Results of Proficiency Test
Gasoil (ASTM Spec)
September 2013

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis13G04

November 2013

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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 2013-2014, 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, 176 laboratories in 78 different countries have participated. In the PT for Cetane Number, 55 laboratories in 27 different countries participated. In the PT for the Total Contamination on Gasoil, 68 laboratories in 31 different countries and in the PT for the Oxidation Stability on Gasoil, 57 laboratories in 27 different countries participated.
See appendix 3 for the number of participants per country. In this report, the results of the 2013 proficiency test are presented and discussed.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. During the planning of the annual program for 2013/2014 it was decided to dedicate one of the two annual gasoil round robins (the autumn round) to the ASTM specification and the other (the spring round) to the EN specification.
In this ASTM specification round robin, 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 botlle, both labelled #13174),for the Cetane Number round robin (4*1L glass bottle, all labelled #13175) and for the Total Contamination round robin (1*1L, 85% filled glass bottle, labelled #13176). For the Oxidation stability round robin (1*0.5L glass bottle labelled #13177), it was decided to send a gasoil from a batch of retained Gasoil samples. 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 statistical evaluation.

2.1 ACCREDITATION

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

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2), which can be downloaded from www.iisnl.com.

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 the 600 litre low sulphur Gasoil (automotive diesel), which was purchased from the local market, approx. 400 litre was homogenized and 180 amber glass bottles of 1L and 180 amber glass bottles of 0.5L, with inner and outer caps were filled and were labelled #13174. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 10 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3		Density @ 15 °C in kg/m^3
sample #13176-1	831.91	sample #13176-6	831.91
sample #13176-2	831.91	sample #13176-7	831.91
sample #13176-3	831.92	sample #13176-8	831.91
sample #13174-4	831.91	sample #13174-9	831.92
sample #13174-5	831.92	sample #13174-10	831.92

Table 1: homogeneity test results of subsamples #13174

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

	Density @ 15ºC in kg/m^3
r (sample #13174)	0.01
reference test	ASTM D4052:11
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples #13174

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #13174 was assumed.

2.4.2 Gasoil for Cetane Number

The remaining 330 litre low sulphur Gasoil (automotive diesel), was homogenized and 240 amber glass bottles of 1L, with inner and outer caps were filled and labelled #13175. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 10 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #13175-1	831.95
sample #13175-2	831.96
sample #13175-3	831.96
sample #13175-4	831.96
sample #13175-5	831.96
sample #13175-6	831.95
sample #13175-7	831.96
sample #13175-8	831.95
sample #13175-9	831.95
sample #13175-10	831.96

Table 3: homogeneity test results of subsamples #13175

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

	Density @ 15ºC in kg/m^3
r (sample #13175)	0.01
reference test	ASTM D4052:11
0.3*R (reference test)	0.15

Table 4: precision data of the subsamples #13175

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #13175 was assumed.

2.4.3 Total contamination

The remaining material of the low sulphur Gasoil (automotive diesel) was homogenized and divided over 80 amber glass bottles of 1L with inner and outer caps and labelled #13176.
For the Total Contamination determination, each of the 80 filled bottles was spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. The addition was checked by weighting each bottle before and after addition of the spike.

2.4.4 Oxidation Stability

For the Oxidation Stability determination, 50 liter of Gasoil from a batch of retained Gasoil, was homogenised and subsequently divided over 60 amber glass bottles of 0.5L, with inner and outer caps and labelled #13177. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 8 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #13177-1	833.80
sample #13177-2	833.75
sample #13177-3	833.73
sample #13177-4	833.73
sample #13177-5	833.72
sample #13177-6	833.72
sample #13177-7	833.71
sample #13177-8	833.71

Table 5: homogeneity test results of subsamples #13177

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

	Density @ 15ºC in kg/m^3
r (sample #13177)	0.08
reference test	ASTM D4052:11
0.3*R (reference test)	0.15

Table 6: precision data of the subsamples #13177

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #13177 was assumed.

Depending on the registration of the participant: one bottle of 1L and one bottle of 0.5L, labelled #13174, four bottles of 1L #13175, one bottle of 1L #13176 and/or 1 bottle of 0.5L labelled #13177 were sent to the participating laboratories on September 11, 2013.

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 #13174: Acid number (TAN), Aromatics by FIA, Ash Content, Cetane Index (D979 and D4737), Cold Filter Plugging Point, Cloudpoint, Color ASTM, Copper Corrosion, Density @ 15°C, Distillation (IBP, 5%, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250ºC and 350ºC), FAME content, Flash Point PMcc, Kinematic Viscosity @ 40°C, Lubricity by HFRR, Nitrogen, Pour Point, Ramsbottom Carbon Residue, Sulphur content, Water content and Water & Sediment (D2709 & D1796).
On sample #13175: Cetane number and/or DCN were requested to be determined, on sample #13176 only Total Contamination was requested to be determined and on sample #13177 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 some of the required standards and a letter of instructions were prepared and made available for download on the iis website (www.iisnl.com). 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. The original data are tabulated per determination in the appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after deadline, a reminder fax was sent to those laboratories that had not yet reported. 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 (raw data of the) reported results. Additional or corrected results have been used for data analysis and the 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' of January 2010 (iis-protocol, version 3.2).

For the 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. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the conclusions of statistical evaluation should be used with due care. In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs 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 reproduciblities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported 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 cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 4; nos.13 and 14).

3.3 Z-SCORES

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

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

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 the fit-for-useness of the reported test result.

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

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

4 EVALUATION

In this interlaboratory study, problems with customs clearance were encountered during dispatch of the samples to laboratories in Azerbaijan, Bosnia and Herzegovina, Canada, Georgia, Guam, Kazakhstan, Kenya, Mauritius, Mexico, Mozambique, Myanmar, Qatar, Russia, Saudi Arabia, Sudan, Turkey, Turkmenistan and Vietnam.
For the regular Gasoil PT: Fifty-two participants reported test results after the final reporting date and thirteen participants did not report any test results at all.

For the Cetane Number PT: twelve participants reported the test results after the final reporting date and fifteen participants did not report any test results at all.
For the Total Contamination PT: ten participants reported the test results after the final reporting date and fourteen participants did not report any test results at all.
For the Oxidation Stability PT: eleven participants reported the test results after the final reporting date and sixteen participants did not report any test results at all.
Finally, 160 participants reported in total 3123 numerical results. Observed were 67 outlying results, which is 2.2%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

Not all original data sets proved to have a normal distribution. Anormal distributions were found for: Acid Number, Ash, Cetane Index (D976 and D4737), Cloud Point, CFPP, Colour, Density, Distillation (Automated mode: 10% recovered-A, FBP-A, volume at 250ºC and 350ºC, Manual mode: 50% recovered-M and volume at 250ºC-M), Flash Point, Kinematic Viscosity, Pour Point, Sulphur, Water, Oxidation stability and Total contamination. Therefore, the statistical evaluation for these determinations should be used with care.

4.1 EVALUATION PER TEST

In this section, the results are discussed per test.

Acid Number (Total): This determination was problematic for a number of laboratories. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D974:12.

Ash: Only one statistical outlier was observed. Regretfully, the ash content for this sample was below or near the application range of the method. Still the calculated reproducibility after rejection of the statistical outliers is smaller then the extrapolated reproducibility of ASTM D482:13.

Aromatics (FIA): This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D1319:13. One should be aware that this Gasoil does not meet the scope of ASTM D1319 (petroleum fractions should be distilling below 315ºC). Two reported test results were excluded from statistical evaluation as the reported test method EN/ISO12916 is not technically equivalent to ASTM D1319.

C.I. D976: Regretfully, no reproducibility limits are mentioned in ASTM D976:11. No statistical outliers were observed. The calculated reproducibility is the same in comparison with the findings of the previous i.i.s. proficiency test (see also iis12G04). Nine participants possibly made calculation errors.

C.I. D4737: Regretfully, no reproducibility limits are mentioned in ASTM D4737:12. Six statistical outliers were observed. In this case, it appeared that not all participants used the same calculation method. Ninety-six participants

reported results according procedure A of ISO4264:95/IP380:98/ASTM D4737 and eight participants reported results according ASTM D4737 procedure B. 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 D975:12. 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. Seven participants possibly made a calculation error.

CFPP: This determination was problematic. Only two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D6371:10.

Cloud Point: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in good agreement with the requirements of ASTM D2500:11.

Colour ASTM: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D1500:12.

Conradson Carbon Residue: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D189:10e1.

Ramsbottom CR: From the 20 reporting laboratories, three laboratories reported to have determined the Conradson CR instead of Ramsbottom CR. These results were excluded from statistical evaluation, as the test method for Conradson CR is not equivalent with Ramsbottom CR. When the 16 Ramsbottom CR test results were evaluated separately, only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the requirements of ASTM D524:10. One laboratory reported may have reported a false negative test result.

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

Density @15°C: This determination was problematic for a number of laboratories. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D4052:11.

Distillation: The automated method was not problematic. In total sixteen statistical outliers were observed. All calculated reproducibilities were, after rejection of the statistical outliers, in agreement with the requirements of ASTM D86:12.

The manual method was problematic. In total six statistical outliers were observed. Two other test results from one laboratory were excluded for statistical evaluation as all other reported test results form this laboratory were marked as statistical outliers. However, all the calculated reproducibilities, except for 50% recovered and volume at 350ºC, were after rejection of the statistical outliers not in agreement with the requirements of ASTM D86:12.

FAME: 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 ASTM D7371:12.

Flash Point: This determination was not problematic. Only two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D93:13 (procedure A).

Kin. visc. 40°C: This determination was problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is still not in agreement with ASTM D445:12.

Lubricity: This determination may be problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with ASTM D6079:11. When the calculated reproducibilities for ASTM D6079 and for ISO12156 (equal to ASTM D7688/IP450) are evaluated separately, both observed reproducibilities are in full agreement with the requirements of the respective standards. The differences in the calculations of the two test methods may explain the large spread found.

Nitrogen: This determination (for mg/kg and mg/l) was very problematic. In total only one statistical outlier were observed. However, both calculated reproducibilities after rejection of the statistical outlier are not at all in agreement with ASTM D4629:12. The reported test results from one laboratory were excluded as the reported test results for mg/kg and mg/l were identical, what is in principle not possible.

Pour Point: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with ASTM D97:11.

Sulphur: This determination was problematic for a number of laboratories at the level of 9.7 mg/kg. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5453:12.

Water: This determination was not problematic. Only two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers

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 then” result or zero. Therefore no significant conclusions were drawn.

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

CN - D613: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in good agreement with the requirements of ASTM D613:10ae1. The participants were requested to report if the sample was filtered before use. Nine participants reported to have filtered the sample before use. No significant difference was observed.

DCN - D6890: This determination was not problematic. In total, one statistical outlier was observed. The calculated reproducibility for DCN and for “Ignition delay” after rejection of the statistical outlier are both in good agreement with the ASTM D6890:13b.

DCN - D7170: Regretfully only three laboratories reported a test result. Therefore no significant conclusions were drawn

Oxidation Stability: This determination may not be problematic at this low level of 0.18 mg/100mg. Two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D2274:10.

Total Contamination: This determination was very problematic at the level of 20.5 mg/kg. The samples were spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. Therefore, the minimal contamination concentration to be found was known (added amount = 10.2 mg/kg). The laboratories should be able to find at least 6.6 mg/kg [10.2 $mg/kg_{(added\ amount)}$ – 3.6 $mg/kg_{(R\ D6217)}$].
One laboratory reported a lower amount than 6.6 mg/kg and was rejected prior to data analysis. After excluding of the laboratory, two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM D6217:11 or EN12662:08. It is unclear whether the laboratories that reported results according EN12662 used 800 mL (as prescribed in EN12662) or 1 Liter as prescribed in ASTM D6217. The correctness of the sample pretreatment is critical for this determination.

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	72	0.013	0.021	0.040
Ash content	%M/M	65	0.0008	0.0016	(0.0050)
Aromatics by FIA	%V/V	34	18.63	5.46	3.70
Cetane Index ASTM D976		90	53.45	0.78	unknown
Cetane Index ASTM D4737		98	53.04	0.95	unknown
Cold Filter Plugging Point	°C	99	-26.6	6.9	5.3
Cloud Point	°C	126	-8.2	3.0	4.0
Colour ASTM		48	0.5	0.2	1.0
Conradson Carbon Residue	%M/M	60	0.018	0.022	0.027
Ramsbottom Carbon Residue	%M/M	16	0.060	0.059	0.029
Copper Corrosion 3hrs@50ºC		119	1(1A)	unknown	unknown
Density @ 15 °C	kg/m^3	149	831.34	0.31	0.50
IBP (automated)	°C	108	164.6	7.4	9.1
10% recovery (automated)	°C	107	201.4	4.7	4.4
50% recovery (automated)	°C	104	267.7	2.7	3.0
90% recovery (automated)	°C	106	328.1	4.8	4.9
95% recovery (automated)	°C	108	343.6	7.9	8.6
FBP (automated)	°C	102	353.4	6.0	7.1
Volume at 250ºC (automated)	%V/V	98	37.1	2.1	2.7
Volume at 350ºC (automated)	%V/V	90	96.4	1.6	2.7
IBP (manual)	°C	34	164.0	8.9	6.1
10% recovery (manual)	°C	35	199.6	8.8	4.5
50% recovery (manual)	°C	35	266.8	3.2	3.9
90% recovery (manual)	°C	35	328.3	4.6	4.1
95% recovery (manual)	°C	32	343.6	7.4	5.3
FBP (manual)	°C	35	354.6	6.7	4.0
Volume at 250ºC (manual)	%V/V	32	37.9	3.3	2.6
Volume at 350ºC (manual)	%V/V	32	96.6	1.9	2.2
FAME	%V/V	53	1.19	0.24	0.77
Flash Point PMcc	°C	147	59.42	3.59	4.22
Kinematic Viscosity @ 40°C	mm^2/s	134	2.621	0.035	0.030
Lubricity by HFRR	µm	71	335	91	80
Nitrogen	mg/kg	37	60.4	12.8	6.7
Nitrogen	mg/l	19	50.0	10.0	6.1
Pour Point	ºC	90	-32.9	6.3	6.6
Total Sulphur	mg/kg	111	9.7	3.0	3.2
Water	mg/kg	102	30.3	37.9	130.7
Water and Sediment (D2709)	%V/V	47	<0.005	unknown	unknown
Water and Sediment (D1796)	%V/V	34	<0.05	unknown	unknown

Table 7: summary of tests results of Gasoil #13174
NB results between brackets may be near or below the limit of detection

Cetane Number		32	55.0	3.4	4.7
DCN (ASTM D6890)		10	55.7	1.7	2.8
Iginition delay (ASTM D6890)		8	3.6	0.1	0.2
DCN (ASTM D7170)		3	58.4	unknown	4.5
Ignition delay (ASTM D7170)		3	3.0	unknown	0.2

Table 8: summary of tests results of Gasoil #13175

Oxidation Stability	mg/100mL	31	0.18	0.56	0.69

Table 9: summary of tests results of Gasoil #13177

Total Contamination	mg/kg	48	20.5	9.4	5.1

Table 10: summary of tests results of Gasoil #13176

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 2013 WITH PREVIOUS PTS.

	September 2013	*October 2012*	*October 2011*	*October 2010*
Number of reporting labs	160	158	163	167
Number of results reported	3123	3086	2882	2926
Statistical outliers	67	97	84	88
Percentage outliers	2.1%	3.1%	2.9%	3.0%

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:

	September 2013	*October 2012*	*October 2011*	*October 2010*
Acid Number (Total)	++	++	++	++
Ash content	(++)	(++)	(++)	(++)
Aromatics (FIA)	--	--	--	--
Cloud Point	++	++	++	++
Cold Filter Plugging Point	-	--	--	-
Colour ASTM	++	++	++	++
Conradson Carbon Residue	+	+/-	n.e.	n.e.
Ramsbottom Carbon Residue	--	--	--	--
Density @ 15 °C	++	++	++	++
Distillation – automated mode	++	+	++	+/-
Distillation – manual mode	--	--	--	--
FAME	++	(++)	(++)	++
Flash Point PMcc	+	++	++	+/-
Kinematic Viscosity @ 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

	September 2013	*October 2012*	*October 2011*	*October 2010*
Cetane Number	++	++	+	+
DCN (ASTM D6890)	++	++	--	++
Ignition Delay (D6890)	++	++	--	++
DCN (ASTM D7170)	--	+	n.e.	n.e.
Ignition Delay (D7170)	n.e.	+/-	n.e.	n.e.
Total Contamination	--	--	--	--
Oxidation Stability	+	++	--	--

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 #13174; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664	<0.01		<-0.24	825	D664	0.016		0.18
53		-----		-----	840	D664	0.017		0.25
62	D664	0.006		-0.52	862	D664	0.0098		-0.25
92		-----		-----	863	D664	0.010		-0.24
120	D664	0.014		0.04	873	D664	0.013		-0.03
132	D664	<0.1		-----	874		-----		-----
140	D664	0.021		0.53	887	D664	0.0114		-0.14
150	D664	0.006		-0.52	902	D664	0.008		-0.38
158	D664	0.017		0.25	904		-----		-----
159	D664	0.0055		-0.55	922	D664	0.0152		0.13
161	D974	0.0070		-0.45	951		-----		-----
169		-----		-----	962		-----		-----
171	D664	0.027		0.95	963	D664	0.013		-0.03
175		-----		-----	970		-----		-----
193		-----		-----	971	D664	0.06	G(0.01)	3.26
194	D664	0.01		-0.24	974		-----		-----
212	D664	0.02		0.46	994		-----		-----
217		-----		-----	995	D664	0.0121		-0.09
221		-----		-----	996		-----		-----
224		-----		-----	997	D974	0.011		-0.17
225	D974	0.02		0.46	998		-----		-----
228		-----		-----	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242	D974	0.011		-0.17	1033		-----		-----
252	D974	0.013		-0.03	1038	D664	<0.01		<-0.24
253	D664	0.015		0.11	1059	ISO6619	0.0028		-0.74
254	D974	0.0095		-0.27	1080		-----		-----
256	D974	0.0096		-0.26	1081	D664	0.03		1.16
258		-----		-----	1082	D664	0.03		1.16
273	D974	0.0078		-0.39	1095		-----		-----
311	D974	0.01		-0.24	1108		-----		-----
312		-----		-----	1109	D974	0.011		-0.17
323		-----		-----	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140	D974	0.008		-0.38
336		-----		-----	1146	D664	0.0019		-0.80
337		-----		-----	1167		-----		-----
338		-----		-----	1182	D664	0.01156	C	-0.13
340	D664	0.008		-0.38	1186		-----		-----
344		-----		-----	1191	D664	<0.1		-----
349		-----		-----	1199		-----		-----
353	IP177	0.0222		0.62	1201	D664	0.06	G(0.01)	3.26
360	D974	0.011		-0.17	1227	D664	0.0061		-0.51
370	D974	0.009		-0.31	1229		-----		-----
402		-----		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D664	0.037		1.65	1299	D664	0.0050		-0.59
447	D664	0.02		0.46	1340		-----		-----
463	D664	<0.05	C	-----	1357	D974	0.00975		-0.25
485		-----		-----	1395	D664	0.013		-0.03
494	D664	0.01		-0.24	1399	D664	0.0136		0.02
495	D664	0.015		0.11	1417		-----		-----
496	D644	<0.03		<1.16	1428	D664	0.0050		-0.59
507		-----		-----	1430	D664	0.01		-0.24
529		-----		-----	1431		-----		-----
541	D664	<0.1		-----	1432		-----		-----
562		-----		-----	1447		-----		-----
575		-----		-----	1457	D974	0.0064		-0.49
603	D664	0.0248		0.80	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621	D664	0.0145		0.08	1510	D974	0.028		1.02
631	D974	0.013		-0.03	1557		-----		-----
657	D664	0.02		0.46	1564		-----		-----
663	D664	0.0128		-0.04	1586	D664	0.027	C	0.95
671		-----		-----	1613	D974	0.0195		0.43
732		-----		-----	1616		-----		-----
750	D664	0.01		-0.24	1629		-----		-----
753	D664	0.023		0.67	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D664	0.0187		0.37	1635	D664	0.0		-0.94
823	D664	0.019		0.39	1650	D664	0.0009		-0.87
824	D664	0.017		0.25	1654		-----		-----

1669	D664	0.07	C,G(0.01)	3.96
1709		-----		-----
1710	D664	0.0132		-0.01
1720		-----		-----
1724	D664	0.014		0.04
1746		-----		-----
1807		-----		-----
1810		-----		-----
1811		-----		-----
1842		-----		-----
1849		-----		-----
1857		-----		-----
1862		-----		-----

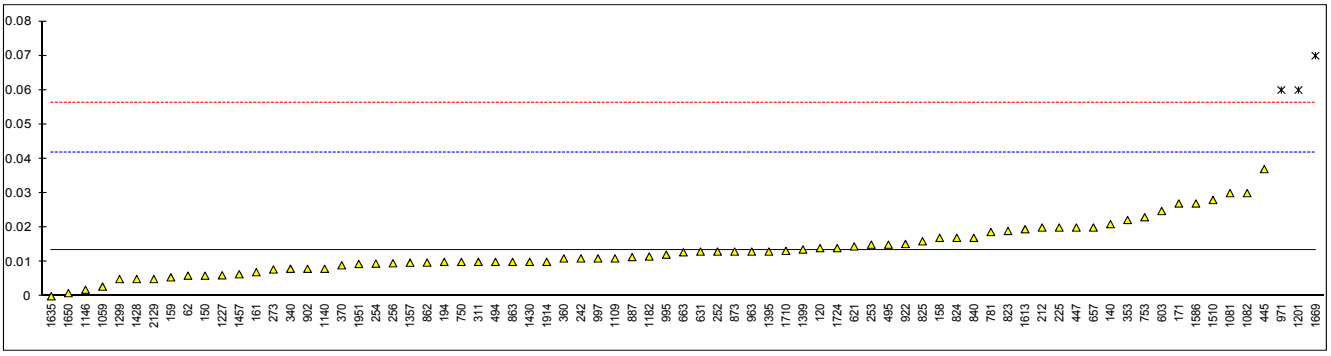
	normality	not OK
	n	72
	outliers	3
	mean (n)	0.0134
	st.dev. (n)	0.00732
	R(calc.)	0.0205
	R(D974:12)	0.0400

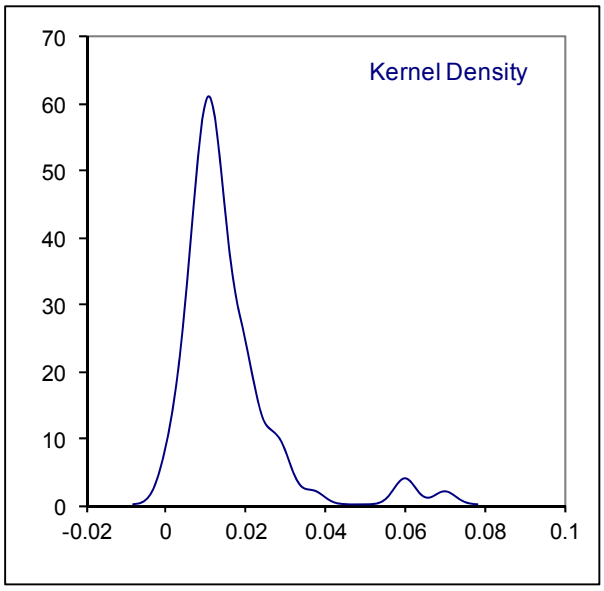
1906		-----	-----
1914	D664	0.01	-0.24
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951	IP139	0.0094	-0.28
2129	D664	0.005	-0.59
5019		-----	-----
7006		-----	-----

Only D974	Only D664 *)
not OK	OK
20	52
0	3
0.0113	0.0141
0.00555	0.00781
0.0155	0.0219
0.0400	(0.1430)

*) application range precision data for ASTM D664 is between 0.1 and 150 mgKOH/g

Lab 463: first reported 0.056
Lab 1182: reported 11.56 (probably deviating unit)
Lab 1586: first reported 0.054
Lab 1669: first reported 0.14





Determination of Ash on sample #13174; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	0.002		-----	825	D482	0.0002		-----
53		-----		-----	840	D482	0.00024		-----
62		-----		-----	862	D482	<0.001		-----
92	D482	<0.001		-----	863	D482	<0.001		-----
120	D482	0.001		-----	873	D482	0.0008		-----
132	D482	<0.001		-----	874	D482	<0.001		-----
140	D482	0.000		-----	887		-----		-----
150	D482	<0.001		-----	902	D482	0.0002		-----
158		-----		-----	904	D482	<0.01		-----
159	D482	0.0006		-----	922	D482	<0.001		-----
161	D482	0.0002		-----	951	D482	0.0007		-----
169	D482	<0.001		-----	962		-----		-----
171	D482	<0.001		-----	963	D482	0.0008		-----
175		-----		-----	970		-----		-----
193		-----		-----	971	D482	0.0007		-----
194	D482	0.000		-----	974	D482	0.0014		-----
212	ISO6245	0.002		-----	994	D482	0.00085		-----
217	D482	0.00099		-----	995	D482	0.00078		-----
221	D482	<0.001		-----	996		-----		-----
224		-----		-----	997	D482	0.0009		-----
225	D482	0.0002		-----	998		-----		-----
228	D482	0.005	G(0.01)	-----	1006	D482	<0.001		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242	D482	<0.001		-----	1033		-----		-----
252	D482	<0.001		-----	1038	D482	<0.001		-----
253	D482	0.0009		-----	1059	ISO6245	0.00014		-----
254	D482	<0.001		-----	1080		-----		-----
256	D482	<0.001		-----	1081	D482	0.0004		-----
258		-----		-----	1082		-----		-----
273	D482	0.002		-----	1095		-----		-----
311	D482	<0.001		-----	1108		-----		-----
312		-----		-----	1109	D482	0.0004		-----
323	D482	<0.001		-----	1121	IP4	0.0004		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134	IP4	<0.001		-----
335		-----		-----	1140	D482	<0.001		-----
336		-----		-----	1146	D482	0.0003		-----
337		-----		-----	1167	ISO6245	0.00070		-----
338		-----		-----	1182		-----		-----
340	D482	0.0003		-----	1186		-----		-----
344	D482	0.00116		-----	1191	D482	0.00019		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D482	<0.001		-----
360	D482	0.0008		-----	1227		-----		-----
370	D482	<0.001		-----	1229		-----		-----
402		-----		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D482	0.002		-----	1299	D482	<0.001		-----
447	D482	0.0004		-----	1340	ISO6245	0.0005		-----
463	D482	0.0004		-----	1357		-----	W	-----
485		-----		-----	1395	D482	0.002		-----
494	D482	0.001		-----	1399		-----		-----
495	D482	<0.001		-----	1417		-----		-----
496	D482	<0.001		-----	1428	ISO6245	0.0009		-----
507	D482	0.001		-----	1430	D482	0.00117	C	-----
529	D482	0.000255		-----	1431		-----		-----
541	D482	<0.001		-----	1432		-----		-----
562	D482	0.0001		-----	1447	D482	0.0006		-----
575		-----		-----	1457	D482	<0.001		-----
603	D482	0.00099		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607	D482	<0.001		-----	1498		-----		-----
621		-----		-----	1510	D482	0.001		-----
631	D482	0.0007		-----	1557	ISO6245	0.0005		-----
657	D482	0.0015		-----	1564		-----		-----
663	D482	<0.001		-----	1586	D482	0.0007		-----
671	D482	0.00119		-----	1613	D482	0.00039		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753	D482	0.0022		-----	1631	D482	0.0001		-----
759		-----		-----	1634		-----		-----
781	D482	0.0009		-----	1635		-----		-----
823	D482	0.001		-----	1650	D482	0.0004		-----
824	D482	0.001		-----	1654	ISO6245	0.00050		-----

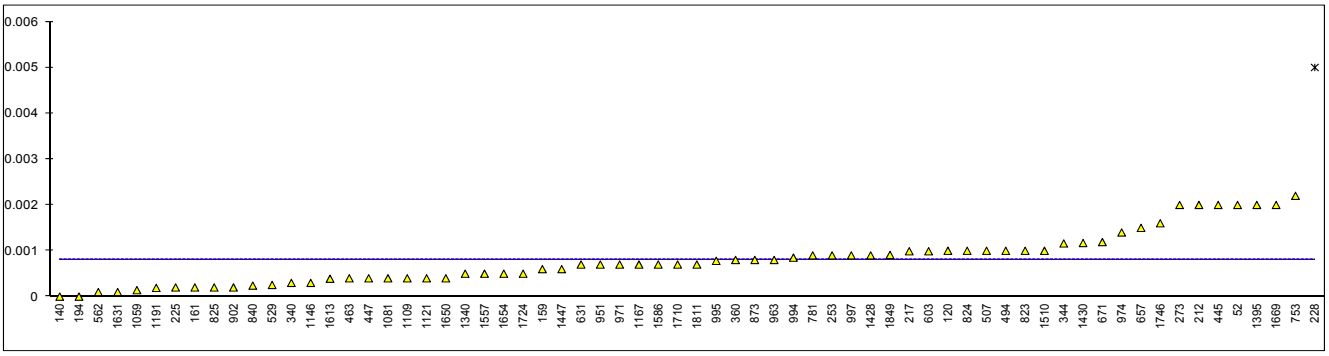
1669	ISO6245	0.002		-----
1709		-----		-----
1710	D482	0.0007		-----
1720		-----		-----
1724	D482	0.0005		-----
1746	D482	0.0016		-----
1807	D482	<0.0010		-----
1810		-----		-----
1811	D482	0.0007	C	-----
1842		-----		-----
1849	ISO6245	0.00091		-----
1857		-----		-----
1862		-----		-----

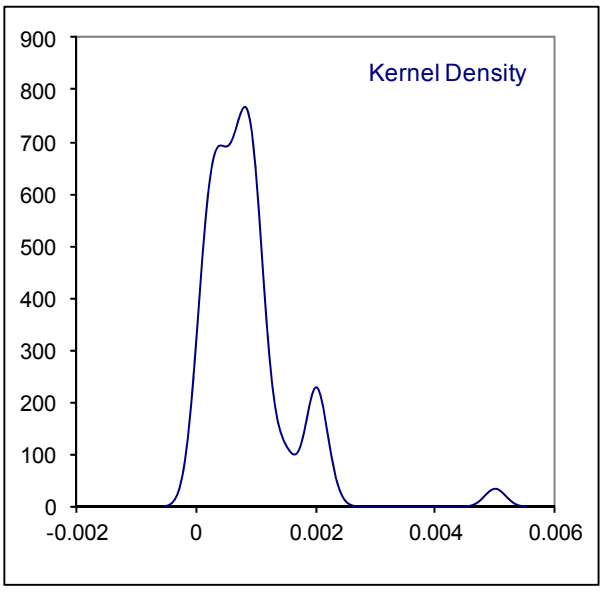
1906		-----		-----
1914	D482	<0.001		-----
1915		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
1950		-----		-----
1951		-----		-----
2129	D482	<0.001		-----
5019		-----		-----
7006		-----		-----

normality	not OK
n	65
outliers	1
mean (n)	0.00080
st.dev. (n)	0.000561
R(calc.)	0.00157
R(D482:13)	(0.00500)

Application range: 0.001 – 0.180%M/M

Lab 1430: first reported 0.0117
Lab 1811: first reported 0.01





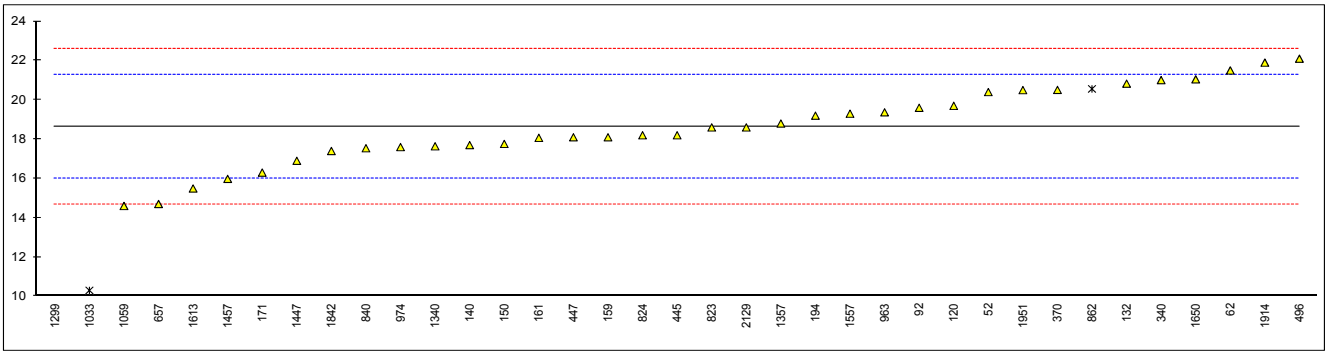
Determination of Aromatics by FIA on sample #13174; result in %V/V

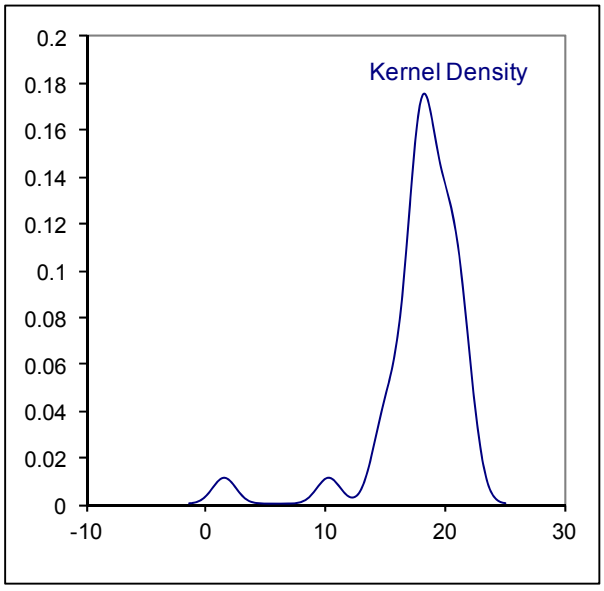
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1319	20.4		1.34	825		-----		-----
53		-----		-----	840	D1319	17.54		-0.82
62	D1319	21.5		2.18	862	EN12916	20.56	ex, see §4.1	1.46
92	D1319	19.6		0.74	863		-----		-----
120	D1319	19.7		0.81	873		-----		-----
132	D1319	20.83		1.67	874		-----		-----
140	D1319	17.7		-0.70	887		-----		-----
150	D1319	17.76		-0.65	902		-----		-----
158		-----		-----	904		-----		-----
159	D1319	18.1		-0.40	922		-----		-----
161	D1319	18.070		-0.42	951		-----		-----
169		-----		-----	962		-----		-----
171	D1319	16.3		-1.76	963	D1319	19.37		0.56
175		-----		-----	970		-----		-----
193		-----		-----	971		-----		-----
194	D1319	19.2		0.44	974	D1319	17.6		-0.78
212		-----		-----	994		-----		-----
217		-----		-----	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033	IP156	10.3	G(0.01)	-6.30
252		-----		-----	1038		-----		-----
253		-----		-----	1059	D1319	14.6		-3.05
254		-----		-----	1080		-----		-----
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311		-----		-----	1108		-----		-----
312		-----		-----	1109		-----		-----
323		-----		-----	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340	D1319	21.01		1.80	1186		-----		-----
344		-----		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201		-----		-----
360		-----		-----	1227		-----		-----
370	D1319	20.51		1.43	1229		-----		-----
402		-----		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D1319	18.2		-0.32	1299	ISO12916	1.6	ex, see §4.1	-12.88
447	D1319	18.1		-0.40	1340	D1319	17.64		-0.75
463		-----		-----	1357	D1319	18.8		0.13
485		-----		-----	1395		-----		-----
494		-----		-----	1399		-----		-----
495		-----		-----	1417		-----		-----
496	D1319	22.10		2.63	1428		-----		-----
507		-----		-----	1430		-----		-----
529		-----		-----	1431		-----		-----
541		-----		-----	1432		-----		-----
562		-----		-----	1447	D1319	16.9		-1.31
575		-----		-----	1457	D1319	15.98		-2.00
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510		-----		-----
631		-----		-----	1557	INH-01	19.3		0.51
657	D1319	14.7		-2.97	1564		-----		-----
663		-----		-----	1586		-----		-----
671		-----		-----	1613	D1319	15.49		-2.37
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781		-----		-----	1635		-----		-----
823	D1319	18.60		-0.02	1650	D1319	21.05		1.84
824	D1319	18.2		-0.32	1654		-----		-----

