1.11	1.31	1.34	0.97
353	0.14	0.09	1.77	1.86	1.97	1.40	1512	----	----	----	----	----	----
356	0.57	1.73	1.21	1.14	1.21	0.69	1586	-0.25	-0.40	-1.24	-0.82	-0.66	-0.06
381	-0.40	0.39	-0.30	-0.20	-0.12	0.57	1588	----	----	----	----	----	----
431	-1.91	-0.76	0.36	0.02	0.45	-1.04	1613	0.51	0.63	0.74	0.63	0.48	0.73
445	-0.22	0.03	-0.30	-0.32	0.17	-0.14	1616	----	----	----	----	----	----
446	-0.94	-1.31	-0.02	0.30	0.13	-1.36	1629	----	----	----	----	----	----
447	-1.43	-0.34	-0.39	-0.48	-0.56	-0.25	1634	-0.22	0.39	0.45	-0.09	-0.18	0.34
463	0.54	0.51	0.55	0.91	0.48	1.05	1635	0.11	-3.14	-0.49	0.08	0.10	-0.14
485	-0.13	0.45	0.03	-0.76	-0.82	-1.02	1636	-0.40	0.70	-0.06	-0.26	-0.47	0.08
494	-2.21	0.03	-0.49	-0.88	-0.75	-0.29	1650	0.78	-1.25	-0.30	0.13	0.10	0.93
496	-0.01	-1.19	-1.15	-1.10	-0.72	-0.93	1654	----	----	----	----	----	----
507	1.14	1.43	0.93	1.53	-0.34	-0.29	1709	0.66	0.70	0.74	-0.09	-0.53	-0.89
511	0.11	-1.43	-2.85	-1.04	-0.50	-0.61	1720	-0.52	0.03	1.11	1.08	1.12	----
541	0.29	0.27	0.36	0.02	0.20	0.22	1724	-0.70	0.27	-0.30	-0.32	-0.09	-0.14
557	----	----	----	----	----	----	1776	-2.30	-1.01	-1.43	-0.76	-0.63	-0.96
558	----	----	----	----	----	----	1796	-0.13	0.76	0.36	0.19	0.51	0.06
562	----	----	----	----	----	----	1807	1.08	0.51	-0.30	-0.15	-0.25	0.57
604	0.20	0.76	0.45	0.13	0.04	-0.73	1810	0.05	0.51	-0.49	-1.10	-1.17	-0.85
607	----	----	----	----	----	----	1811	-0.25	-1.31	-1.34	-0.82	-0.88	-0.22
608	-0.31	-1.13	-0.68	-0.99	-0.91	-0.25	1813	-1.06	0.18	0.08	-0.58	-0.73	----
657	0.23	1.79	0.93	-0.48	-0.56	-0.14	1846	----	----	----	----	----	----
663	0.23	0.76	0.27	-0.60	-0.53	-0.45	1849	-0.40	0.33	-0.30	-0.60	-0.60	0.53
671	-0.55	1.91	1.77	-1.21	----	-1.40	1857	-0.10	0.15	-0.30	-0.15	0.26	0.10
732	0.72	-0.70	-0.49	-0.20	-0.22	0.46	1906	----	----	----	----	----	----
750	----	----	----	----	----	----	1914	0.87	0.21	-1.90	-1.60	-1.48	0.65
759	-0.64	-0.10	0.93	1.47	0.89	1.64	1936	0.23	-1.01	-0.87	-1.04	-1.04	-0.18
781	-0.28	0.70	0.08	0.24	0.45	0.10	1937	-0.40	-1.86	-1.43	-1.04	-1.01	-0.61
785	-0.19	0.76	0.83	0.41	0.23	0.69	1938	-2.03	-1.49	-1.34	-0.60	-0.31	-0.53
823	0.23	0.39	0.64	-1.55	-0.79	-1.16	1944	0.38	-0.16	-0.96	0.35	-0.15	0.22

