Results of Proficiency Test
Gasoil (ASTM Spec)
October 2011

Organised by: Institute for Interlaboratory Studies
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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 2011-2012, 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 total in this interlaboratory study, 172 laboratories from 72 different countries have participated. See appendix 3 for the number of participants per country. In this report the results of the Gasoil 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 2011/2012 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 identical low sulphur gasoil samples for the regular round robin (1*1 L glass bottle and 1*0.5 L glass botlle, both labelled #11074), for the Cetane Number round robin (4*1L glass bottle, all labelled #11075) and for the Total Contamination round robin (1*1L, 85% filled glass bottle, labelled #11077). For the Oxidation stability round robin (1*0.5L glass bottle labelled #11078) it was decided to send a special gasoil, free of inhibitor, which was enriched with “cracked” Gasoil to obtain a positive sample on Oxidation Stability.
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 guide 43 and ILAC-G13:2007, (R007), 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 present 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. 270 litre was homogenized and subsequently divided over 180 amber glass bottles of 1L and 180 amber glass bottles of 0.5L, with inner and outer caps and were labelled #11074. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:09 on 14 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3		Density @ 15 °C in kg/m^3
sample #11076-1	831.25	sample #11076-8	831.25
sample #11076-2	831.25	sample #11076-9	831.25
sample #11076-3	831.26	sample #11076-10	831.24
sample #11074-4	831.25	sample #11074-11	831.26
sample #11074-5	831.26	sample #11074-12	831.25
sample #11074-6	831.26	sample #11074-13	831.25
sample #11074-7	831.27	sample #11074-14	831.31

table 1: homogeneity test results of subsamples #11074

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 #11074)	0.05
reference test	ASTM D4052:09
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples #11074

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #11074 was assumed.

2.4.2 Gasoil for Cetane Number

From the 600 litre low sulphur Gasoil (automotive diesel), which was purchased from the local market, approx. 250 litre was homogenized and subsequently divided over 250 amber glass bottles of 1L, with inner and outer caps and labelled #11075. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:09 on 8 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #11075-1	831.94
sample #11075-2	831.93
sample #11075-3	831.93
sample #11075-4	831.92
sample #11075-5	831.90
sample #11075-6	831.93
sample #11075-7	831.94
sample #11075-8	831.92

table 3: homogeneity test results of subsamples #11075

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 #11075)	0.04
reference test	ASTM D4052:09
0.3*R (reference test)	0.15

Table 4: precision data of the subsamples #11075

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #11075 was assumed.

2.4.3 Total contamination

From the 600 litre low sulphur Gasoil (automotive diesel), which was purchased from the local market, the remaining approx. 80 litre was homogenized and divided over 72 amber glass bottles of 1L with inner and outer caps and labelled #11076.
For the Total Contamination determination, each of the 72 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, 45 liter of a red dyed Gasoil free from inhibitor, purchased from the local market, was enriched with 15 liter of a “cracked gasoil”, donated by a local refinery, to obtain a Gasoil positive on “oxidation stability”. After homogenisation, the 60 liter was subsequently divided over 100 amber glass bottles of 0.5L, with inner and outer caps and labelled #11077. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:09 on 5 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #11077-1	839.60
sample #11077-2	839.59
sample #11077-3	839.58
sample #11077-4	839.58
sample #11077-5	839.59

Table 5: homogeneity test results of subsamples #11077

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 #11077)	0.02
reference test	ASTM D4052:09
0.3*R (reference test)	0.15

Table 6: precision data of the subsamples #11077

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #11077 was assumed.

Depending on the registration of the participant: one bottle of 1L and one bottle of 0.5L, labelled #11074, four bottles of 1L #11075, one bottle of 1L #11076 and/or 1 bottle of 0.5L labelled #11077 were sent to the participating laboratories on September 14, 2011.

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.
The stability of the red-dyed Gasoil enriched with the ‘cracked” gasoil is still being determined.

2.6 ANALYSIS

The participants were asked to determine on the samples #11074: 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 #11075: Cetane number was requested to be determined, on sample #11076 only Total Contamination was requested to be determined and on sample #11077 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, was sent together with each set of samples. In addition, a letter of instructions and a SDS were added to the 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; nr.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 Australia, Azerbaijan, Brazil, Georgia, Kazakhstan, Malaysia, Mexico, Myanmar, Qatar, Russia, Saudi Arabia, Senegal, Sudan, Tunesia, Turkmenistan and Uzbekistan.
For the regular Gasoil PT: Thirty-nine participants reported the test results after the final reporting date and eight participants did not report any test results at all.

For the Cetane Number PT: eleven participants reported the test results after the final reporting date and ten participants did not report any test results at all.
For the Total Contamination PT: fourteen participants reported the test results after the final reporting date and four participants did not report any test results at all.
For the Oxidation Stability PT: eleven participants reported the test results after the final reporting date and six participants did not report any test results at all.
Finally, 163 participants reported in total 2882 numerical results. Observed were 84 outlying results, which is 2.9%. 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, Cetane Index (D976 and D4737), Cloud Point, CFPP, Colour, Density, Distillation (10% recovered-A, FBP-A, volume at 250ºC-A, volume at 350ºC-A, 50% recovered-M, volume at 350ºC-M), FAME, Flash Point, Kinematic Viscosity, Lubricity, Pour Point, Sulphur, Water and Oxidation Stability. 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. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D974:11.

Ash: Four statistical outliers were 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 D482:07.

Aromatics (FIA): This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the requirements of ASTM D1319:10. One should be aware that this Gasoil does not meet the scope of ASTM D1319 (petroleum fractions should be distilling below 315ºC)

C.I. D976: Regretfully, no reproducibility limits are mentioned in ASTM D976:11. The calculated reproducibility is somewhat smaller in comparison with the findings of the previous i.i.s. proficiency test (see also iis10G04). Four participants probably made calculation errors.

C.I. D4737: This determination is very problematic. The data appeared to have a non-gaussian distribution. In this case, it appeared that not all participants used the same calculation method. Seventy participants reported results according procedure A of ISO4264:95/IP380:98/ASTM D4737 and forteen participants reported results according ASTM D4737 procedure B.

Upto 2003 ISO4264 and ASTM D4737 were similar 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 D975:10b. 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. Ten participants probably made a calculation error.

Cloud 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 D2500:11.

CFPP: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of IP309:99/EN116.

Colour ASTM: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D1500:07.

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 D4052:09.

Distillation: The automated method was not problematic. In total twenty-one statistical outliers were observed. All calculated reproducibilities were, after rejection of the statistical outliers, in agreement with the requirements of ASTM D86:11a. The manual method was problematic. In total five statistical outliers were observed. However, the calculated reproducibilities, except for ibp, 50% recovered and volume at 350ºC, were, after rejection of the statistical outliers, not in agreement with the requirements of ASTM D86:11a.

FAME: The application range of ASTM D7371 is between 1 and 20%V/V FAME. The consensus value found, is far below the application range of the reference test method and therefore no significant conclusions were drawn.

Flash Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D93:11 (procedure A).

Kin. visc. 40°C: This determination was problematic. Eight statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D445:11a.

Lubricity: This determination was very problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with ASTM D6079:11. Note that $R_{(2011)} << R_{(2004e1)}$. When the D6079 and ISO12156 test results were evaluated separately, no significant differences were observed.

Nitrogen: This determination was very problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not at all in agreement with ASTM D4629:10. The large spread may be explained by the use of an incorrect prepared calibration curve (mg/kg instead of mg/l) or by erratic conversion from mg/kg to mg/l or by reporting the test result in mg/kg in stead of mg/l as requested.

Pour Point: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D97:11.

Ramsbottom CR: From the 53 reporting laboratories, 30 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 21 Ramsbottom CR test results were evaluated separately, no statistical outliers were observed. The calculated reproducibility is not at all in agreement with the requirements of ASTM D524:10.

Sulphur: This determination was problematic for a number of laboratories at the level of 9.2 mg/kg. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5453:09. When the ASTM D5453 results are evaluated separately, the spread is somewhat smaller.

Water: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the ASTM D6304:07, although several different methods were used. A number of laboratories used ASTM D95, which is not applicable for low water concentrations.

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

Water&Sediment (D1796): All 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 D613:10a. The participants were requested to report if the sample

was filtered before use. Only two participants reported to have filtered the sample before use. No significant difference was observed.

DCN - D6890: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibilities are both not in agreement with the ASTM D6890:11.

DCN - D7170: Only three laboratories reported results. Therefore no significant conclusions were drawn.

Total Contamination: This determination was very problematic at the level of 13.6 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 = 10.4 mg/kg). The laboratories should be able to find at least 6.8 mg/kg [10.4 $mg/kg_{(added\ amount)}$ – 3.6 $mg/kg_{(R\ D6217)}$]. Two laboratories reported lower amounts than 6.8 mg/kg and were rejected prior to data analysis. After excluding of the two laboratories, three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM D6217:08. When the ASTM D6217 results were evaluate separately, the calculated reproducibility is smaller, but still not at all in agreement with the requirements of the standard. 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.

Oxidation Stability: This determination was problematic at the level of 0.48 mg/100mL. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D2274:10.

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	63	0.015	0.024	0.040
Ash content	%M/M	52	0.0008	0.0015	(0.0050)
Aromatics by FIA	%M/M	38	22.93	5.90	3.70
Cetane Index ASTM D976		82	54.053	0.660	unknown
Cetane Index ASTM D4737		105	54.363	2.213	unknown
Cloud Point	°C	113	-9.11	2.90	4.00
Cold Filter Plugging Point	°C	89	-27.92	6.48	5.45
Colour ASTM		73	0.52	0.20	1.00
Copper Corrosion 3hrs@50ºC		121	1A	unknown	unknown
Density @ 15 °C	kg/m^3	138	831.29	0.31	0.50
IBP (automated)	°C	96	174.88	7.13	9.62
10% recovery (automated)	°C	99	213.62	4.77	4.70
50% recovery (automated)	°C	99	269.51	2.37	2.97
90% recovery (automated)	°C	101	324.34	4.83	4.86
95% recovery (automated)	°C	100	341.38	7.83	8.52
FBP (automated)	°C	99	352.19	5.83	7.10
Volume at 250ºC (automated)	%V/V	92	32.69	2.04	2.66
Volume at 350ºC (automated)	%V/V	79	96.73	1.78	2.66
IBP (manual)	°C	30	173.46	6.65	6.35
10% recovery (manual)	°C	31	211.64	6.46	4.33
50% recovery (manual)	°C	31	268.52	3.00	3.67
90% recovery (manual)	°C	31	324.25	5.06	3.97
90% recovery (manual)	°C	28	341.88	8.84	5.54
FBP (manual)	°C	31	352.35	6.02	3.98
Volume at 250ºC (manual)	%V/V	28	34.09	3.31	2.75
Volume at 350ºC (manual)	%V/V	26	96.61	1.69	2.13
FAME	%V/V	25	0.048	0.114	(0.713)
Flash Point PMcc	°C	140	65.27	4.10	4.63
Kinematic Viscosity @ 40 °C	mm^2/s	120	2.6997	0.0377	0.0303
Lubricity by HFRR	µm	67	326.9	134.0	80.0
Nitrogen	mg/kg	38	54.26	13.31	6.33
Pour Point	ºC	91	-28.80	5.54	6.60
Ramsbottom Carbon Residue	%M/M	21	0.064	0.083	0.030
Total Sulphur	mg/kg	100	9.16	2.94	3.05
Water	mg/kg	102	41.3	37.0	157.4
Water and Sediment (D2709)	%V/V	25	<0.05	unknown	unknown
Water and Sediment (D1796)	%V/V	18	<0.1	unknown	unknown

table 7: summary of tests results of Gasoil #11074

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

Cetane Number		29	55.8	4.5	4.8
DCN (ASTM D6890)		9	58.1	4.5	2.9
Ignition delay (ASTM D6890)	sec	9	3.49	0.30	0.19
DCN (ASTM D7170)		3	59.0	n.a.	n.a.

table 8: summary of tests results of Gasoil #11075

Total Contamination	mg/kg	44	13.6	7.6	4.2

table 9: summary of tests results of Gasoil #11076

Oxidation Stability	mg/100mL	33	0.48	1.22	0.88

table 10: summary of tests results of Gasoil #11077

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 OCTOBER 2011 WITH PREVIOUS PTS.

	October 2011	*October 2010*	*February 2010*	*October 2009*
Number of reporting labs	163	167	72	178
Number of results reported	2882	2926	1322	4104
Statistical outliers	84	88	58	78
Percentage outliers	2.9%	3.0%	4.4%	1.9%

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:

	*October 2011**	*October 2010**	*February 2010*	*October 2009*
Acid Number (Total)	++	++	++	++
Ash content	(++)	(++)	(++)	(++)
Aromatics (FIA)	--	--	n.e.	n.e.
Cloud Point	++	++	++	++
Cold Filter Plugging Point	--	-	++	-
Colour ASTM	++	++	++	++
Density @ 15 °C	++	++	++	--
Distillation – automated mode	++	+/-	++	++
Distillation – manual mode	--	--	+	--
FAME	(++)	++	++	++
Flash Point PMcc	++	+/-	++	++
Kinematic Viscosity @ 40 °C	--	-	--	--
Lubricity by HFRR	--	++	+	++
Nitrogen content	--	--	--	--
Pour Point	++	+/-	++	++
Ramsbottom Carbon Residue	--	--	n.e.	n.e.
Sulphur	+	--	++	+/-
Water content	++	++	++	++
Cetane Number	+	+	n.e.	+/-
DCN (ASTM D6890)	--	++	n.e.	++
Ignition Delay (D6890)	--	++	n.e.	--
Total Contamination	--	--	--	--
Oxidation Stability	--	--	n.e.	n.e.