1669		-----	-----
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724		-----	-----
1746		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1842	IP156	17.4	-0.93
1849		-----	-----
1857		-----	-----
1862		-----	-----

normality	OK	
n	34	
outliers	1	+ 2 excluded
mean (n)	18.625	
st.dev. (n)	1.9504	
R(calc.)	5.461	
R(D1319:13)	3.700	

1906		-----	-----
1914	D1319	21.9	2.48
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951	D1319	20.5	1.42
2129	D1319	18.6	-0.02
5019		-----	-----
7006		-----	-----





Determination of Calculated Cetane Index ASTM D976 on sample #13174

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	53.5		-----	825	D976	53.1	E	-----
53		-----		-----	840	D976	53.54		-----
62		-----		-----	862	D976	53.45		-----
92	D976	53.366		-----	863	D976	53.60		-----
120	D976	53.2		-----	873	D976	53.3		-----
132	D976	53.3		-----	874	D976	53.5		-----
140	D976	53.7		-----	887	D976	53.4		-----
150	D976	53.15		-----	902		-----		-----
158		-----		-----	904	D976	53.6		-----
159	D976	53.64		-----	922	D976	53.0		-----
161	D976	53.7		-----	951	D976	53.55		-----
169		-----		-----	962		-----		-----
171	D976	53.6		-----	963	D976	53.6		-----
175	D976	53.8		-----	970	D976	52.9		-----
193		-----		-----	971	D976	52.9		-----
194	D976	53.3		-----	974	D976	53.1		-----
212		-----		-----	994	D976	53.57		-----
217	D976	53.56		-----	995	D976	53.270999		-----
221	D976	53.13		-----	996		-----		-----
224	D976	52.85	E	-----	997	D976	53.32		-----
225	D976	53.2		-----	998		-----		-----
228	D976	52.9	E	-----	1006	D976	53.8		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033	D976	53.6		-----
252		-----		-----	1038		-----		-----
253	D976	53.1		-----	1059		-----		-----
254	D976	53.2		-----	1080		-----		-----
256	D976	53.4		-----	1081	D976	53.6		-----
258	D976	53.77		-----	1082		-----		-----
273		-----		-----	1095	D976	53.9		-----
311	D976	53.50		-----	1108		-----		-----
312	D976	53.6		-----	1109		-----		-----
323	D976	53.8		-----	1121		-----		-----
332		-----		-----	1126	D976	53.4		-----
334		-----		-----	1134	D976	53.84		-----
335		-----		-----	1140		-----		-----
336	D976	53.6		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340		-----		-----	1186		-----		-----
344		-----		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D976	53.3		-----
360	D976	53.04	E	-----	1227	D976	53.7		-----
370	D976	52.86		-----	1229		-----		-----
402	D976	53.96		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D976	53.6		-----	1299		-----		-----
447	D976	53.6		-----	1340		-----		-----
463	D976	53.5		-----	1357	D976	53.5	C	-----
485		-----		-----	1395		-----		-----
494	D976	53.30		-----	1399		-----		-----
495	D976	53.30		-----	1417		-----		-----
496		-----		-----	1428		-----		-----
507	D976	53.60		-----	1430		-----		-----
529		-----		-----	1431		-----		-----
541	D976	53.1		-----	1432		-----		-----
562	D976	53.82		-----	1447	D976	53.9	E	-----
575	D976	53.7	E	-----	1457	D976	53.6		-----
603	D976	53.5		-----	1459		-----		-----
604	D976	53.52		-----	1487		-----		-----
607		-----		-----	1498	D976	54.2		-----
621	D976	53.35		-----	1510		-----		-----
631	D976	53.64		-----	1557		-----		-----
657	D976	53.2		-----	1564		-----		-----
663	D976	53.5		-----	1586	D976	53.5		-----
671		-----		-----	1613	D976	53.63		-----
732	D976	53.10		-----	1616		-----		-----
750	D976	53.1	E	-----	1629		-----		-----
753	D976	53.60		-----	1631	D976	53.89		-----
759	D976	53.7		-----	1634		-----		-----
781	D976	53.7		-----	1635		-----		-----
823	D976	53.4	E	-----	1650	D976	53.6		-----
824	D976	53.7		-----	1654		-----		-----

1669	D976	53.6		-----
1709	D976	53.46		-----
1710	D976	53.5		-----
1720		-----		-----
1724	D976	53.5		-----
1746	D976	53	E	-----
1807	D976	53.2		-----
1810		-----		-----
1811		-----		-----
1842		-----		-----
1849		-----		-----
1857		-----		-----
1862		-----		-----
1906		-----		-----
1914	D976	53.2		-----
1915		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
1950		-----		-----
1951		-----		-----
2129	D976	53.4		-----
5019		-----		-----
7006		-----		-----

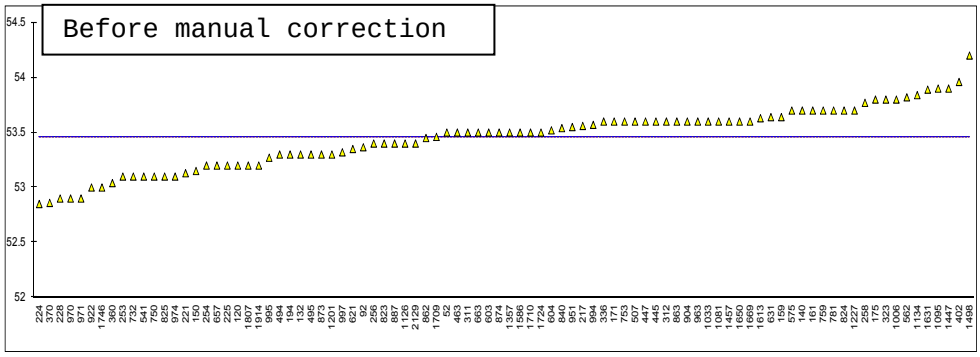
		Recalculated by iis
normality	not OK	not OK
n	90	90
outliers	0	0
mean (n)	53.453	53.472
st.dev. (n)	0.2772	0.2571
R(calc.)	0.776	0.720
R(D976:11)	unknown	unknown

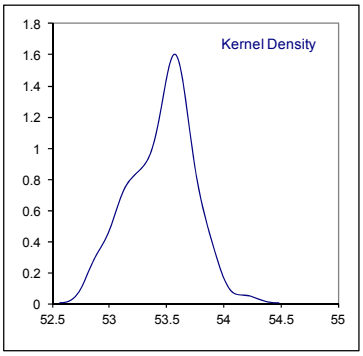
Compare R(iis12G04) = 0.765

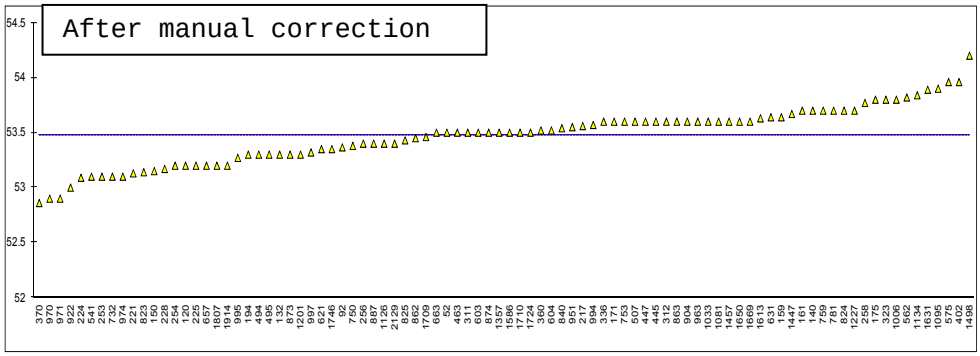
Recalculated values (= E)

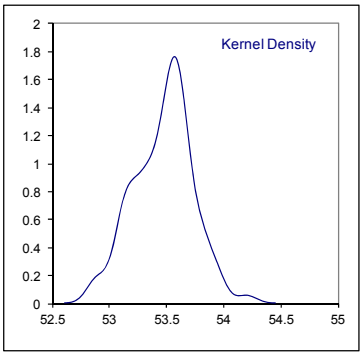
224	D976	53.09	-----
228	D976	53.17	-----
360	D976	53.52	-----
575	D976	53.96	-----
750	D976	53.38	-----
823	D976	53.14	-----
825	D976	53.43	-----
1447	D976	53.67	-----
1746	D976	53.35	-----

Lab 1357: first reported 53.9









Determination of Calculated Cetane Index D4737 on sample #13174

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	53.1		-----	825	D4737	53.4	E	-----
53		-----		-----	840	D4737-A	53.12		-----
62		-----		-----	862	D4737-A	53.07		-----
92	D4737	52.928	E	-----	863	D4737-A	53.00		-----
120	D4737-A	52.5		-----	873	D4737-A	52.7		-----
132	D4737-B	52.9		-----	874	D4737-A	53.1		-----
140	D4737-A	53.4		-----	887	D4737-A	52.8		-----
150	D4737-A	52.8		-----	902		-----		-----
158		-----		-----	904	D4737	53.3		-----
159	D4737-A	53.53		-----	922		-----		-----
161	D4737-A	53.3		-----	951		-----		-----
169	D4737-B	52.32		-----	962		-----		-----
171	D4737-A	53.3		-----	963	D4737	53.2		-----
175	D4737-A	53.5		-----	970	D4737	51.9	G(0.01)	-----
193	D4737-A	53.37	C	-----	971	D4737-A	52.4		-----
194	D4737-B	52.2		-----	974	D4737-A	52.6		-----
212		-----		-----	994	D4737-A	52.97		-----
217	D4737-A	53.56	E	-----	995		-----		-----
221	D4737-A	52.81		-----	996		-----		-----
224		-----		-----	997	D4737-A	52.63		-----
225	D4737-A	52.9		-----	998		-----		-----
228	D4737	52.3		-----	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252	D4737-B	51.9	DG(0.05)	-----	1038	D4737-A	52.9		-----
253		-----		-----	1059	ISO4264	53.1	C	-----
254		-----		-----	1080	D4737	52.8		-----
256		-----		-----	1081	ISO4264	53.1		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311	D4737-A	53.1		-----	1108		-----		-----
312	D4737-A	53.2		-----	1109	D4737-A	53.2		-----
323	D4737-A	53.5		-----	1121		-----		-----
332		-----		-----	1126		-----		-----
334	D4737-A	52.8		-----	1134	IP380	53.43		-----
335	D4737-A	53.2		-----	1140	D4737	52.5451		-----
336	D4737	53.2		-----	1146		-----		-----
337		-----		-----	1167	ISO4264	52.3		-----
338	ISO4264	53.4	C	-----	1182		-----		-----
340	D4737-A	53.4		-----	1186		-----		-----
344	D4737-A	52.95		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353	D4737-A	53.251		-----	1201	D4737	52.9		-----
360	D4737-A	53.05		-----	1227		-----		-----
370	D4737-A	52.56		-----	1229		-----		-----
402	D4737-A	53.69		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D4737-A	53.2		-----	1299	D4737-A	53.1		-----
447	D4737-A	53.2		-----	1340	D4737-A	53.06		-----
463	D4737-A	52.9		-----	1357	D4737-A	53.2	C	-----
485	D4737	52.5		-----	1395	D4737-A	53.1		-----
494	D4737-B	51.94	G(0.01)	-----	1399		-----		-----
495	D4737-B	51.61	DG(0.05)	-----	1417	IP380	53.6		-----
496	D4737-A	53.20		-----	1428	ISO4264	53.1		-----
507		-----		-----	1430	D4737	53.6		-----
529		-----		-----	1431		-----		-----
541	D4737-A	52.3		-----	1432		-----		-----
562	D4737-A	53.50		-----	1447	D4737-B	50.6	G(0.01),E	-----
575		-----		-----	1457	D4737-A	53.5		-----
603		-----		-----	1459	ISO4264	53.1		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621	D4737-A	52.85		-----	1510	IP380	52.6		-----
631		-----		-----	1557	ISO4264	52.9		-----
657	D4737-A	52.8		-----	1564		-----		-----
663	D4737	53.2		-----	1586	D4737-A	53.1		-----
671	D4737-A	49.3	G(0.01),E	-----	1613	D4737-A	53.31		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753	D4737-A	53.34		-----	1631	D4737-B	53.53	E	-----
759	D4737-A	53.1		-----	1634	ISO4264	52.97		-----
781	D4737-A	53.4		-----	1635	D4737	53.17		-----
823	D4737-A	52.4		-----	1650	D4737-A	53.0		-----
824	D4737	53.3		-----	1654	ISO4294	53.44		-----

1669	ISO4264	53.3		-----
1709	D4737-A	53.02		-----
1710	D4737-A	53.1		-----
1720		-----		-----
1724	IP380	53.13		-----
1746		-----		-----
1807	D4737	52.7	C	-----
1810		-----		-----
1811	D4737-A	53.0		-----
1842		-----		-----
1849	ISO4264	53.23		-----
1857		-----		-----
1862		-----		-----

	normality	not OK
	n	98
	outliers	6
	mean (n)	53.038
	st.dev. (n)	0.3397
	R(calc.)	0.951
	R(D974:12)	unknown

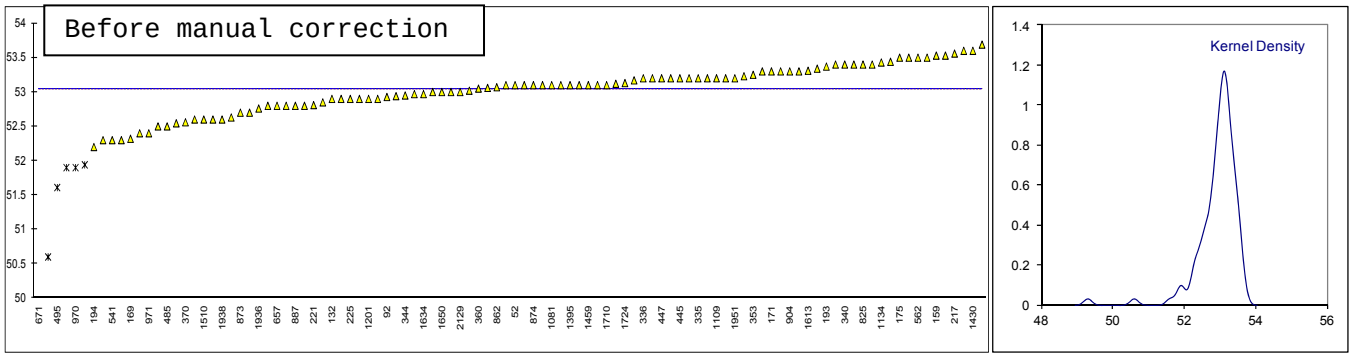
Recalculated values (= E)

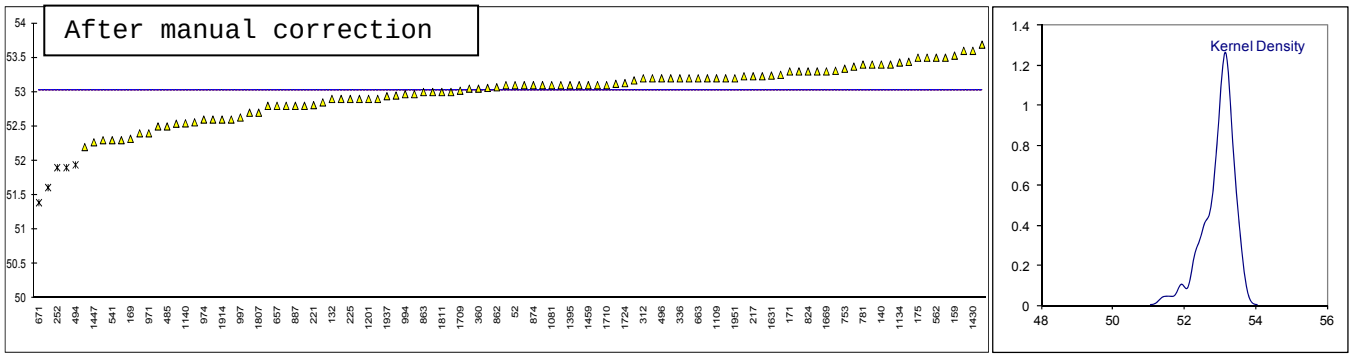
92	D4737	53.23	-----
217	D4737	53.23	-----
671	D4737	51.39	G(0.01) -----
825	D4737	53.05	-----
1447	D4737	52.27	-----
1631	D4737	53.24	-----
1936	D4737	52.54	-----

1906		-----		-----
1914	D4737-A	52.6	C	-----
1915		-----		-----
1936	ISO4264	52.76	E	-----
1937	ISO4264	52.94		-----
1938	D4737	52.6		-----
1948		-----		-----
1950		-----		-----
1951	D4737	53.2		-----
2129	D4737-A	53.0		-----
5019		-----		-----
7006		-----		-----

Recalculated by iis	
not OK	
99	
5	
53.021	
0.3408	
0.954	
unknown	Compare R(iis12G04) = 1.179

Lab 193: first reported 48.81
Lab 338: result was reported as CCI D976
Lab 1059: result was reported as CCI D976
Lab 1357: first reported 53.6
Lab 1807: first reported 53.2
Lab 1914: reported also 51.6 (by using calculation method B)





Determination of Cold Filter Plugging Point on sample #13174; result in ºC

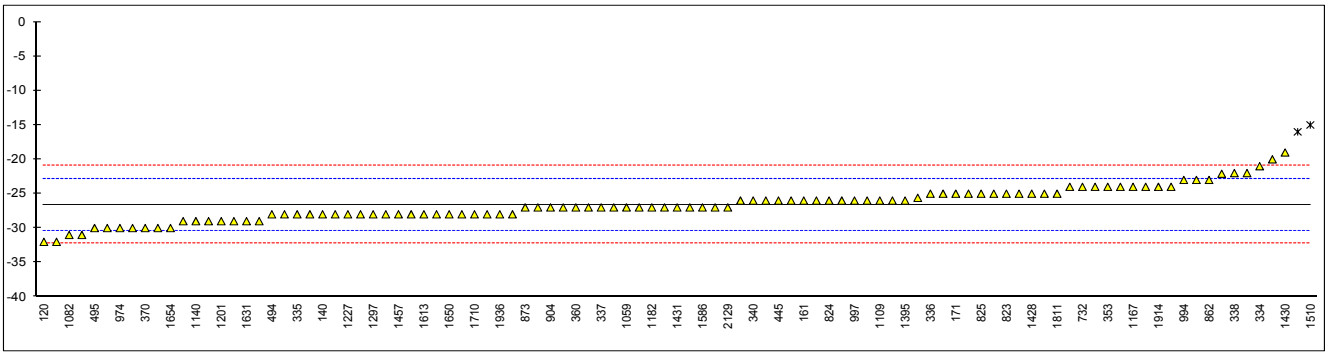
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825	D6371	-25		0.85
53		-----		-----	840		-----		-----
62		-----		-----	862	D6371	-23		1.92
92		-----		-----	863	INH-0248	-24	C	1.38
120	D6371	-32		-2.87	873	D6371	-27		-0.21
132		-----		-----	874	IP309	-25		0.85
140	D6371	-28		-0.74	887		-----		-----
150	D6371	-26		0.32	902		-----		-----
158		-----		-----	904	D6371	-27		-0.21
159		-----		-----	922	D6371	-24.0	C	1.38
161	D6371	-26.0	C	0.32	951		-----		-----
169		-----		-----	962		-----		-----
171	D6371	-25		0.85	963	D6371	-25		0.85
175		-----		-----	970		-----		-----
193		-----		-----	971		-----		-----
194		-----		-----	974	D6371	-30		-1.81
212		-----		-----	994	D6371	-23.0		1.92
217	D6371	-25		0.85	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997	D6371	-26		0.32
225		-----		-----	998		-----		-----
228		-----		-----	1006	D6371	-27		-0.21
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033	IP309	-29		-1.28
252	IP309	-23	C	1.92	1038		-----		-----
253		-----		-----	1059	EN116	-27		-0.21
254		-----		-----	1080	D6371	-27		-0.21
256		-----		-----	1081	EN116	-30		-1.81
258		-----		-----	1082	D6371	-31		-2.34
273	D6371	-22		2.45	1095	D6371	-26		0.32
311	D6371	-27		-0.21	1108		-----		-----
312	D6371	-26		0.32	1109	D6371	-26.0		0.32
323	D6371	-30		-1.81	1121	IP309	-32		-2.87
332		-----		-----	1126		-----		-----
334	D6371	-21	C	2.98	1134	IP309	-26		0.32
335	D6371	-28		-0.74	1140	D6371	-29.0		-1.28
336	EN116	-25		0.85	1146		-----		-----
337	D6371	-27	C	-0.21	1167	EN116	-24		1.38
338	EN116	-22		2.45	1182	D6371	-27		-0.21
340	D6371	-26		0.32	1186		-----		-----
344	EN116	-26		0.32	1191	D6371	-29		-1.28
349		-----		-----	1199		-----		-----
353	IP309	-24		1.38	1201	IP309	-29		-1.28
360	D6371	-27		-0.21	1227	EN116	-28		-0.74
370	EN116	-30		-1.81	1229	D6371	-28		-0.74
402	EN116	-27		-0.21	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D6371	-28		-0.74
445	IP309	-26		0.32	1299	D6371	-25		0.85
447	IP309	-28	C	-0.74	1340	EN116	-27		-0.21
463	EN116	-28		-0.74	1357		-----		-----
485		-----		-----	1395	D6371	-26		0.32
494	D6371	-28		-0.74	1399	D6371	-28		-0.74
495	D6371	-30		-1.81	1417		-----		-----
496	D6371	-30.0		-1.81	1428	EN116	-25		0.85
507		-----		-----	1430	D6371	-19	C	4.04
529		-----		-----	1431	D6371	-27		-0.21
541	D6371	-20		3.51	1432		-----		-----
562	D6371	-28		-0.74	1447	D6371	-22.1		2.40
575		-----		-----	1457	D6371	-28		-0.74
603		-----		-----	1459	EN116	-28		-0.74
604		-----		-----	1487		-----		-----
607		-----		-----	1498	D6371	-27		-0.21
621		-----		-----	1510	D6371	-15	G(0.01)	6.17
631		-----		-----	1557	EN116	-25.6		0.53
657	D6371	-26.0		0.32	1564	IP309	-29		-1.28
663		-----		-----	1586	D6371	-27		-0.21
671		-----		-----	1613	D6371	-28.0		-0.74
732	D6371	-24.0		1.38	1616		-----		-----
750	D6371	-27		-0.21	1629		-----		-----
753		-----		-----	1631	D6371	-29	C	-1.28
759	IP309	-24		1.38	1634		-----		-----
781	D6371	-26		0.32	1635	D6371	-28		-0.74
823	D6371	-25		0.85	1650	EN116	-28.0		-0.74
824	D6371	-26		0.32	1654	EN116	-30.0		-1.81

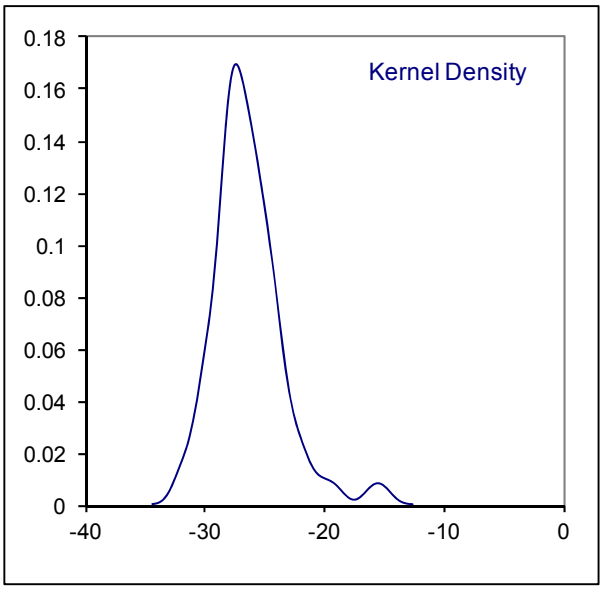
1669	EN116	-25		0.85
1709	D6371	-28		-0.74
1710	D6371	-28		-0.74
1720		-----		-----
1724	IP309	-28		-0.74
1746		-----		-----
1807	D6371	-16	C,G(0.01)	5.64
1810	D6371	-24		1.38
1811	D6371	-25		0.85
1842	IP309	-31		-2.34
1849	EN116	-29		-1.28
1857		-----		-----
1862		-----		-----

1906		-----		-----
1914	D6371	-24		1.38
1915		-----		-----
1936	EN116	-28		-0.74
1937	EN116	-27		-0.21
1938	D6371	-28		-0.74
1948		-----		-----
1950		-----		-----
1951	D6371	-24.0		1.38
2129	D6371	-27		-0.21
5019		-----		-----
7006		-----		-----

normality	not OK
n	99
outliers	2
mean (n)	-26.60
st.dev. (n)	2.452
R(calc.)	6.87
R(D6371:10)	5.26

Lab 161: first reported -13
Lab 252: first reported <-16
Lab 334: first reported -19
Lab 337: first reported -20
Lab 447: first reported -20
Lab 863: first reported -21
Lab 922: first reported -21.0
Lab 1430: first reported -21
Lab 1631: first reported -21
Lab 1807: first reported -20





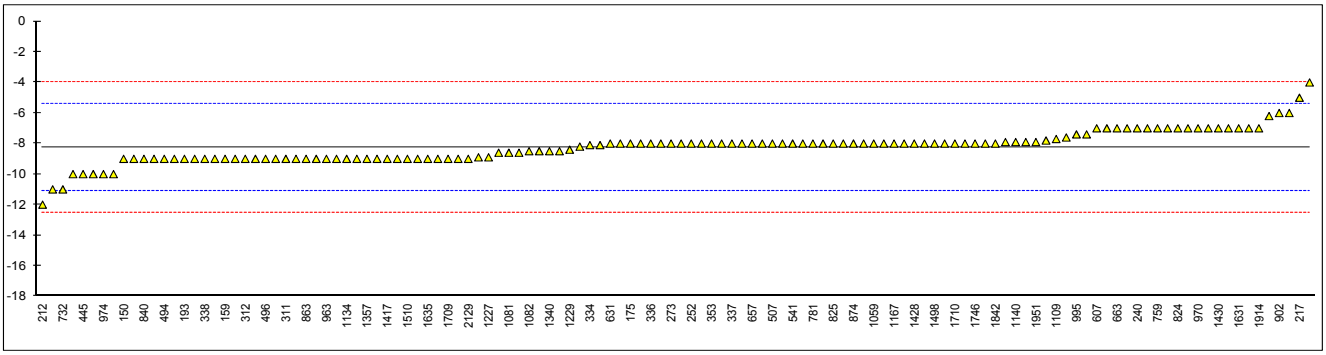
Determination of Cloud Point on sample #13174; result in °C,

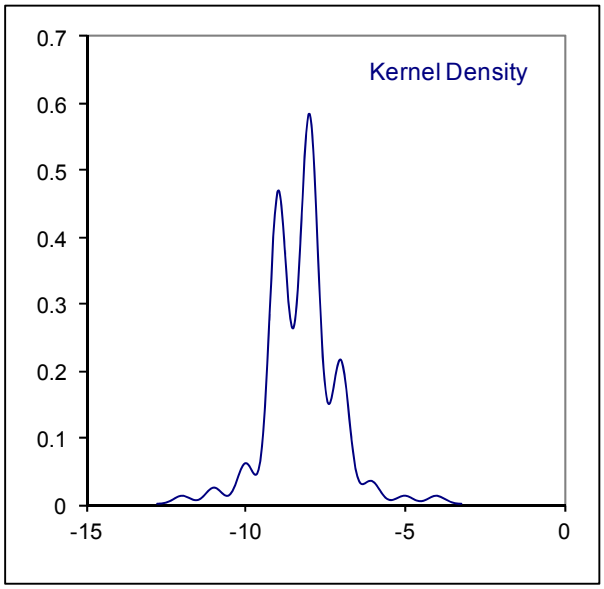
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5773	-8.9		-0.47	825	D2500	-8		0.16
53		-----		-----	840	D2500	-9		-0.54
62	D2500	-8		0.16	862	D2500	-8		0.16
92	D2500	-9		-0.54	863	D2500	-9		-0.54
120	D2500	-8		0.16	873	D2500	-8		0.16
132	D2500	-10		-1.24	874	D2500	-8		0.16
140		-----		-----	887		-----		-----
150	D5771	-9		-0.54	902	D2500	-6		1.56
158	D2500	-9.0		-0.54	904	D2500	-7		0.86
159	D2500	-9.0		-0.54	922	D2500	-9.0		-0.54
161	D5771	-8.2		0.02	951	D2500	-8		0.16
169	D2500	-4		2.96	962		-----		-----
171	D2500	-7		0.86	963	D2500	-9		-0.54
175	D2500	-8		0.16	970	D2500	-7		0.86
193	D2500	-9		-0.54	971	D2500	-6		1.56
194	D2500	-7		0.86	974	D2500	-10		-1.24
212	ISO3015	-12		-2.64	994	D2500	-9		-0.54
217	D2500	-5		2.26	995	D2500	-7.4		0.58
221	D2500	-8		0.16	996		-----		-----
224		-----		-----	997	D2500	-7		0.86
225	D2500	-8		0.16	998		-----		-----
228	D2500	-9		-0.54	1006		-----		-----
230		-----		-----	1017		-----		-----
240	D2500	-7		0.86	1026		-----		-----
242		-----		-----	1033	IP219	-7.6		0.44
252	D2500	-8		0.16	1038	D5773	-8.6		-0.26
253	D2500	-8		0.16	1059	ISO3015	-8		0.16
254		-----		-----	1080	D2500	-8		0.16
256	D2500	-9		-0.54	1081	D5772	-8.6		-0.26
258		-----		-----	1082	D5771	-8.5		-0.19
273	D2500	-8		0.16	1095		-----		-----
311	D5771	-9		-0.54	1108		-----		-----
312	D2500	-9		-0.54	1109	D5773	-7.7		0.37
323	D2500	-9		-0.54	1121	IP219	-10		-1.24
332		-----		-----	1126		-----		-----
334	D2500	-8.1		0.09	1134	D2500	-9		-0.54
335	D2500	-9		-0.54	1140	D5773	-7.9		0.23
336	EN23015	-8		0.16	1146		-----		-----
337	D2500	-8		0.16	1167	EN23015	-8		0.16
338	EN23015	-9		-0.54	1182		-----		-----
340	D2500	-7.9		0.23	1186		-----		-----
344	D2500	-6.2		1.42	1191	D5773	-8		0.16
349		-----		-----	1199		-----		-----
353	IP219	-8		0.16	1201	D2500	-9		-0.54
360	D2500	-9		-0.54	1227	D2500	-8.9		-0.47
370	D2500	-8		0.16	1229	D7689	-8.4		-0.12
402	D2500	-11		-1.94	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D5771	-8.5		-0.19
445	D2500	-10		-1.24	1299	D2500	-7.4		0.58
447	D2500	-7		0.86	1340	D2500	-8.5		-0.19
463	D2500	-9		-0.54	1357	D5771	-9		-0.54
485		-----		-----	1395	D2500	-9		-0.54
494	D2500	-9		-0.54	1399	D5773	-7.8		0.30
495	D2500	-8		0.16	1417	IP444	-9		-0.54
496	D2500	-9.0		-0.54	1428	EN23015	-8		0.16
507	D2500	-8		0.16	1430	D2500	-7		0.86
529	D2500	-9.0		-0.54	1431		-----		-----
541	D2500	-8		0.16	1432		-----		-----
562	D2500	-7		0.86	1447	D2500	-8.6		-0.26
575		-----		-----	1457	D2500	-8		0.16
603		-----		-----	1459	ISO3015	-9		-0.54
604	D2500	-10		-1.24	1487		-----		-----
607	D2500	-7		0.86	1498	D2500	-8		0.16
621		-----		-----	1510	D2500	-9		-0.54
631	D2500	-8		0.16	1557	ISO3015	-9		-0.54
657	D2500	-8		0.16	1564	D5772	-8.1		0.09
663	D2500	-7		0.86	1586	D2500	-7.9		0.23
671	D2500	-8		0.16	1613	D2500	-7.0		0.86
732	D2500	-11.0		-1.94	1616		-----		-----
750		-----		-----	1629		-----		-----
753	D2500	-8		0.16	1631	D2500	-7		0.86
759	D2500	-7		0.86	1634		-----		-----
781	D2500	-8		0.16	1635	D2500	-9		-0.54
823	D2500	-8		0.16	1650	D5771	-9.0		-0.54
824	D2500	-7		0.86	1654		-----		-----

1669	D2500	-8	0.16
1709	D2500	-9	-0.54
1710	D2500	-8	0.16
1720	D2500	-8.5	-0.19
1724	D2500	-8	0.16
1746	D2500	-8	0.16
1807	D2500	-7	0.86
1810	D2500	-9	-0.54
1811	D2500	-8	0.16
1842	D2500	-8	0.16
1849		-----	-----
1857		-----	-----
1862		-----	-----

normality	not OK
n	126
outliers	0
mean (n)	-8.23
st.dev. (n)	1.060
R(calc.)	2.97
R(D2500:11)	4.00

1906		-----	-----
1914	D2500	-7	0.86
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951	D2500	-7.9	0.23
2129	D2500	-9	-0.54
5019		-----	-----
7006		-----	-----





Determination of Colour ASTM on sample #13174;