824	0.08	0.76	0.55	-0.04	-0.31	-0.29	1953	-1.25	<u>-4.42</u>	-2.37	-0.54	-0.53	-0.69
825	0.14	1.49	0.93	0.69	0.77	0.46	1984	1.08	1.30	-2.47	-1.21	-0.60	-1.32
840	-0.58	0.19	-0.29	-0.38	-0.34	-0.25	1986	-0.19	-0.40	0.45	-0.76	-0.53	0.26
854	0.44	0.82	0.55	0.13	-0.06	0.22	1992	-0.48	-1.17	-0.08	-0.39	-0.06	-0.35
862	-2.00	-0.95	-0.39	-0.37	-0.22	0.02	2129	2.20	1.24	1.21	1.08	0.80	1.09
863	1.32	-0.10	0.93	0.35	0.10	0.65	2146	1.23	<u>4.96</u>	<u>4.23</u>	2.76	2.32	0.69
875	0.51	1.37	0.36	-0.26	0.23	0.18	6005	-0.25	0.57	0.55	0.69	0.93	0.14
887	0.72	-0.10	-2.37	-1.04	-0.37	-2.31	6009	-0.28	-0.46	1.30	1.36	0.96	1.44
902	-0.07	0.63	2.34	1.47	0.89	2.23	6016	-----	-----	-----	-----	-----	-----
922	1.32	-0.70	-1.43	-0.48	0.42	0.26	9090	-----	-----	-----	-----	-----	-----

Z-scores underlined and bold belong to the statistical outliers acc. to Grubbs/Dixon/Rosner outlier test.

APPENDIX 3**Participants per country**

1 lab in	AFGHANISTAN	1 lab in	MAURITIUS
1 lab in	ALGERIA	1 lab in	MOROCCO
1 lab in	ARGENTINA	1 lab in	MOZAMBIQUE
2 labs in	AUSTRALIA	1 lab in	MYANMAR
1 lab in	AUSTRIA	8 labs in	NETHERLANDS
1 lab in	AZERBAIJAN	2 labs in	NIGERIA
4 labs in	BELGIUM	2 labs in	NORWAY
2 labs in	BRAZIL	1 lab in	OMAN
1 lab in	BULGARIA	1 lab in	PAKISTAN
4 labs in	CANADA	1 lab in	PANAMA
2 labs in	CHILE	1 lab in	PERU
3 labs in	CHINA, People's Republic	1 lab in	POLAND
1 lab in	CONGO Brazzaville	3 labs in	PORTUGAL
1 lab in	COTE D'IVOIRE	2 labs in	QATAR
2 labs in	CROATIA	1 lab in	ROMANIA
1 lab in	CYPRUS	8 labs in	RUSSIAN FEDERATION
3 labs in	CZECH REPUBLIC	2 labs in	SAUDI ARABIA
1 lab in	DJIBOUTI	1 lab in	SENEGAL
1 lab in	EQUATORIAL GUINEA	1 lab in	SERBIA
1 lab in	FINLAND	1 lab in	SINGAPORE
9 labs in	FRANCE	1 lab in	SLOVAKIA
3 labs in	GEORGIA	1 lab in	SLOVENIA
3 labs in	GERMANY	1 lab in	SOUTH AFRICA
5 labs in	GREECE	3 labs in	SOUTH KOREA
1 lab in	GUAM	7 labs in	SPAIN
1 lab in	GUINEA REPUBLIC	1 lab in	ST. LUCIA - WEST INDIES
1 lab in	HONG KONG	1 lab in	SUDAN
1 lab in	HUNGARY	2 labs in	SWEDEN
1 lab in	IRAN, Islamic Republic of	3 labs in	TAIWAN
1 lab in	IRELAND	1 lab in	TANZANIA
1 lab in	ISRAEL	1 lab in	THAILAND
1 lab in	JORDAN	1 lab in	TOGO
2 labs in	KAZAKHSTAN	1 lab in	TUNISIA
2 labs in	KENYA	10 labs in	TURKEY
1 lab in	LATVIA	1 lab in	TURKMENISTAN
3 labs in	LEBANON	1 lab in	UKRAINE
1 lab in	LITHUANIA	3 labs in	UNITED ARAB EMIRATES
2 labs in	MACEDONIA	11 labs in	UNITED KINGDOM
3 labs in	MALAYSIA	2 labs in	VIETNAM
2 labs in	MALTA		

APPENDIX 4**Abbreviations:**

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

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