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

*) Evaluated against ASTM D975 specification

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 similars 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 #11074; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D664	0.0264		0.81
52	D664	0.02		0.36	887		-----		-----
62	D974	0.0059		-0.63	904	D664	0.013		-0.13
92		-----		-----	922	D664	0.020		0.36
120	D664	0.017		0.15	951		-----		-----
132	D664	0.02		0.36	962	D664	0.009		-0.41
140		-----		-----	963	D974	0.0113		-0.25
150	D974	0.008		-0.48	971	D974	0.01170		-0.22
158		-----		-----	994		-----		-----
159	D664	0.011		-0.27	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D664	0.008		-0.48	998		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1011	D664	<0.01		-----
217		-----		-----	1017		-----		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038		-----		-----
225		-----		-----	1059	ISO6619	<0.05		-----
228		-----		-----	1065	D664	0.00417		-0.75
230	D664	0.0066		-0.58	1067	D974	0.0044		-0.73
240		-----		-----	1080	D664	0.01		-0.34
252	D974	0.0185		0.26	1081	D664	0.03		1.06
253		-----		-----	1108		-----		-----
254	D974	0.019		0.29	1109	D974	0.013		-0.13
256		-----		-----	1124		-----		-----
258		-----		-----	1126		-----		-----
273	D974	0.0065		-0.58	1134	D664	0.03		1.06
311	D664	<0.05		-----	1140	D974	0.01		-0.34
312	D974	0.006		-0.62	1146	D664	0.007		-0.55
317		-----		-----	1161	D664	0.019		0.29
323		-----		-----	1167		-----		-----
334		-----		-----	1171		-----		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D664	0.030		1.06
338		-----		-----	1227	D664	0	ex	-1.04
340	D664	0.008	C	-0.48	1259	D664	0.0099		-0.35
344		-----		-----	1284	D664	0.0231		0.58
353	IP177	0.059	G(0.01)	3.09	1297		-----		-----
370		-----		-----	1299	D664	<0.01		-----
372	D664	<0.1		-----	1340		-----		-----
430		-----		-----	1395	D664	0.0051		-0.68
431		-----		-----	1399	D664	0.0694	G(0.01)	3.82
445	D664	0.088	G(0.01)	5.12	1409	D664	<0.01		-----
447	D664	<0.05		-----	1419		-----		-----
463	ISO6618	0.0047		-0.71	1427	D664	<0.1		-----
485		-----		-----	1428	D664	0.012		-0.20
495	D664	0.027		0.85	1430	D664	0.01		-0.34
496	D664	0.01		-0.34	1431	D664	0.01		-0.34
507	D974	0.013		-0.13	1433		-----		-----
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541	D664	<0.1		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D974	0.0265		0.82	1510	D664	0.01		-0.34
575		-----		-----	1616	D974	0.007		-0.55
592		-----		-----	1621	D664	0.02		0.36
603	D664	0.0262		0.80	1629		-----		-----
604		-----		-----	1631		-----		-----
608	D664	0.013		-0.13	1634		-----		-----
631	D974	0.0103		-0.32	1636		-----		-----
657	D664	0.04		1.76	1643	D664	0.017		0.15
663	D664	0.014		-0.06	1654		-----		-----
671	D974	0.00701		-0.55	1709	D664	0.050	G(0.01)	2.46
732		-----		-----	1710	D664	0.0135		-0.09
759		-----		-----	1720	D974	0.01		-0.34
781	D664	0.032		1.20	1724		-----		-----
823	D664	0.027		0.85	1807	D664	0.13	G(0.01)	8.06
824		-----		-----	1810		-----		-----
825	D664	0.0131		-0.12	1811		-----		-----
840	D664	0.021		0.43	1833	D664	0.17	G(0.01)	10.86
862	D664	0.0095		-0.37	1849		-----		-----
863	D664	0.012		-0.20	1857	D664	0.020		0.36
873	D664	0.03		1.06	1862	D664	0.008		-0.48
874		-----		-----	1906		-----		-----

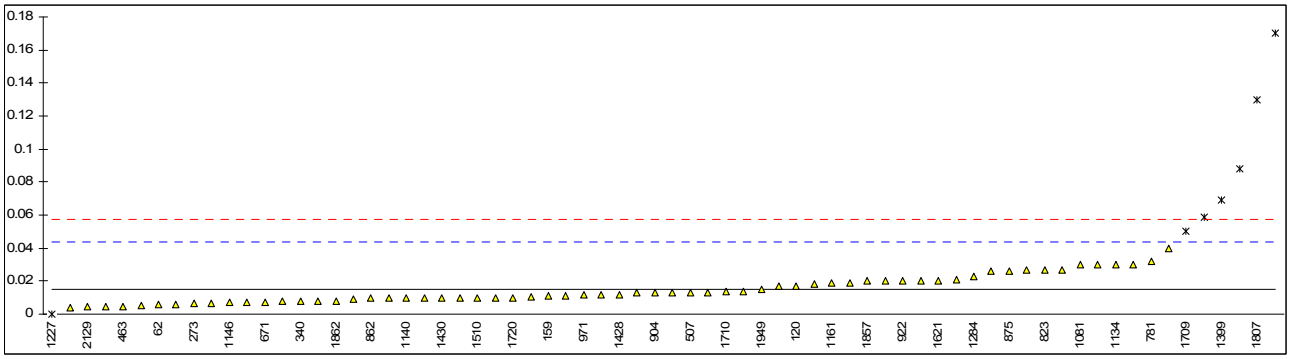
1915		-----	-----
1938		-----	-----
1948		-----	-----
1949	D664	0.015	0.01
2129	D664	0.0043	-0.74

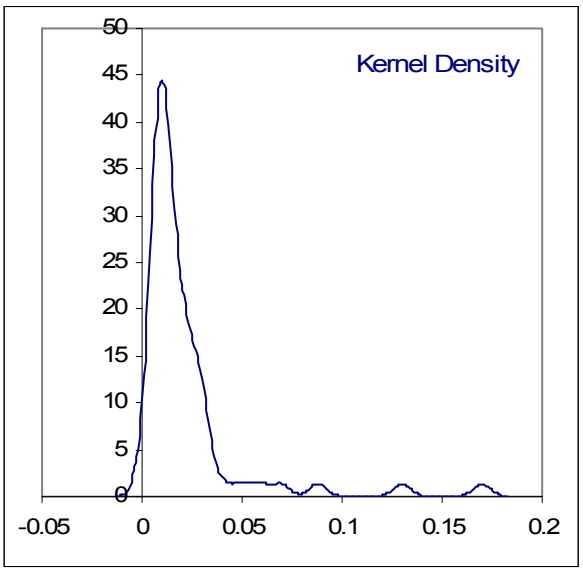
		Only ASTM D974	Only ASTM D664 *)
	normality	not OK	OK	not OK
	n	63	18	45
	outliers	6	0	6
	mean (n)	0.0148	0.0107	0.0165
	st.dev. (n)	0.00841	0.00577	0.00877
	R(calc.)	0.0235	0.0161	0.0246
	R(D974:11)	0.0400	0.0400	(0.1433)

*) Application range presicion data for ASTM D664 is between 0.1 and 150 mgKOH/g

Corrections

Lab 340 first reported 0.08
Lab 1227 result excluded as zero is not a real result





Determination of Ash on sample #11074; result in %M/M

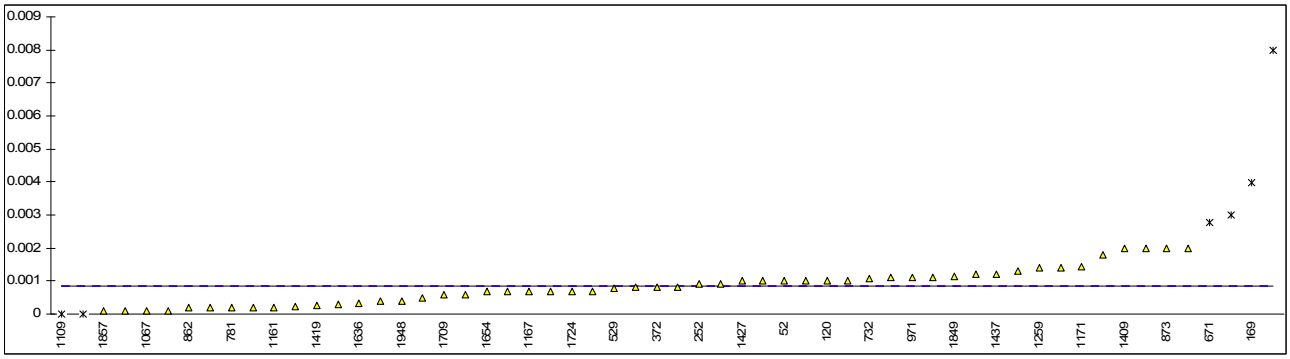
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D482	0.0004		-----
52	D482	0.001	C	-----	887		-----		-----
62	D482	<0.001		-----	904	D482	<0.001		-----
92	D482	<0.001		-----	922	D482	0.0011		-----
120	D482	0.001		-----	951	D482	0.0012		-----
132	D482	<0.001		-----	962	D482	0.0007		-----
140	D482	<0.001		-----	963	D482	0.0003		-----
150	D482	<0.001		-----	971	D482	0.0011		-----
158	D482	0.003	G(0.05)	-----	994		-----		-----
159		-----		-----	995		-----		-----
169	D482	0.00399	G(0.01)	-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D482	<0.001		-----	998		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1011	D482	<0.001		-----
217		-----		-----	1017		-----		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038	D482	<0.001		-----
225	D482	<0.01		-----	1059	ISO6245	0.002	C	-----
228		-----		-----	1065		-----		-----
230		-----		-----	1067	D482	0.0001		-----
240		-----		-----	1080		-----		-----
252	D482	0.0009		-----	1081	D482	0.001		-----
253		-----		-----	1108		-----		-----
254	D482	<0.001		-----	1109	D482	0.0000	ex	-----
256		-----		-----	1124	ISO6245	<0.001		-----
258		-----		-----	1126		-----		-----
273	D482	<0.01		-----	1134	D482	<0.001		-----
311	D482	<0.001		-----	1140	D482	<0.001		-----
312		-----		-----	1146	D482	0.0008		-----
317		-----		-----	1161	ISO6245	0.0002		-----
323		-----		-----	1167	ISO6245	0.0007		-----
334		-----		-----	1171	ISO6245	0.00143		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D482	<0.001		-----
338		-----		-----	1227		-----		-----
340	D482	0.0011		-----	1259	D482	0.0014		-----
344	D482	0.00092		-----	1284	D482	0.00129		-----
353	IP4	<0.001		-----	1297		-----		-----
370	D482	<0.001		-----	1299	D482	<0.001		-----
372	D482	0.0008		-----	1340	ISO6245	0.00022		-----
430		-----		-----	1395	D482	<0.001		-----
431		-----		-----	1399		-----		-----
445	D482	<0.001		-----	1409	D482	0.002		-----
447	D482	0.002		-----	1419	EN6245	0.00027		-----
463	D482	<0.001		-----	1427	D482	0.0010		-----
485		-----		-----	1428	ISO6245	<0.001		-----
495	D482	<0.001		-----	1430	D482	0.0014		-----
496	D482	<0.001		-----	1431		-----		-----
507	D482	<0.001		-----	1433		-----		-----
511		-----		-----	1437	D482	0.0012		-----
529	D482	0.00079		-----	1451		-----		-----
541	D482	<0.001		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D482	0.001		-----	1510	D482	<0.001		-----
575		-----		-----	1616	D482	0.008	G(0.01)	-----
592		-----		-----	1621	D482	0.0010		-----
603	D482	<0.001		-----	1629		-----		-----
604		-----		-----	1631	D664	<0.001		-----
608		-----		-----	1634		-----		-----
631	D482	0.0007		-----	1636	D482	0.00034		-----
657	D482	0.0008		-----	1643	D482	0.0018		-----
663	D482	<0.001		-----	1654	ISO6245	0.000696	C	-----
671	D482	0.00277	G(0.05)	-----	1709	D482	0.0006		-----
732	D482	0.00107		-----	1710	D482	0.0005		-----
759		-----		-----	1720		-----		-----
781	D482	0.0002		-----	1724	D482	0.0007		-----
823	D482	0.0007		-----	1807	D482	0.000	ex	-----
824		-----		-----	1810		-----		-----
825		-----		-----	1811		-----		-----
840	D482	0.0001		-----	1833	D482	0.0006		-----
862	D482	0.0002		-----	1849	ISO6245	0.001136		-----
863	D482	<0.001		-----	1857	D482	0.0001		-----
873	D482	0.002		-----	1862	D482	0.0002		-----
874		-----		-----	1906		-----		-----