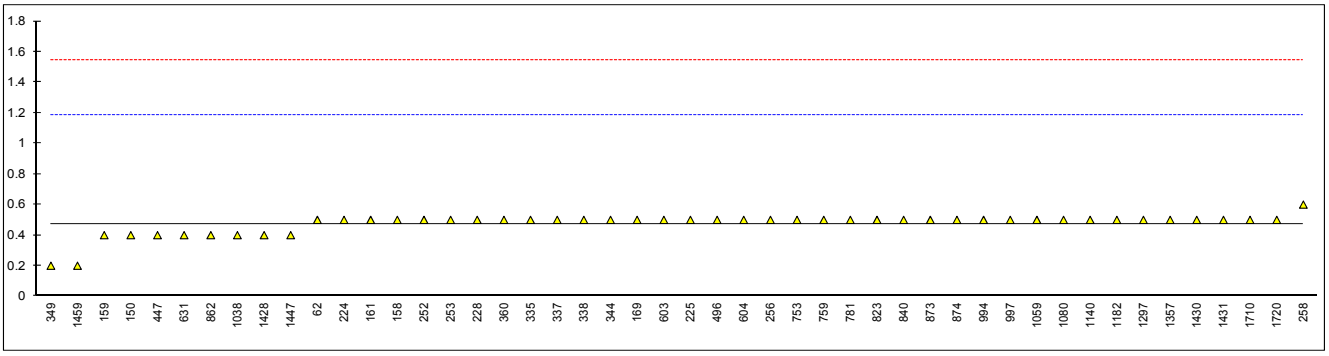
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6045	<0.5		-----	825	D1500	L0.5		-----
53		-----		-----	840	D1500	0.5		0.08
62	D1500	0.5		0.08	862	D6045	0.4		-0.20
92	D1500	<0.5		-----	863	D1500	L0.5		-----
120	D1500	L0.5		-----	873	D1500	0.5		0.08
132	D1500	L0.5		-----	874	D1500	0.5		0.08
140	D1500	L0.5		-----	887	D1500	L0.5		-----
150	D1500	0.4		-0.20	902	D1500	L0.5		-----
158	D1500	0.5		0.08	904	D1500	L0.5		-----
159	D1500	0.4		-0.20	922	D1500	L0.5		-----
161	D1500	0.5		0.08	951	D1500	L0.5		-----
169	D6045	0.5		0.08	962		-----		-----
171	D1500	L0.5		-----	963	D1500	L0.5		-----
175	D1500	L0.5		-----	970		-----		-----
193		-----		-----	971	D1500	<0.5		-----
194	D1500	L0.5		-----	974	D1500	<0.5		-----
212	D1500	L0.5		-----	994	D1500	0.5		0.08
217	D1500	<0.5		-----	995	D1500	L0.5		-----
221	D1500	L0.5		-----	996		-----		-----
224	D1500	0.5		0.08	997	D1500	0.5		0.08
225	D1500	0.5		0.08	998		-----		-----
228	D1500	0.5		0.08	1006		-----		-----
230		-----		-----	1017		-----		-----
240	D1500	<0.5		-----	1026		-----		-----
242		-----		-----	1033	D1500	<1.0	C	-----
252	D1500	0.5		0.08	1038	D6045	0.4		-0.20
253	D1500	0.5		0.08	1059	D1500	0.5		0.08
254	D1500	L0.5		-----	1080	D1500	0.5		0.08
256	D1500	0.5		0.08	1081	D6045	L0.5		-----
258	D6756	0.6		0.36	1082		-----		-----
273	D1500	<1		-----	1095		-----		-----
311	D1500	L0.5		-----	1108		-----		-----
312	D1500	<0.5		-----	1109	D1500	L0.5		-----
323	D1500	L0.5		-----	1121	D1500	L0.5		-----
332		-----		-----	1126		-----		-----
334	D1500	L1.0		-----	1134	D1500	<0.5		-----
335	D1500	0.5		0.08	1140	D6045	0.5		0.08
336	D1500	L0.5		-----	1146		-----		-----
337	D1500	0.5		0.08	1167		-----		-----
338	D1500	0.5		0.08	1182	D1500	0.5		0.08
340	D1500	L0.5		-----	1186		-----		-----
344	D1500	0.5		0.08	1191		-----		-----
349	D5386	0.2		-0.76	1199		-----		-----
353	D6045	<0.5		-----	1201	D1500	L0.5		-----
360	D1500	0.5		0.08	1227		-----		-----
370	D1500	<0.5		-----	1229		-----		-----
402	D1500	<0.5		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D1500	0.5		0.08
445	D1500	<0.5		-----	1299	D1500	<0.5		-----
447	D6045	0.4		-0.20	1340	D1500	<0.5		-----
463	D1500	<0.5		-----	1357	D1500	0.5		0.08
485		-----		-----	1395	D1500	<0.5		-----
494	D1500	L0.5		-----	1399	D1500	<0.5		-----
495		-----		-----	1417	D1500	<0.5		-----
496	D1500	0.5		0.08	1428	D6045	0.4		-0.20
507	D1500	L0.5		-----	1430	D1500	0.5		0.08
529		-----		-----	1431	D1500	0.5		0.08
541	D1500	L0.5		-----	1432		-----		-----
562	D1500	L0.5		-----	1447	D1500	0.4		-0.20
575	D1500	L0.5		-----	1457	D1500	L0.5		-----
603	D1500	0.5		0.08	1459	D1500	0.2		-0.76
604	D1500	0.5		0.08	1487	D1500	L0.5		-----
607		-----		-----	1498		-----		-----
621	D1500	L0.5		-----	1510	D1500	L0.5		-----
631	D6045	0.4		-0.20	1557	D1500	L0.5		-----
657	D1500	L0.5		-----	1564		-----		-----
663	D1500	L0.5		-----	1586	D1500	<0.05		-----
671	D1500	<0.5		-----	1613	D1500	<0.5		-----
732	D1500	L0.5		-----	1616		-----		-----
750	D1500	L0.5		-----	1629		-----		-----
753	D6045	0.5		0.08	1631	D1500	<0.5		-----
759	D1500	0.5		0.08	1634		-----		-----
781	D1500	0.5		0.08	1635	D1500	<0.5		-----
823	D1500	0.5		0.08	1650		-----		-----
824	D1500	L1.0		-----	1654		-----		-----

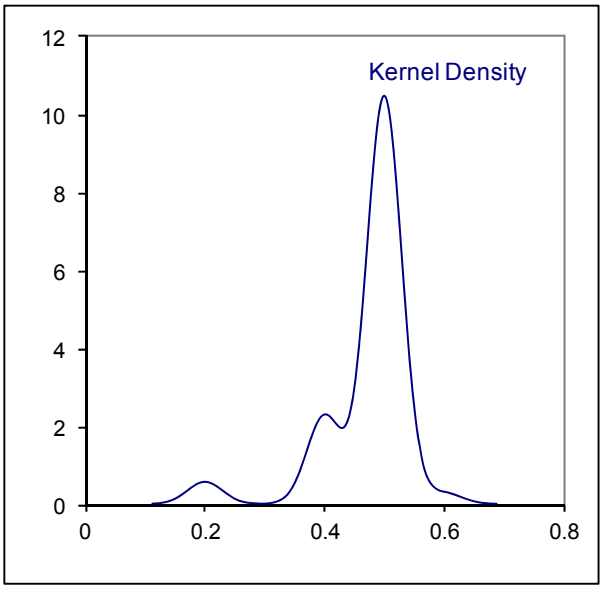
1669	D1500	<0.5	-----
1709		-----	-----
1710	D1500	0.5	0.08
1720	D1500	0.5	0.08
1724	D1500	<0.5	-----
1746	D1500	L0.5	-----
1807	D1500	<0.5	-----
1810		-----	-----
1811		-----	-----
1842	D1500	<0.5	-----
1849		-----	-----
1857		-----	-----
1862		-----	-----

normality	not OK
n	48
outliers	0
mean (n)	0.47
st.dev. (n)	0.071
R(calc.)	0.20
R(D1500:12)	1.00

1906		-----	-----
1914	D1500	<0.5	-----
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951	D1500	<0.5	-----
2129	D1500	L0.5	-----
5019		-----	-----
7006		-----	-----

Lab 1033: first reported 1.0





Determination of Conradson Carbon Residue on 10% residue on sample #13174; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840	D189	0.0286		1.08
62		-----		-----	862	D189	0.02		0.20
92		-----		-----	863	D189	0.024		0.61
120		-----		-----	873	D4530	0.020		0.20
132		-----		-----	874	D4530	<0.1		-----
140	D189	0.007		-1.13	887		-----		-----
150		-----		-----	902		-----		-----
158		-----		-----	904		-----		-----
159		-----		-----	922	D189	0.0181		0.01
161		-----		-----	951	D189	0.022		0.41
169		-----		-----	962		-----		-----
171	D189	0.013		-0.51	963	D189	0.023		0.51
175		-----		-----	970		-----		-----
193		-----		-----	971	D189	0.014		-0.41
194		-----		-----	974		-----		-----
212		-----		-----	994		-----		-----
217		-----		-----	995	D189	0.0173		-0.07
221	D189	0.02		0.20	996		-----		-----
224		-----		-----	997	D189	0.018		0.00
225	D4530	0.1	G(0.01)	8.39	998		-----		-----
228	D189	0.005		-1.33	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252	D4530	0.023	C	0.51	1038		-----		-----
253		-----		-----	1059	ISO10370	0.01		-0.82
254	D189	0.046	DG(0.01)	2.86	1080		-----		-----
256	D189	0.048	DG(0.01)	3.07	1081	ISO10370	0.01		-0.82
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311		-----		-----	1108		-----		-----
312		-----		-----	1109	D4530	0.004		-1.44
323		-----		-----	1121	IP398	0.02		0.20
332		-----		-----	1126		-----		-----
334	D4530	0.03		1.23	1134		-----		-----
335		-----		-----	1140	D4530	0.0177		-0.03
336		-----		-----	1146		-----		-----
337		-----		-----	1167	ISO10370	0.03		1.23
338		-----		-----	1182	D189	0.013		-0.51
340	D189	0.019		0.10	1186		-----		-----
344	D4530	0.03028		1.25	1191		-----		-----
349		-----		-----	1199		-----		-----
353	IP13	0.003		-1.54	1201	ISO10370	<0.10		-----
360	D4530	0.026		0.82	1227	D4530	0.01		-0.82
370	D4530	0.007		-1.13	1229		-----		-----
402	ISO10370	0.0280		1.02	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D189	0.015		-0.31	1299	D4530	0.01		-0.82
447	IP398	0.01		-0.82	1340	ISO10370	0.025		0.71
463		-----		-----	1357	D4530	0.0332		1.55
485		-----		-----	1395		-----		-----
494	D4530	0.02		0.20	1399		-----		-----
495	D189	0.0295		1.17	1417		-----		-----
496		-----		-----	1428	ISO10370	0.017		-0.10
507	D189	0.0160		-0.21	1430		-----		-----
529		-----		-----	1431		-----		-----
541	D189	0.015		-0.31	1432		-----		-----
562	D189	0.016		-0.21	1447	D189	0.024		0.61
575		-----		-----	1457	D4530	0.013		-0.51
603	D4530	0.0197		0.17	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510	D189	0.012		-0.62
631		-----		-----	1557	ISO10370	0.026		0.82
657	D4530	0.03		1.23	1564		-----		-----
663	D4530	<0.1		-----	1586	D189	<0.01		-----
671	D4530	0.0132		-0.49	1613	D189	0.00526		-1.31
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753	D189	0.023		0.51	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D4530	0.020		0.20	1635	D189	0.0336		1.59
823	D189	0.021		0.30	1650	D189	0.017		-0.10
824		-----		-----	1654	ISO10370	0.015		-0.31

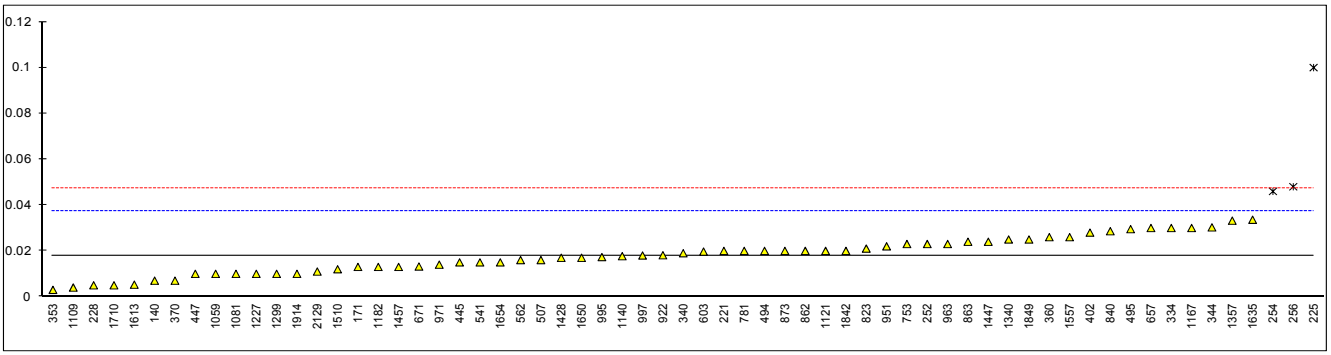
1669	ISO10370	<0.10	C	-----
1709		-----		-----
1710	ISO10370	0.005		-1.33
1720		-----		-----
1724		-----		-----
1746		-----		-----
1807		-----		-----
1810		-----		-----
1811		-----		-----
1842	D4530	0.02		0.20
1849	ISO10370	0.025		0.71
1857		-----		-----
1862		-----		-----

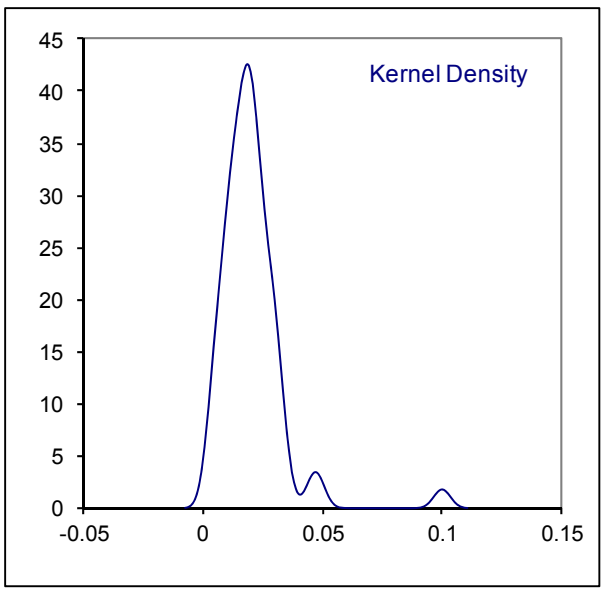
1906		-----		-----
1914	D189	0.01		-0.82
1915		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
1950		-----		-----
1951		-----		-----
2129	D189	0.011		-0.72
5019		-----		-----
7006		-----		-----

normality	OK	
n	60	
outliers	3	
mean (n)	0.0180	
st.dev. (n)	0.00783	
R(calc.)	0.0219	
R(D189:10e1)	0.0273	

Only ASTM D189	Only ASTM D4530
OK	OK
30	29
2	1
0.0171	0.0187
0.00729	0.00886
0.0204	0.0248
0.0270	0.1452

Lab 252: first reported 0.053
Lab 1669:first reported 0.10





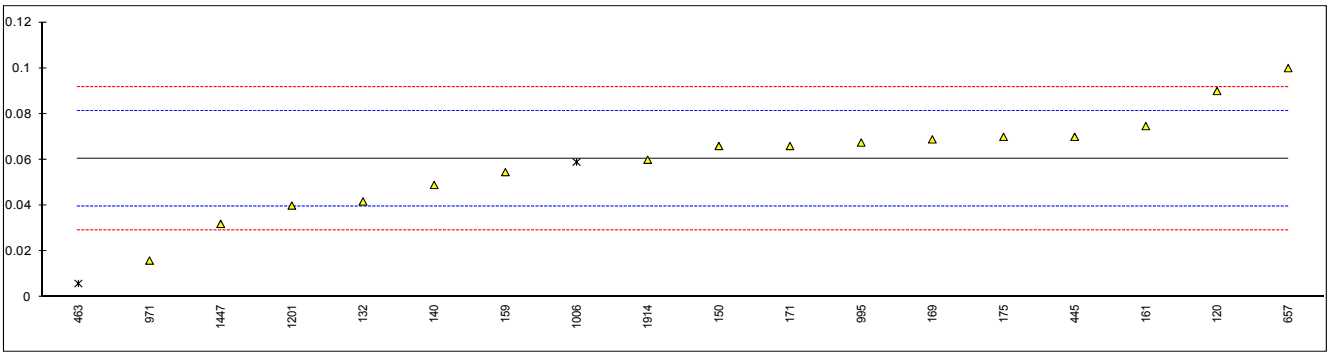
Determination of Ramsbottom Carbon Residue on 10% residue on sample #13174; result in %M/M

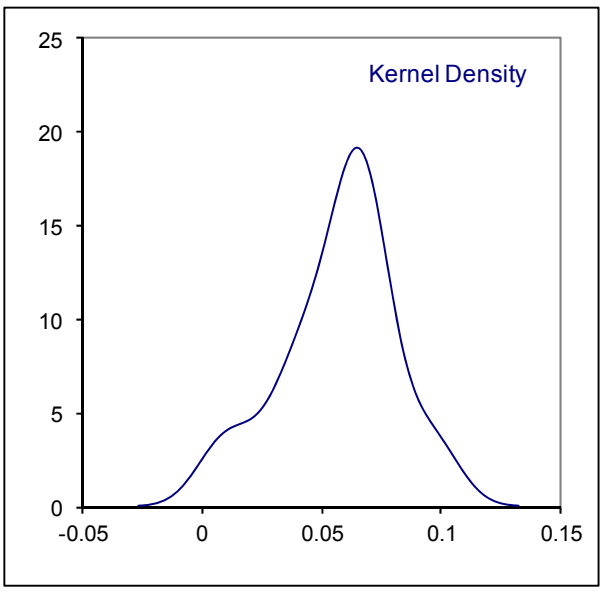
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
62		-----		-----	862		-----		-----
92		-----		-----	863		-----		-----
120	D524	0.09		2.82	873		-----		-----
132	D524	0.0418		-1.78	874		-----		-----
140	D524	0.049		-1.09	887		-----		-----
150	D524	0.066		0.53	902		-----		-----
158		-----		-----	904		-----		-----
159	D524	0.0546		-0.55	922		-----		-----
161	D524	0.0747		1.36	951		-----		-----
169	D524	0.0689		0.81	962		-----		-----
171	D524	0.066		0.53	963		-----		-----
175	D524	0.07		0.92	970		-----		-----
193		-----		-----	971	D524	0.016	C	-4.24
194		-----		-----	974		-----		-----
212		-----		-----	994		-----		-----
217		-----		-----	995	D524	0.0675		0.68
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006	ISO10370	0.059	ex	-0.13
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1080		-----		-----
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311		-----		-----	1108		-----		-----
312		-----		-----	1109		-----		-----
323		-----		-----	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340		-----		-----	1186		-----		-----
344		-----		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D524	0.04		-1.95
360		-----		-----	1227		-----		-----
370		-----		-----	1229	D4560	<0.01	ex	<-4.82
402		-----		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D524	0.07		0.92	1299		-----		-----
447		-----		-----	1340		-----		-----
463	ISO10370	0.006	ex	-5.19	1357		-----		-----
485		-----		-----	1395		-----		-----
494		-----		-----	1399		-----		-----
495		-----		-----	1417		-----		-----
496		-----		-----	1428		-----		-----
507		-----		-----	1430		-----		-----
529		-----		-----	1431		-----		-----
541		-----		-----	1432		-----		-----
562		-----		-----	1447	D524	0.032		-2.71
575		-----		-----	1457		-----		-----
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510		-----		-----
631		-----		-----	1557		-----		-----
657	D524	0.10		3.78	1564		-----		-----
663		-----		-----	1586		-----		-----
671		-----		-----	1613		-----		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781		-----		-----	1635		-----		-----
823		-----		-----	1650		-----		-----
824		-----		-----	1654		-----		-----

1669		-----		-----	1906		-----		-----
1709		-----		-----	1914	D524	0.06		-0.04
1710		-----		-----	1915		-----		-----
1720		-----		-----	1936		-----		-----
1724		-----		-----	1937		-----		-----
1746		-----		-----	1938		-----		-----
1807		-----		-----	1948		-----		-----
1810		-----		-----	1950		-----		-----
1811		-----		-----	1951	D524	<0.01	False -?	<-4.82
1842		-----		-----	2129		-----		-----
1849		-----		-----	5019		-----		-----
1857		-----		-----	7006		-----		-----
1862		-----		-----					

normality	OK	
n	16	
outliers	0	+ 2 excluded
mean (n)	0.0604	
st.dev. (n)	0.02117	
R(calc.)	0.0593	
R(D524:10)	0.0293	

Lab 463: result was excluded, the used testmethod is not equivalent with ASTM D524, see also §4.1
Lab 1006: result was excluded, the used testmethod is not equivalent with ASTM D524, see also §4.1
Lab 1229: result was excluded, the used testmethod is not equivalent with ASTM D524, see also §4.1





Determination of Copper Corrosion (3 hrs @ 50°C) on sample #13174;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1A		-----	825	D130	1		-----
53		-----		-----	840	D130	1A		-----
62	D130	1A		-----	862	D130	1A		-----
92	D130	1A		-----	863	D130	1A		-----
120	D130	1A		-----	873	D130	1A		-----
132	D130	1A		-----	874	D130	1A		-----
140	D130	1A		-----	887	D130	1A		-----
150	D130	1A		-----	902		-----		-----
158	D130	1A		-----	904	D130	1A		-----
159	D130	1A		-----	922	D130	1A		-----
161	D130	1A		-----	951	D130	1		-----
169	D130	1A		-----	962		-----		-----
171	D130	1A		-----	963	D130	1A		-----
175	D130	1A		-----	970		-----		-----
193		-----		-----	971	D130	1A		-----
194	D130	1A		-----	974	D130	1A		-----
212	D130	1A		-----	994	D130	1A		-----
217	D130	1A		-----	995	D130	1A		-----
221	D130	1A		-----	996		-----		-----
224		-----		-----	997		-----		-----
225	D130	1A		-----	998		-----		-----
228	D130	1A		-----	1006	D130	1A		-----
230		-----		-----	1017		-----		-----
240	D130	1A		-----	1026		-----		-----
242		-----		-----	1033	IP154	1B		-----
252	D130	1A		-----	1038	D130	1A		-----
253	D130	1A		-----	1059	ISO2160	1A		-----
254	D130	1A		-----	1080		-----		-----
256	D130	1A		-----	1081	D130	1A		-----
258	D130	1A		-----	1082		-----		-----
273	D130	1A		-----	1095	D130	1A		-----
311	D130	1A		-----	1108		-----		-----
312	D130	1A		-----	1109	D130	1A		-----
323	D130	1A		-----	1121	IP154	1A		-----
332		-----		-----	1126		-----		-----
334	D130	1A		-----	1134	D130	1A		-----
335	D130	1B		-----	1140	D130	1A		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167	ISO2160	1A		-----
338		-----		-----	1182	D130	1A		-----
340	D130	1A		-----	1186	D130	1A		-----
344	D130	1A		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353	D130	1A		-----	1201	D130	1A		-----
360	D130	1A		-----	1227	D130	1A		-----
370	D130	1A		-----	1229		-----		-----
402	D130	1A		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D130	1A		-----
445	D130	1A		-----	1299	D130	1A		-----
447	D130	1A		-----	1340	ISO2160	1A		-----
463	D130	1A		-----	1357	D130	1A		-----
485		-----		-----	1395	D130	1A		-----
494	D130	1A		-----	1399		-----		-----
495	D130	1A		-----	1417	D130	1B		-----
496	D130	1A		-----	1428	ISO2160	1A		-----
507	D130	1A		-----	1430	D130	1A		-----
529	D130	1A		-----	1431	D130	1A		-----
541	D130	1A		-----	1432		-----		-----
562	D130	1A		-----	1447	D130	1		-----
575	D130	1A		-----	1457	D130	1A		-----
603	D130	1A		-----	1459		-----		-----
604		-----		-----	1487	D130	1A		-----
607		-----		-----	1498		-----		-----
621	D130	1A		-----	1510	D130	1A		-----
631	D130	1A		-----	1557	ISO2160	1A		-----
657	D130	1A		-----	1564		-----		-----
663	D130	1A		-----	1586	D130	1A		-----
671	D130	1A		-----	1613	D130	1A		-----
732		-----		-----	1616		-----		-----
750	D130	1A		-----	1629		-----		-----
753	D130	1A		-----	1631	D130	1		-----
759		-----		-----	1634	D130	1A		-----
781	D130	1A		-----	1635	D130	1A		-----
823	D130	1A		-----	1650	D130	1A		-----
824	D130	1A		-----	1654	ISO2160	1A		-----

1669	D130	1A	-----
1709		-----	-----
1710	D130	1A	-----
1720		-----	-----
1724	D130	1A	-----
1746	D130	1A	-----
1807	D130	1A	-----
1810		-----	-----
1811		-----	-----
1842		-----	-----
1849	ISO2160	1A	-----
1857		-----	-----
1862		-----	-----
1906		-----	-----
1914	D130	1A	-----
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951	D130	1	-----
2129	D130	1A	-----
5019		-----	-----
7006		-----	-----

normality	unknown
n	119
outliers	n.a.
mean (n)	1(1A)
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D130:12)	n.a.

Determination of Density @15 °C on sample #13174; result in kg/m^3

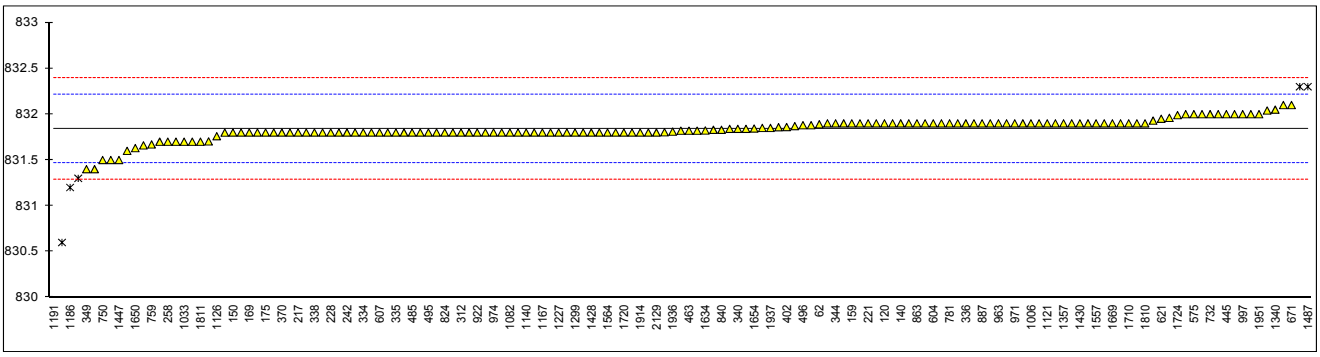
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	831.8		-0.21	825	D4052	831.8		-0.21
53		-----		-----	840	D4052	831.83		-0.04
62	D4052	831.89		0.30	862	D4052	832.04		1.14
92	D4052	831.9		0.35	863	D4052	831.9		0.35
120	D4052	831.9		0.35	873	D4052	832.0		0.91
132	D4052	831.84		0.02	874	D4052	831.8		-0.21
140	D4052	831.9		0.35	887	D4052	831.9		0.35
150	D4052	831.8		-0.21	902	D4052	831.82		-0.09
158	D4052	831.9	C	0.35	904	D4052	831.9		0.35
159	D4052	831.9		0.35	922	D4052	831.8		-0.21
161	D4052	831.9		0.35	951	D1298	831.8		-0.21
169	D4052	831.8		-0.21	962		-----		-----
171	D4052	831.66		-0.99	963	D4052	831.9		0.35
175	D4052	831.8		-0.21	970	D4052	831.9	C	0.35
193	D4052	831.7		-0.77	971	D4052	831.9	C	0.35
194	D4052	831.8		-0.21	974	D4052	831.8		-0.21
212	ISO12185	831.9		0.35	994	D4052	831.9		0.35
217	D4052	831.8		-0.21	995	D4052	831.84		0.02
221	D4052	831.9		0.35	996		-----		-----
224	D1298	832.3	C,G(0.01)	2.59	997	D4052	832.0		0.91
225	D4052	831.8		-0.21	998		-----		-----
228	D4052	831.8	C	-0.21	1006	D4052	831.9		0.35
230		-----		-----	1017		-----		-----
240	D4052	831.9		0.35	1026		-----		-----
242	D4052	831.8		-0.21	1033	IP365	831.7		-0.77
252	D1298	831.7		-0.77	1038	D4052	831.9	C	0.35
253	D4052	831.9		0.35	1059	ISO12185	831.8		-0.21
254	D4052	831.8		-0.21	1080	D4052	831.4		-2.45
256	D4052	831.8		-0.21	1081	ISO12185	832.0		0.91
258	D1298	831.7		-0.77	1082	D4052	831.8		-0.21
273	D4052	832.0	C	0.91	1095	D4052	831.7		-0.77
311	D4052	831.9		0.35	1108		-----		-----
312	D4052	831.8		-0.21	1109	D4052	831.88		0.24
323	D4052	831.8		-0.21	1121	IP365	831.9		0.35
332	D4052	831.8		-0.21	1126	ISO12185	831.76		-0.43
334	D4052	831.80		-0.21	1134	IP365	831.8		-0.21
335	D4052	831.8		-0.21	1140	D4052	831.8	C	-0.21
336	D4052	831.9		0.35	1146	D4052	831.80		-0.21
337	D4052	831.9		0.35	1167	ISO12185	831.8		-0.21
338	ISO12185	831.8		-0.21	1182	ISO12185	831.799		-0.21
340	D4052	831.84	C	0.02	1186	D1298	831.2	G(0.01)	-3.57
344	D4052	831.9		0.35	1191	D4052	813.8	G(0.01)	-101.01
349	D4052	831.4		-2.45	1199		-----		-----
353	IP365	831.8		-0.21	1201	D4052	831.8		-0.21
360	D4052	831.8		-0.21	1227	D4052	831.8		-0.21
370	D4052	831.8		-0.21	1229	D4052	831.9		0.35
402	D4052	831.86		0.13	1238	D4052	831.803		-0.19
430		-----		-----	1284		-----		-----
433	ISO12185	831.9		0.35	1297	D4052	831.8		-0.21
445	D4052	832.0		0.91	1299	D4052	831.8		-0.21
447	D4052	831.8		-0.21	1340	ISO12185	832.05		1.19
463	D4052	831.82		-0.09	1357	D4052	831.9	C	0.35
485	D4052	831.8		-0.21	1395	D4052	831.9		0.35
494	D4052	831.8		-0.21	1399	D4052	831.703		-0.75
495	D4052	831.8		-0.21	1417	D4052	831.8		-0.21
496	D4052	831.88		0.24	1428	ISO12185	831.8		-0.21
507	D4052	832.0		0.91	1430	D4052	831.9		0.35
529	D4052	831.8		-0.21	1431	D4052	831.93		0.52
541	D4052	831.9		0.35	1432		-----		-----
562	D4052	831.5	C	-1.89	1447	D4052	831.5		-1.89
575	D1298	832.0		0.91	1457	D4052	831.85		0.07
603	D4052	832.0		0.91	1459	ISO12185	831.8		-0.21
604	D4052	831.9		0.35	1487	D1298	832.3	G(0.05)	2.59
607	D1298	831.8		-0.21	1498	D1298	830.6	G(0.01)	-6.93
621	D1298	831.95		0.63	1510	D4052	831.9		0.35
631	D4052	831.96		0.69	1557	ISO12185	831.9		0.35
657	D4052	832.1		1.47	1564	D4052	831.8		-0.21
663	D4052	831.83		-0.04	1586	D4052	831.8		-0.21
671	D4052	832.1		1.47	1613	D4052	831.6		-1.33
732	D4052	832.0		0.91	1616		-----		-----
750	D4052	831.5		-1.89	1629		-----		-----
753	D4052	831.8		-0.21	1631	D4052	831.9		0.35
759	D4052	831.67		-0.93	1634	D4052	831.822		-0.08
781	D4052	831.9		0.35	1635	D4052	831.3	G(0.01)	-3.01
823	D4052	831.82		-0.09	1650	D4052	831.63		-1.16
824	D4052	831.8		-0.21	1654	ISO12185	831.8436		0.04

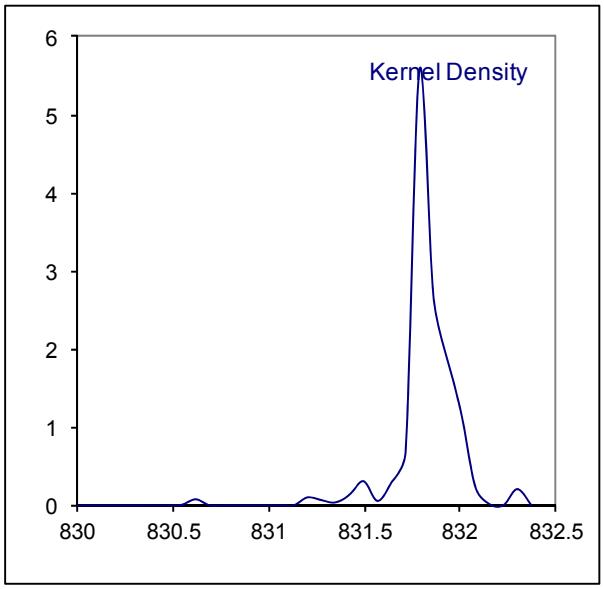
1669	D4052	831.9		0.35
1709	D4052	831.9		0.35
1710	D4052	831.9		0.35
1720	D4052	831.8		-0.21
1724	D4052	831.99		0.86
1746	D4052	831.9		0.35
1807	D4052	831.8		-0.21
1810	D4052	831.9		0.35
1811	D4052	831.7		-0.77
1842		-----	W	-----
1849	ISO12185	831.858		0.12
1857		-----		-----
1862		-----		-----

normality	not OK
n	149
outliers	6
mean (n)	831.84
st.dev. (n)	0.111
R(calc.)	0.31
R(D4052:11)	0.50

1906		-----		-----
1914	D4052	831.8		-0.21
1915		-----		-----
1936	ISO12185	831.81		-0.15
1937	ISO12185	831.85		0.07
1938	D4052	831.8		-0.21
1948		-----		-----
1950		-----		-----
1951	D4052	832.0	C	0.91
2129	D4052	831.8		-0.21
5019	D4052	831.87		0.19
7006		-----	W	-----

Lab 158: first reported 0.8319
Lab 224: first reported 833.0
Lab 228: first reported 0.8318
Lab 273: first reported 828.5
Lab 340: first reported 0.83134
Lab 562: first reported 0.8315
Lab 970: first reported 0.8319
Lab 971: first reported 0.8319
Lab 1038: first reported 0.8319
Lab 1140: reported 0.8318 (deviating unit?)
Lab 1357: first reported 830.9
Lab 1951: reported 0.8320 (deviating unit?)



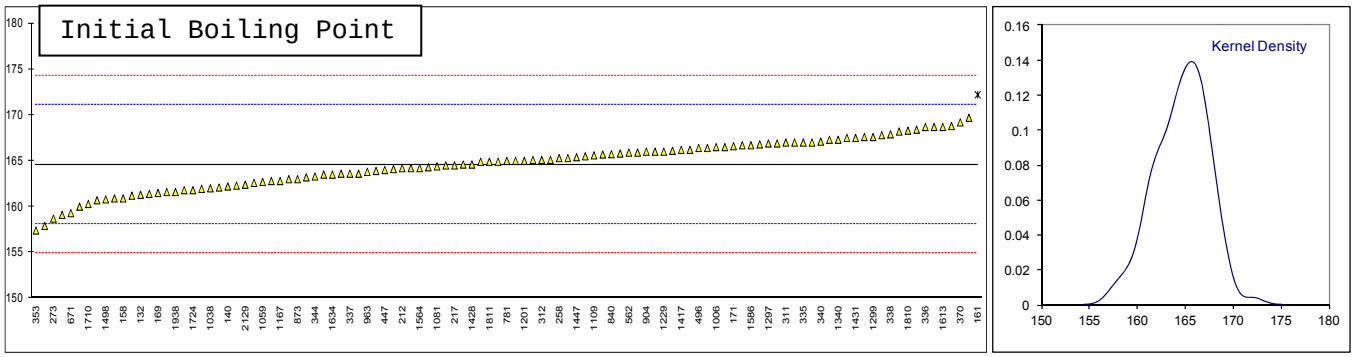


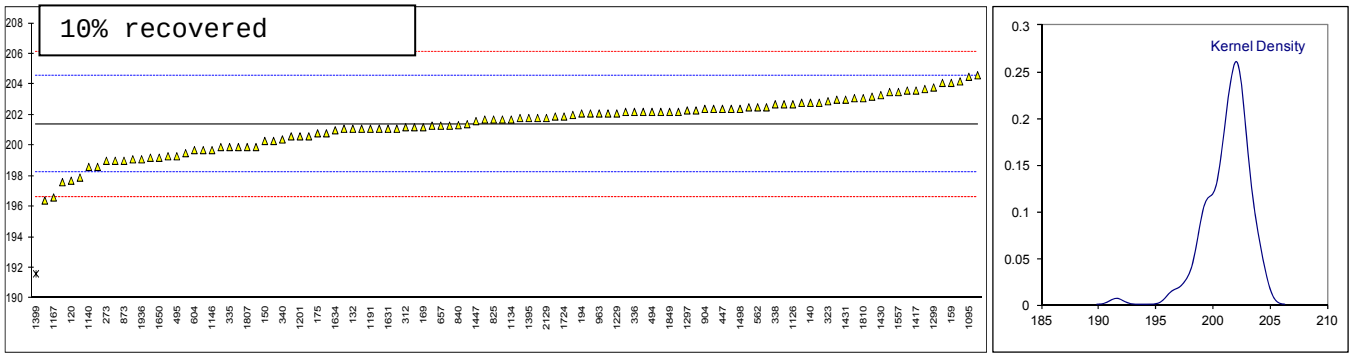
Determination of Distillation (automated) on sample #13174; result in °C

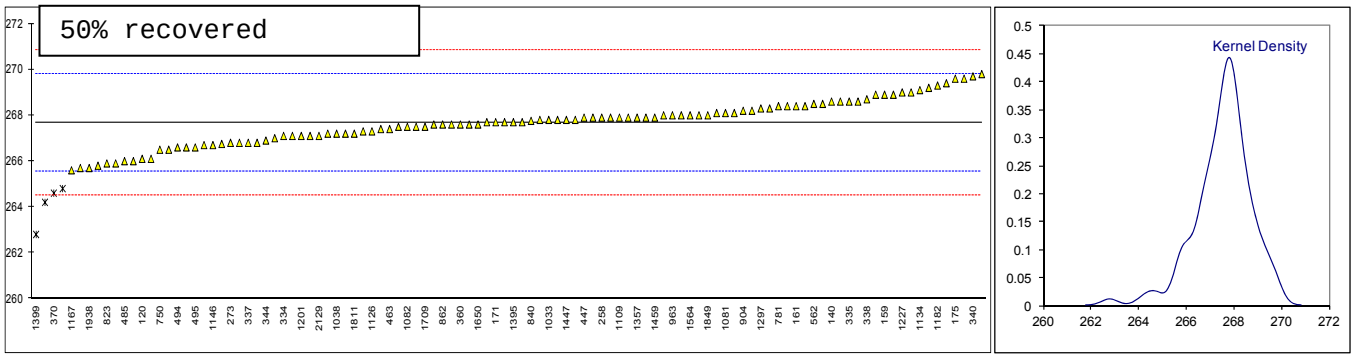
lab	method	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52	D86-A	167.0		201.3		267.5		329.6		347.1		353.3	
53		-----		-----		-----		-----		-----		-----	
62		-----		-----		-----		-----		-----		-----	
92	D86-A	168.2		203.7		267.6		326.3		340.5		352.9	
120	D86-A	160.9		197.7		266.1		327.1		342.4		348.3	
132	D86-A	161.3		201.1		266.7		327.8		344.3		351.0	
140	D86-A	162.2		202.8		268.6		328.3		345.6		351.8	
150	D86-A	161.6		200.3		266.6		326.1		341.4		352.3	
158	D86-A	160.9		201.2		264.2	G(0.05)	323.3		340.5		348.4	
159	D86-A	165.3		204.1		268.9		329.6		345.4		352.8	
161	D86-A	172.2	G(0.05)	203.0		268.4		327.3		341.8		353.0	
169	D86-A	161.5		201.2		268.0		330.9		349.9		353.8	
171	D86-A	166.6		203.2		267.7		328.2		343.2		350.0	
175	D86-A	168.7		200.8		269.6		331.4		348.3		355.7	
193	D86-A	163.6		203.5		267.9		328.3		337.9		338.8	G(0.01)
194	D86-A	166.8		202.1		267.3		329.3		346.4		353.2	
212	D86-A	164.2		199.7		267.1		328.6		342.8		354.7	
217	D86-A	164.5		202.5		267.8		328.0		343.4		353.6	
221		-----		-----		-----		-----		-----		-----	
224		-----		-----		-----		-----		-----		-----	
225		-----		-----		-----		-----		-----		-----	
228		-----		-----		-----		-----		-----		-----	
230		-----		-----		-----		-----		-----		-----	
240		-----		-----		-----		-----		-----		-----	
242		-----		-----		-----		-----		-----		-----	
252		-----		-----		-----		-----		-----		-----	
253		-----		-----		-----		-----		-----		-----	
254		-----		-----		-----		-----		-----		-----	
256		-----		-----		-----		-----		-----		-----	
258	D86-A	165.3		202.4		267.9		328.0		342.3		351.2	
273	D86-A	158.7		199.0		266.8		327.2		343.1		347.3	
311	D86-A	167.0		201.1		267.7		329.0		344.5		356.3	
312	D86-A	165.1		201.2		267.9		328.0		344.2		352.4	
323	D86-A	169.7		202.9		268.6		328.5		345.1		353.3	
332		-----		-----		-----		-----		-----		-----	
334	D86-A	166.0		199.3		267.1		328.4		346.2		352.4	
335	D86-A	167.0		199.9		268.6		330.6		348.7		355.7	
336	D86-A	168.7		202.2		268.1		328.6		344.0		355.0	
337	D86-A	163.6		200.8		266.8		327.1		341.2		353.5	
338	ISO3405-A	167.9		202.7		268.7		329.1		345.3		356.0	
340	D86-A	167.1		200.4		269.7		330.7		347.3		351.6	
344	D86-A	163.3		201.7		266.9		327.3		343.3		352.1	
349		-----		-----		-----		-----		-----		-----	
353	D86-A	157.4		199.9		268.9		329.7		345.2		356.2	
360	D86-A	163.0		200.6		267.6		328.1		342.4		350.2	
370	D86-A	169.2		201.7		264.6	G(0.05)	329.0		344.9		352.6	
402	D86-A	164.5		204.1		269.8		330.2		338.4		352.6	
430		-----		-----		-----		-----		-----		-----	
433		-----		-----		-----		-----		-----		-----	
445	D86-A	165.8		201.9		268.5		329.6		346.4		352.9	
447	D86-A	164.0		202.4		267.9		328.7		344.7		353.9	
463	D86-A	161.8		199.1		267.4		329.3		345.7		355.6	
485	D86-A	161.95		197.60		266.00		326.00		340.80		351.40	
494	D86-A	162.6		202.2		266.6		325.8		340.5		354.4	
495	D86-A	165.7		199.3		266.6		325.7		340.0		353.2	
496	D86-A	166.4		202.2		268.0		328.0		343.7		354.2	
507		-----		-----		-----		-----		-----		-----	
529		-----		-----		-----		-----		-----		-----	
541		-----		-----		-----		-----		-----		-----	
562	D86-A	165.9		202.5		268.5		328.9		344.4		356.1	
575		-----		-----		-----		-----		-----		-----	
603		-----		-----		-----		-----		-----		-----	
604	D86-A	162.3		199.7		267.6		328.9		345.4		353.5	
607		-----		-----		-----		-----		-----		-----	
621		-----		-----		-----		-----		-----		-----	
631		-----		-----		-----		-----		-----		-----	
657	D86-A	162.8		201.3		266.8		325.9		339.8		353.0	
663	D86-A	167.6		202.8		267.4		327.0		342.7		352.2	
671	D86-A	159.3		202.2		264.8	G(0.05)	322.4	DG(0.05)	338.4		347.9	
732		-----		-----		-----		-----		-----		-----	
750	D86-A	165.0		199.0		266.5		327.0		343.0		353.0	
753		-----		-----		-----		-----		-----		-----	
759		-----		-----		-----		-----		-----		-----	
781	D86-A	165.0		203.1		268.4		329.6		346.2		355.5	
823	D86-A	165.1		196.4		265.9		325.9		340.6		354.0	
824	D86-A	165.9		201.8		268.4		328.5		344.5		354.8	

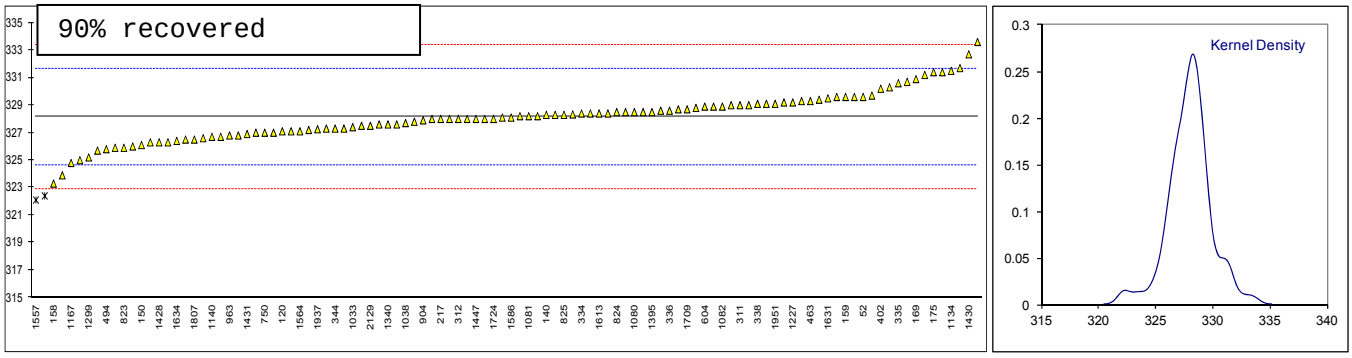
825	D86-A	161.2	201.7		267.2		328.3		344.8		353.9	
840	D86-A	165.73	201.33		267.76		328.33		344.59		354.19	
862	D86-A	163.5	202.1		267.6		327.6		344.3		354.4	
863		-----	-----		-----		-----		-----		-----	
873	D86-A	163.0	199.0		267.0		329.0		349.0		355.0	
874		-----	-----		-----		-----		-----		-----	
887		-----	-----		-----		-----		-----		-----	
902		-----	-----		-----		-----		-----		-----	
904	D86-A	166.0	202.4		268.2		327.9		343.6		354.7	
922		-----	-----		-----		-----		-----		-----	
951		-----	-----		-----		-----		-----		-----	
962		-----	-----		-----		-----		-----		-----	
963	D86-A	163.8	202.1		268.0		326.8		341.1		354.4	
970		-----	-----		-----		-----		-----		-----	
971		-----	-----		-----		-----		-----		-----	
974		-----	-----		-----		-----		-----		-----	
994		-----	-----		-----		-----		-----		-----	
995		-----	-----		-----		-----		-----		-----	
996		-----	-----		-----		-----		-----		-----	
997		-----	-----		-----		-----		-----		-----	
998		-----	-----		-----		-----		-----		-----	
1006	D86-A	166.5	204.6		268.9		331.2		345.8		353.4	
1017		-----	-----		-----		-----		-----		-----	
1026		-----	-----		-----		-----		-----		-----	
1033	IP123-A	167.3	199.2		267.8		327.4		341.5		354.8	
1038	D86-A	162.0	200.3		267.2		327.7		343.4		343.6	G(0.01)
1059	ISO3405-A	162.7	202.1		267.2		326.6		340.4		346.6	
1080	D86-A	163.6	197.9		266.5		328.5		344.9		353.3	
1081	D86-A	164.4	201.3		268.1		328.2		343.9		352.7	
1082	D86-A	159.1	201.1		267.5		328.9		345.5		354.3	
1095	D86-A	164.6	204.5		269.4		329.2		344.6		355.4	
1108		-----	-----		-----		-----		-----		-----	
1109	D86-A	165.6	202.7		267.9		326.8		341.3		352.9	
1121		-----	-----		-----		-----		-----		-----	
1126	in house-A	166.7	202.7		267.3		329.1		345.4		-----	
1134	D86-A	157.9	201.7		269.1		331.5		352.0		355.0	
1140	D86-A	161.4	198.6		265.8		326.7		342.9		352.0	
1146	D86-A	166.5	199.7		266.7		326.5		340.8		354.1	
1167	ISO3405-A	162.8	196.6		265.6		324.8		338.2		344.4	G(0.01)
1182	D86-A	168.8	203.6		269.3		331.4		348.3		354.6	
1186		-----	-----		-----		-----		-----		-----	
1191	D86-A	164.2	201.1		267.8		328.4		344.1		-----	
1199		-----	-----		-----		-----		-----		-----	
1201	D86-A	165.0	200.6		267.1		327.5		343.4		354.8	
1227	D86-A	166.4	199.5		269.0		329.2		344.9		352.9	
1229	ISO3405-A	166.0	202.1		267.9		328.0		343.0		354.9	
1238		-----	-----		-----		-----		-----		-----	
1284		-----	-----		-----		-----		-----		-----	
1297	D86-A	166.9	202.3		268.3		329.4		345.3		354.7	
1299	D86-A	167.6	203.8		266.8		325.2		339.9		347.0	
1340	ISO3405-A	167.3	202.3		267.7		327.6		342.1		353.9	
1357	D86-A	167.5	202.4		267.9		328.5		344.3		354.1	
1395	D86-A	167.8	201.8		267.7		328.5		339.2		341.7	G(0.01)
1399	D86-A	160.0	191.6	G(0.01)	262.8	G(0.01)	323.9		336.8		353.0	
1417	D86-A	166.2	203.6		269.2		330.3		347.9		354.1	
1428	ISO3405-A	164.6	202.0		267.6		326.3		341.8		353.9	
1430	D86-A	164.9	203.3		269.6		332.7		352.0		355.4	
1431	D86-A	167.5	203.0		267.9		326.9		341.4		356.2	
1432		-----	-----		-----		-----		-----		-----	
1447	D86-A	165.4	201.6		267.8		328.0		343.6		353.1	
1457	D86-A	168.4	204.2		268.4		328.2		343.5		352.5	
1459	ISO3405-A	165.1	201.1		267.9		328.0		343.4		354.3	
1487		-----	-----		-----		-----		-----		-----	
1498	D86-A	160.8	202.4		269.0		331.7		350.3		353.7	
1510	D86-A	166.2	199.9		265.9		327.0		342.3		354.0	
1557	ISO3405-A	163.2	203.5		266.0		322.1	DG(0.05)	333.9	G(0.05)	339.9	G(0.01)
1564	D86-A	164.2	201.8		268.0		327.1		342.2		350.0	
1586	D86-A	166.7	202.2		267.5		328.1		343.7		354.5	
1613	D86-A	168.7	202.5		267.8		328.4		343.6		355.0	
1616		-----	-----		-----		-----		-----		-----	
1629		-----	-----		-----		-----		-----		-----	
1631	D86-A	166.9	201.1		268.6		329.5		345.6		356.2	
1634	D86-A	163.5	201.0		267.1		326.4		341.2		354.9	
1635		-----	-----		-----		-----		-----		-----	
1650	D86-A	164.1	199.2		267.6		328.4		344.0		355.3	
1654		-----	-----		-----		-----		343.3		-----	
1669	D86-A	167.0	202.8		268.2		333.6		341.7		353.3	
1709	D86	165.5	201.1		267.5		328.7		345.0		351.9	
1710	D86-A	160.3	201.4		267.7		328.8		345.2		354.3	
1720		-----	-----		-----		-----		-----		-----	

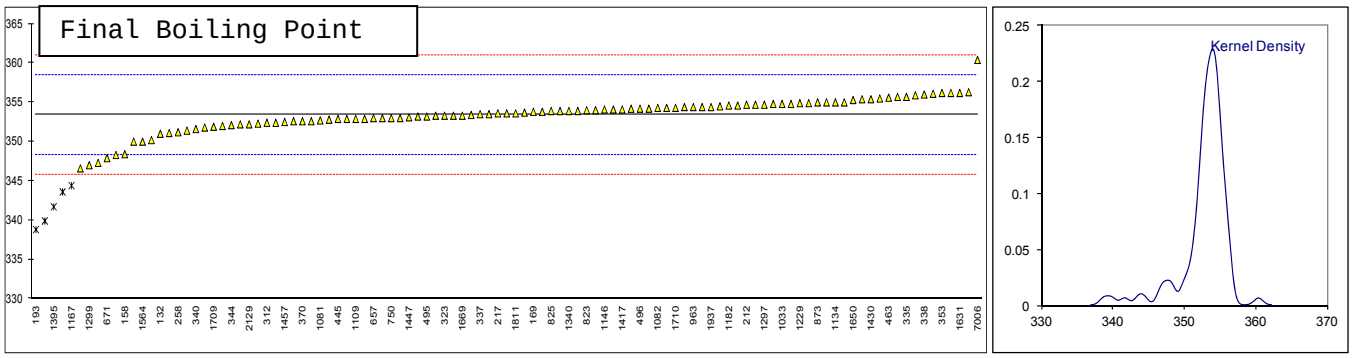
1724	D86-A	161.8	201.9	268.0	328.0	344.4	353.6
1746		-----	-----	-----	-----	-----	-----
1807	D86-A	163.9	199.9	266.1	326.5	341.5	354.6
1810	D86-A	168.3	203.1	268.1	326.7	340.2	353.8
1811	D86-A	164.9	200.6	267.2	327.3	342.3	353.6
1842		-----	-----	-----	-----	-----	-----
1849	D86-A	164.9	202.2	268	327.6	342	355.9
1857		-----	-----	-----	-----	-----	-----
1862		-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----
1914		-----	-----	-----	-----	-----	-----
1915		-----	-----	-----	-----	-----	-----
1936	ISO3405-A	162.1	199.1	265.7	325.0	339.6	351.1
1937	ISO3405-A	160.7	199.9	266.75	327.25	342.5	354.4
1938	D86-A	161.6	198.6	265.7	326.3	341.8	352.6
1948		-----	-----	-----	-----	-----	-----
1950		-----	-----	-----	-----	-----	-----
1951	D86-A	164.3	202.2	268.3	329.1	345.3	354.2
2129	D86-A	162.4	201.8	267.1	327.5	343.2	352.2
5019		-----	-----	-----	-----	-----	-----
7006	D86-A	166.1	-----	-----	-----	-----	360.4
	normality	OK	not OK	OK	OK	OK	not OK
	n	108	107	104	106	108	102
	outliers	1	1	4	2	1	5
	mean (n)	164.59	201.40	267.67	328.14	343.59	353.42
	st.dev. (n)	2.652	1.690	0.954	1.713	2.819	2.126
	R(calc.)	7.43	4.73	2.67	4.80	7.89	5.95
	R(D86:12)	9.05	4.43	2.97	4.92	8.61	7.10


Initial Boiling Point
Kernel Density


10% recovered
Kernel Density


50% recovered
Kernel Density


90% recovered
Kernel Density


Final Boiling Point
Kernel Density

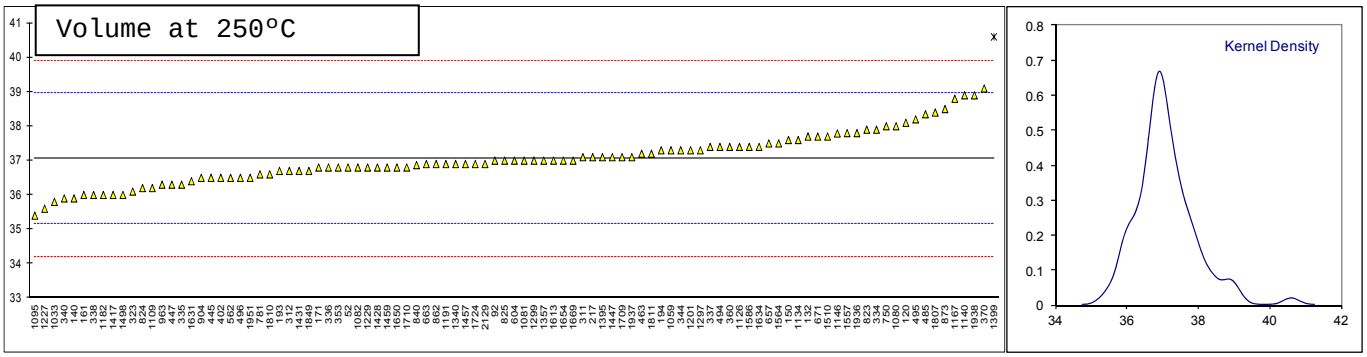
Determination of Distillation (automated) on sample #13174; result in %V/V

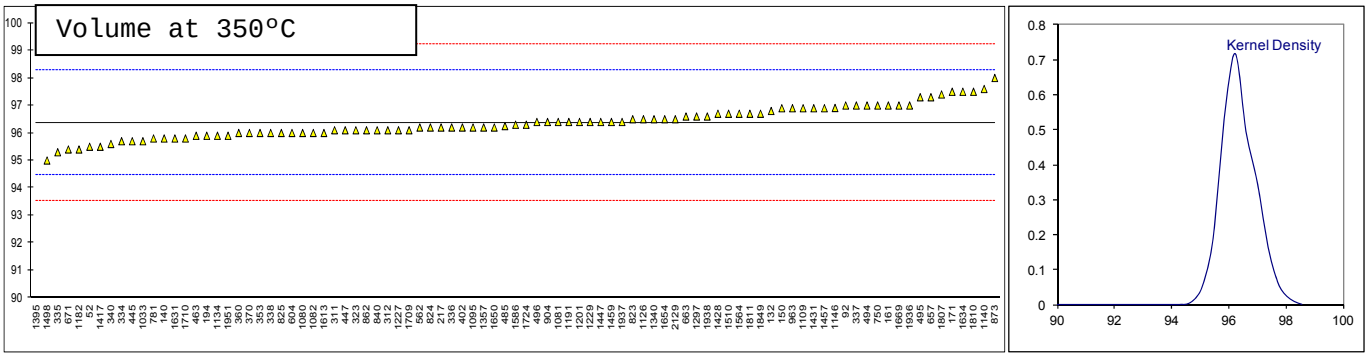
lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark	z(targ)
52	D86-A	36.8		-0.27	95.5		-0.92	1.5		
53		-----		-----	-----		-----	-----		
62		-----		-----	-----		-----	-----		
92	D86-A	37.0		-0.06	97.0		0.66	1.5		
120	D86-A	38.1		1.10	-----		-----	1.1		
132	D86-A	37.7		0.68	96.8		0.45	1.3		
140	D86-A	35.9		-1.21	95.8		-0.60	1.0		
150	D86-A	37.6		0.58	96.9		0.55	1.4		
158		-----		-----	-----		-----	1.0		
159		-----		-----	-----		-----	1.8		
161	D86-A	36		-1.11	97		0.66	0.8		
169		-----		-----	-----		-----	1.4		
171	D86-A	36.8		-0.27	97.5		1.19	1.8		
175		-----		-----	-----		-----	1.2		
193	D86-A	36.7		-0.37	-----		-----	1.8		
194	D86-A	37.3		0.26	95.9		-0.50	1.4		
212		-----		-----	-----		-----	1.7		
217	D86-A	37.1		0.05	96.2		-0.18	1.6		
221		-----		-----	-----		-----	-----		
224		-----		-----	-----		-----	-----		
225		-----		-----	-----		-----	-----		
228		-----		-----	-----		-----	-----		
230		-----		-----	-----		-----	-----		
240		-----		-----	-----		-----	-----		
242		-----		-----	-----		-----	-----		
252		-----		-----	-----		-----	-----		
253		-----		-----	-----		-----	-----		
254		-----		-----	-----		-----	-----		
256		-----		-----	-----		-----	-----		
258		-----		-----	-----		-----	1.4		
273		-----		-----	-----		-----	2.7		
311	D86-A	37.1		0.05	96.1		-0.29	1.4		
312	D86-A	36.7		-0.37	96.1		-0.29	2.0		
323	D86-A	36.1		-1.00	96.1		-0.29	1.5		
332		-----		-----	-----		-----	-----		
334	D86-A	37.9		0.89	95.7		-0.71	1.1		
335	D86-A	36.3		-0.79	95.3		-1.13	1.0		
336	D86-A	36.8		-0.27	96.2		-0.18	1.4		
337	D86-A	37.4		0.37	97.0		0.66	1.2		
338	ISO3405-A	36.0		-1.11	96.0		-0.39	1.4		
340	D86-A	35.9		-1.21	95.6		-0.81	1.4		
344	D86-A	37.3		0.26	-----		-----	1.1		
349		-----		-----	-----		-----	-----		
353	D86-A	36.8		-0.27	96.0		-0.39	1.1		
360	D86-A	37.4		0.37	96.0		-0.39	1.4		
370	D86-A	39.1		2.15	96.0		-0.39	1.5		
402	D86-A	36.5		-0.58	96.2		-0.18	1.2		
430		-----		-----	-----		-----	-----		
433		-----		-----	-----		-----	-----		
445	D86-A	36.5		-0.58	95.7		-0.71	1.3		
447	D86-A	36.3		-0.79	96.1		-0.29	1.4		
463	D86-A	37.2		0.15	95.9		-0.50	1.5		
485	D86-A	38.35		1.37	96.25		-0.13	1.6		
494	D86-A	37.4		0.37	97.0		0.66	1.3		
495	D86-A	38.2		1.21	97.3		0.98	1.4		
496	D86-A	36.5		-0.58	96.4		0.03	1.1		
507		-----		-----	-----		-----	-----		
529		-----		-----	-----		-----	-----		
541		-----		-----	-----		-----	-----		
562	D86-A	36.5		-0.58	96.2		-0.18	1.8		
575		-----		-----	-----		-----	-----		
603		-----		-----	-----		-----	-----		
604	D86-A	37		-0.06	96		-0.39	1.4		
607		-----		-----	-----		-----	-----		
621		-----		-----	-----		-----	-----		
631		-----		-----	-----		-----	-----		
657	D86-A	37.5		0.47	97.3		0.98	0.8		
663	D86-A	36.9		-0.16	96.6		0.24	1.75		
671	D86-A	37.7		0.68	95.4		-1.02	1.2		
732		-----		-----	-----		-----	-----		
750	D86-A	38		1.00	97		0.66	1.0		
753		-----		-----	-----		-----	-----		
759		-----		-----	-----		-----	-----		
781	D86-A	36.6		-0.48	95.8		-0.60	0.9		
823	D86-A	37.9		0.89	96.5		0.13	1.0		
824	D86-A	36.2		-0.90	96.2		-0.18	1.4		

825	D86-A	37.0	-0.06	96.0		-0.39	1.7
840	D86-A	36.87	-0.19	96.10		-0.29	1.85
862	D86-A	36.9	-0.16	96.1		-0.29	1.6
863		-----	-----	-----		-----	-----
873	D86-A	38.5	1.52	98.0		1.71	2.0
874		-----	-----	-----		-----	-----
887		-----	-----	-----		-----	-----
902		-----	-----	-----		-----	-----
904	D86-A	36.5	-0.58	96.4		0.03	1.2
922		-----	-----	-----		-----	-----
951		-----	-----	-----		-----	-----
962		-----	-----	-----		-----	-----
963	D86-A	36.3	-0.79	96.9		0.55	1.1
970		-----	-----	-----		-----	-----
971		-----	-----	-----		-----	-----
974		-----	-----	-----		-----	-----
994		-----	-----	-----		-----	-----
995		-----	-----	-----		-----	-----
996		-----	-----	-----		-----	-----
997		-----	-----	-----		-----	-----
998		-----	-----	-----		-----	-----
1006		-----	-----	-----		-----	1.8
1017		-----	-----	-----		-----	-----
1026		-----	-----	-----		-----	-----
1033	IP123-A	35.8	-1.32	95.7		-0.71	1.2
1038		-----	-----	-----		-----	1.4
1059	ISO3405	37.3	0.26	>85.0		-----	1.8
1080	D86-A	38.0	1.00	96.0		-0.39	1.0
1081	D86-A	37.0	-0.06	96.4		0.03	0.5
1082	D86-A	36.8	-0.27	96.0		-0.39	2.1
1095	D86-A	35.4	-1.74	96.2		-0.18	1.4
1108		-----	-----	-----		-----	-----
1109	D86-A	36.2	-0.90	96.9		0.55	-----
1121		-----	-----	-----		-----	-----
1126	in house-A	37.4	0.37	96.5		0.13	-----
1134	D86-A	37.6	0.58	95.9		-0.50	1.5
1140	D86-A	38.9	1.94	97.6		1.29	1.1
1146	D86-A	37.79	0.78	96.91		0.57	1.0
1167	ISO3405-A	38.8	1.84	-----		-----	1.7
1182	D86-A	36	-1.11	95.4		-1.02	1.6
1186		-----	-----	-----		-----	-----
1191	D86-A	36.9	-0.16	96.4		0.03	0.1
1199		-----	-----	-----		-----	-----
1201	D86-A	37.3	0.26	96.4		0.03	1.2
1227	D86-A	35.6	-1.53	96.1		-0.29	1.0
1229	ISO3405-A	36.8	-0.27	96.4		0.03	1.4
1284		-----	-----	-----		-----	-----
1297		-----	-----	-----		-----	-----
1299	D86-A	37.3	0.26	96.6		0.24	1.4
1340	D86-A	37.0	-0.06	-----		-----	1.5
1357	ISO3405-A	36.9	-0.16	96.5		0.13	1.55
1395	D86-A	37.0	-0.06	96.2		-0.18	1.4
1399	D86-A	37.1	0.05	0	G(0.01)	-101.45	2.1
1417	D86-A	40.6	G(0.01) 3.73	-----		-----	1.0
1428	D86-A	36.0	-1.11	95.5		-0.92	1.2
1430	ISO3405-A	36.8	-0.27	96.7		0.34	1.6
1431		-----	-----	-----		-----	1.4
1432	D86-A	36.7	-0.37	96.9		0.55	1.3
1447		-----	-----	-----		-----	-----
1457	D86-A	37.1	0.05	96.4		0.03	1.4
1459	D86-A	36.9	-0.16	96.9		0.55	1.4
1487	ISO3405-A	36.8	-0.27	96.4		0.03	1.4
1498		-----	-----	-----		-----	-----
1510	D86-A	36	-1.11	95		-1.45	1.4
1557	D86	37.7	0.68	96.7		0.34	1.3
1564	ISO3405-A	37.8	0.79	-----		-----	1.4
1586	D86-A	37.5	0.47	96.7		0.34	1.0
1613	D86-A	37.4	0.37	96.3		-0.08	1.4
1616	D86-A	37	-0.06	96		-0.39	1.4
1629		-----	-----	-----		-----	-----
1631		-----	-----	-----		-----	-----
1634	D86-A	36.4	-0.69	95.8		-0.60	1.5
1635	D86-A	37.4	0.37	97.5		1.19	1.4
1650		-----	-----	-----		-----	-----
1654	D86-A	36.8	-0.27	96.2		-0.18	1.4
1669	ISO3405	37.0	-0.06	96.5		0.13	-----
1709	D86-A	37	-0.06	97		0.66	1.3
1710	D86	37.1	0.05	96.1		-0.29	1.6
1720	D86-A	36.8	-0.27	95.8		-0.60	1.6
1724		-----	-----	-----		-----	-----

1746	D86-A	36.9	-0.16	96.3	-0.08	1.6
1807		-----	-----	-----	-----	-----
1810	D86-A	38.4	1.42	97.4	1.08	1.2
1811	D86-A	36.6	-0.48	97.5	1.19	1.0
1842	D86-A	37.2	0.15	96.7	0.34	1.4
1849		-----	-----	-----	-----	-----
1857	D86-A	36.7	-0.37	96.7	0.34	1.4
1862		-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----
1914		-----	-----	-----	-----	-----
1915		-----	-----	-----	-----	-----
1936		-----	-----	-----	-----	-----
1937	ISO3405-A	37.8	0.79	97.0	0.66	1.4
1938	ISO3405-A	37.1	0.05	96.4	0.03	1.4
1948	D86-A	38.9	1.94	96.6	0.24	1.4
1950		-----	-----	-----	-----	-----
1951		-----	-----	-----	-----	-----
2129	D86-A	36.5	-0.58	95.9	-0.50	1.4
5019	D86-A	36.9	-0.16	96.5	0.13	1.4
7006		-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----

normality	not OK	not OK
n	98	90
outliers	1	1
mean (n)	37.05	96.37
st.dev. (n)	0.739	0.569
R(calc.)	2.07	1.59
R(D86:12)	2.66	2.66