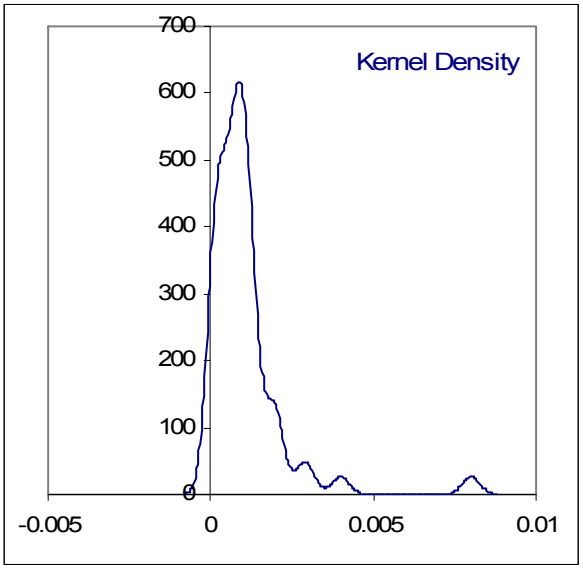
1915		-----	-----
1938		-----	-----
1948	D482	0.0004	-----
1949	D482	0.0001	-----
2129	D482	0.0002	-----

normality	OK
n	52
outliers	4
mean (n)	0.00084
st.dev. (n)	0.000533
R(calc.)	0.00149
R(D482:07)	(0.00500)

Corrections

Lab 52 first reported 0.01
Lab 1059 first reported 0.02
Lab 1654 first reported 0.0049
Lab 1103 result excluded as zero is not a real result
Lab 1807 result excluded as zero is not a real result



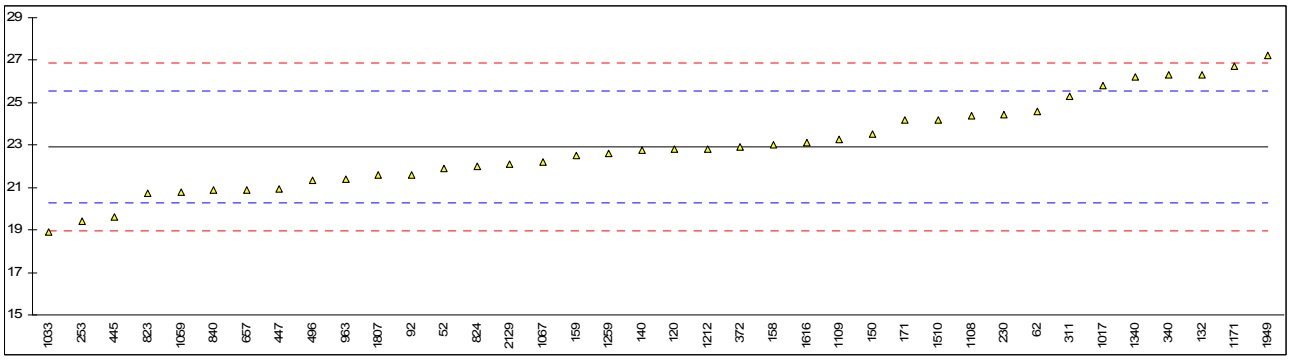


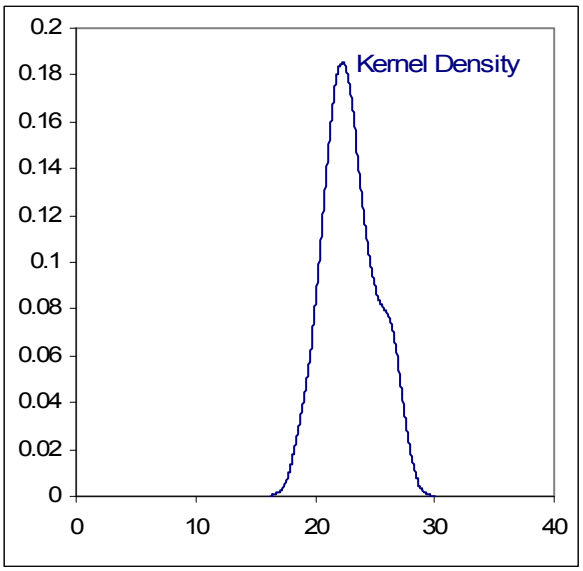
Determination of Aromatics by FIA on sample #11074; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52	D1319	21.9		-0.78	887		-----		-----
62	D1319	24.6		1.27	904		-----		-----
92	D1319	21.6		-1.01	922		-----		-----
120	D1319	22.81		-0.09	951		-----		-----
132	D1319	26.33		2.57	962		-----		-----
140	D1319	22.74		-0.14	963	D1319	21.39		-1.16
150	D1319	23.5		0.43	971		-----		-----
158	D1319	23.0		0.05	994		-----		-----
159	D1319	22.5		-0.32	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D1319	24.1914		0.96	998		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1011		-----		-----
217		-----		-----	1017	D1319	25.8		2.17
221		-----		-----	1033	D1319	18.9		-3.05
224		-----		-----	1038		-----		-----
225		-----		-----	1059	D1319	20.8		-1.61
228		-----		-----	1065		-----		-----
230	D1319	24.41		1.12	1067	D1319	22.2		-0.55
240		-----		-----	1080		-----		-----
252		-----		-----	1081		-----		-----
253	D1319	19.40		-2.67	1108	EN12916	24.4		1.11
254		-----		-----	1109	D1319	23.28		0.27
256		-----		-----	1124		-----		-----
258		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
311	IP501	25.3		1.79	1140		-----		-----
312		-----		-----	1146		-----		-----
317		-----		-----	1161		-----		-----
323		-----		-----	1167		-----		-----
334		-----		-----	1171	D1319	26.70		2.85
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D1319	22.83		-0.07
338		-----		-----	1227		-----		-----
340	D1319	26.33		2.57	1259	D1319	22.61		-0.24
344		-----		-----	1284		-----		-----
353		-----		-----	1297		-----		-----
370		-----		-----	1299		-----		-----
372	D1319	22.9		-0.02	1340	D1319	26.2		2.48
430		-----		-----	1395		-----		-----
431		-----		-----	1399		-----		-----
445	D1319	19.6		-2.52	1409		-----		-----
447	D1319	20.96		-1.49	1419		-----		-----
463		-----		-----	1427		-----		-----
485		-----		-----	1428		-----		-----
495		-----		-----	1430		-----		-----
496	D1319	21.35		-1.19	1431		-----		-----
507		-----		-----	1433		-----		-----
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541		-----		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562		-----		-----	1510	D1319	24.2		0.96
575		-----		-----	1616	D1319	23.1		0.13
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631		-----		-----
608		-----		-----	1634		-----		-----
631		-----		-----	1636		-----		-----
657	D1319	20.9		-1.53	1643		-----		-----
663		-----		-----	1654		-----		-----
671		-----		-----	1709		-----		-----
732		-----		-----	1710		-----		-----
759		-----		-----	1720		-----		-----
781		-----		-----	1724		-----		-----
823	D1319	20.75		-1.65	1807	D1319	21.6		-1.01
824	D1319	22.0		-0.70	1810		-----		-----
825		-----		-----	1811		-----		-----
840	D1319	20.89		-1.54	1833		-----		-----
862		-----		-----	1849		-----		-----
863		-----		-----	1857		-----		-----
873		-----		-----	1862		-----		-----
874		-----		-----	1906		-----		-----

1915		-----	-----
1938		-----	-----
1948		-----	-----
1949	D1319	27.2	3.23
2129	D1319	22.1	-0.63

normality	OK
n	38
outliers	0
mean (n)	22.928
st.dev. (n)	2.1059
R(calc.)	5.896
R(D1319:10)	3.700





Determination of Calculated Cetane Index ASTM D976 on sample #11074

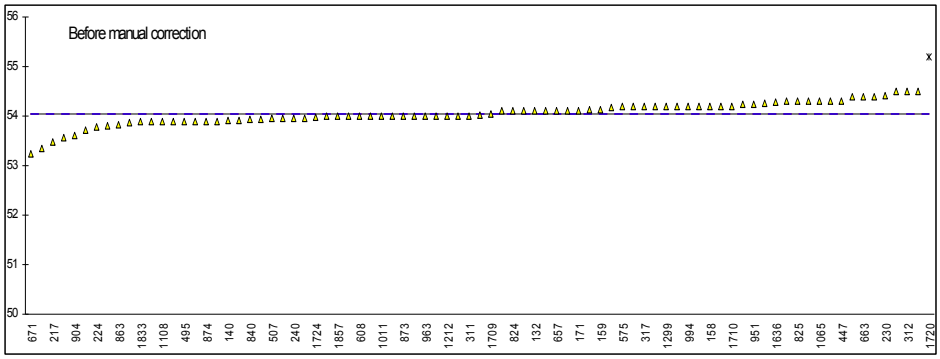
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52	D976	54.3		-----	887		-----		-----
62	D976	54.27		-----	904	D976	53.6	E	-----
92	D976	54.12		-----	922	D976	53.9		-----
120	D976	54.0		-----	951	D976	54.243		-----
132	D976	54.1		-----	962		-----		-----
140	D976	53.91		-----	963	D976	54.0		-----
150	D976	54.0		-----	971	D976	53.80		-----
158	D976	54.2		-----	994	D976	54.2		-----
159	D976	54.14		-----	995		-----		-----
169		-----		-----	996	D976	54.027		-----
170		-----		-----	997		-----		-----
171	D976	54.11		-----	998		-----		-----
175	D976	54.5		-----	1006	D976	54.1		-----
193	D976	53.94		-----	1011	D976	54.0		-----
217	D976	53.48		-----	1017	D976	53.87784		-----
221		-----		-----	1033		-----		-----
224	D976	53.79		-----	1038		-----		-----
225	D976	53.96		-----	1059		-----		-----
228	D976	54.0		-----	1065	D976	54.3		-----
230	D976	54.42		-----	1067	D976	54.5		-----
240	D976	53.96		-----	1080		-----		-----
252		-----		-----	1081		-----		-----
253	D976	54.0		-----	1108	D976	53.9		-----
254		-----		-----	1109		-----		-----
256		-----		-----	1124		-----		-----
258		-----		-----	1126	D976	54.0		-----
273		-----		-----	1134		-----		-----
311	D976	54.0		-----	1140		-----		-----
312	D976	54.5		-----	1146		-----		-----
317	D976	54.2		-----	1161		-----		-----
323	D976	54.1		-----	1167		-----		-----
334	D976	54.3		-----	1171		-----		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D976	54.00		-----
338		-----		-----	1227		-----		-----
340		-----		-----	1259		-----		-----
344		-----		-----	1284	D976	54.24		-----
353		-----		-----	1297		-----		-----
370	D976	53.92		-----	1299	D976	54.2		-----
372	D976	54.0		-----	1340		-----		-----
430		-----		-----	1395		-----		-----
431		-----		-----	1399		-----		-----
445	D976	54.2		-----	1409		-----		-----
447	D976	54.3		-----	1419		-----		-----
463	D976	54.4		-----	1427		-----		-----
485		-----		-----	1428		-----		-----
495	D976	53.9		-----	1430		-----		-----
496		-----		-----	1431		-----		-----
507	D976	53.95		-----	1433		-----		-----
511	D976	53.89		-----	1437	D976	54.4		-----
529		-----		-----	1451		-----		-----
541	D976	53.9		-----	1454	D976	53.345		-----
557		-----		-----	1459		-----		-----
562	D976	54.1		-----	1510		-----		-----
575	D976	54.2		-----	1616		-----		-----
592		-----		-----	1621	D976	54.2		-----
603	D976	53.57		-----	1629		-----		-----
604	D976	53.96		-----	1631		-----		-----
608	D976	54.00	E	-----	1634		-----		-----
631	D976	53.71		-----	1636	D976	54.29		-----
657	D976	54.1		-----	1643		-----		-----
663	D976	54.4		-----	1654		-----		-----
671	D976	53.25		-----	1709	D976	54.04		-----
732		-----		-----	1710	D976	54.2		-----
759		-----		-----	1720	D976	55.2	G(0.01), E	-----
781	D976	54.2		-----	1724	D976	53.9743		-----
823	D976	53.9		-----	1807	D976	54.0		-----
824	D976	54.1		-----	1810		-----		-----
825	D976	54.3		-----	1811	D976	54.3	E	-----
840	D976	53.94		-----	1833	D976	53.89		-----
862	D976	54.17		-----	1849		-----		-----
863	D976	53.82		-----	1857	D976	54.0		-----
873	D976	54.0		-----	1862	D976	54.1		-----
874	D976	53.9		-----	1906		-----		-----

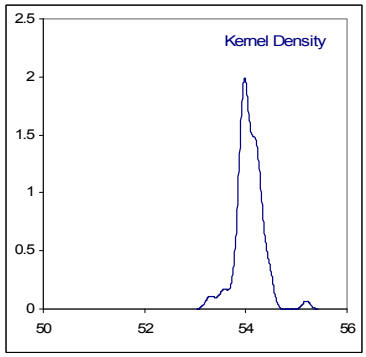
1915		-----	-----
1938		-----	-----
1948		-----	-----
1949	D976	54.2	-----
2129	D976	54.2	-----

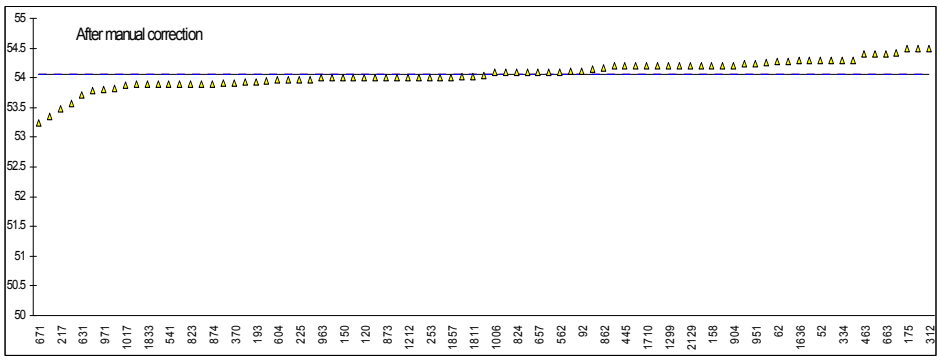
		After manual correction	
normality	not OK	not OK	
n	82	83	
outliers	1	0	
mean (n)	54.0534	54.0647	
st.dev. (n)	0.2359	0.2303	
R(calc.)	0.660	0.645	
R(D976:11)	unknown	unknown	Compare R(iis10G04) = 0.697

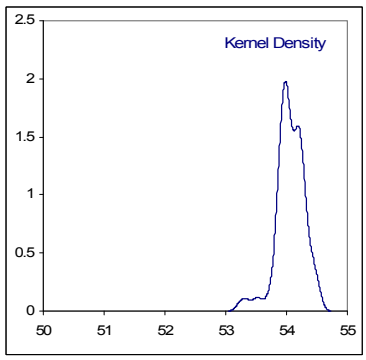
Recalculated values (= E)

608	D976	54.28	-----
904	D976	54.21	-----
1720	D976	54.26	-----
1811	D976	54.03	-----









Determination of Calculated Cetane Index D4737 on sample #11074

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D4737-B	52.9		-----
52		-----		-----	887		-----		-----
62	D4737-B	52.0	E	-----	904	D4737-B	54.0	E	-----
92	D4737-A	55.02		-----	922		-----		-----
120	D4737-A	54.7		-----	951		-----		-----
132	D4737-A	54.7		-----	962		-----		-----
140	D4737-A	54.6		-----	963	D4737-A	54.7		-----
150	D4737	54.6		-----	971	D4737-A	54.20		-----
158	D4737-B	54.2		-----	994	D4737-A	54.5		-----
159	D4737-A	54.93		-----	995		-----		-----
169	D4737-A	54.32		-----	996	D4737-A	54.44		-----
170		-----		-----	997		-----		-----
171	D4737-A	54.82		-----	998		-----		-----
175	D4737-A	55.4		-----	1006		-----		-----
193	D4737	54.65		-----	1011	D4737-B	52.4	E	-----
217	D4737-A	53.92		-----	1017	D4737-A	54.54487		-----
221		-----		-----	1033	IP380	55.1		-----
224		-----		-----	1038		-----		-----
225	D4737	54.48		-----	1059	ISO4264-A	54.5		-----
228	D4737-A	54.47		-----	1065	D4737-A	54.8		-----
230		-----		-----	1067	D4737-A	55.1		-----
240	D4737	54.39		-----	1080	D4737-A	54.5		-----
252	D4737-B	51.28	E	-----	1081	ISO4264	55.1		-----
253		-----		-----	1108	D4737-A	54.3		-----
254	D4737-B	51.4	E	-----	1109	D4737-A	54.8		-----
256		-----		-----	1124	ISO4264	54.84		-----
258		-----		-----	1126		-----		-----
273	D4737	54.76		-----	1134	D4737	54.9		-----
311	D4737-A	54.3		-----	1140	IP380	38.5	G(0.01)	-----
312	D4737-B	53.0	E	-----	1146		-----		-----
317	D4737-A	54.8		-----	1161	D4737-A	54.2		-----
323	D4737-A	54.8		-----	1167	ISO4264-A	54.2		-----
334		-----		-----	1171	ISO4264	54.10		-----
335		-----		-----	1186		-----		-----
336	D4737-A	54.5		-----	1205		-----		-----
337	D4737	54.0		-----	1212	D4737-A	54.53		-----
338		-----		-----	1227		-----		-----
340	D4737	54.60		-----	1259	D4737-A	54.67		-----
344	D4737-A	54.69		-----	1284	D4737-A	54.85		-----
353	IP380	54.82		-----	1297		-----		-----
370	D4737-A	54.63		-----	1299	D4737-A	54.8		-----
372	D4737-B	52.3	E	-----	1340	ISO4264	54.618		-----
430		-----		-----	1395	D4737	54.7		-----
431		-----		-----	1399		-----		-----
445	D4737-A	55.3		-----	1409	ISO4264	54.6		-----
447	D4737-A	54.8		-----	1419	ISO4264-A	54.90		-----
463	D4737-A	55.2		-----	1427	D4737-A	54.6		-----
485	D4737-A	54.4		-----	1428	ISO4264	54.5		-----
495	D4737-B	54.39		-----	1430	D4737-A	54.26		-----
496	D4737-A	55.05		-----	1431		-----		-----
507		-----		-----	1433	D4737-A	54		-----
511		-----		-----	1437		-----		-----
529		-----		-----	1451	D4737-A	53.3025		-----
541	D4737-A	54.2		-----	1454	D4737-A	53.3166		-----
557		-----		-----	1459	D4737-A	54.7		-----
562	D4737-B	53.6	E	-----	1510	D4737-A	54.4		-----
575		-----		-----	1616	D4737-A	55.0		-----
592		-----		-----	1621	D4737-A	54.8		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631	D4737-A	55.09	E	-----
608		-----		-----	1634	ISO4264	54.78		-----
631		-----		-----	1636	D4737-A	54.95		-----
657	D4737-A	54.7		-----	1643		-----		-----
663	D4737-A	55.3		-----	1654	D4737-A	54.60		-----
671	D4737-B	51.5	E	-----	1709	D4737	54.68		-----
732		-----		-----	1710	D4737-A	54.9		-----
759		-----		-----	1720		-----		-----
781	D4737-A	54.8		-----	1724	D4737-A	54.604		-----
823	D4737-A	54.5		-----	1807	D4737	53.3		-----
824	D4737	54.7		-----	1810	D4737	54.7		-----
825	D4737	54.8		-----	1811		-----		-----
840	D4737-A	54.55		-----	1833	D4737	54.35		-----
862	D4737-A	54.63		-----	1849	ISO4264	53.94		-----
863	D4737-A	54.23		-----	1857	D4737-B	53.7		-----
873		-----		-----	1862	D4737-A	54.6		-----
874	D4737-B	53.2		-----	1906		-----		-----

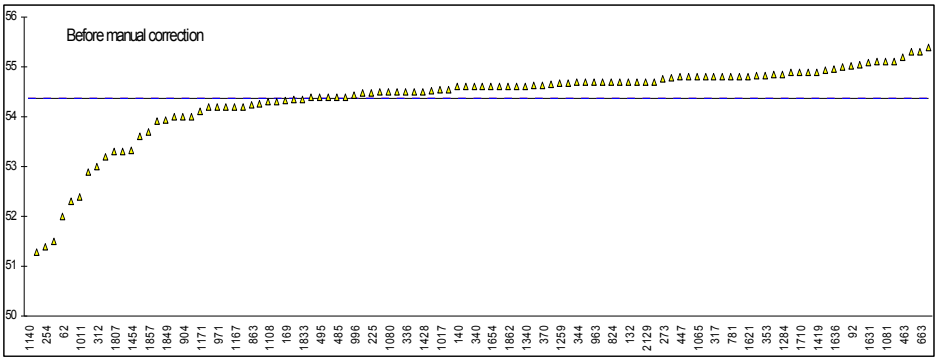
1915		-----	-----
1938	D4737	54.4	-----
1948	ISO4264	54.35	-----
1949	D4737-A	54.9	-----
2129	IP380	54.7	-----

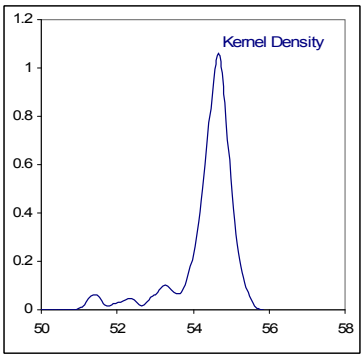
		After manual correction
normality	not OK	not OK
n	105	105
outliers	1	1
mean (n)	54.363	54.454
st.dev. (n)	0.7904	0.5312
R(calc.)	2.213	1.487
R(D4737:10)	unknown	unknown

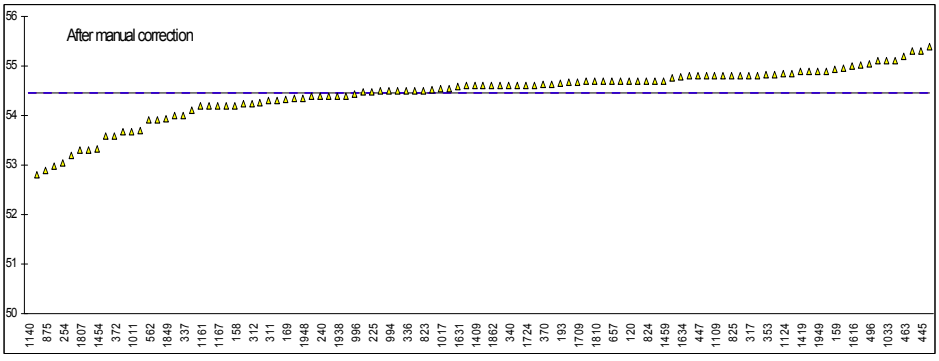
Recalculated values (= E)

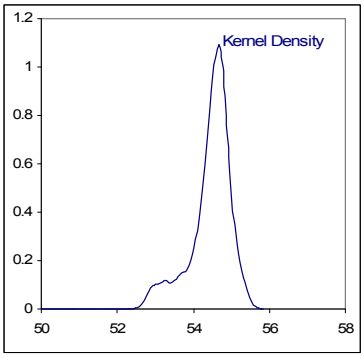
62	D4737-B	53.58	-----
252	D4737-B	52.98	-----
254	D4737-B	53.04	-----
312	D4737-B	54.24	-----
372	D4737-B	53.59	-----
562	D4737-B	53.91	-----
671	D4737-B	52.80	-----
904	D4737-B	53.68	-----
1011	D4737-B	53.68	-----
1631	D4737-A	54.59	-----

	Only Method A	Only Method B
normality	not OK	OK
n	70	14
outliers	0	0
mean (n)	54.606	53.564
st.dev. (n)	0.3783	0.5176
R(calc.)	1.059	1.449
R(D4737:10)	unknown	unknown
R(iis10G04)	1.028	2.202









Determination of Cloud Point on sample #11074; result in °C,

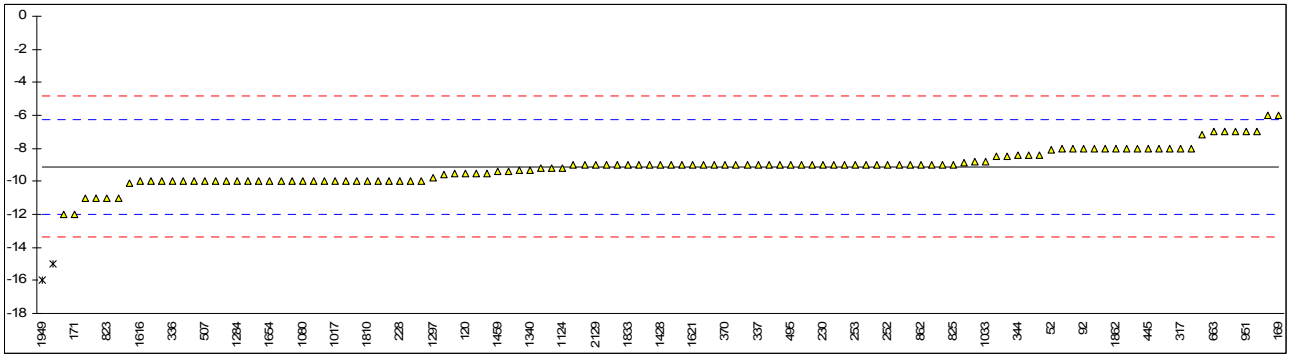
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D2500	-8		0.78
52	D5773	-8.1		0.71	887		-----		-----
62	D2500	-8		0.78	904	D2500	-10		-0.62
92	D2500	-8.0		0.78	922	D2500	-8		0.78
120	D2500	-9.5		-0.27	951	D2500	-7		1.48
132	D2500	-9		0.08	962		-----		-----
140	D5773	-9.5		-0.27	963	D2500	-9		0.08
150	D2500	-10		-0.62	971	D2500	-7		1.48
158	D2500	-10		-0.62	994		-----		-----
159	D2500	-10.0		-0.62	995		-----		-----
169	D2500	-6		2.18	996		-----		-----
170		-----		-----	997		-----		-----
171	D2500	-12		-2.02	998		-----		-----
175	D2500	-9		0.08	1006		-----		-----
193		-----		-----	1011	D2500	-7		1.48
217		-----		-----	1017	D2500	-10.0		-0.62
221	D2500	-9		0.08	1033	D5772	-8.8		0.22
224		-----		-----	1038	D5773	-8.8		0.22
225	D2500	-8		0.78	1059	ISO3015	-9		0.08
228	D2500	-10		-0.62	1065	D5771	-8.9		0.15
230	D2500	-9.0		0.08	1067	D2500	-10		-0.62
240	D2500	-9		0.08	1080	D2500	-10		-0.62
252	D2500	-9.0		0.08	1081	D5772	-9.6		-0.34
253	D2500	-9		0.08	1108	D2500	-9		0.08
254	D2500	-10		-0.62	1109	D5773	-9.2		-0.06
256		-----		-----	1124	ISO3015	-9.2		-0.06
258		-----		-----	1126		-----		-----
273	D2500	-10	C	-0.62	1134		-----		-----
311	D2500	-9		0.08	1140	D5773	-8.4		0.50
312	D2500	-11		-1.32	1146	D2500	-9.3		-0.13
317	D5771	-8		0.78	1161		-----		-----
323	D2500	-10		-0.62	1167	EN23015	-9		0.08
334	D2500	-9		0.08	1171	ISO3015	-10.0		-0.62
335		-----		-----	1186		-----		-----
336	EN23015	-10		-0.62	1205		-----		-----
337	D2500	-9		0.08	1212	D2500	-9		0.08
338		-----		-----	1227	D2500	-10.1		-0.69
340	EN23015	-9.5		-0.27	1259	D2500	-8		0.78
344	D2500	-8.4		0.50	1284	D5771	-10.0		-0.62
353	IP219	-8		0.78	1297	D5771	-9.8		-0.48
370	D2500	-9		0.08	1299	D2500	-8.5		0.43
372	D2500	-10		-0.62	1340	ISO3015	-9.3		-0.13
430		-----		-----	1395	D2500	-10		-0.62
431		-----		-----	1399	D2500	-9.2		-0.06
445	D2500	-8		0.78	1409	D2500	-9		0.08
447	D2500	-12		-2.02	1419	EN23015	-7.2		1.34
463	D2500	-9		0.08	1427	D5773	-10		-0.62
485		-----		-----	1428	EN23015	-9		0.08
495	D2500	-9		0.08	1430		-----		-----
496	D2500	-9.0		0.08	1431		-----		-----
507	D2500	-10		-0.62	1433	D2500	-15	G(0.01)	-4.12
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541	D2500	-11		-1.32	1454		-----		-----
557		-----		-----	1459	D2500	-9.4		-0.20
562	D2500	-7		1.48	1510	D2500	-9		0.08
575		-----		-----	1616	D2500	-10		-0.62
592		-----		-----	1621	D2500	-9		0.08
603	D2500	-10		-0.62	1629		-----		-----
604	D2500	-10		-0.62	1631	D2500	-8.4		0.50
608	D2500	-8.5		0.43	1634		-----		-----
631	D2500	-9		0.08	1636	D2500	-9.5		-0.27
657	D2500	-10		-0.62	1643	D2500	-8		0.78
663	D2500	-7		1.48	1654	D2500	-10.0		-0.62
671	D2500	-6		2.18	1709	D2500	-10		-0.62
732	D2500	-9		0.08	1710	D2500	-10		-0.62
759		-----		-----	1720	D2500	-9.4		-0.20
781	D2500	-9		0.08	1724	D2500	-11		-1.32
823	D2500	-11		-1.32	1807	D2500	-9		0.08
824	D2500	-8		0.78	1810	D2500	-10		-0.62
825	D2500	-9		0.08	1811	D2500	-9		0.08
840	D2500	-8		0.78	1833	D2500	-9		0.08
862	D2500	-9		0.08	1849		-----		-----
863	D2500	-9		0.08	1857	D2500	-9		0.08
873	D2500	-9		0.08	1862	D2500	-8		0.78
874	D2500	-9		0.08	1906		-----		-----