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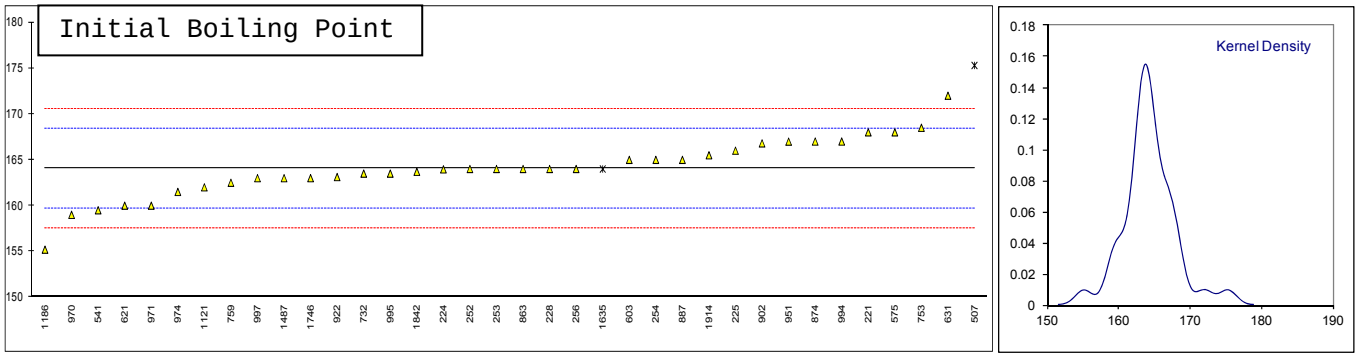
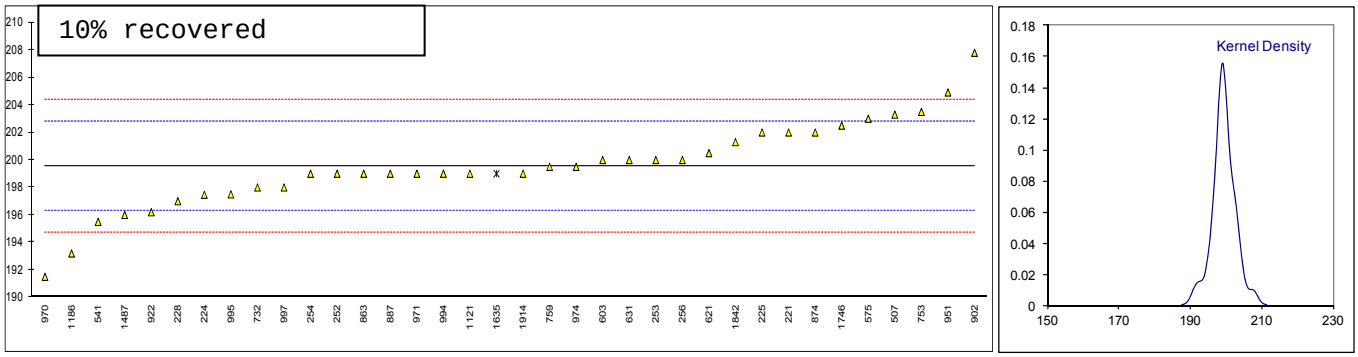
Determination of Distillation (manual) on sample #13174; result in °C

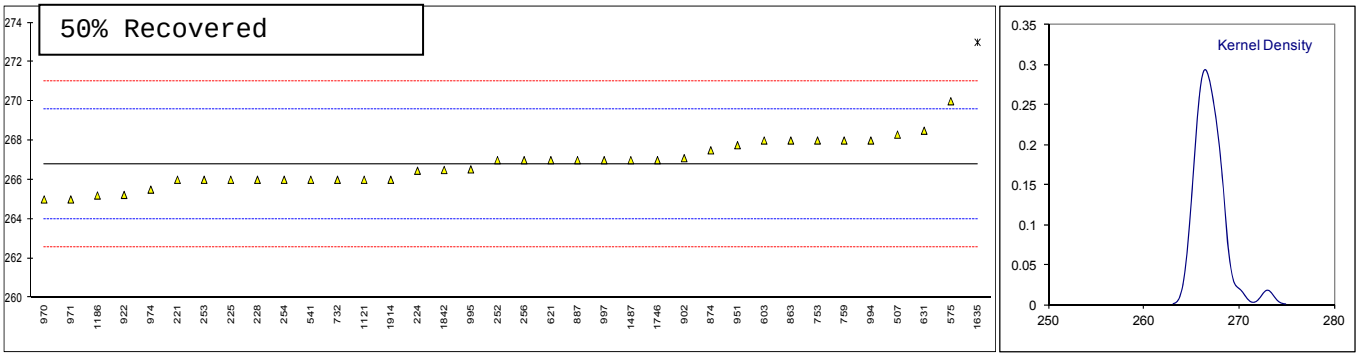
lab	method	IBP	mark	10%rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52		-----		-----		-----		-----		-----		-----	
53		-----		-----		-----		-----		-----		-----	
62		-----		-----		-----		-----		-----		-----	
92		-----		-----		-----		-----		-----		-----	
120		-----		-----		-----		-----		-----		-----	
132		-----		-----		-----		-----		-----		-----	
140		-----		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----		-----	
158		-----		-----		-----		-----		-----		-----	
159		-----		-----		-----		-----		-----		-----	
161		-----		-----		-----		-----		-----		-----	
169		-----		-----		-----		-----		-----		-----	
171		-----		-----		-----		-----		-----		-----	
175		-----		-----		-----		-----		-----		-----	
193		-----		-----		-----		-----		-----		-----	
194		-----		-----		-----		-----		-----		-----	
212		-----		-----		-----		-----		-----		-----	
217		-----		-----		-----		-----		-----		-----	
221	D86-M	168.0		202.0		266.0		329.0		343.0		350.0	
224	D86-M	163.96		197.47		266.46		325.71		340.96		353.96	
225	D86-M	166.0		202.0		266.0		328.0		345.0		352.0	
228	D86-M	164.0		197.0		266.0		328.0		345.0		354.0	
230		-----		-----		-----		-----		-----		-----	
240		-----		-----		-----		-----		-----		-----	
242		-----		-----		-----		-----		-----		-----	
252	D86-M	164.0		199.0		267.0		329.0		-----		355.0	
253	D86-M	164		200		266		329		344		355	
254	D86-M	165.0		199.0		266.0		330.0		-----		356.0	
256	D86-M	164.0		200.0		267.0		329.0		-----		354.0	
258		-----		-----		-----		-----		-----		-----	
273		-----		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----		-----	
323		-----		-----		-----		-----		-----		-----	
332		-----		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----		-----	
335		-----		-----		-----		-----		-----		-----	
336		-----		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----		-----	
338		-----		-----		-----		-----		-----		-----	
340		-----		-----		-----		-----		-----		-----	
344		-----		-----		-----		-----		-----		-----	
349		-----		-----		-----		-----		-----		-----	
353		-----		-----		-----		-----		-----		-----	
360		-----		-----		-----		-----		-----		-----	
370		-----		-----		-----		-----		-----		-----	
402		-----		-----		-----		-----		-----		-----	
430		-----		-----		-----		-----		-----		-----	
433		-----		-----		-----		-----		-----		-----	
445		-----		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----		-----	
485		-----		-----		-----		-----		-----		-----	
494		-----		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----		-----	
496		-----		-----		-----		-----		-----		-----	
507	D86-M	175.3	G(0.05)	203.3		268.3		330.4		346.4		358.4	
529		-----		-----		-----		-----		-----		-----	
541	D86-M	159.5		195.5		266.0		327.0		340.5		352.5	
562		-----		-----		-----		-----		-----		-----	
575	D86-M	168		203		270		333		350		361	
603	D86-M	165.0		200.0		268.0		329.0		346.0		357.0	
604		-----		-----		-----		-----		-----		-----	
607		-----		-----		-----		-----		-----		-----	
621	D86-M	160.0		200.5		267.0		325.5		339.0		351.0	
631	D86-M	172.0		200.0		268.5		329.0		343.75		355.5	
657		-----		-----		-----		-----		-----		-----	
663		-----		-----		-----		-----		-----		-----	
671		-----		-----		-----		-----		-----		-----	
732	D86-M	163.5		198.0		266.0		327.0		342.5		355.0	
750		-----		-----		-----		-----		-----		-----	
753	D86-M	168.5		203.5		268.0		327.5		342.5		353.5	
759	D86-M	162.5		199.5		268.0		328.5		343.0		357.5	
781		-----		-----		-----		-----		-----		-----	
823		-----		-----		-----		-----		-----		-----	
824		-----		-----		-----		-----		-----		-----	

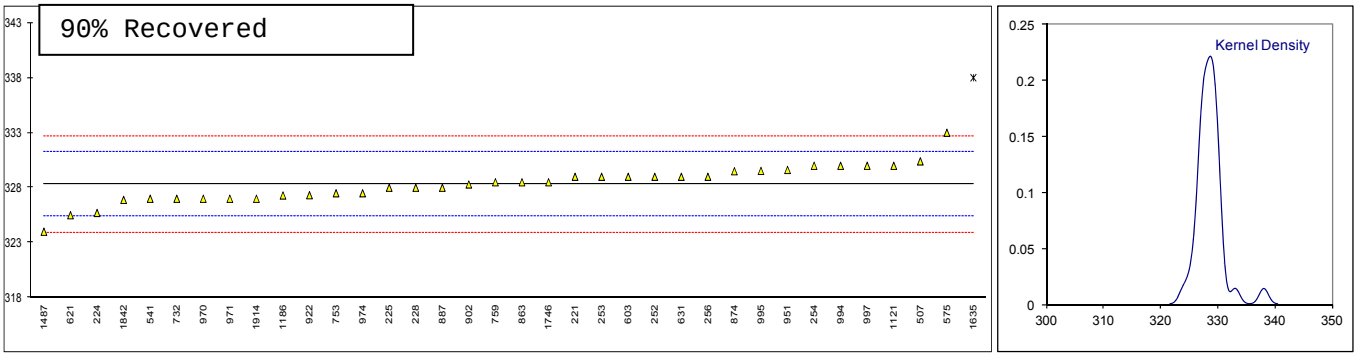
825		-----		-----		-----		-----		-----	
840		-----		-----		-----		-----		-----	
862		-----		-----		-----		-----		-----	
863	D86-M	164.0		199.0		268.0		328.5		344.0		354.5	
873		-----		-----		-----		-----		-----	
874	D86-M	167.0		202.0		267.5		329.5		346.0		353.5	
887	D86-M	165.0		199.0		267.0		328.0		343.5		355.5	
902	D86-M	166.8		207.8		267.1		328.3		344.8		357.9	
904		-----		-----		-----		-----		-----	
922	D86-M	163.12		196.20		265.23		327.32		342.34		354.4	
951	D86-M	166.99		204.91		267.76		329.62		344.59		354.57	
962		-----		-----		-----		-----		-----	
963		-----		-----		-----		-----		-----	
970	D86-M	159.0		191.5		265.0		327.0		340.5		353.0	
971	D86-M	160		199		265		327		344		356	
974	D86-M	161.5		199.5		265.5		327.5		341.5		355.5	
994	D86-M	167.0		199.0		268.0		330.0		344.0		354.0	
995	D86-M	163.5		197.5		266.53		329.53		346.52		353.5	
996		-----		-----		-----		-----		-----	
997	D86-M	163.0		198.0		267.0		330.0		348.0		354.0	
998		-----		-----		-----		-----		-----	
1006		-----		-----		-----		-----		-----	
1017		-----		-----		-----		-----		-----	
1026		-----		-----		-----		-----		-----	
1033		-----		-----		-----		-----		-----	
1038		-----		-----		-----		-----		-----	
1059		-----		-----		-----		-----		-----	
1080		-----		-----		-----		-----		-----	
1081		-----		-----		-----		-----		-----	
1082		-----		-----		-----		-----		-----	
1095		-----		-----		-----		-----		-----	
1108		-----		-----		-----		-----		-----	
1109		-----		-----		-----		-----		-----	
1121	IP123-M	162		199		266		330		347		350	
1126		-----		-----		-----		-----		-----	
1134		-----		-----		-----		-----		-----	
1140		-----		-----		-----		-----		-----	
1146		-----		-----		-----		-----		-----	
1167		-----		-----		-----		-----		-----	
1182		-----		-----		-----		-----		-----	
1186	D86-M	155.2		193.2		265.2		327.3		343.3		356.3	
1191		-----		-----		-----		-----		-----	
1199		-----		-----		-----		-----		-----	
1201		-----		-----		-----		-----		-----	
1227		-----		-----		-----		-----		-----	
1229		-----		-----		-----		-----		-----	
1284		-----		-----		-----		-----		-----	
1297		-----		-----		-----		-----		-----	
1299		-----		-----		-----		-----		-----	
1340		-----		-----		-----		-----		-----	
1357		-----		-----		-----		-----		-----	
1395		-----		-----		-----		-----		-----	
1399		-----		-----		-----		-----		-----	
1417		-----		-----		-----		-----		-----	
1428		-----		-----		-----		-----		-----	
1430		-----		-----		-----		-----		-----	
1431		-----		-----		-----		-----		-----	
1432		-----		-----		-----		-----		-----	
1447		-----		-----		-----		-----		-----	
1457		-----		-----		-----		-----		-----	
1459		-----		-----		-----		-----		-----	
1487	D86-M	163.0		196.0		267.0		324.0		337.0		350.0	
1498		-----		-----		-----		-----		-----	
1510		-----		-----		-----		-----		-----	
1557		-----		-----		-----		-----		-----	
1564		-----		-----		-----		-----		-----	
1586		-----		-----		-----		-----		-----	
1613		-----		-----		-----		-----		-----	
1616		-----		-----		-----		-----		-----	
1629		-----		-----		-----		-----		-----	
1631		-----		-----		-----		-----		-----	
1634		-----		-----		-----		-----		-----	
1635	D86-M	164.0	ex	199.0	ex	273.0	G(0.01)	338.0	G(0.01)	354.0	G(0.05)	370.0	G(0.01)
1650		-----		-----		-----		-----		-----	
1654		-----		-----		-----		-----		-----	
1669		-----		-----		-----		-----		-----	
1709		-----		-----		-----		-----		-----	
1710		-----		-----		-----		-----		-----	
1720		-----		-----		-----		-----		-----	
1724		-----		-----		-----		-----		-----	

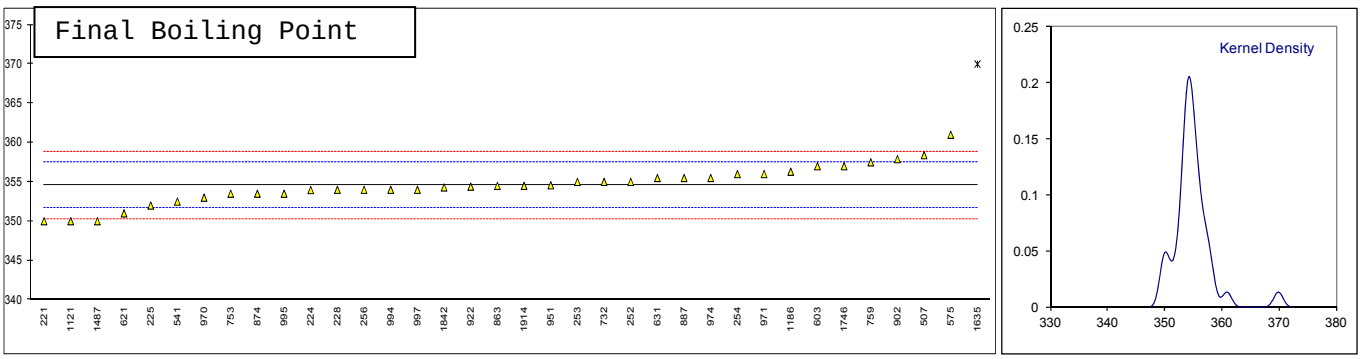
1746	D86-M	163.0	202.5	267.0	328.5	344.5	357.0
1807		-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----
1811		-----	-----	-----	-----	-----	-----
1842	D86-M	163.7	201.3	266.5	326.9	341.8	354.3
1849		-----	-----	-----	-----	-----	-----
1857		-----	-----	-----	-----	-----	-----
1862		-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----
1914	D86-M	165.5	199.0	266.0	327.0	341.0	354.5
1915		-----	-----	-----	-----	-----	-----
1936		-----	-----	-----	-----	-----	-----
1937		-----	-----	-----	-----	-----	-----
1938		-----	-----	-----	-----	-----	-----
1948		-----	-----	-----	-----	-----	-----
1950		-----	-----	-----	-----	-----	-----
1951		-----	-----	-----	-----	-----	-----
2129		-----	-----	-----	-----	-----	-----
5019		-----	-----	-----	-----	-----	-----
7006		-----	-----	-----	-----	-----	-----
	normality	OK	OK	not OK	OK	OK	OK
	n	34	35	35	35	32	35
	outliers	1	0	1	1	1	1
	mean (n)	164.04	199.55	266.79	328.30	343.62	354.57
	st.dev. (n)	3.171	3.150	1.132	1.652	2.650	2.375
	R(calc.)	8.88	8.82	3.17	4.63	7.42	6.65
	R(D86:12)	6.10	4.53	3.94	4.07	5.29	4.02


Initial Boiling Point
Kernel Density


10% recovered
Kernel Density


50% Recovered
Kernel Density


90% Recovered
Kernel Density


Final Boiling Point
Kernel Density

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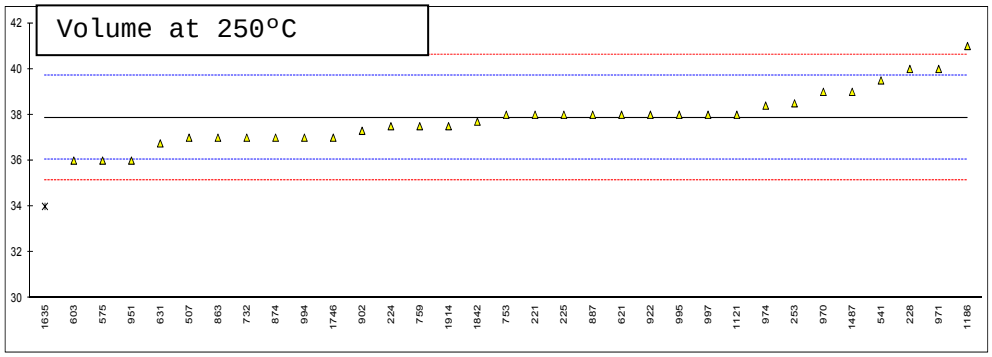
Determination of Distillation (Manual) on sample #13174; result in %V/V

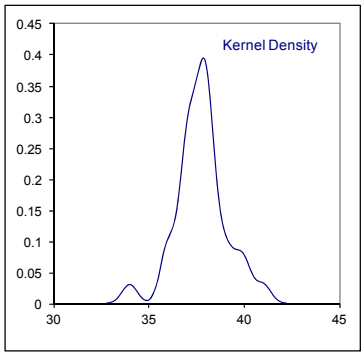
lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark	z(targ)
52		-----		-----	-----		-----	-----		-----
53		-----		-----	-----		-----	-----		-----
62		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
120		-----		-----	-----		-----	-----		-----
132		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
161		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
171		-----		-----	-----		-----	-----		-----
175		-----		-----	-----		-----	-----		-----
193		-----		-----	-----		-----	-----		-----
194		-----		-----	-----		-----	-----		-----
212		-----		-----	-----		-----	-----		-----
217		-----		-----	-----		-----	-----		-----
221	D86-M	38.0		0.15	97.0		0.53	1.9		-----
224	D86-M	37.5		-0.40	97.5		1.17	1.7		-----
225	D86-M	38.0		0.15	96.0		-0.76	1.6		-----
228	D86-M	40.0		2.34	98.0		1.81	1.0		-----
230		-----		-----	-----		-----	-----		-----
240		-----		-----	-----		-----	-----		-----
242		-----		-----	-----		-----	-----		-----
252		-----		-----	-----		-----	-----		-----
253	D86-M	38.5		0.70	96.5		-0.12	1.1		-----
254		-----		-----	-----		-----	-----		-----
256		-----		-----	-----		-----	-----		-----
258		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311		-----		-----	-----		-----	-----		-----
312		-----		-----	-----		-----	-----		-----
323		-----		-----	-----		-----	-----		-----
332		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
338		-----		-----	-----		-----	-----		-----
340		-----		-----	-----		-----	-----		-----
344		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
353		-----		-----	-----		-----	-----		-----
360		-----		-----	-----		-----	-----		-----
370		-----		-----	-----		-----	-----		-----
402		-----		-----	-----		-----	-----		-----
430		-----		-----	-----		-----	-----		-----
433		-----		-----	-----		-----	-----		-----
445		-----		-----	-----		-----	-----		-----
447		-----		-----	-----		-----	-----		-----
463		-----		-----	-----		-----	-----		-----
485		-----		-----	-----		-----	-----		-----
494		-----		-----	-----		-----	-----		-----
495		-----		-----	-----		-----	-----		-----
496		-----		-----	-----		-----	-----		-----
507	D86-M	37		-0.95	96		-0.76	0.5		-----
529		-----		-----	-----		-----	-----		-----
541	D86-M	39.5		1.79	97.0		0.53	1.3		-----
562		-----		-----	-----		-----	-----		-----
575	D86-M	36		-2.04	95		-2.05	1.1		-----
603	D86-M	36		-2.04	96		-0.76	1.3		-----
604		-----		-----	-----		-----	-----		-----
607		-----		-----	-----		-----	-----		-----
621	D86-M	38.0		0.15	97.5		1.17	1.5		-----
631	D86-M	36.75		-1.22	96.5		-0.12	1.6		-----
657		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
671		-----		-----	-----		-----	-----		-----
732	D86-M	37.0		-0.95	97.0		0.53	0.5		-----
750		-----		-----	-----		-----	-----		-----
753	D86-M	38.0		0.15	97.0		0.53	0.8		-----
759	D86-M	37.5		-0.40	96.5		-0.12	1.0		-----
781		-----		-----	-----		-----	-----		-----
823		-----		-----	-----		-----	-----		-----
824		-----		-----	-----		-----	-----		-----

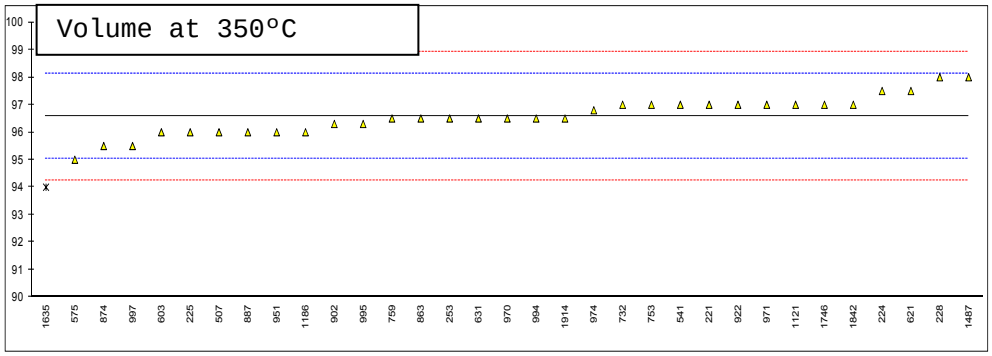
825		-----	-----	-----		-----	-----	-----
840		-----	-----	-----		-----	-----	-----
862		-----	-----	-----		-----	-----	-----
863	D86-M	37.0	-0.95	96.5		-0.12	1.2	-----
873		-----	-----	-----		-----	-----	-----
874	D86-M	37.0	-0.95	95.5		-1.40	1.5	-----
887	D86-M	38	0.15	96		-0.76	1.4	-----
902	D86-M	37.3	-0.62	96.3		-0.37	1.5	-----
904		-----	-----	-----		-----	-----	-----
922	D86-M	38.0	0.15	97.0		0.53	1.4	-----
951	D86-M	36	-2.04	96		-0.76	1.6	-----
962		-----	-----	-----		-----	-----	-----
963		-----	-----	-----		-----	-----	-----
970	D86-M	39.0	1.24	96.5		-0.12	-----	-----
971	D86-M	40	2.34	97		0.53	0.5	-----
974	D86-M	38.4	0.59	96.8		0.27	1.0	-----
994	D86-M	37.0	-0.95	96.5		-0.12	1.0	-----
995	D86-M	38.0	0.15	96.3		-0.37	1.54	-----
996		-----	-----	-----		-----	-----	-----
997	D86-M	38.0	0.15	95.5		-1.40	1.5	-----
998		-----	-----	-----		-----	-----	-----
1006		-----	-----	-----		-----	-----	-----
1017		-----	-----	-----		-----	-----	-----
1026		-----	-----	-----		-----	-----	-----
1033		-----	-----	-----		-----	-----	-----
1038		-----	-----	-----		-----	-----	-----
1059		-----	-----	-----		-----	-----	-----
1080		-----	-----	-----		-----	-----	-----
1081		-----	-----	-----		-----	-----	-----
1082		-----	-----	-----		-----	-----	-----
1095		-----	-----	-----		-----	-----	-----
1108		-----	-----	-----		-----	-----	-----
1109		-----	-----	-----		-----	-----	-----
1121	IP123-M	38	0.15	97		0.53	1.7	-----
1126		-----	-----	-----		-----	-----	-----
1134		-----	-----	-----		-----	-----	-----
1140		-----	-----	-----		-----	-----	-----
1146		-----	-----	-----		-----	-----	-----
1167		-----	-----	-----		-----	-----	-----
1182		-----	-----	-----		-----	-----	-----
1186	D86-M	41	3.43	96		-0.76	1.1	-----
1191		-----	-----	-----		-----	-----	-----
1199		-----	-----	-----		-----	-----	-----
1201		-----	-----	-----		-----	-----	-----
1227		-----	-----	-----		-----	-----	-----
1229		-----	-----	-----		-----	-----	-----
1284		-----	-----	-----		-----	-----	-----
1297		-----	-----	-----		-----	-----	-----
1299		-----	-----	-----		-----	-----	-----
1340		-----	-----	-----		-----	-----	-----
1357		-----	-----	-----		-----	-----	-----
1395		-----	-----	-----		-----	-----	-----
1399		-----	-----	-----		-----	-----	-----
1417		-----	-----	-----		-----	-----	-----
1428		-----	-----	-----		-----	-----	-----
1430		-----	-----	-----		-----	-----	-----
1431		-----	-----	-----		-----	-----	-----
1432		-----	-----	-----		-----	-----	-----
1447		-----	-----	-----		-----	-----	-----
1457		-----	-----	-----		-----	-----	-----
1459		-----	-----	-----		-----	-----	-----
1487		-----	-----	-----		-----	-----	-----
1498	D86-M	39	1.24	98		1.81	1.0	-----
1510		-----	-----	-----		-----	-----	-----
1557		-----	-----	-----		-----	-----	-----
1564		-----	-----	-----		-----	-----	-----
1586		-----	-----	-----		-----	-----	-----
1613		-----	-----	-----		-----	-----	-----
1616		-----	-----	-----		-----	-----	-----
1629		-----	-----	-----		-----	-----	-----
1631		-----	-----	-----		-----	-----	-----
1634		-----	-----	-----		-----	-----	-----
1635		-----	-----	-----		-----	-----	-----
1650	D86-M	34.0	ex -4.23	94.0	G(0.05)	-3.33	1.5	-----
1654		-----	-----	-----		-----	-----	-----
1669		-----	-----	-----		-----	-----	-----
1709		-----	-----	-----		-----	-----	-----
1710		-----	-----	-----		-----	-----	-----
1720		-----	-----	-----		-----	-----	-----
1724		-----	-----	-----		-----	-----	-----

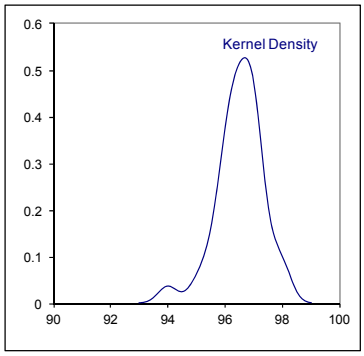
1746		-----	-----	-----	-----	-----	-----
1807	D86-M	37.0	-0.95	97.0	0.53	1.5	-----
1810		-----	-----	-----	-----	-----	-----
1811		-----	-----	-----	-----	-----	-----
1842		-----	-----	-----	-----	-----	-----
1849	D86-M	37.7	-0.18	97.0	0.53	1.3	-----
1857		-----	-----	-----	-----	-----	-----
1862		-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----
1914		-----	-----	-----	-----	-----	-----
1915	D86-M	37.5	-0.40	96.5	-0.12	1.3	-----
1936		-----	-----	-----	-----	-----	-----
1937		-----	-----	-----	-----	-----	-----
1938		-----	-----	-----	-----	-----	-----
1948		-----	-----	-----	-----	-----	-----
1950		-----	-----	-----	-----	-----	-----
1951		-----	-----	-----	-----	-----	-----
2129		-----	-----	-----	-----	-----	-----
5019		-----	-----	-----	-----	-----	-----
7006		-----	-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----	-----

normality	not OK		OK
n	32		32
outliers	0	+1 excl.	1
mean (n)	37.86		96.59
st.dev. (n)	1.163		0.682
R(calc.)	3.26		1.91
R(D86:12)	2.56		2.18









Determination of FAME Content on sample #13174; result in %V/V

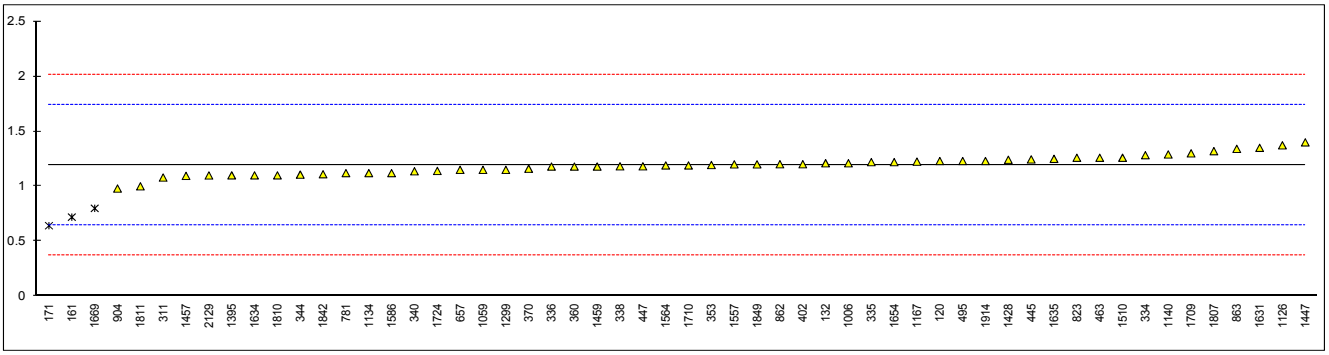
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
62		-----		-----	862	EN14078	1.201		0.03
92		-----		-----	863	EN14078	1.341		0.54
120	D7371	1.23		0.13	873		-----		-----
132	D7371	1.21		0.06	874		-----		-----
140		-----		-----	887		-----		-----
150		-----		-----	902		-----		-----
158		-----		-----	904	D7371	0.98		-0.78
159		-----		-----	922		-----		-----
161	D7371	0.72	G(0.01)	-1.73	951		-----		-----
169		-----		-----	962		-----		-----
171	D7371	0.642	G(0.01)	-2.01	963		-----		-----
175		-----		-----	970		-----		-----
193		-----		-----	971		-----		-----
194		-----		-----	974		-----		-----
212		-----		-----	994		-----		-----
217		-----		-----	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006	EN14078	1.21		0.06
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038		-----		-----
253		-----		-----	1059	EN14078	1.15		-0.16
254		-----		-----	1080		-----		-----
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311	EN14078	1.08		-0.41	1108		-----		-----
312		-----		-----	1109		-----		-----
323		-----		-----	1121		-----		-----
332		-----		-----	1126	EN14078	1.373		0.66
334	EN14078	1.283		0.33	1134	EN14078	1.12		-0.27
335	EN14078	1.22		0.10	1140	D7371	1.29		0.35
336	EN14078	1.18		-0.05	1146		-----		-----
337		-----		-----	1167	EN14078	1.2246		0.11
338	EN14078	1.182		-0.04	1182		-----		-----
340	EN14078	1.137		-0.21	1186		-----		-----
344	EN14078	1.1062		-0.32	1191		-----		-----
349		-----		-----	1199		-----		-----
353	EN14078	1.194		0.00	1201		-----		-----
360	EN14078	1.18		-0.05	1227		-----		-----
370	EN14078	1.16		-0.12	1229		-----		-----
402	EN14	1.201		0.03	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D7371	1.245		0.19	1299	EN14078	1.15		-0.16
447	EN14078	1.182		-0.04	1340		-----		-----
463	EN14078	1.26		0.24	1357		-----		-----
485		-----		-----	1395	EN14078	1.10		-0.34
494		-----		-----	1399		-----		-----
495	D7371	1.23		0.13	1417		-----		-----
496		-----		-----	1428	EN14078	1.2416		0.18
507		-----		-----	1430		-----		-----
529		-----		-----	1431		-----		-----
541		-----		-----	1432		-----		-----
562		-----		-----	1447	D7371	1.40		0.75
575		-----		-----	1457	EN14078	1.0952		-0.36
603		-----		-----	1459	EN14078	1.18		-0.05
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510	D7371	1.26		0.24
631		-----		-----	1557	EN14078	1.2		0.02
657	EN14078	1.15		-0.16	1564	EN14078	1.19		-0.01
663		-----		-----	1586	D7371	1.12		-0.27
671		-----		-----	1613		-----		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631	D7371	1.35		0.57
759		-----		-----	1634	EN14078	1.1		-0.34
781	EN14078	1.12		-0.27	1635	D7371	1.25		0.21
823	D7371	1.26		0.24	1650		-----		-----
824		-----		-----	1654	EN14078	1.22		0.10

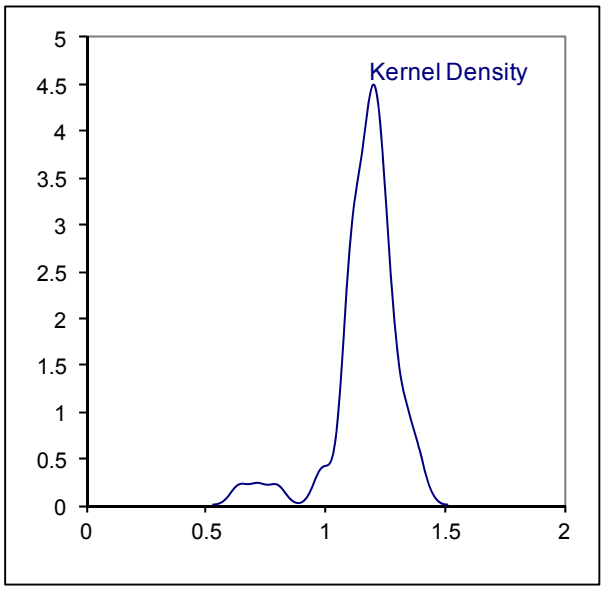
1669	EN14078	0.8	G(0.01)	-1.43
1709	EN14078	1.3		0.39
1710	EN14078	1.19		-0.01
1720		-----		-----
1724	EN14078	1.14		-0.19
1746		-----		-----
1807	EN14078	1.32		0.46
1810	D7371	1.1		-0.34
1811	D7371	1.0		-0.70
1842	EN14078	1.11		-0.30
1849	ISO3405	1.2		0.02
1857		-----		-----
1862		-----		-----

1906		-----	-----
1914	EN14078	1.23	0.13
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951		-----	-----
2129	EN14078	1.099	-0.34
5019		-----	-----
7006		-----	-----

normality	OK
n	53
outliers	3
mean (n)	1.193
st.dev. (n)	0.0854
R(calc.)	0.239
R(D7371:12)	0.768