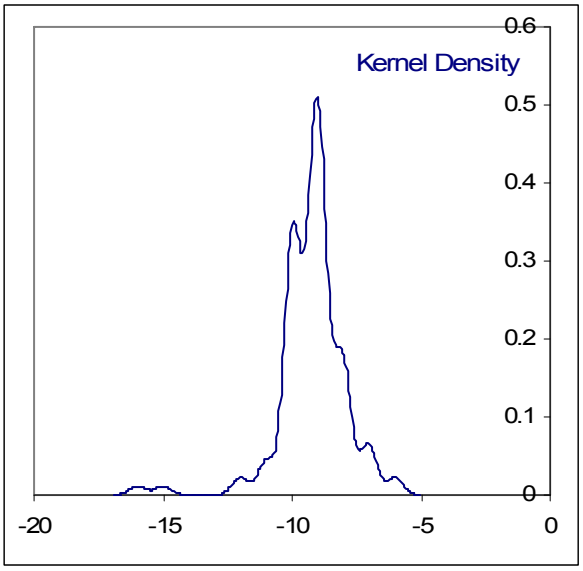
1915		-----		-----
1938		-----		-----
1948	D2500	-10	C	-0.62
1949	D2500	-16	G(0.01)	-4.82
2129	D2500	-9		0.08

normality	not OK
n	113
outliers	2
mean (n)	-9.11
st.dev. (n)	1.036
R(calc.)	2.90
R(D2500:11)	4.00

Corrections

Lab 273 first reported -3
Lab 1948 first reported -4





Determination of Cold Filter Plugging Point on sample #11074; result in ºC

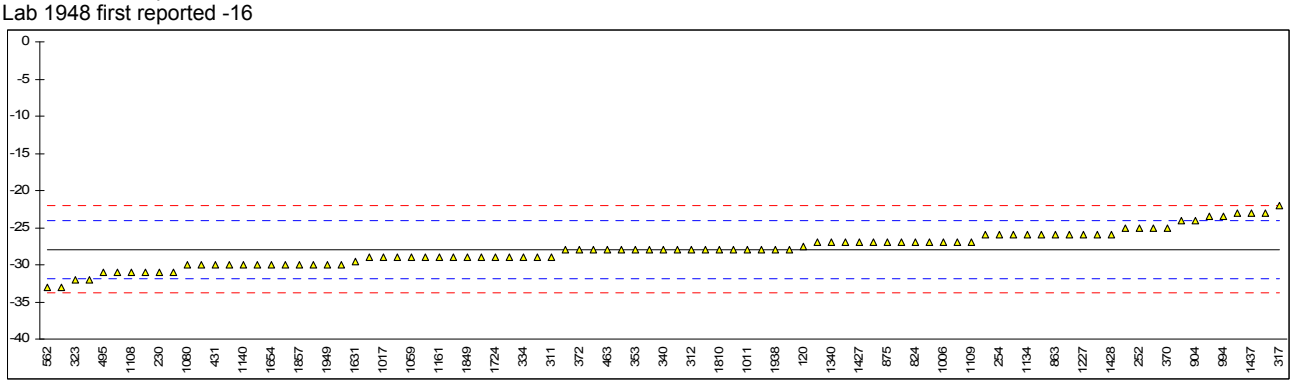
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D6371	-27		0.47
52		-----		-----	887		-----		-----
62		-----		-----	904	D6371	-24		2.01
92		-----		-----	922		-----		-----
120	D6371	-27.5		0.22	951		-----		-----
132		-----		-----	962		-----		-----
140		-----		-----	963	IP309	-23		2.53
150	D6371	-30		-1.07	971	IP309	-33		-2.61
158		-----		-----	994	D6371	-23.5		2.27
159		-----		-----	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D6371	-31		-1.58	998		-----		-----
175		-----		-----	1006	D6371	-27		0.47
193		-----		-----	1011	EN116	-28		-0.04
217	D6371	-24		2.01	1017	EN116	-29.0		-0.55
221		-----		-----	1033	IP309	-29	C	-0.55
224		-----		-----	1038		-----		-----
225		-----		-----	1059	EN116	-29		-0.55
228		-----		-----	1065	IP309	-29		-0.55
230	IP309	-31.0		-1.58	1067	D6371	-28		-0.04
240		-----		-----	1080	D6371	-30		-1.07
252	IP309	-25.0		1.50	1081	EN116	-30		-1.07
253		-----		-----	1108	D6371	-31		-1.58
254	IP309	-26		0.99	1109	IP309	-27.0		0.47
256		-----		-----	1124	EN116	-28		-0.04
258		-----		-----	1126		-----		-----
273		-----		-----	1134	IP309	-26		0.99
311	D6371	-29		-0.55	1140	D6371	-30.0		-1.07
312	D6371	-28		-0.04	1146		-----		-----
317	D6371	-22		3.04	1161	EN116	-29		-0.55
323	EN116	-32		-2.10	1167	EN116	-23		2.53
334	D6371	-29		-0.55	1171	EN116	-23.5		2.27
335		-----		-----	1186		-----		-----
336	EN116	-29		-0.55	1205		-----		-----
337	D6371	-29		-0.55	1212	D6371	-29		-0.55
338		-----		-----	1227	IP309	-26		0.99
340	D6371	-28		-0.04	1259	D6371	-26		0.99
344	EN116	-25		1.50	1284		-----		-----
353	IP309	-28		-0.04	1297		-----		-----
370	EN116	-25		1.50	1299	D6371	-30		-1.07
372	D6371	-28		-0.04	1340	EN116	-27		0.47
430		-----		-----	1395	D6371	-27		0.47
431	D6371	-30		-1.07	1399	IP309	-28.0		-0.04
445	IP309	-28		-0.04	1409	EN116	-30		-1.07
447	D6371	-31		-1.58	1419	EN116	-30		-1.07
463	D6371	-28		-0.04	1427	D6371	-27		0.47
485		-----		-----	1428	EN116	-26		0.99
495	D6371	-31		-1.58	1430		-----		-----
496	D6371	-31.0		-1.58	1431	D6371	-32		-2.10
507		-----		-----	1433	D6371	-30		-1.07
511		-----		-----	1437	D6371	-23		2.53
529		-----		-----	1451		-----		-----
541	D6371	<-20		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D6371	-33	C	-2.61	1510		-----		-----
575		-----		-----	1616		-----		-----
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631	D6371	-29.5		-0.81
608		-----		-----	1634		-----		-----
631		-----		-----	1636	D6371	-28		-0.04
657	D6371	-28		-0.04	1643		-----		-----
663		-----		-----	1654	D6371	-30.0		-1.07
671		-----		-----	1709	D6371	-29		-0.55
732	D6371	-25		1.50	1710	D6371	-28		-0.04
759		-----		-----	1720		-----		-----
781	D6371	-27		0.47	1724	IP309	-29		-0.55
823	D6371	-27		0.47	1807	D6371	-27		0.47
824	D6371	-27		0.47	1810	D6371	-28		-0.04
825	D6371	-26		0.99	1811	D6371	-29		-0.55
840		-----		-----	1833	D6371	-28		-0.04
862	D6371	-26		0.99	1849	EN116	-29		-0.55
863	IP309	-26		0.99	1857	IP309	-30		-1.07
873	D6371	-28		-0.04	1862	IP309	-26		0.99
874	IP309	-26		0.99	1906		-----		-----

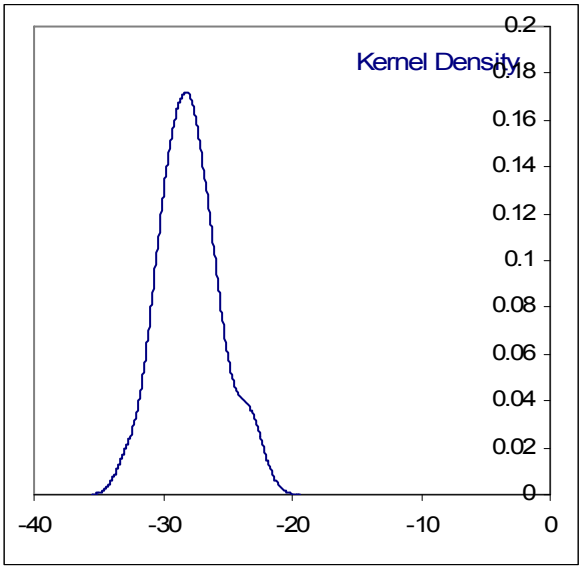
1915		-----		-----
1938	D6371	-28		-0.04
1948	D6371	-27	C	0.47
1949	D6371	-30		-1.07
2129	IP309	-27		0.47

normality	not OK
n	89
outliers	0
mean (n)	-27.92
st.dev. (n)	2.315
R(calc.)	6.48
R(IP309:99)	5.45

Corrections

Lab 562 first reported -38
Lab 1033 first reported -11
Lab 1948 first reported -16





Determination of Colour ASTM on sample #11074;

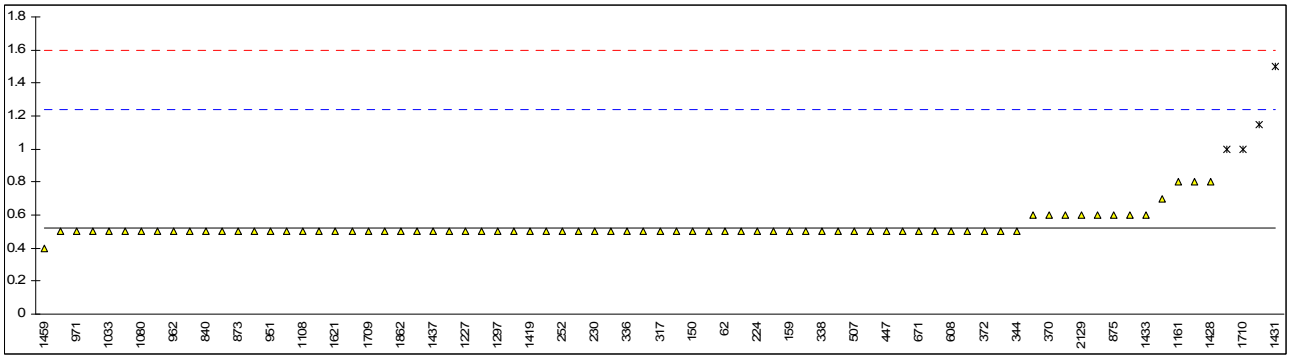
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D6045	0.6		0.21
52	D6045	<1		-----	887		-----		-----
62	D1500	0.5		-0.07	904	D1500	L0.5		-----
92	D1500	L0.5		-----	922	D1500	L0.5		-----
120	D1500	L1.0		-----	951	D1500	0.5		-0.07
132	D1500	L0.5		-----	962	D1500	0.5		-0.07
140	D1500	0.5		-0.07	963	D1500	0.5		-0.07
150	D1500	0.5		-0.07	971	D1500	0.5		-0.07
158	D1500	0.5		-0.07	994	D1500	L0.5		-----
159	D1500	0.5		-0.07	995		-----		-----
169		-----		-----	996	D1500	0.5		-0.07
170		-----		-----	997		-----		-----
171	D1500	L0.5		-----	998		-----		-----
175	D1500	0.5		-0.07	1006		-----		-----
193		-----		-----	1011	D1500	L0.5		-----
217		-----		-----	1017		-----		-----
221	D1500	L0.5		-----	1033	D1500	0.5		-0.07
224	D1500	0.5		-0.07	1038	D6045	0.5		-0.07
225	D1500	0.5		-0.07	1059	ISO2049	L1.0		-----
228	D1500	L1.0		-----	1065		-----		-----
230	D1500	0.5		-0.07	1067	D1500	L0.5		-----
240	D1500	0.5		-0.07	1080	D1500	0.5		-0.07
252	D1500	0.5		-0.07	1081	D6045	0.5		-0.07
253	D1500	0.5		-0.07	1108	D1500	0.5		-0.07
254	D1500	L0.5		-----	1109	D1500	L1.0		-----
256		-----		-----	1124		-----		-----
258	D1500	0.7		0.49	1126		-----		-----
273	D1500	L0.5		-----	1134	D1500	0.5		-0.07
311	D1500	L0.5		-----	1140	D6045	<0.5		-----
312	D1500	<1.0		-----	1146		-----		-----
317	D1500	0.5		-0.07	1161	D6045	0.8		0.77
323	D1500	0.5		-0.07	1167		-----		-----
334		-----		-----	1171	D1500	1.15	G(0.01)	1.75
335		-----		-----	1186		-----		-----
336	D1500	0.5		-0.07	1205	D1500	L1		-----
337	D1500	0.5		-0.07	1212	D1500	<0.5		-----
338	D1500	0.5		-0.07	1227	D1500	0.5		-0.07
340	D1500	L0.5		-----	1259	D1500	0.5		-0.07
344	D1500	0.5		-0.07	1284	D6045	0.6		0.21
353	D6045	0.5		-0.07	1297	D1500	0.5		-0.07
370	D1500	0.6		0.21	1299		-----		-----
372	D1500	0.5		-0.07	1340	D1500	0.6		0.21
430		-----		-----	1395	D1500	0.5		-0.07
431		-----		-----	1399	D1500	0.6		0.21
445	D1500	0.5		-0.07	1409	D1500	L1.0		-----
447	D6045	0.5		-0.07	1419	D1500	0.5		-0.07
463	D1500	0.5		-0.07	1427	D1500	<0.5		-----
485		-----		-----	1428	D1500	0.8		0.77
495	D1500	L0.5		-----	1430	D1500	0.5		-0.07
496	D1500	1.0	G(0.01)	1.33	1431	D1500	1.5	G(0.01)	2.73
507	D1500	0.5		-0.07	1433	D6045	0.6		0.21
511	D6045	0.5		-0.07	1437	D1500	0.5		-0.07
529		-----		-----	1451	D1500	<0.5		-----
541	D1500	L0.5		-----	1454		-----		-----
557		-----		-----	1459	D1500	0.4		-0.35
562	D1500	L1.0		-----	1510	D1500	0.5		-0.07
575	D1500	L0.5		-----	1616	D1500	<1.0		-----
592		-----		-----	1621	D1500	0.5		-0.07
603	D1500	L1.0		-----	1629		-----		-----
604	D1500	L1.0		-----	1631		-----		-----
608	D1500	0.5		-0.07	1634		-----		-----
631	D1500	0.5		-0.07	1636	D1500	0.5		-0.07
657	D1500	L0.5		-----	1643		-----		-----
663	D1500	L0.5		-----	1654		-----		-----
671	D1500	0.5		-0.07	1709	D1500	0.5		-0.07
732	D1500	0.5		-0.07	1710	D1500	1.0	G(0.01)	1.33
759		-----		-----	1720	D1500	0.5		-0.07
781	D1500	0.5		-0.07	1724		-----		-----
823	D1500	<0.5		-----	1807	D1500	<0.5		-----
824	D1500	0.5		-0.07	1810		-----		-----
825	D1500	L1.0		-----	1811		-----		-----
840	D1500	0.5		-0.07	1833	D1500	<0.5		-----
862	D1500	0.6		0.21	1849		-----		-----
863	D1500	0.5		-0.07	1857	D1500	L0.5		-----
873	D1500	0.5		-0.07	1862	D1500	0.5		-0.07
874	D1500	0.5		-0.07	1906		-----		-----

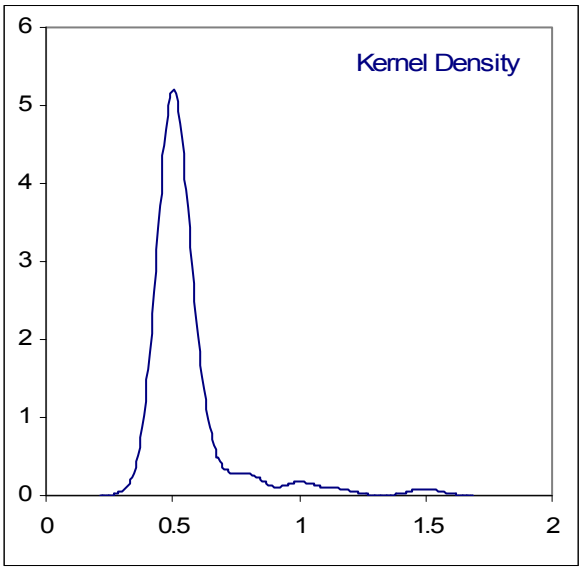
1915		-----		-----
1938		-----		-----
1948	D1500	0.8	C	0.77
1949	D1500	0.5		-0.07
2129	D1500	0.6		0.21

normality	not OK
n	73
outliers	4
mean (n)	0.52
st.dev. (n)	0.070
R(calc.)	0.20
R(D1500:07)	1.00

Corrections

Lab 1948 first reported -9





Determination of Copper Corrosion (3 hrs @ 50°C) on sample #11074;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D130	1A		-----
52	D130	1A		-----	887	D130	1A		-----
62	D130	1B		-----	904	D130	1A		-----
92	D130	1A		-----	922	D130	1A		-----
120	D130	1A		-----	951	D130	1		-----
132	D130	1A		-----	962	D130	1A		-----
140	D130	1A		-----	963	D130	1A		-----
150	D130	1A		-----	971	D130	1		-----
158	D130	1A		-----	994	D130	1A		-----
159	D130	1A		-----	995		-----		-----
169	D130	1A		-----	996	D130	1A		-----
170		-----		-----	997		-----		-----
171	D130	1A		-----	998		-----		-----
175	D130	1A		-----	1006	D130	1A		-----
193	D130	1A		-----	1011	D130	1A		-----
217	D130	1A		-----	1017	D130	1A		-----
221		-----		-----	1033	IP154	1A		-----
224		-----		-----	1038	D130	1A		-----
225	D130	1A		-----	1059	ISO2160	1A		-----
228	D130	1A		-----	1065		-----		-----
230	D130	1A		-----	1067	D130	1A		-----
240	D130	1A		-----	1080	D130	1A		-----
252	D130	1A		-----	1081	D130	1B		-----
253	D130	1A		-----	1108	D130	1A		-----
254	D130	1A		-----	1109	D130	1A		-----
256		-----		-----	1124	ISO2160	1A		-----
258	D130	1A		-----	1126		-----		-----
273	D130	1A		-----	1134	D130	1A		-----
311	D130	1A		-----	1140	D130	1B		-----
312	D130	1A		-----	1146		-----		-----
317	D130	1A		-----	1161	ISO12185	1A		-----
323	D130	1A		-----	1167	ISO2160	1A		-----
334		-----		-----	1171	ISO2160	1A		-----
335		-----		-----	1186	D130	1A		-----
336		-----		-----	1205		-----		-----
337	D130	1A		-----	1212	D130	1A		-----
338		-----		-----	1227	D130	1A		-----
340	D130	1A		-----	1259	D130	1		-----
344	D130	1A		-----	1284	D130	1A		-----
353	IP154	1A		-----	1297		-----		-----
370	D130	1A		-----	1299	D130	1A		-----
372	D130	1A		-----	1340	ISO2160	1A		-----
430		-----		-----	1395	D130	1A		-----
431		-----		-----	1399	D130	1A		-----
445	D130	1A		-----	1409	D130	1A		-----
447	D130	1A		-----	1419		-----		-----
463	D130	1A		-----	1427	D130	1A		-----
485		-----		-----	1428	ISO2160	1		-----
495	D130	1		-----	1430	D130	1A		-----
496	D130	1A		-----	1431	D130	1A		-----
507	D130	1A		-----	1433	D130	1A		-----
511	D130	1A		-----	1437	D130	1A		-----
529	D130	1A		-----	1451		-----		-----
541	D130	1		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D130	1		-----	1510	D130	1A		-----
575	D130	1A		-----	1616	D130	1A		-----
592		-----		-----	1621	D130	1A		-----
603	D130	1A		-----	1629		-----		-----
604		-----		-----	1631	D130	1		-----
608	D130	1A		-----	1634	D130	1A		-----
631	D130	1A		-----	1636	D130	1A		-----
657	D130	1		-----	1643		-----		-----
663	D130	1A		-----	1654	D130	1A		-----
671	D130	1A		-----	1709	D130	1A		-----
732		-----		-----	1710	D130	1A		-----
759		-----		-----	1720		-----		-----
781	D130	1A		-----	1724	D130	1A		-----
823	D130	1A		-----	1807	D130	1A		-----
824	D130	1A		-----	1810		-----		-----
825	D130	1		-----	1811	D130	1		-----
840	D130	1A		-----	1833	D130	1A		-----
862	D130	1A		-----	1849	ISO2160	1A		-----
863	D130	1A		-----	1857	D130	1A		-----
873	D130	1A		-----	1862	D130	1A		-----
874	D130	1A		-----	1906		-----		-----

1915		-----	-----
1938		-----	-----
1948	D130	1A	-----
1949	D130	1A	-----
2129	D130	1A	-----

normality	unknown
n	121
outliers	0
mean (n)	1 (1A)
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D130:10)	n.a.