Compare R(EN14078:09) = 0.083
Application range 1 – 20%V/V





Determination of Flash Point PMcc, on sample #13174; result in °C

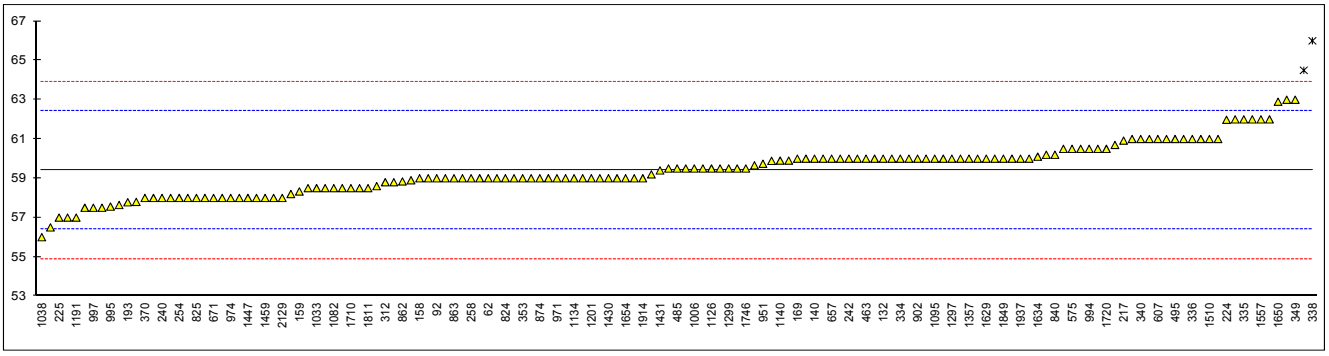
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93	59.5		0.06	825	D93	58.0		-0.94
53		-----		-----	840	D93	60.2		0.52
62	D93	59.0		-0.28	862	D93	58.84		-0.38
92	D93	59.0		-0.28	863	D93	59.0		-0.28
120	D93	58.9		-0.34	873	D93	61.0		1.05
132	D93	60.0		0.39	874	D93	59.0		-0.28
140	D93	60.0		0.39	887	D93	60.0		0.39
150	D93	59.89		0.32	902	D93	60.0		0.39
158	D93	59.0		-0.28	904	D93	59.0		-0.28
159	D93	58.33		-0.72	922	D93	64.5	G(0.05)	3.38
161	D93	57.8	C	-1.07	951	D93	59.74		0.22
169	D93	60.0		0.39	962		-----		-----
171	D93	58.0		-0.94	963	D93	57.5		-1.27
175	D93	59		-0.28	970	D93	60.0		0.39
193	D93	57.78		-1.08	971	D93	59.0		-0.28
194	D93	59.0		-0.28	974	D93	58.0		-0.94
212	ISO2719	60.7		0.85	994	D93	60.5		0.72
217	D93	60.92		1.00	995	D93	57.56		-1.23
221	D93	59.0		-0.28	996		-----		-----
224	D93	61.98		1.70	997	D93	57.5		-1.27
225	D93	57.0		-1.60	998		-----		-----
228	D93	62.0		1.72	1006	D93	59.5		0.06
230		-----		-----	1017		-----		-----
240	D93	58.0		-0.94	1026		-----		-----
242	D93	60.0		0.39	1033	IP34	58.5		-0.61
252	D93	59.0		-0.28	1038	D93	56.0		-2.27
253	D93	60.5		0.72	1059	ISO2719	58.5		-0.61
254	D93	58.0		-0.94	1080		-----		-----
256	D93	59.0		-0.28	1081	D93E	59.5		0.06
258	D93	59.0		-0.28	1082	D93	58.5		-0.61
273	D93	58.5		-0.61	1095	D93	60.0		0.39
311	D93	61.0		1.05	1108		-----		-----
312	D93	58.8		-0.41	1109	D93	59.0		-0.28
323	D93	58.0		-0.94	1121	IP34	58		-0.94
332		-----		-----	1126	D93	59.5		0.06
334	D93	60.0		0.39	1134	D93	59.0		-0.28
335	D93	62		1.72	1140	D93	59.9		0.32
336	D93	61.0		1.05	1146	D93	59.2		-0.14
337	D93	61.0		1.05	1167	ISO2719	59.5		0.06
338	ISO2719	66.0	G(0.01)	4.37	1182	D93	59		-0.28
340	D93	61.0		1.05	1186		-----		-----
344	D93	57		-1.60	1191	D93	57.0		-1.60
349	D93	63.0		2.38	1199		-----		-----
353	IP34	59.0		-0.28	1201	D93	59.0		-0.28
360	D93	63.0		2.38	1227	D93	59.9		0.32
370	D93	58.0		-0.94	1229	D93	60.0		0.39
402	D93	58		-0.94	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D93	60		0.39
445	D93	60.0		0.39	1299	D93	59.5		0.06
447	D93	60.2		0.52	1340	ISO2719	60.0		0.39
463	D93	60.0		0.39	1357	D93	60.0		0.39
485	D93	59.50		0.06	1395	D93	56.5		-1.93
494	D93	60.0		0.39	1399	D93	61		1.05
495	D93	61.0		1.05	1417	D93	59		-0.28
496	D93	58.2		-0.81	1428	ISO2719	58.5		-0.61
507	D93	59.0		-0.28	1430	D93	59		-0.28
529		-----		-----	1431	D93	59.4		-0.01
541	D93	60.0		0.39	1432		-----		-----
562	D93	59.66		0.16	1447	D93	58		-0.94
575	D93	60.5		0.72	1457	D93	58.0		-0.94
603	D93	59.5		0.06	1459	ISO2719	58.0		-0.94
604	D93	62.0		1.72	1487	D93	59		-0.28
607	D93	61.0		1.05	1498	D93	60.5		0.72
621	D93	58.0		-0.94	1510	D93	61		1.05
631	D93	57.64		-1.18	1557	ISO2719	62		1.72
657	D93	60.0		0.39	1564	D93	62.0		1.72
663	D93	60.5		0.72	1586	D93	60.0		0.39
671	D93	58		-0.94	1613	D93	57.5		-1.27
732	D93	60		0.39	1616		-----		-----
750	D93	58.0		-0.94	1629	D93	60.0		0.39
753	D93	59.0		-0.28	1631	D93	58.6		-0.54
759	D93	61.0		1.05	1634	D93	60.1		0.45
781	D93	60.0		0.39	1635	D93	61		1.05
823	D93	60.0		0.39	1650	D93	62.9		2.31
824	D93	59.0		-0.28	1654	EN2719	59.0		-0.28

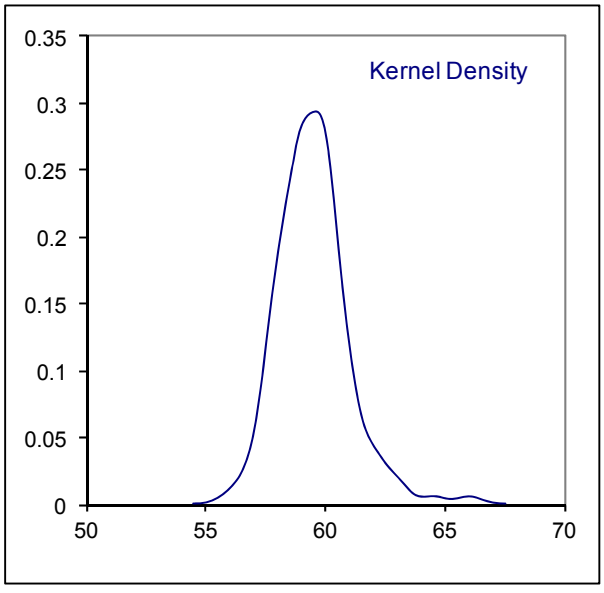
1669	D93	59.0	-0.28
1709		-----	-----
1710	D93	58.5	-0.61
1720	D93	60.5	0.72
1724	D93	59.5	0.06
1746	D93	59.5	0.06
1807	D93	60.0	0.39
1810	D93	58.5	-0.61
1811	D93	58.5	-0.61
1842		-----	-----
1849	ISO2719	60	0.39
1857		-----	-----
1862		-----	-----

normality	not OK
n	147
outliers	2
mean (n)	59.415
st.dev. (n)	1.2803
R(calc.)	3.585
R(D93:13, proc A)	4.218

1906		-----	-----
1914	D93	59.0	-0.28
1915		-----	-----
1936	ISO2719	60	0.39
1937	ISO2719	60	0.39
1938	D93	60.0	0.39
1948		-----	-----
1950		-----	-----
1951	D93	58.0	-0.94
2129	D93	58.0	-0.94
5019	ISO3679	58.8	-0.41
7006		-----	-----

Lab 161, first reported result 136 (probably deviating unit, F instead of ºC)





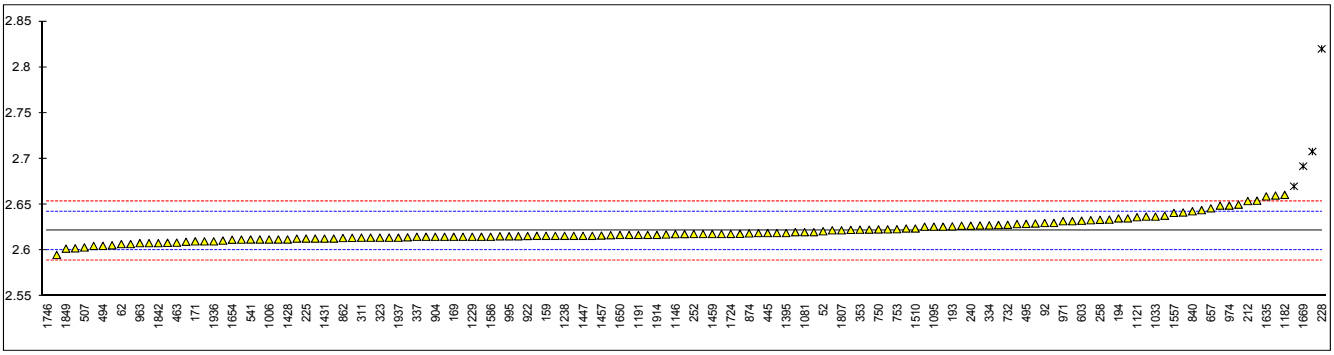
Determination of Kinematic Viscosity @ 40°C, on sample #13174; result in mm^2/s

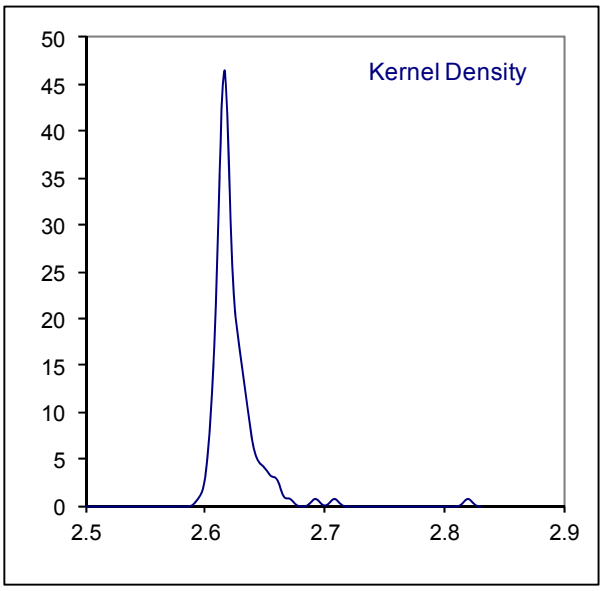
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.621		-0.03	825	D445	2.627		0.53
53		-----		-----	840	D445	2.6428		2.02
62	D445	2.607		-1.35	862	D445	2.6136		-0.73
92	D445	2.6300		0.82	863	D445	2.6225		0.11
120	D445	2.605		-1.54	873	D445	2.6179		-0.32
132	D445	2.630		0.82	874	D445	2.6187		-0.25
140	D445	2.6543		3.11	887		-----		-----
150	D445	2.6273		0.56	902	D445	2.5951		-2.47
158		-----		-----	904	D445	2.615		-0.60
159	D445	2.616		-0.50	922	D445	2.6158		-0.52
161	D445	2.6231		0.17	951	D445	2.6084		-1.22
169	D445	2.615		-0.60	962		-----		-----
171	D445	2.610		-1.07	963	D445	2.608		-1.26
175	D445	2.614		-0.69	970	D445	2.66		3.64
193	D445	2.6263		0.47	971	D445	2.632		1.00
194	D445	2.635		1.29	974	D445	2.649		2.61
212	ISO3104	2.654		3.08	994	D445	2.612		-0.88
217	D445	2.6182		-0.30	995	D445	2.6155		-0.55
221	D445	2.620		-0.13	996		-----		-----
224		-----		-----	997	D445	2.644		2.14
225	D445	2.613		-0.79	998		-----		-----
228	D445	2.820	G(0.01)	18.73	1006	D445	2.612		-0.88
230		-----		-----	1017		-----		-----
240	D445	2.627		0.53	1026		-----		-----
242	D445	2.6330145		1.10	1033	IP71	2.637		1.48
252	D445	2.618		-0.32	1038	D445	2.613		-0.79
253	D445	2.65		2.70	1059	ISO3104	2.612		-0.88
254	D445	2.619		-0.22	1080	D445	2.615		-0.60
256		-----		-----	1081	D445	2.62		-0.13
258	D445	2.6334703		1.14	1082	ISO3104	2.635		1.29
273	D445	2.616		-0.50	1095	D445	2.626		0.44
311	D445	2.614		-0.69	1108		-----		-----
312	D445	2.615		-0.60	1109	D445	2.6167		-0.44
323	D445	2.614		-0.69	1121	IP71	2.6363		1.41
332		-----		-----	1126		-----		-----
334	D445	2.6274		0.57	1134	IP71	2.619		-0.22
335		-----		-----	1140	D445	2.626		0.44
336		-----		-----	1146	D445	2.6178		-0.33
337	D445	2.615		-0.60	1167	ISO3104	2.6057		-1.48
338		-----		-----	1182	D445	2.6607		3.71
340	D445	2.6170		-0.41	1186		-----		-----
344		-----		-----	1191	ISO3104	2.617		-0.41
349	D445	2.637		1.48	1199		-----		-----
353	IP71	2.62271		0.13	1201	D445	2.616		-0.50
360	D445	2.6337		1.16	1227	D445	2.6294		0.76
370	D445	2.6138		-0.71	1229	ISO3104	2.615		-0.60
402	D445	2.6180		-0.32	1238	D445	2.616		-0.50
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D7042	2.6070		-1.35
445	D445	2.619		-0.22	1299	D445	2.608		-1.26
447	D445	2.6415		1.90	1340	ISO3104	2.6155		-0.55
463	D445	2.6086		-1.20	1357	D445	2.616		-0.50
485		-----		-----	1395	D445	2.619		-0.22
494	D445	2.6051		-1.53	1399	D7042	2.610		-1.07
495	D445	2.629		0.72	1417	D445	2.62		-0.13
496	D445	2.6155		-0.55	1428	ISO3104	2.612		-0.88
507	D445	2.6033		-1.70	1430	D445	2.708	G(0.01)	8.17
529		-----		-----	1431	D7042	2.613		-0.79
541	D445	2.612		-0.88	1432		-----		-----
562		-----		-----	1447	D445	2.616		-0.50
575	D445	2.649		2.61	1457	D445	2.6163		-0.48
603	D445	2.6325		1.05	1459	D7042	2.618		-0.32
604	D445	2.6288		0.70	1487		-----		-----
607	D445	2.624		0.25	1498	D445	2.617		-0.41
621	D445	2.6700205	G(0.05)	4.59	1510	D445	2.624		0.25
631	D445	2.6119		-0.89	1557	ISO3104	2.641		1.85
657	D445	2.646		2.32	1564	D445	2.615		-0.60
663	D445	2.6150		-0.60	1586	D445	2.615		-0.60
671	D445	2.613		-0.79	1613	D445	2.6228		0.14
732	D445	2.628		0.63	1616		-----		-----
750	D445	2.623		0.16	1629		-----		-----
753	D445	2.6232		0.17	1631	D445	2.6220		0.06
759	D445	2.6024		-1.79	1634		-----		-----
781	D445	2.626		0.44	1635	D445	2.659		3.55
823	D445	2.6108		-0.99	1650	D445	2.6169		-0.42
824	D445	2.638		1.57	1654	ISO3104	2.61175		-0.90

1669	ISO3104	2.692	G(0.01)	6.66
1709	D445	2.614		-0.69
1710	D445	2.613		-0.79
1720		-----		-----
1724	D445	2.6181		-0.31
1746	D445	2.3694	G(0.01)	-23.76
1807	D445	2.622		0.06
1810	D445	2.616		-0.50
1811	D445	2.6144		-0.65
1842	IP71	2.608		-1.26
1849	ISO3104	2.602		-1.82
1857		-----		-----
1862		-----		-----

normality	not OK
n	134
outliers	5
mean (n)	2.6213
st.dev. (n)	0.01256
R(calc.)	0.0352
R(D445:12)	0.0297

1906		-----	-----
1914	D445	2.617	-0.41
1915		-----	-----
1936	ISO3104	2.610	-1.07
1937	ISO3104	2.614	-0.69
1938	D445	2.6278	0.61
1948		-----	-----
1950		-----	-----
1951	D445	2.618	-0.32
2129	D445	2.6175	-0.36
5019	ISO3104	2.6095	-1.12
7006	D445	2.632	1.00





Determination of Lubricity by HFRR on sample #13174; result in µm

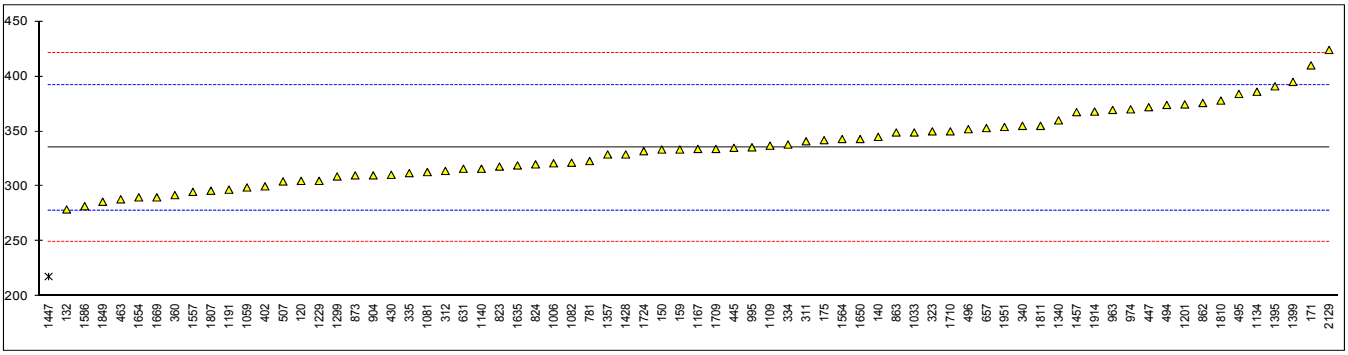
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
62		-----		-----	862	D6079	375.8		1.42
92		-----		-----	863	D6079	349.0		0.49
120	D6079	305		-1.05	873	D6079	310		-0.88
132	D7688	279		-1.96	874		-----		-----
140	D6079	345		0.35	887		-----		-----
150	D6079	333.5		-0.06	902		-----		-----
158		-----		-----	904	D6079	310		-0.88
159	D6079	333.5		-0.06	922		-----		-----
161		-----		-----	951		-----		-----
169		-----		-----	962		-----		-----
171	D6079	410		2.62	963	D6079	369.5		1.20
175	D6079	342		0.24	970		-----		-----
193		-----		-----	971		-----		-----
194		-----		-----	974	D6079	370		1.22
212		-----		-----	994		-----		-----
217		-----		-----	995	D6079	335.5		0.01
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006	D6079	321		-0.49
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033	IP450	349		0.49
252		-----		-----	1038		-----		-----
253		-----		-----	1059	ISO12156	299		-1.26
254		-----		-----	1080		-----		-----
256		-----		-----	1081	ISO12156	313		-0.77
258		-----		-----	1082	ISO12156	321.5		-0.48
273		-----		-----	1095		-----		-----
311	ISO12156	341		0.21	1108		-----		-----
312	D6079	314		-0.74	1109	IP450	337		0.07
323	D6079	350		0.52	1121		-----		-----
332		-----		-----	1126		-----		-----
334	ISO12156	338		0.10	1134	IP450	386		1.78
335	ISO12156	312		-0.81	1140	D6079	316		-0.67
336		-----		-----	1146		-----		-----
337		-----		-----	1167	ISO12156	334.0		-0.04
338		-----		-----	1182		-----		-----
340	D6079	355		0.70	1186		-----		-----
344		-----		-----	1191	ISO12156	297		-1.33
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D6079	374.5		1.38
360	D7688	292		-1.51	1227		-----		-----
370		-----		-----	1229	ISO12156	305		-1.05
402	D6079	300		-1.23	1238		-----		-----
430	D6079	310.5		-0.86	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D6079	335		0.00	1299	D6079	309		-0.91
447	IP450	372		1.29	1340	ISO12156	360		0.87
463	ISO12156	288.2		-1.64	1357	D6079	329		-0.21
485		-----		-----	1395	INH-96	391		1.96
494	D6079	374		1.36	1399	D6079	395		2.10
495	D6079	384		1.71	1417		-----		-----
496	D6079	352		0.59	1428	ISO12156	329		-0.21
507	D6079	304.5		-1.07	1430		-----		-----
529		-----		-----	1431		-----		-----
541		-----		-----	1432		-----		-----
562		-----		-----	1447	D6079	218	G(0.05)	-4.10
575		-----		-----	1457	D6079	367.5		1.13
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510		-----		-----
631	D7688	316		-0.67	1557	ISO12156	295		-1.40
657	D6079	353		0.63	1564	ISO12156	343		0.28
663		-----		-----	1586	D6079	282		-1.86
671		-----		-----	1613		-----		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D6079	323		-0.42	1635	D6079	319		-0.56
823	D6079	318		-0.60	1650	ISO12156	343		0.28
824	D6079	320		-0.53	1654	ISO12156	290		-1.58

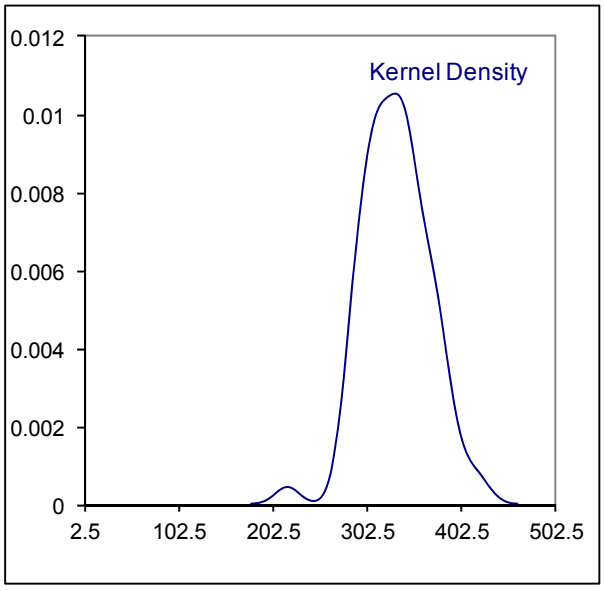
1669	ISO12156	290	-1.58
1709	D6079	334	-0.04
1710	D6079	350	0.52
1720		-----	-----
1724	IP450	332	-0.11
1746		-----	-----
1807	ISO12156	296	-1.37
1810	D6079	378	1.50
1811	D6079	355	0.70
1842		-----	-----
1849	ISO12156	286	-1.72
1857		-----	-----
1862		-----	-----

normality	OK
n	71
outliers	1
mean (n)	335.1
st.dev. (n)	32.45
R(calc.)	90.9
R(D6079:11)	80.0

1906		-----	-----
1914	ISO12156	368	1.15
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951	D6079	354	0.66
2129	IP450	424	3.11
5019		-----	-----
7006		-----	-----

Only D6079	Only D7688/ISO12156/IP450
OK	OK
41	30
1	0
340.6	327.6
28.86	35.93
80.8	100.6
80.0	120.0





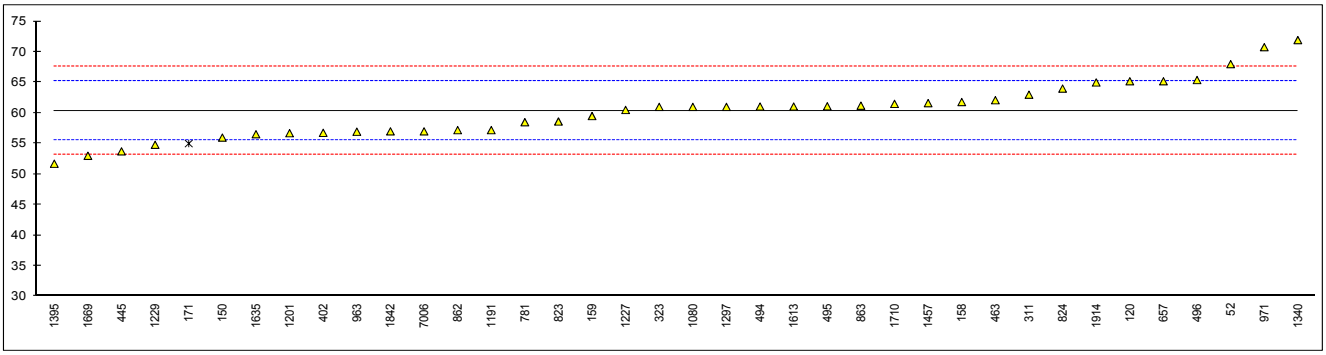
Determination of Nitrogen on sample #13174; result in mg/kg

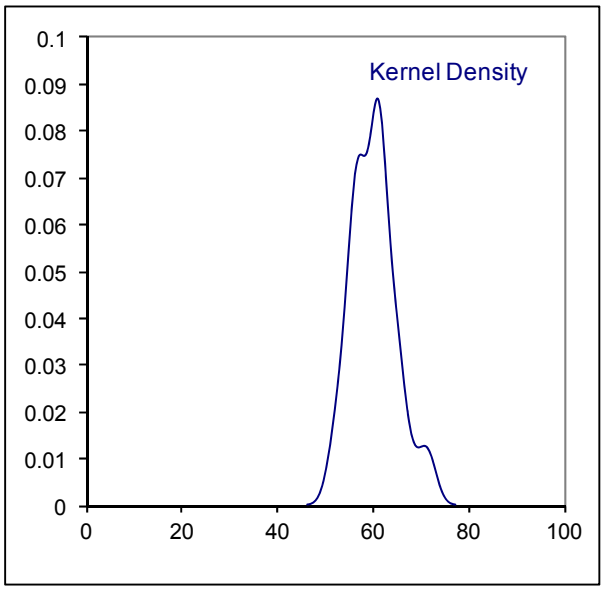
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	68		3.18	825		-----		-----
53		-----		-----	840		-----		-----
62		-----		-----	862	D4629	57.2		-1.34
92		-----		-----	863	D4629	61.2		0.34
120	D4629	65.2		2.01	873		-----		-----
132		-----		-----	874		-----		-----
140		-----		-----	887		-----		-----
150	D4629	55.98		-1.85	902		-----		-----
158	D4629	61.8		0.59	904		-----		-----
159	D4629	59.5		-0.37	922		-----		-----
161		-----		-----	951		-----		-----
169		-----		-----	962		-----		-----
171	D4629	55	ex, see §4.1	-2.26	963	D4629	56.94		-1.45
175		-----		-----	970		-----		-----
193		-----		-----	971	D4629	70.777		4.35
194		-----		-----	974		-----		-----
212		-----		-----	994		-----		-----
217		-----		-----	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1080	D4629	61		0.25
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311	D4629	63		1.09	1108		-----		-----
312		-----		-----	1109		-----		-----
323	D4629	61		0.25	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340		-----		-----	1186		-----		-----
344		-----		-----	1191	D4629	57.2		-1.34
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D4629	56.7		-1.55
360		-----		-----	1227	D4629	60.5		0.04
370		-----		-----	1229	D4629	54.8		-2.34
402	D4629	56.76		-1.52	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D4629	61.0		0.25
445	D4629	53.73		-2.79	1299		-----		-----
447		-----		-----	1340	D4629	71.93		4.83
463	D4629	62.1		0.71	1357		-----		-----
485		-----		-----	1395	D4629	51.7		-3.64
494	D4629	61.06		0.28	1399		-----		-----
495	D4629	61.1		0.30	1417		-----		-----
496	D4629	65.4		2.10	1428		-----		-----
507		-----		-----	1430		-----		-----
529		-----		-----	1431		-----		-----
541		-----		-----	1432		-----		-----
562		-----		-----	1447		-----		-----
575		-----		-----	1457	D4629	61.62		0.51
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510		-----		-----
631		-----		-----	1557		-----		-----
657	D4629	65.2		2.01	1564		-----		-----
663		-----		-----	1586		-----		-----
671		-----		-----	1613	D4629	61.06		0.28
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D4629	58.5		-0.79	1635	D4629	56.53		-1.62
823	D4629	58.61		-0.75	1650		-----		-----
824	D4629	64		1.51	1654		-----		-----

1669	D4629	53	-3.10
1709		-----	-----
1710	D4629	61.5	0.46
1720		-----	-----
1724		-----	-----
1746		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1842	D4629	57	-1.42
1849		-----	-----
1857		-----	-----
1862		-----	-----

normality	OK	
n	37	
outliers	0	+ 1 excluded
mean (n)	60.39	
st.dev. (n)	4.570	
R(calc.)	12.80	
R(D4629:12)	6.69	

1906		-----	-----
1914	D5762	65	1.93
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951		-----	-----
2129		-----	-----
5019		-----	-----
7006	D4629	57	-1.42





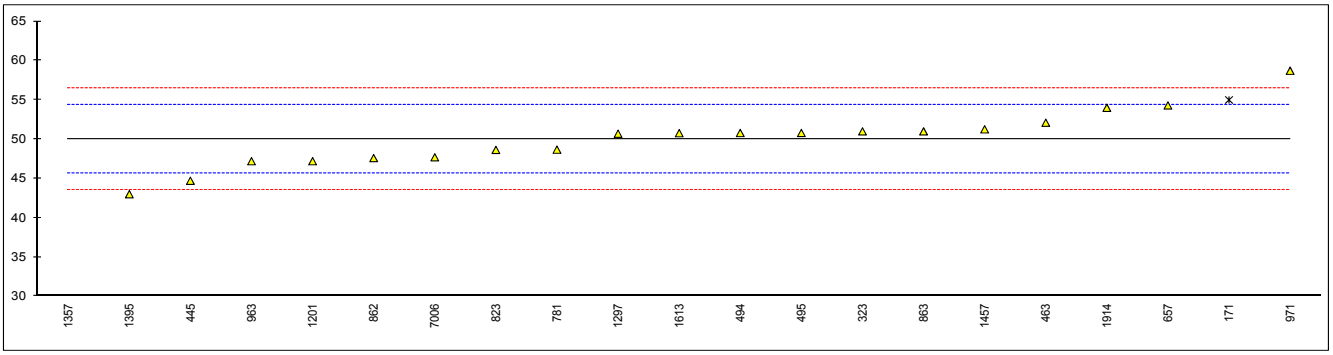
Determination of Nitrogen on sample #13174; result in mg/l

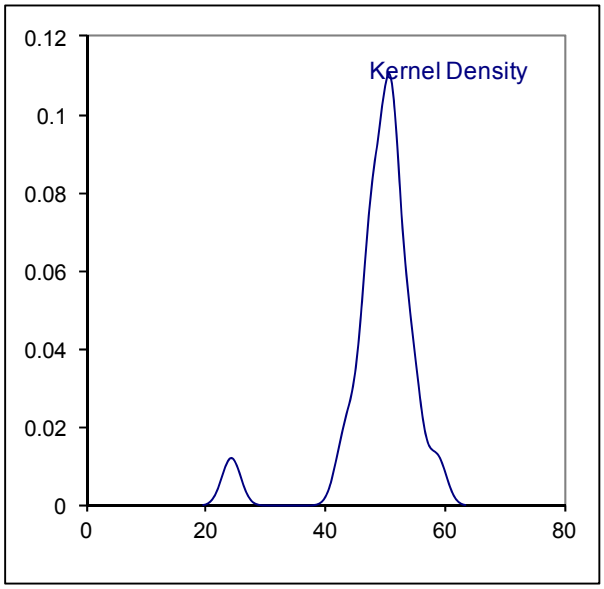
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840		-----		-----
62		-----		-----	862	D4629	47.6		-1.11
92		-----		-----	863	D4629	51		0.46
120		-----		-----	873		-----		-----
132		-----		-----	874		-----		-----
140		-----		-----	887		-----		-----
150		-----		-----	902		-----		-----
158		-----		-----	904		-----		-----
159		-----		-----	922		-----		-----
161		-----		-----	951		-----		-----
169		-----		-----	962		-----		-----
171	D4629	55	ex, see §4.1	2.30	963	D4629	47.2		-1.30
175		-----		-----	970		-----		-----
193		-----		-----	971	D4629	58.712		4.02
194		-----		-----	974		-----		-----
212		-----		-----	994		-----		-----
217		-----		-----	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038		-----		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1080		-----		-----
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311		-----		-----	1108		-----		-----
312		-----		-----	1109		-----		-----
323	D4629	51		0.46	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340		-----		-----	1186		-----		-----
344		-----		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D4629	47.2		-1.30
360		-----		-----	1227		-----		-----
370		-----		-----	1229		-----		-----
402		-----		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D4629	50.7		0.32
445	D4629	44.71		-2.44	1299		-----		-----
447		-----		-----	1340		-----		-----
463	D4629	52.1		0.97	1357	D4629	24.35	G(0.01)	-11.84
485		-----		-----	1395	D4629	43.0		-3.23
494	D4629	50.79		0.36	1399		-----		-----
495	D4629	50.8		0.37	1417		-----		-----
496		-----		-----	1428		-----		-----
507		-----		-----	1430		-----		-----
529		-----		-----	1431		-----		-----
541		-----		-----	1432		-----		-----
562		-----		-----	1447		-----		-----
575		-----		-----	1457	D4629	51.26		0.58
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510		-----		-----
631		-----		-----	1557		-----		-----
657	D4629	54.3		1.98	1564		-----		-----
663		-----		-----	1586		-----		-----
671		-----		-----	1613	D4629	50.77		0.35
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D4629	48.67		-0.62	1635		-----		-----
823	D4629	48.64		-0.63	1650		-----		-----
824		-----		-----	1654		-----		-----

1669		-----	-----
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724		-----	-----
1746		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1842		-----	-----
1849		-----	-----
1857		-----	-----
1862		-----	-----

normality	OK	
n	19	
outliers	1	+1 excluded
mean (n)	50.01	
st.dev. (n)	3.560	
R(calc.)	9.97	
R(D4629:12)	6.07	

1906		-----	-----
1914	D5762	54	1.84
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951		-----	-----
2129		-----	-----
5019		-----	-----
7006	D4629	47.7	-1.07