Determination of Density @15 °C on sample #11074; result in kg/m^3

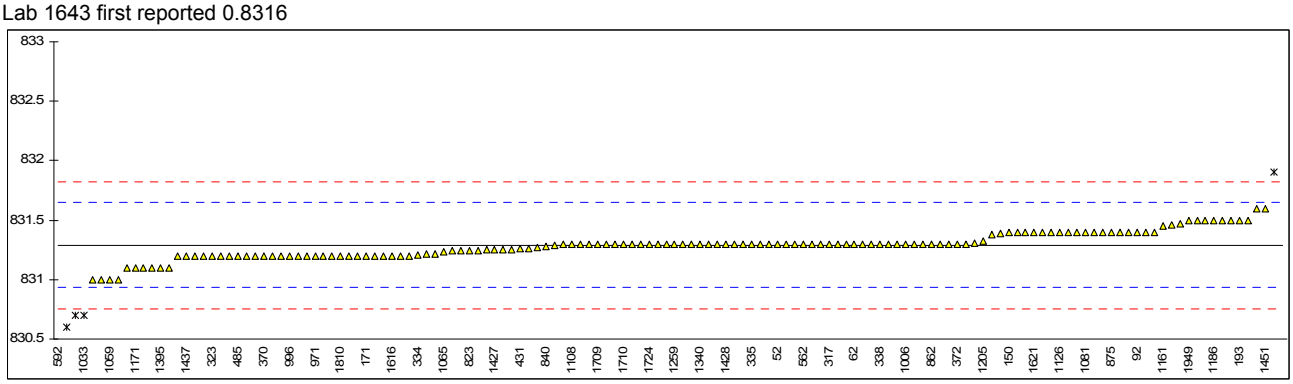
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D4052	831.4		0.62
52	D4052	831.3		0.06	887	D4052	831.3		0.06
62	D4052	831.3		0.06	904	D4052	831.3		0.06
92	D4052	831.4		0.62	922	D4052	831.00		-1.62
120	D4052	831.4		0.62	951	D1298	831.2		-0.50
132	D4052	831.3		0.06	962	D4052	831.3		0.06
140	D4052	831.0		-1.62	963	D4052	831.4		0.62
150	D4052	831.4		0.62	971	D4052	831.2		-0.50
158	D4052	831.1		-1.06	994	D4052	831.2		-0.50
159	D4052	831.4		0.62	995		-----		-----
169	D4052	831.3		0.06	996	D1298	831.2		-0.50
170		-----		-----	997		-----		-----
171	D4052	831.2		-0.50	998		-----		-----
175	D4052	831.3		0.06	1006	D4052	831.3		0.06
193	D4052	831.5		1.18	1011	D4052	831.4		0.62
217	D4052	831.2		-0.50	1017	D4052	831.27		-0.11
221	D4052	831.4		0.62	1033	IP365	830.7	G(0.01)	-3.30
224		-----		-----	1038	D4052	831.1		-1.06
225	D4052	831.3		0.06	1059	D4052	831.0		-1.62
228	D1298	831.2		-0.50	1065	D4052	831.23		-0.33
230	D1298	831.3		0.06	1067	D4052	831.2		-0.50
240	D4052	831.4		0.62	1080	D4052	831.3		0.06
252	D1298	831.24		-0.27	1081	ISO12185	831.4		0.62
253	D4052	831.2		-0.50	1108	D4052	831.3		0.06
254	D4052	831.2		-0.50	1109	D4052	831.24		-0.27
256	D4052	831.2		-0.50	1124	ISO12185	831.24		-0.27
258	D1298	831.4	C	0.62	1126	D4052	831.4		0.62
273	D4052	831.3		0.06	1134	D4052	831.3		0.06
311	D4052	831.3		0.06	1140	D4052	871.37	C,G(0.01)	224.45
312	D4052	831.2		-0.50	1146	D4052	831.25		-0.22
317	D4052	831.3		0.06	1161	D4052	831.45		0.90
323	D4052	831.2		-0.50	1167	ISO12185	831.3		0.06
334	D4052	831.21		-0.44	1171	D4052	831.10		-1.06
335	D4052	831.3		0.06	1186	D1298	831.5	C	1.18
336		-----		-----	1205	ISO12185	831.32		0.17
337	D4052	831.2		-0.50	1212	D4052	831.3		0.06
338	D4052	831.3		0.06	1227	D4052	831.3		0.06
340	D4052	831.22		-0.39	1259	D4052	831.3		0.06
344	D4052	831.5		1.18	1284	D1298	830.6	G(0.01)	-3.86
353	IP365	831.2		-0.50	1297	D4052	831.2		-0.50
370	D4052	831.2		-0.50	1299	D4052	831.2		-0.50
372	D4052	831.3		0.06	1340	ISO12185	831.3		0.06
430		-----		-----	1395	D4052	831.1		-1.06
431	D4052	831.26		-0.16	1399	D4052	831.305		0.09
445	D4052	831.4		0.62	1409	D4052	831.2		-0.50
447	D4052	831.2	C	-0.50	1419	ISO12185	831.22		-0.39
463	D4052	831.29		0.01	1427	D4052	831.25		-0.22
485	D4052	831.2		-0.50	1428	ISO12185	831.3		0.06
495	D4052	831.3		0.06	1430	D1298	830.7	G(0.01)	-3.30
496	D4052	831.25		-0.22	1431	D4052	831.38		0.51
507	D1298	831.50		1.18	1433	D4052	831.3		0.06
511	D4052	831.26		-0.16	1437	D4052	831.2	C	-0.50
529	D4052	831.3		0.06	1451	D1298	831.6		1.74
541	D4052	831.3		0.06	1454	IP365	831.3	C	0.06
557		-----		-----	1459	D4052	831.2	C	-0.50
562	D4052	831.3	C	0.06	1510	D4052	831.3		0.06
575	D1298	831.0		-1.62	1616	D4052	831.2		-0.50
592	D1298	764.9	G(0.01)	-371.78	1621	D4052	831.4		0.62
603	D4052	831.90	G(0.01)	3.42	1629		-----		-----
604	D4052	831.39		0.57	1631	D4052	831.3		0.06
608	D4052	831.1		-1.06	1634	D4052	831.251		-0.21
631	D4052	831.5		1.18	1636	D4052	831.3		0.06
657	D4052	831.4		0.62	1643	D4052	831.6	C	1.74
663	D4052	831.3		0.06	1654	D4052	831.3		0.06
671	D4052	831.5		1.18	1709	D4052	831.3		0.06
732	D4052	831.4		0.62	1710	D4052	831.3		0.06
759		-----		-----	1720	D4052	831.5		1.18
781	D4052	831.3		0.06	1724	D4052	831.30		0.06
823	D4052	831.24		-0.27	1807	D4052	831.2		-0.50
824	D4052	831.4		0.62	1810	D4052	831.2		-0.50
825	D4052	831.3		0.06	1811	D4052	831.2		-0.50
840	D4052	831.28		-0.05	1833	D4052	831.3		0.06
862	D4052	831.30		0.06	1849	ISO12185	831.47		1.01
863	D4052	831.46		0.96	1857	D4052	831.2		-0.50
873	D4052	831.3		0.06	1862	D4052	831.1		-1.06
874	D4052	831.30		0.06	1906		-----		-----

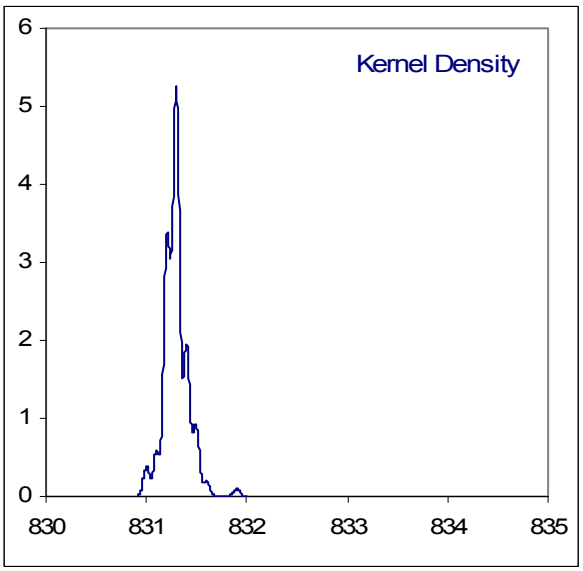
1915		-----	-----
1938	D4052	831.3	0.06
1948	D4052	831.4	0.62
1949	D4052	831.5	1.18
2129	D4052	831.3	0.06

normality	not OK
n	138
outliers	6
mean (n)	831.29
st.dev. (n)	0.111
R(calc.)	0.31
R(D4052:09)	0.50

Corrections

Lab 258 first reported 0.8314
Lab 447 first reported 813.2
Lab 562 first reported 0.8313
Lab 1140 first reported 0.87134
Lab 1186 first reported 830.3
Lab 1437 first reported 0.8312
Lab 1454 first reported 0.8313
Lab 1459 first reported 0.8312
Lab 1643 first reported 0.8316



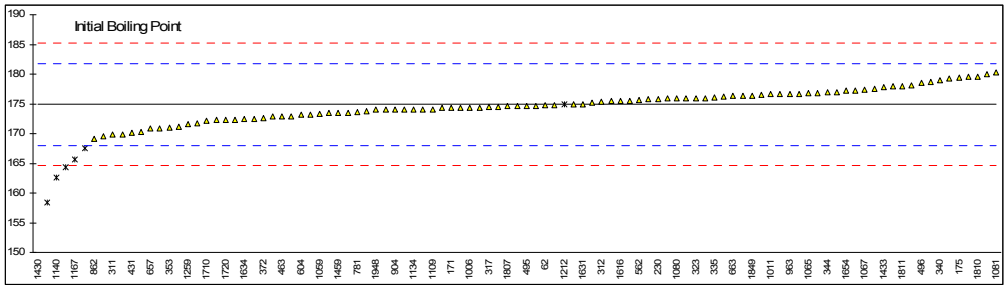


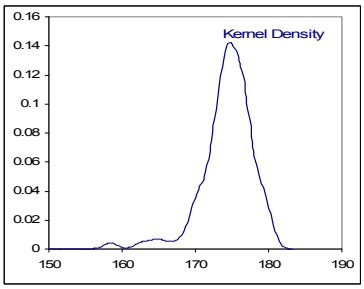
Determination of Distillation (automated) on sample #11074; result in °C

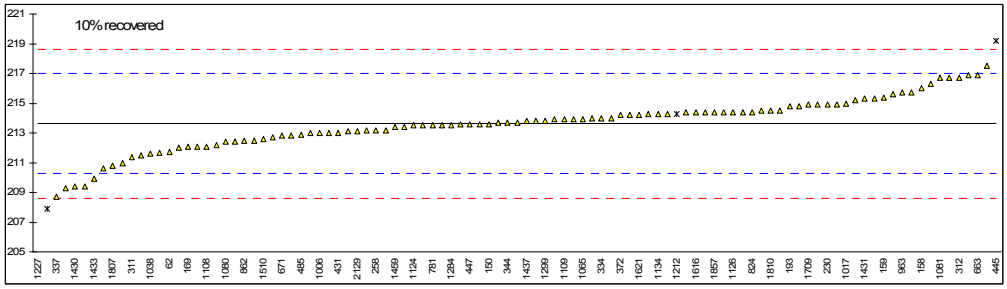
lab	method	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
51		-----		-----		-----		-----		-----		-----	
52	D86	175.5		214.5		270.5		326.6		345.4		353.5	
62	D86	174.8		211.7		270.3		324.8		342.1		352.8	
92	D86	179.5		216.7		270.1		324.0		339.8		354.0	
120	D86	174.3		214.3		269.4		324.7		342.7		351.3	
132	D86	172.3		213.9		269.6		324.7		341.3		352.2	
140	D86	164.3	G(5)	214.0		268.5		322.3		338.6		347.4	
150	D86	173.5		213.6		269.0		323.7		341.2		347.1	
158	D86	172.3		216.0		270.6		325.1		342.4		348.9	
159	D86	179.3		215.4		270.3		324.7		342.2		352.1	
169	D86	175.8		212.1		268.6		326.1		346.4		352.4	
170		-----		-----		-----		-----		-----		-----	
171	D86	174.3		213.7		270.0		326.7		347.4		352.7	
175	D86	179.4		215.7		272.2	G(5)	328.7		348.8		354.5	
193	D86	175		214.77		269.5		322.77		338.11		351	
217		-----		-----		-----		-----		-----		-----	
221		-----		-----		-----		-----		-----		-----	
224		-----		-----		-----		-----		-----		-----	
225		-----		-----		-----		-----		-----		-----	
228		-----		-----		-----		-----		-----		-----	
230	D86	175.8		214.9		271.0		326.4		343.7		356.1	
240		-----		-----		-----		-----		-----		-----	
252		-----		-----		-----		-----		-----		-----	
253		-----		-----		-----		-----		-----		-----	
254		-----		-----		-----		-----		-----		-----	
256		-----		-----		-----		-----		-----		-----	
258	D86	176.5		213.2		270.7		325.3		342.0		350.0	
273	D86	176.8		214.2		269.4		324.9		340.9		343.7	G(5)
311	D86	169.8		211.4		268.9		322.6		338.1		354.6	
312	D86	175.4		216.7		270.8		324.8		340.9		351.6	
317	D86	174.5		214.8		269.8		324.5		340.7		353.3	
323	D86	176.0		214.5		269.5		324.2		341.6		352.0	
334	D86	177.3		214.0		270.4		326.1		344.2		353.0	
335	D86	176.1		213.5		268.9		324.9		343.1		352.7	
336	D86	175.2		213.2		269.1		325.7		343.5		352.5	
337	D86	177.5		208.7		268.0		323.0		338.0		352.0	
338		-----		-----		-----		-----		-----		-----	
340	D86	179.0		211.5		269.9		326.0		344.4		353.5	
344	D86	176.9		213.7		270.1		324.6		341.7		353.0	
353	IP123	171.0		212.0		270.8		326.2		343.3		355.4	
370		-----		-----		-----		-----		-----		-----	
372	D86	172.6		214.2		269.0		323.0		338.0		351.0	
430		-----		-----		-----		-----		-----		-----	
431	ISO3405	170.1		213.0		267.4		322.3		339.7		-----	
445	D86	176.6		219.2	G(5)	270.3		324.7		342.0		353.5	
447	D86	178.1		213.6		270.1		326.4		344.1		355.1	
463	D86	172.9		216.9		270.7		326.8		345.3		354.8	
485	D86	173.45		212.90		268.65		322.80		338.30		348.0	
495	D86	174.7		213.2		268.7		322.8		338.8		352.2	
496	D86	178.6		215.6		270.4		326.8		344.5		354.8	
507		-----		-----		-----		-----		-----		-----	
511		-----		-----		-----		-----		-----		-----	
529		-----		-----		-----		-----		-----		-----	
541		-----		-----		-----		-----		-----		-----	
557		-----		-----		-----		-----		-----		-----	
562	D86	175.6		216.3		269.7		323.0		338.7		353.3	
575		-----		-----		-----		-----		-----		-----	
592		-----		-----		-----		-----		-----		-----	
603		-----		-----		-----		-----		-----		-----	
604	D86	173.2		213.4		269.1		324.3		341.8		350.6	
608		-----		-----		-----		-----		-----		-----	
631		-----		-----		-----		-----		-----		-----	
657	D86	170.8		214.0		269.7		322.3		337.2		351.6	
663	D86	176.4		216.9		270.4		323.8		339.0		351.4	
671	D86	169.9		212.8		265.9	G(5)	320.2		339.5		349.2	
732		-----		-----		-----		-----		-----		-----	
759		-----		-----		-----		-----		-----		-----	
781	D86	173.6		213.5		270.0		325.7		344.9		353.4	
823		-----		-----		-----		-----		-----		-----	
824	D86	174.0		214.4		269.4		323.8		341.6		352.5	
825	D86	170.3		213.7		270.2		326.2		344.6		353.5	
840	D86	170.86		214.26		268.69		323.03		338.65		352.14	
862	D86	169.1		212.5		269.8		325.6		344.7		351.9	
863		-----		-----		-----		-----		-----		-----	
873		-----		-----		-----		-----		-----		-----	
874		-----		-----		-----		-----		-----		-----	
875		-----		-----		-----		-----		-----		-----	
887		-----		-----		-----		-----		-----		-----	