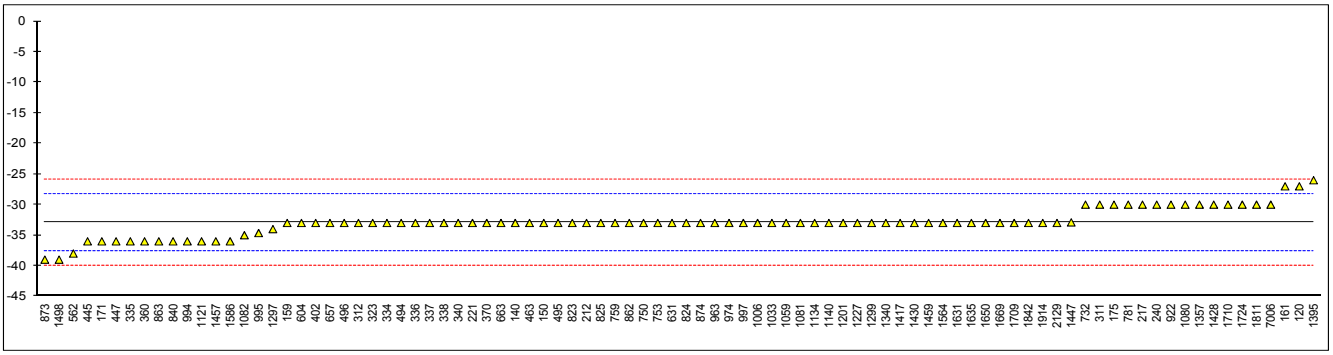


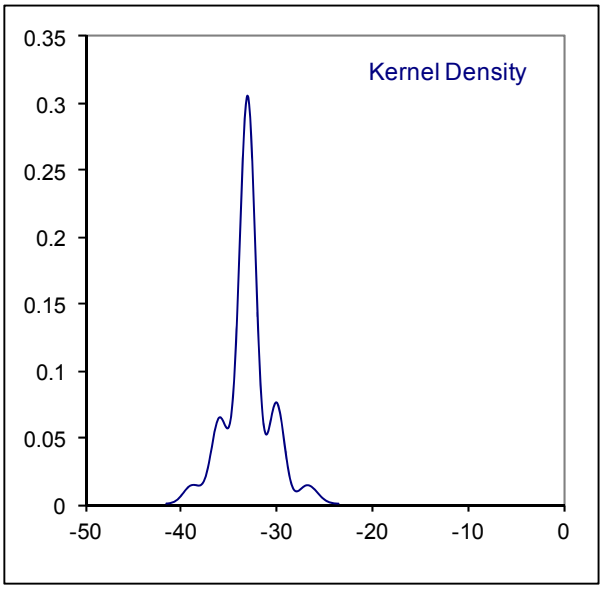
Determination of Pour Point on sample #13174; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825	D97	-33		-0.03
53		-----		-----	840	D97	-36		-1.30
62		-----		-----	862	D97	-33		-0.03
92	D97	<-27		-----	863	D97	-36		-1.30
120	D97	-27		2.52	873	D97	-39		-2.58
132	D97	<-21		-----	874	D97	-33		-0.03
140	D97	-33		-0.03	887		-----		-----
150	D5950	-33		-0.03	902	D97	<-36		-----
158	D97	<-27		-----	904	D97	<-36		-----
159	D97	-33		-0.03	922	D97	-30.0		1.24
161	D5950	-27.0		2.52	951	D97	<-24		-----
169	D97	<-30		-----	962		-----		-----
171	D97	-36		-1.30	963	D97	-33		-0.03
175	D97	-30		1.24	970		-----		-----
193	D97	<-25		-----	971	D97	<-27		-----
194		-----		-----	974	D97	-33		-0.03
212	ISO3016	-33		-0.03	994	D97	-36		-1.30
217	D97	-30		1.24	995	D97	-34.65		-0.73
221	D97	-33		-0.03	996		-----		-----
224		-----		-----	997	D97	-33		-0.03
225	D97	<-24		-----	998		-----		-----
228	D97	<-24		-----	1006	D97	-33		-0.03
230		-----		-----	1017		-----		-----
240	D97	-30		1.24	1026		-----		-----
242		-----		-----	1033	IP15	-33		-0.03
252		-----		-----	1038		-----		-----
253		-----		-----	1059	ISO3016	-33		-0.03
254		-----		-----	1080	D6749	-30		1.24
256		-----		-----	1081	D5950	-33		-0.03
258		-----		-----	1082	D5950	-35		-0.88
273		-----		-----	1095		-----		-----
311	D97	-30		1.24	1108		-----		-----
312	D5950	-33		-0.03	1109		-----		-----
323	D97	-33		-0.03	1121	IP15	-36		-1.30
332		-----		-----	1126		-----		-----
334	D97	-33		-0.03	1134	D97	-33		-0.03
335	D97	-36		-1.30	1140	D97	-33		-0.03
336	INH-60105	-33		-0.03	1146		-----		-----
337	D97	-33		-0.03	1167		-----		-----
338	D97	-33		-0.03	1182		-----		-----
340	D97	-33.0		-0.03	1186		-----		-----
344		-----		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D97	-33		-0.03
360	D97	-36		-1.30	1227	D97	-33		-0.03
370	D97	-33		-0.03	1229		-----		-----
402	D97	-33		-0.03	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D5950	-34		-0.45
445	D97	-36		-1.30	1299	D97	-33		-0.03
447	D97	-36		-1.30	1340	ISO3016	-33		-0.03
463	D6892	-33		-0.03	1357	D6749	-30		1.24
485		-----		-----	1395	D97	-26		2.94
494	D6892	-33		-0.03	1399		-----		-----
495	D97	-33		-0.03	1417	D97	-33		-0.03
496	D97	-33.0		-0.03	1428	ISO3016	-30		1.24
507	D97	<-30		-----	1430	D97	-33		-0.03
529	D97	<-24		-----	1431		-----		-----
541	D97	<-21		-----	1432		-----		-----
562	D97	-38		-2.15	1447	D97	-32.9		0.01
575		-----		-----	1457	D97	-36		-1.30
603		-----		-----	1459	ISO3016	-33		-0.03
604	D97	-33		-0.03	1487		-----		-----
607	D97	<-24		-----	1498	D97	-39		-2.58
621		-----		-----	1510		-----		-----
631	D97	-33		-0.03	1557		-----		-----
657	D5950	-33		-0.03	1564	D97	-33		-0.03
663	D97	-33		-0.03	1586	D97	-36		-1.30
671	D97	<-36		-----	1613	D97	<-24		-----
732	D97	-30.0		1.24	1616		-----		-----
750	D97	-33		-0.03	1629		-----		-----
753	D97	-33		-0.03	1631	D97	-33		-0.03
759	D97	-33		-0.03	1634		-----		-----
781	D97	-30		1.24	1635	D97	-33		-0.03
823	D97	-33		-0.03	1650	D5950	-33.0		-0.03
824	D97	-33		-0.03	1654		-----		-----

1669	D97	-33	-0.03
1709	D97	-33	-0.03
1710	D97	-30	1.24
1720		-----	-----
1724	D97	-30	1.24
1746		-----	-----
1807	D97	<-24	-----
1810		-----	-----
1811	D97	-30	1.24
1842	D97	-33	-0.03
1849		-----	-----
1857		-----	-----
1862		-----	-----
1906		-----	-----
1914	D97	-33	-0.03
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951		-----	-----
2129	D97	-33	-0.03
5019		-----	-----
7006	D97	-30	1.24

normality	not OK
n	90
outliers	0
mean (n)	-32.93
st.dev. (n)	2.249
R(calc.)	6.30
R(D97:12)	6.60





Determination of Sulphur Content on sample #13174; result in mg/kg

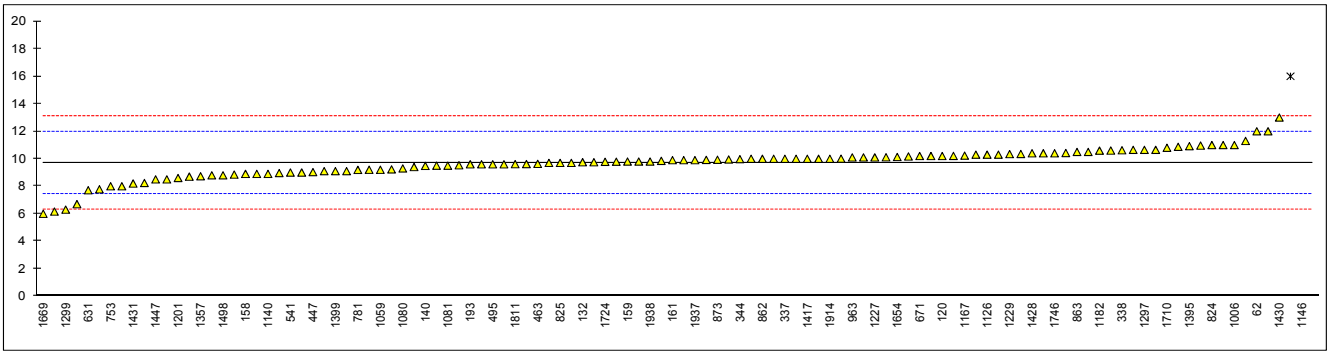
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	11		1.16	825	D5453	9.7		0.01
53		-----		-----	840	D4294	<16		-----
62	D5453	12		2.04	862	D5453	10.0		0.28
92	D5453	9.1		-0.51	863	D5453	10.5		0.72
120	D5453	10.2		0.45	873	ISO20846	9.93		0.22
132	D5453	9.75		0.06	874	D4294	<17		-----
140	D5453	9.48		-0.18	887		-----		-----
150	D5453	10.5		0.72	902		-----		-----
158	D5453	8.9		-0.69	904	D5453	8.8		-0.78
159	D5453	9.8		0.10	922	D5453	7.78		-1.67
161	D7039	9.9		0.19	951	D4294	<17		-----
169	D5453	10.65		0.85	962		-----		-----
171	D5453	9.2		-0.43	963	D5453	10.1		0.37
175	D5453	9.6		-0.07	970	D5453	9.80		0.10
193	D7039	9.6		-0.07	971	D5453	10.87		1.04
194	D5453	9.4		-0.25	974		-----		-----
212	ISO8754	<10	C	-----	994	D5453	8.85		-0.73
217	D5453	10.3		0.54	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225	D4294	230	G(0.01)	193.86	998		-----		-----
228		-----		-----	1006	D5453	11		1.16
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038	D5453	10		0.28
253		-----		-----	1059	ISO20846	9.2		-0.43
254	D4294	<17		-----	1080	D5453	9.3		-0.34
256	D4294	<17		-----	1081	ISO20846	9.5		-0.16
258	D5453	8.24		-1.27	1082		-----		-----
273	D5453	9.5		-0.16	1095	D5453	6.7		-2.62
311	D5453	9.6		-0.07	1108		-----		-----
312	D5453	10.0		0.28	1109	D7039	9.7		0.01
323	ISO20846	10.1		0.37	1121	IP336	<10		-----
332		-----		-----	1126	ISO20846	10.30		0.54
334	ISO20846	10.6		0.81	1134	D5453	8.7		-0.87
335	D5453	8.9		-0.69	1140	D5453	8.9		-0.69
336	ISO20846	10.0		0.28	1146	D5453	40	G(0.01)	26.68
337	D5453	10		0.28	1167	ISO20846	10.23		0.48
338	ISO20846	10.62		0.82	1182	ISO20846	10.59		0.80
340	D5453	11.3		1.42	1186	D5453	10.35		0.59
344	D5453	9.973		0.26	1191	D5453	10.42		0.65
349		-----		-----	1199		-----		-----
353	IP531	6.16		-3.10	1201	D5453	8.6		-0.95
360	D5453	10.2		0.45	1227	D5453	10.1		0.37
370	D5453	10.17		0.43	1229	D5453	10.34		0.58
402	D5453	9.75		0.06	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D5453	10.65		0.85
445	D5453	10.01		0.29	1299	ISO20846	6.3		-2.98
447	D5453	9.03		-0.57	1340	ISO20846	9.85		0.15
463	D5453	9.63		-0.05	1357	D5453	8.73		-0.84
485		-----		-----	1395	D5453	10.92		1.09
494	D5453	9.79		0.09	1399	D2622	9.1		-0.51
495	D5453	9.6		-0.07	1417	D5453	10		0.28
496	D5453	9.7		0.01	1428	ISO20846	10.4		0.63
507		-----		-----	1430	D5453	13		2.92
529		-----		-----	1431	D7220	8.2		-1.30
541	D5453	9.0		-0.60	1432		-----		-----
562	D5453	9.616		-0.06	1447	D5453	8.5		-1.04
575		-----		-----	1457	D5453	9.23		-0.40
603		-----		-----	1459	ISO20884	9.1		-0.51
604		-----		-----	1487		-----		-----
607		-----		-----	1498	D5453	8.8		-0.78
621		-----		-----	1510		-----		-----
631	D5453	7.71		-1.74	1557		-----		-----
657	D5453	9.92		0.21	1564	ISO20846	9		-0.60
663		-----		-----	1586	D5453	12		2.04
671	D5453	10.2		0.45	1613	D5453	10.21		0.46
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753	D4294	8		-1.48	1631	D5453	10.11		0.38
759		-----		-----	1634		-----		-----
781	D5453	9.19		-0.43	1635	D5453	10.4		0.63
823	D5453	10.96		1.12	1650	D5453	10.65		0.85
824	D5453	11		1.16	1654	ISO20846	10.13		0.39

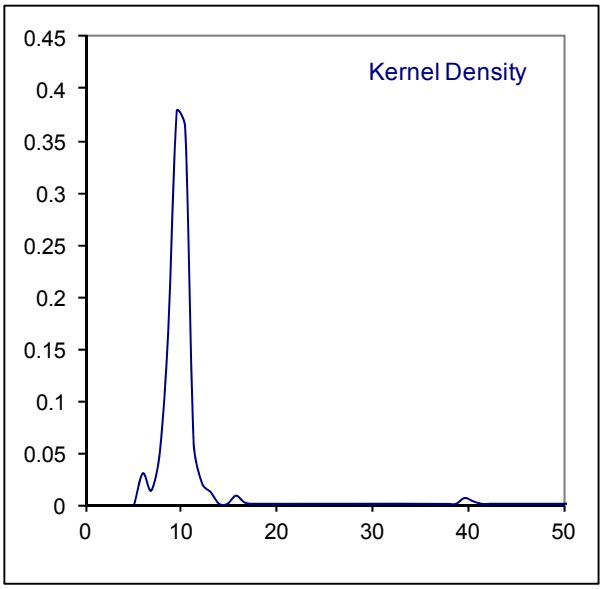
1669	ISO20846	6.0		-3.24
1709	D5453	9.95		0.23
1710	D5453	10.8		0.98
1720	D5453	16.0	G(0.01)	5.56
1724	D5453	9.78		0.09
1746	D5453	10.4		0.63
1807	D5453	8.5		-1.04
1810	D5453	10.0		0.28
1811	D5453	9.61		-0.06
1842		-----		-----
1849	ISO20846	9.53		-0.13
1857		-----		-----
1862		-----		-----

normality	not OK
n	111
outliers	3
mean (n)	9.683
st.dev. (n)	1.0789
R(calc.)	3.021
R(D5453:12)	3.182

1906		-----	-----
1914	D5453	10.0	0.28
1915		-----	-----
1936	EN20846	9.9	0.19
1937	EN20846	9.9	0.19
1938	D5453	9.8	0.10
1948		-----	-----
1950		-----	-----
1951	D5453	8.0	-1.48
2129	D5453	8.96	-0.64
5019		-----	-----
7006	D5453	10.3	0.54

Lab 212: reported <0.001 %M/M





Determination of Water Content on sample #13174; result in mg/kg

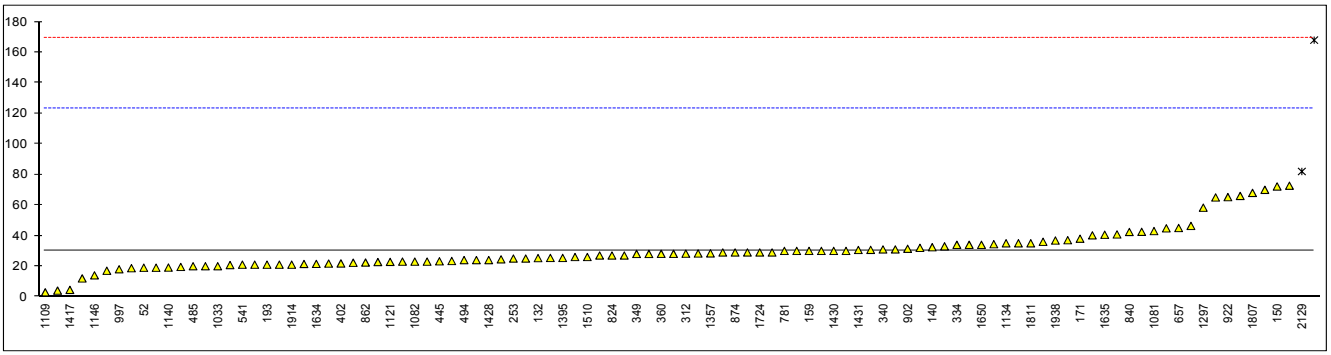
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304	19		-0.24	825	D6304	21.7		-0.18
53		-----		-----	840	D6304	42.4		0.26
62		-----		-----	862	D6304	22.4		-0.17
92		-----		-----	863	D6304	30		-0.01
120	D6304	168	G(0.01)	2.95	873	D6304	25		-0.11
132	D6304	25.29		-0.11	874	D6304	29		-0.03
140	D6304	32.4		0.05	887	D6304	21		-0.20
150	D6304	72.2		0.90	902	D6304	31.40		0.02
158	D4377	42.5		0.26	904	D6304	44.8		0.31
159	D6304	30	C	-0.01	922	D6304	65.2		0.75
161		-----		-----	951	D95	<500		-----
169		-----		-----	962		-----		-----
171	D6304	38		0.17	963	D6304	23.0		-0.16
175		-----		-----	970		-----		-----
193	E1064	21		-0.20	971		-----		-----
194		-----		-----	974	D6304	21		-0.20
212	ISO3337	<1000		<-0.65	994		-----		-----
217	D6304	36.0		0.12	995	D6304	22.25		-0.17
221		-----		-----	996		-----		-----
224		-----		-----	997	D6304	18.0		-0.26
225		-----		-----	998		-----		-----
228		-----		-----	1006	D6304	33		0.06
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242	D95	<500		-----	1033	IP438	20		-0.22
252	D95	<500		-----	1038		-----		-----
253	D6304	25		-0.11	1059	ISO12937	20.75		-0.20
254		-----		-----	1080		-----		-----
256		-----		-----	1081	D6304	43		0.27
258		-----		-----	1082	ISO12937	23		-0.16
273	D6304	19		-0.24	1095		-----		-----
311	D6304	20		-0.22	1108		-----		-----
312	ISO12937	28.2		-0.04	1109	D6304	2.9		-0.59
323	D6304	70		0.85	1121	IP438	22.8		-0.16
332		-----		-----	1126		-----		-----
334	D6304	34		0.08	1134	IP438	35		0.10
335	D6304	27		-0.07	1140	D6304	19.1		-0.24
336	ISO12937	30		-0.01	1146	D6304	14		-0.35
337	D6304	29		-0.03	1167		-----		-----
338	ISO12937	28.32		-0.04	1182		-----		-----
340	D6304	31.0		0.02	1186		-----		-----
344	ISO12937	34.4		0.09	1191		-----		-----
349	D6304	28		-0.05	1199		-----		-----
353	IP439	66		0.77	1201	D6304	65		0.74
360	D6304	28.1		-0.05	1227	D6304	35		0.10
370	EN12937	<30		-----	1229	ISO12937	<10		-----
402	ISO12937	21.8		-0.18	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297	D6304	58.3		0.60
445	D6304	23.2		-0.15	1299	ISO12937	34		0.08
447	IP438	30.7		0.01	1340	ISO12937	21.46		-0.19
463	D6304	19.5		-0.23	1357	D6304	28.4		-0.04
485	D6304	20		-0.22	1395	ISO12937	25.4		-0.10
494	D6304	24		-0.13	1399	IP438	4		-0.56
495	D6304	<30		<-0.01	1417	D6304	4.5		-0.55
496	D6304	37		0.14	1428	ISO12937	24		-0.13
507		-----		-----	1430	D6304	30		-0.01
529	E1064	46.37		0.34	1431	D6304	30.61		0.01
541	D6304	21		-0.20	1432		-----		-----
562		-----		-----	1447	D6304	30		-0.01
575		-----		-----	1457	ISO12937	26		-0.09
603	D6304	40.2		0.21	1459	ISO12937	12		-0.39
604		-----		-----	1487	D95	NIL		-----
607	D95	<500		-----	1498		-----		-----
621	D95	<500		-----	1510	D6304	26		-0.09
631	D6304	72.7		0.91	1557	EN12937	28.1		-0.05
657	D6304	45		0.32	1564	ISO12937	17		-0.28
663	D6304	23.4		-0.15	1586	D6304	29		-0.03
671		-----		-----	1613		-----		-----
732		-----		-----	1616		-----		-----
750	D6304	24		-0.13	1629		-----		-----
753	D6304	25.4		-0.10	1631	D6304	24.5		-0.12
759		-----		-----	1634	D6304	21.5		-0.19
781	D6304	30.0		-0.01	1635	D6304	40.6		0.22
823	D6304	18.7		-0.25	1650	ISO12937	34		0.08
824	D6304	27		-0.07	1654	ISO12937	22.727		-0.16

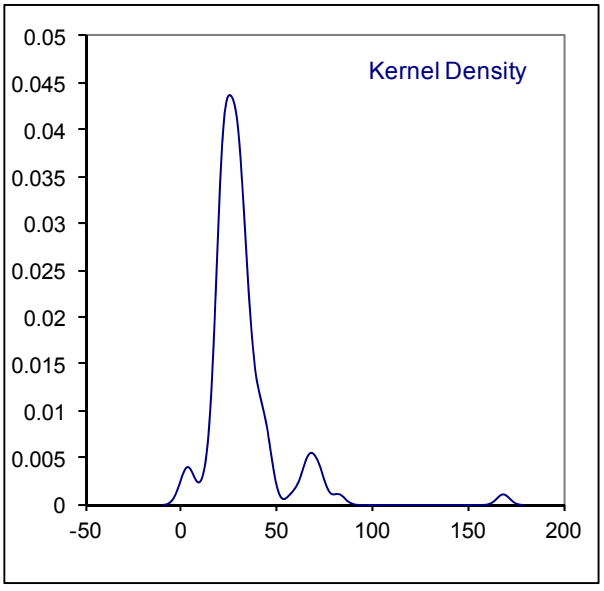
1669		-----	-----
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724	D6304	29	-0.03
1746		-----	-----
1807	ISO12937	68	0.81
1810	D6304	27	-0.07
1811	D6304	35	0.10
1842		-----	-----
1849	ISO12937	23	-0.16
1857		-----	-----
1862		-----	-----

1906	D6304	40.81		0.23
1914	D6304	21		-0.20
1915		-----		-----
1936	ISO12937	28		-0.05
1937	ISO12937	29		-0.03
1938	D6304	36.8		0.14
1948		-----		-----
1950		-----		-----
1951	D6304	32		0.04
2129	IP439	82	G(0.05)	1.11
5019		-----		-----
7006	D6304	31		0.02

normality	not OK
n	102
outliers	2
mean (n)	30.27
st.dev. (n)	13.538
R(calc.)	37.91
R(D6304:07)	130.71

Lab 212: reported <0.1%V/V
Lab 159: first reported 0.0030





Determination of Water and sediment (D2709) on sample #13174; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	0		-----	825	D2709	0.005		-----
53		-----		-----	840	D2709	<0.005		-----
62		-----		-----	862	D2709	0		-----
92	D2709	0		-----	863	D2709	0.005		-----
120	D2709	0		-----	873		-----		-----
132	D2709	0		-----	874		-----		-----
140	D2709	0		-----	887		-----		-----
150	D2709	0		-----	902		-----		-----
158		-----		-----	904		-----		-----
159	D2709	0.005		-----	922		-----		-----
161	D2709	<0.005		-----	951		-----		-----
169		-----		-----	962		-----		-----
171	D2709	0		-----	963	D2709	0		-----
175		-----		-----	970		-----		-----
193		-----		-----	971		-----		-----
194	D2709	0		-----	974	D2709	0.005		-----
212		-----		-----	994		-----		-----
217		-----		-----	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997	D2709	0.00		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006	D2709	<0.005		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038	D2709	0.000		-----
253		-----		-----	1059		-----		-----
254		-----		-----	1080		-----		-----
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311		-----		-----	1108		-----		-----
312		-----		-----	1109	D2709	<0.01		-----
323	D2709	0		-----	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134	D2709	<0.005		-----
335		-----		-----	1140		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340	D2709	0.0		-----	1186		-----		-----
344	D2709	<0.05		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D2709	<0.005		-----
360	D2709	<0.005		-----	1227		-----		-----
370		-----		-----	1229		-----		-----
402	D2709	0		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D2709	0		-----	1299		-----		-----
447		-----		-----	1340		-----		-----
463	D2709	<0.005		-----	1357		-----		-----
485		-----		-----	1395		-----		-----
494		-----		-----	1399		-----		-----
495		-----		-----	1417		-----		-----
496		-----		-----	1428		-----		-----
507	D2709	0.000		-----	1430	D2709	<0.05		-----
529	D2709	0.00		-----	1431		-----		-----
541	D2709	<0.05		-----	1432		-----		-----
562	D2709	0.00		-----	1447	D2709	0.005		-----
575		-----		-----	1457	D2709	0		-----
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498	D2709	0		-----
621		-----		-----	1510		-----		-----
631	D2709	0		-----	1557		-----		-----
657	D2709	<0.005		-----	1564		-----		-----
663	D2709	0.005		-----	1586	D2709	<0.1		-----
671	D2709	<0.01		-----	1613	D2709	<0.005		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D2709	0.004		-----	1635		-----		-----
823	D2709	0		-----	1650		-----		-----
824	D2709	0		-----	1654		-----		-----

1669	-----	-----
1709	-----	-----
1710	-----	-----
1720	-----	-----
1724	-----	-----
1746	-----	-----
1807	-----	-----
1810	-----	-----
1811	-----	-----
1842	-----	-----
1849	-----	-----
1857	-----	-----
1862	-----	-----

normality	not OK
n	47
outliers	0
mean (n)	<0.005
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D2709:11e1)	n.a.

1906		-----	-----
1914	D2709	<0.005	-----
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951		-----	-----
2129		-----	-----
5019		-----	-----
7006		-----	-----

Determination of Water and sediment (D1796) on sample #13174; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	825		-----		-----
53		-----		-----	840	D1796	0.00		-----
62		-----		-----	862	D1796	0.00		-----
92		-----		-----	863		-----		-----
120	D1796	0.00		-----	873		-----		-----
132	D1796	0.00		-----	874		-----		-----
140	D1796	0.0		-----	887		-----		-----
150		-----		-----	902		-----		-----
158		-----		-----	904		-----		-----
159		-----		-----	922	D1796	<0.05		-----
161		-----		-----	951		-----		-----
169	D1796	0.000		-----	962		-----		-----
171	D1796	0.000		-----	963		-----		-----
175	D1796	0		-----	970		-----		-----
193	D1796	0.00		-----	971		-----		-----
194		-----		-----	974		-----		-----
212		-----		-----	994		-----		-----
217	D1796	0.00		-----	995		-----		-----
221		-----		-----	996		-----		-----
224		-----		-----	997		-----		-----
225		-----		-----	998		-----		-----
228		-----		-----	1006		-----		-----
230		-----		-----	1017		-----		-----
240		-----		-----	1026		-----		-----
242		-----		-----	1033		-----		-----
252		-----		-----	1038		-----		-----
253		-----		-----	1059	ISO3734	<0.05		-----
254		-----		-----	1080		-----		-----
256		-----		-----	1081		-----		-----
258		-----		-----	1082		-----		-----
273		-----		-----	1095		-----		-----
311		-----		-----	1108		-----		-----
312		-----		-----	1109	D1796	<0.05		-----
323		-----		-----	1121		-----		-----
332		-----		-----	1126		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
340		-----		-----	1186		-----		-----
344		-----		-----	1191		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1201	D1796	0.00		-----
360	D1796	<0.005		-----	1227		-----		-----
370		-----		-----	1229		-----		-----
402		-----		-----	1238		-----		-----
430		-----		-----	1284		-----		-----
433		-----		-----	1297		-----		-----
445	D1796	0.00		-----	1299	D1796	0.005		-----
447		-----		-----	1340		-----		-----
463	D1796	0.00		-----	1357	D1796	<0.05		-----
485		-----		-----	1395		-----		-----
494		-----		-----	1399		-----		-----
495		-----		-----	1417		-----		-----
496		-----		-----	1428	D1796	<0.1		-----
507	D1796	0.00		-----	1430		-----		-----
529	D1796	0.025		-----	1431		-----		-----
541	D1796	<0.1		-----	1432		-----		-----
562		-----		-----	1447	D1796	0.00		-----
575		-----		-----	1457		-----		-----
603		-----		-----	1459		-----		-----
604		-----		-----	1487		-----		-----
607		-----		-----	1498		-----		-----
621		-----		-----	1510		-----		-----
631		-----		-----	1557	ISO3734	0.000		-----
657	D1796	0.00		-----	1564		-----		-----
663	D1796	0.00		-----	1586		-----		-----
671		-----		-----	1613	D1796	0.00		-----
732		-----		-----	1616		-----		-----
750		-----		-----	1629		-----		-----
753		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D1796	0.00		-----	1635		-----		-----
823	D1796	0		-----	1650		-----		-----
824	D1796	0		-----	1654	D1796	<0.05		-----

1669		-----	-----
1709	D1796	0	-----
1710		-----	-----
1720		-----	-----
1724		-----	-----
1746		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1842		-----	-----
1849		-----	-----
1857		-----	-----
1862		-----	-----

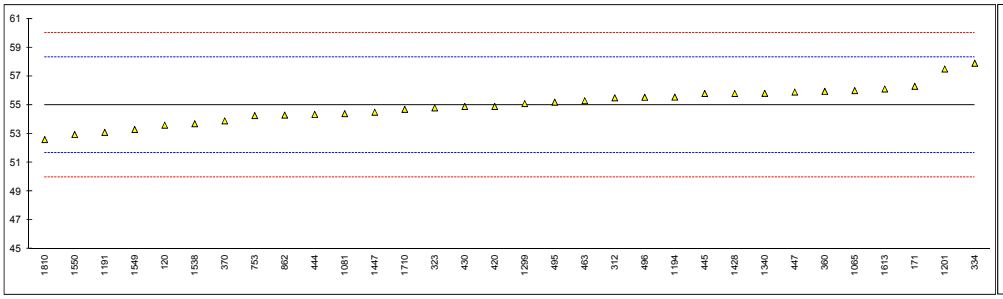
normality	n.a.
n	34
outliers	0
mean (n)	<0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D1796:11e1)	n.a.

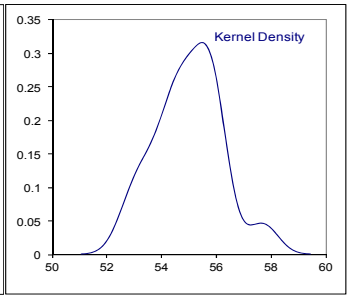
1906		-----	-----
1914	D1796	0	-----
1915		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
1950		-----	-----
1951		-----	-----
2129		-----	-----
5019		-----	-----
7006		-----	-----

Determination of Cetane Number (ASTM D613) of sample #13175

lab	method	value	mark	z(targ)	Filtered	Remarks
120	D613	53.6		-0.83	No	
171	D613	56.3		0.79	-----	
311		-----		-----	-----	
312	D613	55.5		0.31	No	
323	D613	54.8		-0.11	No	
334	D613	57.9		1.75	Yes	
338		-----		-----	-----	
360	D613	55.95		0.58	No	
370	D613	53.9		-0.65	No	
420	D613	54.9		-0.05	No	
430	D613	54.9		-0.05	Yes	
444	D613	54.35		-0.38	No	
445	D613	55.80		0.49	No	
447	D613	55.9		0.55	No	
463	D613	55.3		0.19	No	
495	D613	55.2		0.13	No	
496	D613	55.54		0.33	No	
753	D613	54.27		-0.43	No	
862	D613	54.3		-0.41	Yes	
962		-----		-----	-----	
963		-----		-----	-----	
1026		-----		-----	-----	
1065	D613	56.0		0.61	No	
1080		-----		-----	-----	
1081	D613	54.4		-0.35	-----	
1095		-----		-----	-----	
1134		-----		-----	-----	
1167		-----		-----	-----	
1191	D613	53.1		-1.13	No	
1194	D613	55.55		0.34	-----	
1201	D613	57.5		1.51	Yes	
1229		-----		-----	-----	
1299	D613	55.1		0.07	No	
1340	D613	55.81		0.49	Yes	
1357		-----		-----	-----	
1395		-----		-----	-----	
1428	D613	55.8		0.49	No	
1443		-----		-----	-----	
1447	D613	54.50		-0.29	Yes	
1457		-----		-----	-----	
1538	ISO5165	53.7		-0.77	No	
1549	INH-07	53.3		-1.01	Yes	
1550	INH-07	52.95		-1.22	Yes	
1586		-----		-----	-----	
1613	D613	56.11		0.67	No	
1616		-----		-----	-----	
1631		-----		-----	-----	
1710	ISO5165	54.7		-0.17	No	
1724		-----		-----	-----	
1807		-----		-----	-----	
1810	D613	52.6	C	-1.43	Yes	First reported 49.8
1857		-----		-----	-----	
1862		-----		-----	-----	
1948		-----		-----	-----	
1951		-----		-----	-----	

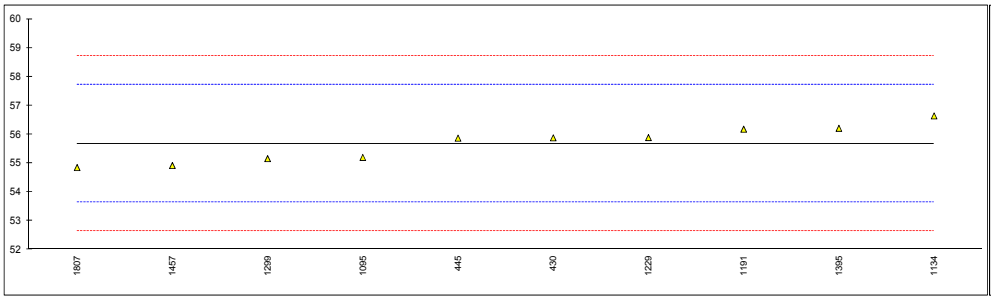
normality	OK
n	32
outliers	0
mean (n)	54.985
st.dev. (n)	1.2278
R(calc.)	3.438
R(D613:10ae1)	4.673

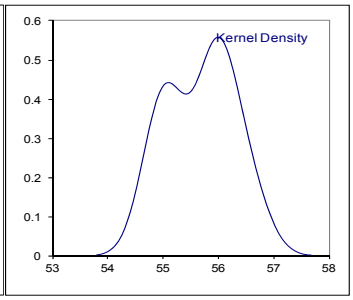




Determination of Derived Cetane Number (D6890) of sample #13175

lab	method	value	mark	z(targ)	Ignition delay		Air Temp.	Remarks
120		-----		-----	-----		-----	
171		-----		-----	-----		-----	
311		-----		-----	-----		-----	
312		-----		-----	-----		-----	
323		-----		-----	-----		-----	
334		-----		-----	-----		-----	
338		-----		-----	-----		-----	
360		-----		-----	-----		-----	
370		-----		-----	-----		-----	
420		-----		-----	-----		-----	
430	D6890	55.88		0.20	3.629		520	
444		-----		-----	-----		-----	
445	IP498	55.87		0.19	3.630		576.8	
447		-----		-----	-----		-----	
463		-----		-----	-----		-----	
495		-----		-----	-----		-----	
496		-----		-----	-----		-----	
753		-----		-----	-----		-----	
862		-----		-----	-----		-----	
962		-----		-----	-----		-----	
963		-----		-----	-----		-----	
1026		-----		-----	-----		-----	
1065		-----		-----	-----		-----	
1080		-----		-----	-----		-----	
1081		-----		-----	-----		-----	
1095	D6890	55.20		-0.47	3.677		585.4	
1134	D6890	56.64		0.95	3.576		569.5	
1167		-----		-----	-----		-----	
1191	D6890	56.18		0.49	-----		-----	
1194		-----		-----	-----		-----	
1201		-----		-----	-----		-----	
1229	D6890	55.89		0.21	3.629		575	
1299	D6890	55.16		-0.51	29.353	G(0.01)	588.42	
1340		-----		-----	-----		-----	
1357		-----		-----	-----		-----	
1395	D6890	56.21		0.52	3.605		589.0	
1428		-----		-----	-----		-----	
1443		-----		-----	-----		-----	
1447		-----		-----	-----		-----	
1457	D6890	54.92		-0.75	3.698		546.7	
1538		-----		-----	-----		-----	
1549		-----		-----	-----		-----	
1550		-----		-----	-----		-----	
1586		-----		-----	-----		-----	
1613		-----		-----	-----		-----	
1616		-----		-----	-----		-----	
1631		-----		-----	-----		-----	
1710		-----		-----	-----		-----	
1724		-----		-----	-----		-----	
1807	EN15195	54.85		-0.82	3.698		581.3	
1810		-----		-----	-----		-----	
1857		-----		-----	-----		-----	
1862		-----		-----	-----		-----	
1948		-----		-----	-----		-----	
1951		-----		-----	-----		-----	
	normality	OK			OK			
	n	10			8			
	outliers	0			1			
	mean (n)	55.68			3.64			
	st.dev. (n)	0.609			0.044			
	R(calc.)	1.71			0.12			
	R(D6890:13b)	2.84			0.20			





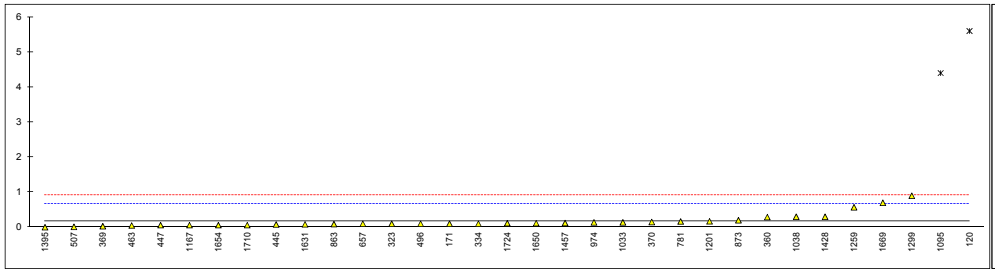
Determination of Derived Cetane Number (D7170) of sample #13175

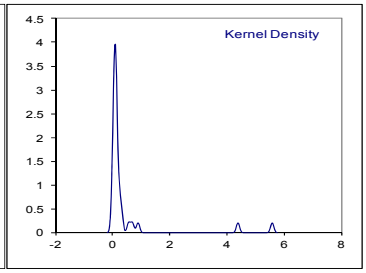
lab	method	value	mark	z(targ)	Ignition delay	Air Temp.	Remarks
120		-----		-----	-----	-----	
171	D7170	56.1		-1.39	3.05	544.8	
311		-----		-----	-----	-----	
312		-----		-----	-----	-----	
323		-----		-----	-----	-----	
334		-----		-----	-----	-----	
338		-----		-----	-----	-----	
360		-----		-----	-----	-----	
370		-----		-----	-----	-----	
420		-----		-----	-----	-----	
430		-----		-----	-----	-----	
444		-----		-----	-----	-----	
445		-----		-----	-----	-----	
447		-----		-----	-----	-----	
463		-----		-----	-----	-----	
495		-----		-----	-----	-----	
496		-----		-----	-----	-----	
753		-----		-----	-----	-----	
862		-----		-----	-----	-----	
962		-----		-----	-----	-----	
963	D7170	62.02		2.28	2.81	520.9	
1026		-----		-----	-----	-----	
1065		-----		-----	-----	-----	
1080		-----		-----	-----	-----	
1081		-----		-----	-----	-----	
1095		-----		-----	-----	-----	
1134		-----		-----	-----	-----	
1167		-----		-----	-----	-----	
1191		-----		-----	-----	-----	
1194		-----		-----	-----	-----	
1201		-----		-----	-----	-----	
1229		-----		-----	-----	-----	
1299		-----		-----	-----	-----	
1340		-----		-----	-----	-----	
1357		-----		-----	-----	-----	
1395		-----		-----	-----	-----	
1428		-----		-----	-----	-----	
1443	D7170	56.92		-0.89	3.00	555.60	
1447		-----		-----	-----	-----	
1457		-----		-----	-----	-----	
1538		-----		-----	-----	-----	
1549		-----		-----	-----	-----	
1550		-----		-----	-----	-----	
1586		-----		-----	-----	-----	
1613		-----		-----	-----	-----	
1616		-----		-----	-----	-----	
1631		-----		-----	-----	-----	
1710		-----		-----	-----	-----	
1724		-----		-----	-----	-----	
1807		-----		-----	-----	-----	
1810		-----		-----	-----	-----	
1857		-----		-----	-----	-----	
1862		-----		-----	-----	-----	
1948		-----		-----	-----	-----	
1951		-----		-----	-----	-----	
	normality	n.a.			n.a.		
	n	3			3		
	outliers	0			0		
	mean (n)	58.35			2.95		
	st.dev. (n)	n.a.			n.a.		
	R(calc.)	n.a.			n.a.		
	R(D7170:12a)	4.51			0.24		

Determination of Oxidation Stability on sample #13177; result in mg/100mg

lab	method	value	mark	z(targ)	Remarks
120	D2274	5.6	C,G(0.01)	22.12	First reported 0.4
132	D2274	<0.1		-----	
159		-----		-----	
171	D2274	0.1		-0.31	
212		-----		-----	
230		-----		-----	
311	D2274	<0.1		-----	
312	D2274	<0.1		-----	
323	D2274	0.1		-0.31	
334	D2274	0.1		-0.31	
340		-----		-----	
360	D2274	0.29		0.46	
369	D2274	0.03		-0.60	
370	D2274	0.15		-0.11	
445	D2274	0.08		-0.39	
447	D2274	0.06		-0.47	
463	D2274	0.05		-0.51	
495		-----		-----	
496	D2274	0.1		-0.31	
507	D2274	0.013		-0.67	
657	D2274	0.1		-0.31	
781	D2274	0.165		-0.05	
862	D2274	<0.1		-----	
863	D2274	0.09		-0.35	
873	D2274	0.2		0.10	
904		-----		-----	
963		-----		-----	
974	D2274	0.14		-0.15	
1017		-----		-----	
1026		-----		-----	
1033	D2274	0.14		-0.15	
1038	D2274	0.3		0.51	
1059	ISO12205	<0.1		-----	
1081	D2274	<1		-----	
1095	ISO12205	4.4	C,G(0.01)	17.22	First reported 44
1109		-----		-----	
1134		-----		-----	
1167	D2274	0.06		-0.47	
1201	D2274	0.17		-0.02	
1259	ISO12205	0.57		1.61	
1299	D2274	0.9		2.95	
1395	D2274	0.0		-0.72	
1428	ISO12205	0.3		0.51	
1457	D2274	0.12		-0.23	
1564		-----		-----	
1616		-----		-----	
1631	ISO12205	0.0827	C	-0.38	First reported 0.857
1650	D2274	0.1143		-0.25	
1654	ISO12205	0.06		-0.47	
1669	EN12662	0.7		2.14	
1710	D2274	0.06		-0.47	
1724	D2274	0.114		-0.25	
1807	D2274	<1.0		-----	
1857		-----		-----	
1862		-----		-----	
1948		-----		-----	
1951		-----		-----	

normality	not OK
n	31
outliers	2
mean (n)	0.176
st.dev. (n)	0.2013
R(calc.)	0.564
R(D2274:10)	0.687



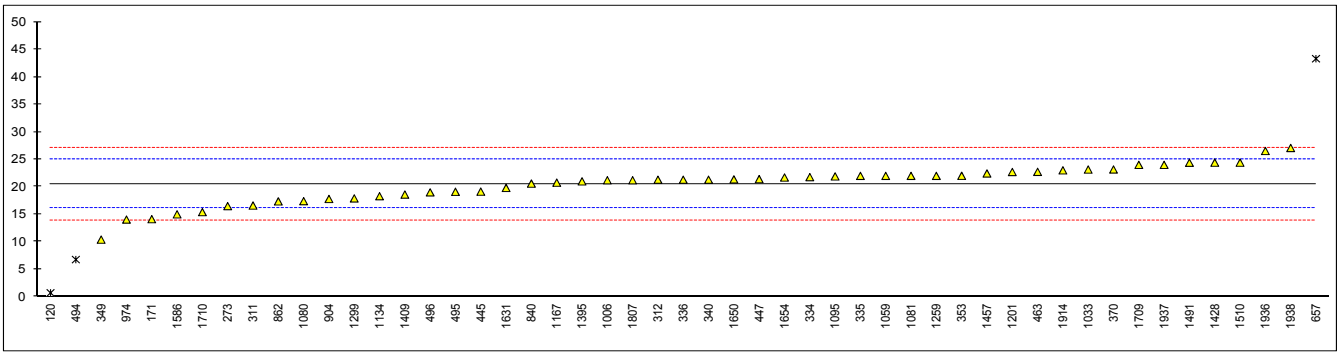


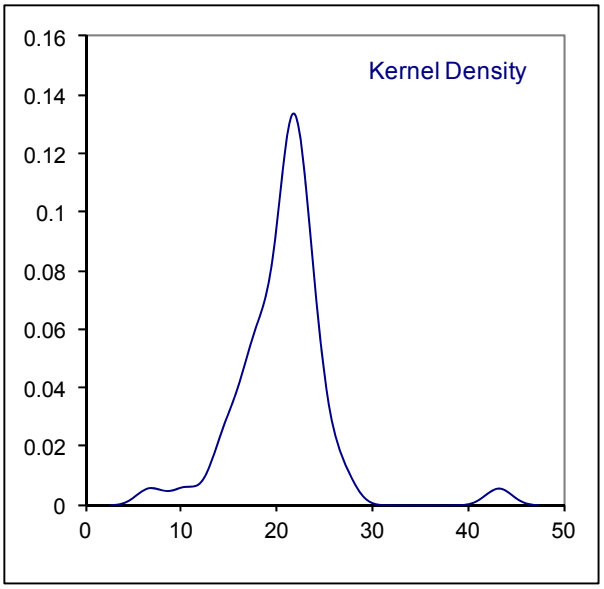
Determination of Total Contamination on sample #13176; result in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D6217	0.72	ex	-10.83	Result excluded, see §4.1
159		-----		-----	
171	D6217	14.12		-3.50	
273	IP440	16.5		-2.20	
311	D6217	16.6		-2.15	
312	D6217	21.30		0.42	
323		-----		-----	
334	EN12662	21.77		0.68	
335	D6217	22		0.81	
336	EN12662	21.3		0.42	
340	EN12662	21.3	C	0.42	First reported 11.25
349	EN12662	10.4		-5.54	
353	IP440	22.01		0.81	
360		-----		-----	
370	EN12662	23.16		1.44	
445	D6217	19.13		-0.76	
447	IP440	21.4		0.48	
463	EN12662	22.73		1.21	
494	EN12662	6.77	G(0.01)	-7.52	
495	D6217	19.1		-0.78	
496	EN12662	19.0		-0.83	
657	D6217	43.3	G(0.01)	12.46	
840	D6217	20.59		0.04	
862	D6217	17.353		-1.73	
904	D6217	17.8		-1.49	
963		-----		-----	
970		-----		-----	
971		-----		-----	
974	D6217	14.05		-3.54	
1006	EN12662	21.2		0.37	
1017		-----		-----	
1026		-----		-----	
1033	IP440	23.15		1.44	
1059	ISO12662	22.0		0.81	
1080	EN12662	17.4		-1.71	
1081	EN12662	22.0		0.81	
1095	EN12662	21.9		0.75	
1108		-----		-----	
1134	EN12662	18.3		-1.22	
1167	EN12662	20.76		0.13	
1201	EN12662	22.7		1.19	
1238		-----		-----	
1259	EN12662	22.0		0.81	
1299	EN12662	17.9		-1.44	
1395	EN12662	21.0		0.26	
1409	EN12662	18.6		-1.05	
1428	EN12662	24.4	C	2.12	First reported 11.3
1457	D6217	22.43		1.04	
1491	EN12662	24.38		2.11	
1510	IP440	24.4		2.12	
1586	D6217	15.0		-3.02	
1616		-----		-----	
1631	EN12662	19.8		-0.40	
1650	EN12662	21.36		0.46	
1654	EN12662	21.7		0.64	
1669		-----		-----	
1709	D6217	24		1.90	
1710	D6217	15.4		-2.80	
1724		-----		-----	
1807	EN12662	21.2		0.37	
1857		-----		-----	
1862		-----		-----	
1914	EN12662	23.0		1.35	
1936	EN12662	26.52		3.28	
1937	EN12662	24.0		1.90	
1938	D6217	27.07		3.58	
1948		-----		-----	
1951		-----		-----	

normality	not OK		
n	48		
outliers	2	+1 excl.	Spike
mean (n)	20.52		10.2
st.dev. (n)	3.341		
R(calc.)	9.36		
R(D6217:11)	5.12		

Compare R(EN12662:08) = 6.16





APPENDIX 2 z-scores Distillation

	Automated						Manual					
lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP	IBP	10%rec	50%rec	90%rec	95%rec	FBP
52	0.74	-0.06	-0.16	0.83	1.14	-0.05	-----	-----	-----	-----	-----	-----
53	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
62	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
92	1.12	1.45	-0.07	-1.04	-1.00	-0.20	-----	-----	-----	-----	-----	-----
120	-1.14	-2.34	-1.48	-0.59	-0.39	-2.02	-----	-----	-----	-----	-----	-----
132	-1.02	-0.19	-0.92	-0.19	0.23	-0.95	-----	-----	-----	-----	-----	-----
140	-0.74	0.89	0.87	0.09	0.65	-0.64	-----	-----	-----	-----	-----	-----
150	-0.93	-0.69	-1.01	-1.16	-0.71	-0.44	-----	-----	-----	-----	-----	-----
158	-1.14	-0.13	-3.27	-2.75	-1.00	-1.98	-----	-----	-----	-----	-----	-----
159	0.22	1.71	1.16	0.83	0.59	-0.24	-----	-----	-----	-----	-----	-----
161	2.35	1.01	0.69	-0.48	-0.58	-0.17	-----	-----	-----	-----	-----	-----
169	-0.96	-0.13	0.31	1.57	2.05	0.15	-----	-----	-----	-----	-----	-----
171	0.62	1.14	0.03	0.04	-0.13	-1.35	-----	-----	-----	-----	-----	-----
175	1.27	-0.38	1.82	1.86	1.53	0.90	-----	-----	-----	-----	-----	-----
193	-0.31	1.33	0.21	0.09	-1.85	-5.77	-----	-----	-----	-----	-----	-----
194	0.68	0.44	-0.35	0.66	0.91	-0.09	-----	-----	-----	-----	-----	-----
212	-0.12	-1.07	-0.54	0.26	-0.26	0.50	-----	-----	-----	-----	-----	-----
217	-0.03	0.70	0.12	-0.08	-0.06	0.07	-----	-----	-----	-----	-----	-----
221	-----	-----	-----	-----	-----	-----	1.82	1.51	-0.56	0.48	-0.33	-3.18
224	-----	-----	-----	-----	-----	-----	-0.04	-1.28	-0.23	-1.78	-1.41	-0.42
225	-----	-----	-----	-----	-----	-----	0.90	1.51	-0.56	-0.21	0.73	-1.79
228	-----	-----	-----	-----	-----	-----	-0.02	-1.57	-0.56	-0.21	0.73	-0.39
230	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
240	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
242	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
252	-----	-----	-----	-----	-----	-----	-0.02	-0.34	0.15	0.48	-----	0.30
253	-----	-----	-----	-----	-----	-----	-0.02	0.28	-0.56	0.48	0.20	0.30
254	-----	-----	-----	-----	-----	-----	0.44	-0.34	-0.56	1.17	-----	1.00
256	-----	-----	-----	-----	-----	-----	-0.02	0.28	0.15	0.48	-----	-0.39
258	0.22	0.63	0.21	-0.08	-0.42	-0.88	-----	-----	-----	-----	-----	-----
273	-1.82	-1.52	-0.82	-0.53	-0.16	-2.41	-----	-----	-----	-----	-----	-----
311	0.74	-0.19	0.03	0.49	0.30	1.14	-----	-----	-----	-----	-----	-----
312	0.16	-0.13	0.21	-0.08	0.20	-0.40	-----	-----	-----	-----	-----	-----
323	1.58	0.95	0.87	0.21	0.49	-0.05	-----	-----	-----	-----	-----	-----
332	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
334	0.44	-1.33	-0.54	0.15	0.85	-0.40	-----	-----	-----	-----	-----	-----
335	0.74	-0.95	0.87	1.40	1.66	0.90	-----	-----	-----	-----	-----	-----
336	1.27	0.51	0.40	0.26	0.13	0.62	-----	-----	-----	-----	-----	-----
337	-0.31	-0.38	-0.82	-0.59	-0.78	0.03	-----	-----	-----	-----	-----	-----
338	1.02	0.82	0.97	0.55	0.56	1.02	-----	-----	-----	-----	-----	-----
340	0.78	-0.63	1.91	1.46	1.21	-0.72	-----	-----	-----	-----	-----	-----
344	-0.40	0.19	-0.73	-0.48	-0.09	-0.52	-----	-----	-----	-----	-----	-----
349	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
353	-2.22	-0.95	1.16	0.89	0.52	1.10	-----	-----	-----	-----	-----	-----
360	-0.49	-0.51	-0.07	-0.02	-0.39	-1.27	-----	-----	-----	-----	-----	-----
370	1.43	0.19	-2.90	0.49	0.43	-0.32	-----	-----	-----	-----	-----	-----
402	-0.03	1.71	2.01	1.17	-1.69	-0.32	-----	-----	-----	-----	-----	-----
430	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
433	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
445	0.37	0.32	0.78	0.83	0.91	-0.20	-----	-----	-----	-----	-----	-----
447	-0.18	0.63	0.21	0.32	0.36	0.19	-----	-----	-----	-----	-----	-----
463	-0.86	-1.45	-0.26	0.66	0.69	0.86	-----	-----	-----	-----	-----	-----
485	-0.82	-2.40	-1.58	-1.21	-0.91	-0.80	-----	-----	-----	-----	-----	-----
494	-0.62	0.51	-1.01	-1.33	-1.00	0.39	-----	-----	-----	-----	-----	-----
495	0.34	-1.33	-1.01	-1.39	-1.17	-0.09	-----	-----	-----	-----	-----	-----
496	0.56	0.51	0.31	-0.08	0.04	0.31	-----	-----	-----	-----	-----	-----
507	-----	-----	-----	-----	-----	-----	5.17	2.32	1.07	1.44	1.47	2.67
529	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----	-----	-2.08	-2.50	-0.56	-0.90	-1.65	-1.44
562	0.40	0.70	0.78	0.43	0.26	1.06	-----	-----	-----	-----	-----	-----
575	-----	-----	-----	-----	-----	-----	1.82	2.13	2.28	3.23	3.37	4.48
603	-----	-----	-----	-----	-----	-----	0.44	0.28	0.86	0.48	1.26	1.70
604	-0.71	-1.07	-0.07	0.43	0.59	0.03	-----	-----	-----	-----	-----	-----
607	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
621	-----	-----	-----	-----	-----	-----	-1.85	0.59	0.15	-1.93	-2.45	-2.48
631	-----	-----	-----	-----	-----	-----	3.65	0.28	1.22	0.48	0.07	0.65
657	-0.55	-0.06	-0.82	-1.27	-1.23	-0.17	-----	-----	-----	-----	-----	-----
663	0.93	0.89	-0.26	-0.65	-0.29	-0.48	-----	-----	-----	-----	-----	-----
671	-1.64	0.51	-2.71	-3.26	-1.69	-2.18	-----	-----	-----	-----	-----	-----
732	-----	-----	-----	-----	-----	-----	-0.25	-0.96	-0.56	-0.90	-0.59	0.30
750	0.13	-1.52	-1.11	-0.65	-0.19	-0.17	-----	-----	-----	-----	-----	-----
753	-----	-----	-----	-----	-----	-----	2.05	2.44	0.86	-0.55	-0.59	-0.74
759	-----	-----	-----	-----	-----	-----	-0.71	-0.03	0.86	0.14	-0.33	2.04
781	0.13	1.07	0.69	0.83	0.85	0.82	-----	-----	-----	-----	-----	-----
823	0.16	-3.16	-1.67	-1.27	-0.97	0.23	-----	-----	-----	-----	-----	-----

824	0.40	0.25	0.69	0.21	0.30	0.54	-----	-----	-----	-----	-----	-----
825	-1.05	0.19	-0.45	0.09	0.39	0.19	-----	-----	-----	-----	-----	-----
840	0.35	-0.04	0.08	0.11	0.33	0.30	-----	-----	-----	-----	-----	-----
862	-0.34	0.44	-0.07	-0.30	0.23	0.39	-----	-----	-----	-----	-----	-----
863	-----	-----	-----	-----	-----	-----	-0.02	-0.34	0.86	0.14	0.20	-0.05
873	-0.49	-1.52	-0.63	0.49	1.76	0.62	-----	-----	-----	-----	-----	-----
874	-----	-----	-----	-----	-----	-----	1.36	1.51	0.51	0.82	1.26	-0.74
887	-----	-----	-----	-----	-----	-----	0.44	-0.34	0.15	-0.21	-0.07	0.65
902	-----	-----	-----	-----	-----	-----	1.27	5.10	0.22	0.00	0.62	2.32
904	0.44	0.63	0.50	-0.13	0.00	0.50	-----	-----	-----	-----	-----	-----
922	-----	-----	-----	-----	-----	-----	-0.42	-2.07	-1.11	-0.68	-0.68	-0.12
951	-----	-----	-----	-----	-----	-----	1.35	3.31	0.69	0.91	0.51	0.00
962	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
963	-0.25	0.44	0.31	-0.76	-0.81	0.39	-----	-----	-----	-----	-----	-----
970	-----	-----	-----	-----	-----	-----	-2.31	-4.97	-1.27	-0.90	-1.65	-1.09
971	-----	-----	-----	-----	-----	-----	-1.85	-0.34	-1.27	-0.90	0.20	1.00
974	-----	-----	-----	-----	-----	-----	-1.16	-0.03	-0.92	-0.55	-1.12	0.65
994	-----	-----	-----	-----	-----	-----	1.36	-0.34	0.86	1.17	0.20	-0.39
995	-----	-----	-----	-----	-----	-----	-0.25	-1.26	-0.18	0.84	1.53	-0.74
996	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
997	-----	-----	-----	-----	-----	-----	-0.48	-0.96	0.15	1.17	2.31	-0.39
998	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1006	0.59	2.02	1.16	1.74	0.72	-0.01	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1026	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1033	0.84	-1.39	0.12	-0.42	-0.68	0.54	-----	-----	-----	-----	-----	-----
1038	-0.80	-0.69	-0.45	-0.25	-0.06	-3.87	-----	-----	-----	-----	-----	-----
1059	-0.59	0.44	-0.45	-0.87	-1.04	-2.69	-----	-----	-----	-----	-----	-----
1080	-0.31	-2.21	-1.11	0.21	0.43	-0.05	-----	-----	-----	-----	-----	-----
1081	-0.06	-0.06	0.40	0.04	0.10	-0.28	-----	-----	-----	-----	-----	-----
1082	-1.70	-0.19	-0.16	0.43	0.62	0.35	-----	-----	-----	-----	-----	-----
1095	0.00	1.96	1.63	0.61	0.33	0.78	-----	-----	-----	-----	-----	-----
1108	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1109	0.31	0.82	0.21	-0.76	-0.74	-0.20	-----	-----	-----	-----	-----	-----
1121	-----	-----	-----	-----	-----	-----	-0.93	-0.34	-0.56	1.17	1.79	-3.18
1126	0.65	0.82	-0.35	0.55	0.59	-----	-----	-----	-----	-----	-----	-----
1134	-2.07	0.19	1.35	1.91	2.73	0.62	-----	-----	-----	-----	-----	-----
1140	-0.99	-1.77	-1.77	-0.82	-0.22	-0.56	-----	-----	-----	-----	-----	-----
1146	0.59	-1.07	-0.92	-0.93	-0.91	0.27	-----	-----	-----	-----	-----	-----
1167	-0.55	-3.03	-1.95	-1.90	-1.75	-3.56	-----	-----	-----	-----	-----	-----
1182	1.30	1.39	1.53	1.86	1.53	0.47	-----	-----	-----	-----	-----	-----
1186	-----	-----	-----	-----	-----	-----	-4.05	-3.92	-1.13	-0.69	-0.17	1.21
1191	-0.12	-0.19	0.12	0.15	0.17	-----	-----	-----	-----	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1201	0.13	-0.51	-0.54	-0.36	-0.06	0.54	-----	-----	-----	-----	-----	-----
1227	0.56	-1.20	1.25	0.61	0.43	-0.20	-----	-----	-----	-----	-----	-----
1229	0.44	0.44	0.21	-0.08	-0.19	0.58	-----	-----	-----	-----	-----	-----
1238	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1284	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1297	0.71	0.57	0.59	0.72	0.56	0.50	-----	-----	-----	-----	-----	-----
1299	0.93	1.52	-0.82	-1.67	-1.20	-2.53	-----	-----	-----	-----	-----	-----
1340	0.84	0.57	0.03	-0.30	-0.48	0.19	-----	-----	-----	-----	-----	-----
1357	0.90	0.63	0.21	0.21	0.23	0.27	-----	-----	-----	-----	-----	-----
1395	0.99	0.25	0.03	0.21	-1.43	-4.62	-----	-----	-----	-----	-----	-----
1399	-1.42	-6.19	-4.59	-2.41	-2.21	-0.17	-----	-----	-----	-----	-----	-----
1417	0.50	1.39	1.44	1.23	1.40	0.27	-----	-----	-----	-----	-----	-----
1428	0.00	0.38	-0.07	-1.04	-0.58	0.19	-----	-----	-----	-----	-----	-----
1430	0.10	1.20	1.82	2.60	2.73	0.78	-----	-----	-----	-----	-----	-----
1431	0.90	1.01	0.21	-0.70	-0.71	1.10	-----	-----	-----	-----	-----	-----
1432	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1447	0.25	0.13	0.12	-0.08	0.00	-0.13	-----	-----	-----	-----	-----	-----
1457	1.18	1.77	0.69	0.04	-0.03	-0.36	-----	-----	-----	-----	-----	-----
1459	0.16	-0.19	0.21	-0.08	-0.06	0.35	-----	-----	-----	-----	-----	-----
1487	-----	-----	-----	-----	-----	-----	-0.48	-2.19	0.15	-2.96	-3.50	-3.18
1498	-1.17	0.63	1.25	2.03	2.18	0.11	-----	-----	-----	-----	-----	-----
1510	0.50	-0.95	-1.67	-0.65	-0.42	0.23	-----	-----	-----	-----	-----	-----
1557	-0.43	1.33	-1.58	-3.43	-3.15	-5.33	-----	-----	-----	-----	-----	-----
1564	-0.12	0.25	0.31	-0.59	-0.45	-1.35	-----	-----	-----	-----	-----	-----
1586	0.65	0.51	-0.16	-0.02	0.04	0.43	-----	-----	-----	-----	-----	-----
1613	1.27	0.70	0.12	0.15	0.00	0.62	-----	-----	-----	-----	-----	-----
1616	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1629	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1631	0.71	-0.19	0.87	0.78	0.65	1.10	-----	-----	-----	-----	-----	-----
1634	-0.34	-0.25	-0.54	-0.99	-0.78	0.58	-----	-----	-----	-----	-----	-----
1635	-----	-----	-----	-----	-----	-----	-0.02	-0.34	4.41	6.67	5.49	10.75
1650	-0.15	-1.39	-0.07	0.15	0.13	0.74	-----	-----	-----	-----	-----	-----
1654	-----	-----	-----	-----	-0.09	-----	-----	-----	-----	-----	-----	-----
1669	0.74	0.89	0.50	3.11	-0.61	-0.05	-----	-----	-----	-----	-----	-----
1709	0.28	-0.19	-0.16	0.32	0.46	-0.60	-----	-----	-----	-----	-----	-----
1710	-1.33	0.00	0.03	0.38	0.52	0.35	-----	-----	-----	-----	-----	-----

1720	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1724	-0.86	0.32	0.31	-0.08	0.26	0.07	-----	-----	-----	-----	-----	-----
1746	-----	-----	-----	-----	-----	-----	-0.48	1.82	0.15	0.14	0.46	1.70
1807	-0.21	-0.95	-1.48	-0.93	-0.68	0.47	-----	-----	-----	-----	-----	-----
1810	1.15	1.07	0.40	-0.82	-1.10	0.15	-----	-----	-----	-----	-----	-----
1811	0.10	-0.51	-0.45	-0.48	-0.42	0.07	-----	-----	-----	-----	-----	-----
1842	-----	-----	-----	-----	-----	-----	-0.15	1.08	-0.20	-0.96	-0.96	-0.19
1849	0.10	0.51	0.31	-0.30	-0.52	0.98	-----	-----	-----	-----	-----	-----
1857	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1862	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1906	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1914	-----	-----	-----	-----	-----	-----	0.67	-0.34	-0.56	-0.90	-1.39	-0.05
1915	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1936	-0.77	-1.45	-1.86	-1.78	-1.30	-0.91	-----	-----	-----	-----	-----	-----
1937	-1.20	-0.95	-0.87	-0.50	-0.35	0.39	-----	-----	-----	-----	-----	-----
1938	-0.93	-1.77	-1.86	-1.04	-0.58	-0.32	-----	-----	-----	-----	-----	-----
1948	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1950	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1951	-0.09	0.51	0.59	0.55	0.56	0.31	-----	-----	-----	-----	-----	-----
2129	-0.68	0.25	-0.54	-0.36	-0.13	-0.48	-----	-----	-----	-----	-----	-----
5019	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7006	0.47	-----	-----	-----	-----	2.75	-----	-----	-----	-----	-----	-----

APPENDIX 3

Participants per country

1 laboratory in AFGHANISTAN
1 laboratory in ARGENTINA
2 laboratories in AUSTRALIA
2 laboratories in AUSTRIA
1 laboratory in AZERBAIJAN
1 laboratory in BELARUS
2 laboratories in BELGIUM
1 laboratory in BOSNIA and HERZEGOVINA
1 laboratory in BULGARIA
4 laboratories in CANADA
2 laboratories in CHILE
2 laboratories in CHINA, People's Republic
1 laboratory in COLOMBIA
1 laboratory in CONGO
1 laboratory in COTE D'IVOIRE
1 laboratory in CROATIA
2 laboratories in CZECH REPUBLIC
1 laboratory in DJIBOUTI
1 laboratory in EQUATORIAL GUINEA
3 laboratories in FINLAND
8 laboratories in FRANCE
2 laboratories in GEORGIA
3 laboratories in GERMANY
6 laboratories in GREECE
1 laboratory in GUAM
1 laboratory in GUINEA REPUBLIC
2 laboratories in HONG KONG
2 laboratories in HUNGARY
1 laboratory in INDONESIA
1 laboratory in IRAN, Islamic Republic of
1 laboratory in IRELAND
1 laboratory in ISRAEL
1 laboratory in JORDAN
1 laboratory in KAZAKHSTAN
2 laboratories in KENYA
1 laboratory in LATVIA
1 laboratory in LITHUANIA
1 laboratory in MACEDONIA
3 laboratories in MALAYSIA
1 laboratory in MALTA
1 laboratory in MAURITIUS
1 laboratory in MEXICO
1 laboratory in MOROCCO
1 laboratory in MOZAMBIQUE
1 laboratory in MYANMAR
8 laboratories in NETHERLANDS
1 laboratory in NIGER
1 laboratory in NIGERIA
2 laboratories in OMAN
1 laboratory in PAKISTAN
1 laboratory in PANAMA
1 laboratory in PHILIPPINES
1 laboratory in POLAND
2 laboratories in PORTUGAL
2 laboratories in QATAR
1 laboratory in ROMANIA
10 laboratories in RUSSIAN FEDERATION
3 laboratories in SAUDI ARABIA
1 laboratory in SENEGAL
1 laboratory in SERBIA
1 laboratory in SINGAPORE
1 laboratory in SLOVENIA
2 laboratories in SOUTH AFRICA
4 laboratories in SOUTH KOREA
8 laboratories in SPAIN
1 laboratory in SUDAN
2 laboratories in SWEDEN
3 laboratories in TAIWAN
1 laboratory in TANZANIA
1 laboratory in THAILAND
1 laboratory in TOGO
1 laboratory in TUNISIA
12 laboratories in TURKEY
1 laboratory in TURKMENISTAN
2 laboratories in UNITED ARAB EMIRATES
11 laboratories in UNITED KINGDOM
12 laboratories in UNITED STATES OF AMERICA
1 laboratory in VIETNAM

APPENDIX 4

Abbreviations:

C,x	= final result after checking of first reported suspect result, originally reported 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
ex	= excluded from calculations
E	= probably error in calculations
U,x	= probably reported in a different unit, originally reported result x
n.a.	= not applicable
W	= withdrawn on request of the participant

Literature:

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010

2 ASTM E178-02

3 ASTM E1301-03

4 ISO 5725-86

5 ISO 5725, parts 1-6, 1994

6 ISO 13528-05

7 M. Thompson and R. Wood, J. AOAC,Int, 76, 926, (1993)

8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)

9 IP 367/84

10 DIN 38402 T41/42

11 P.L. Davies, C,Z. Anal. Chem, 331, 513, (1988)

12 J.N. Miller, Analyst, 118, 455, (1993)

13 Analytical Methods Committee Technical Brief, No4 January 2001

14 The Royal Society of Chemistry 2002, Analyst 2002, 127 page1359-1364, P.J. Lowthian and M. Thompson (see http://www.rsc.org/suppdata/an/b2/b205600n/).

15 Influence of silica gel humidity on the determination of hydrocarbon types in gasoline by ASTM D1319, Accreditation Quality Assurrance (2006), H.Verplaetse and M. Lacourt.