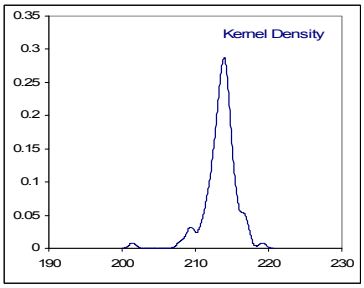
904	D86	174.0		213.0		270.0		321.0		343.0		355.0	
922		-----		-----		-----		-----		-----		-----	
951		-----		-----		-----		-----		-----		-----	
962		-----		-----		-----		-----		-----		-----	
963	D86	176.7		215.7		269.2		323.4		339.5		350.7	
971		-----		-----		-----		-----		-----		-----	
994		-----		-----		-----		-----		-----		-----	
995		-----		-----		-----		-----		-----		-----	
996		-----		-----		-----		-----		-----		-----	
997		-----		-----		-----		-----		-----		-----	
998		-----		-----		-----		-----		-----		-----	
1006	D86	174.4		213.0		269.4		325.8		341.5		352.3	
1011	D86	176.6		215.2		269.4		322.5		340.0		350.5	
1017	D86	176.0		215.0		268.4		321.3		337.2		346.5	
1033	D86	180.0		213.6		270.4		325.8		342.0		354.5	
1038	D86	172.9		211.6		268.7		323.8		341.6		352.3	
1059	D86	173.4		212.4		268.8		322.7		338.6		351.7	
1065	D86	176.8		213.9		270.1		324.4		339.9		354.0	
1067	D86	177.4		214.4		271.0		329.8		352.3	G(5)	352.8	
1080	D86	176.0		212.4		269.4		325.3		342.8		352.0	
1081	D86	180.3		216.7		270.8		325.8		343.3		352.6	
1108	D86	158.4	G(1)	212.1		268.5		322.5		339.0		353.0	
1109	D86	174.1		213.9		269.1		324.0		341.1		351.3	
1124	ISO3405	176.0		213.5		270.5		327.5		347.5		349.0	
1126	In house	174.0		214.4		269.0		324.8		342.0		356.9	
1134	D86	174.0		214.3		270.5		327.4		347.8		355.2	
1140	D86	162.6	G(5)	207.9	ex	266.2	G(5)	321.2	ex	338.6	ex	349.1	ex
1146		-----		-----		-----		-----		-----		-----	
1161	ISO3405	174.3		210.65		268.6		325.2		341.3		352.8	
1167	ISO3405	165.6	DG(5)	209.3		269.0		322.6		339.3		351.2	
1171		-----		-----		-----		-----		-----		-----	
1186		-----		-----		-----		-----		-----		-----	
1205	D86	174.6		212.8		269.3		322.9		338.4		350.6	
1212	D86	174.9	ex	214.3	ex	269.0	ex	317.6	G(5)	330.0	G(5)	332.2	G(1)
1227	D86	174.7		201.4	G(1)	270.9		325.3		343.2		352.9	
1259	D86	171.6		213.8		269.5		324.5		341.6		352.4	
1284	D86	173.2		213.5		269.0		323.7		339.9		353.5	
1297		-----		-----		-----		-----		-----		-----	
1299	D86	178.7		213.8		269.7		324.5		342.3		353.1	
1340	ISO3405	174.5		214.4		269.0		323.5		340.6		353.2	
1395	D86	176.2		213.6		269.3		322.7		338.4		354.5	
1399	D86	167.5	DG(5)	209.4		267.6		324.2		341.9		348.6	
1409	D86	171.8		212.7		269.5		324.5		341.1		351.2	
1419	ISO3405	174.8		214.4		270.3		324.8		341.4		354.8	
1427	D86	173.8		213.5		269.2		324.5		342.8		351.4	
1428	ISO3405	174.4		213.0		269.1		323.5		340.2		353.1	
1430	D86	133.3	G(1)	209.4	fr 211.9	268.0	fr 267.0	323.4	fr 316.4	341.0	fr 327.0	346.1	fr 351.7
1431	D86	176.7		215.3		271.4		327.1		345.6		354.7	
1433	D86	177.8		209.9		268.8		322.7		338.6		350.6	
1437	D86	175.9		213.8		270.0		325.8		343.6		352.6	
1451		-----		-----		-----		-----		-----		-----	
1454		-----		-----		-----		-----		-----		-----	
1459	D86	173.5		213.4		269.1		322.6		338.3		349.0	
1510	D86	177.0		212.6		268.6		322.7		339.6		352.8	
1616	D86	175.5		214.4		270.8		324.5		341.0		350.7	
1621	D86	175.5		214.2		269.6		326.8		346.8		353.2	
1629		-----		-----		-----		-----		-----		-----	
1631	D86	175		212.2		269.8		324.6		341.7		355.2	
1634	D86	172.5		215.3		269.4		323.7		339.7		353.5	
1636	D86	176.4		214.9		270.4		325.5		343.0		352.4	
1643		-----		-----		-----		-----		-----		-----	
1654	D86	177.3		213.9		269.1		324.2		341.5		353.8	
1709	D86	172.5		214.9		269.2		322.2		337.3		348.4	
1710	D86	172.2		214.9		270.0		325.0		343.2		352.2	
1720	D86	172.3		217.5		270.6		327.7		348.4		352.9	
1724	D86	171.1		214.4		268.9		323.9		341.0		353.0	
1807	D86	174.6		210.8		268.9		323.4		340.2		347.9	
1810	D86	179.6		214.5		269.1		321.9		335.2		350.4	
1811	D86	178.0		211.0		269.0		322.0		337.0		352.0	
1833	D86	169.6		212.5		268.5		322.8		338.7		353.3	
1849	ISO3405	176.4		211.65		267.2		321		336.75		350.7	
1857	D86	174.0		214.4		269.1		323.8		340.5		352.6	
1862		-----		-----		-----		-----		-----		-----	
1906		-----		-----		-----		-----		-----		-----	
1915		-----		-----		-----		-----		-----		-----	
1938	D86	172.9		212.1		268.9		323.0		339.2		350.8	
1948	D86	174.0		213.1		268.5		322.2		337.0		353.0	
1949		-----		-----		-----		-----		-----		-----	
2129	D86	178.0		213.1		269.9		324.3		340.4		353.1	

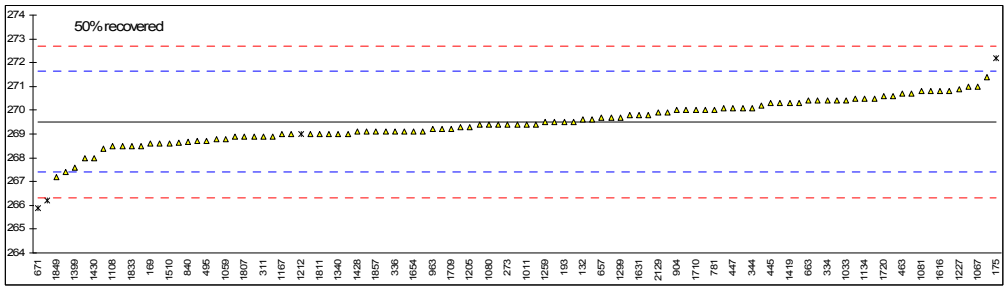
normality	OK	not OK	OK	OK	OK	not OK
n	96	99	99	101	100	99
outliers	6	2	3	1	2	2
mean (n)	174.88	213.62	269.51	324.34	341.38	352.19
st.dev. (n)	2.547	1.702	0.845	1.727	2.795	2.081
R(calc.)	7.13	4.77	2.37	4.83	7.83	5.83
R(D86:11a)	9.62	4.70	2.97	4.86	8.52	7.10

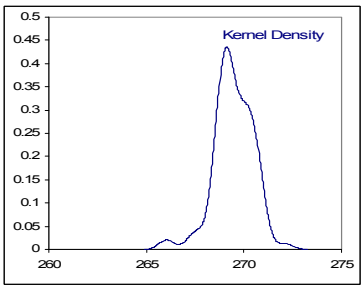


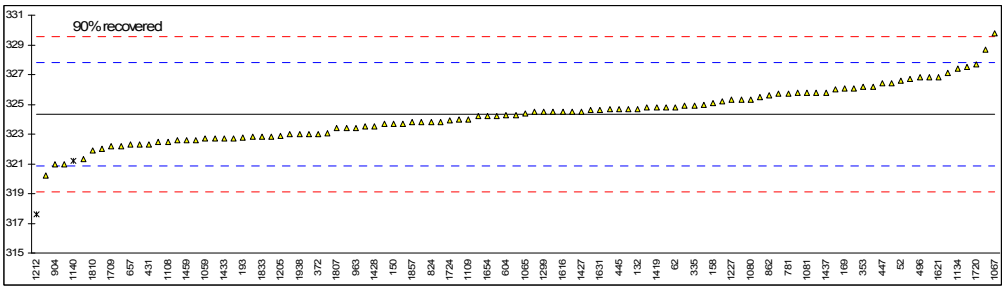


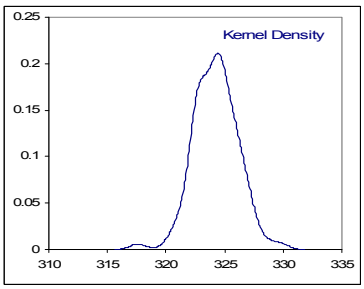


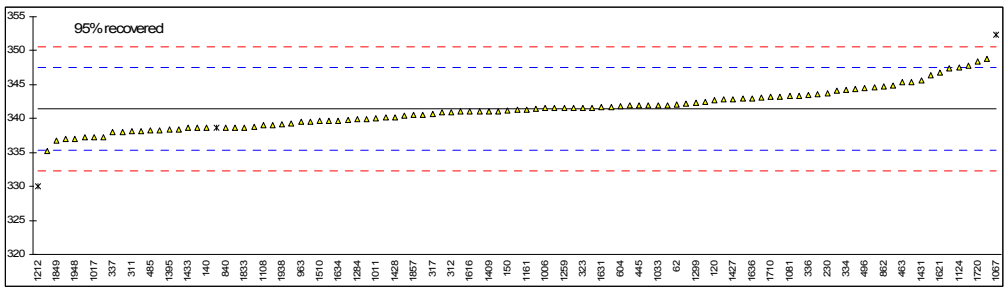


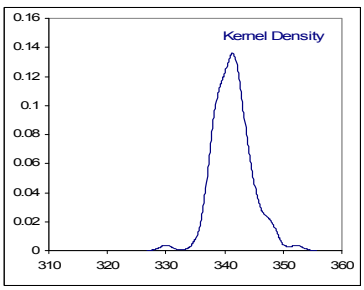


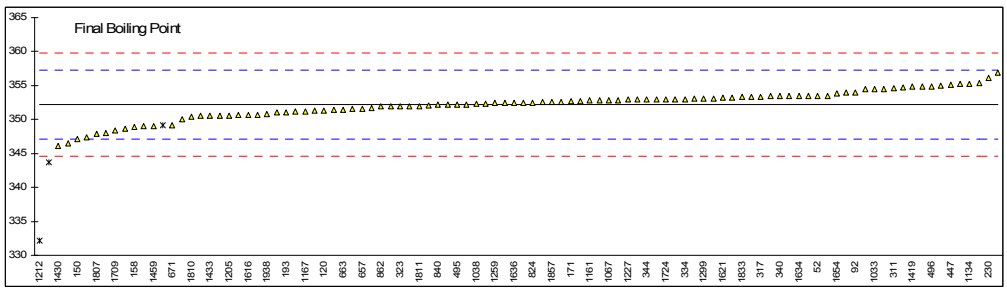


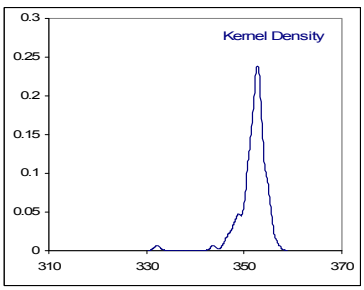










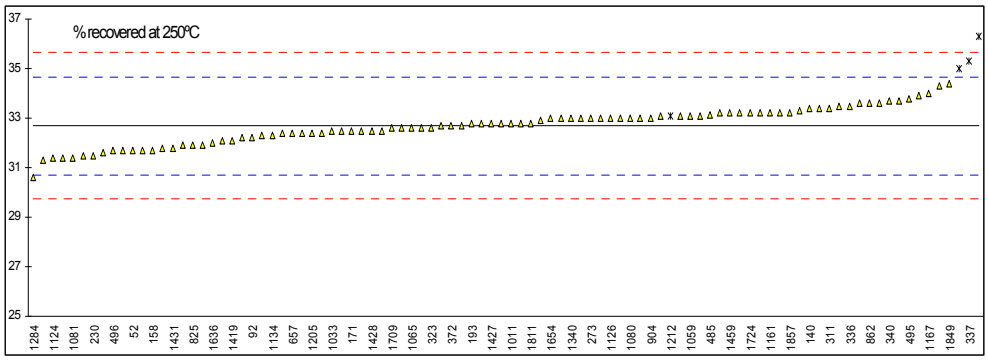


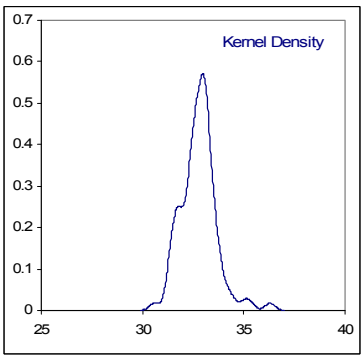
Determination of Distillation (automated) on sample #11074; result in %V/V

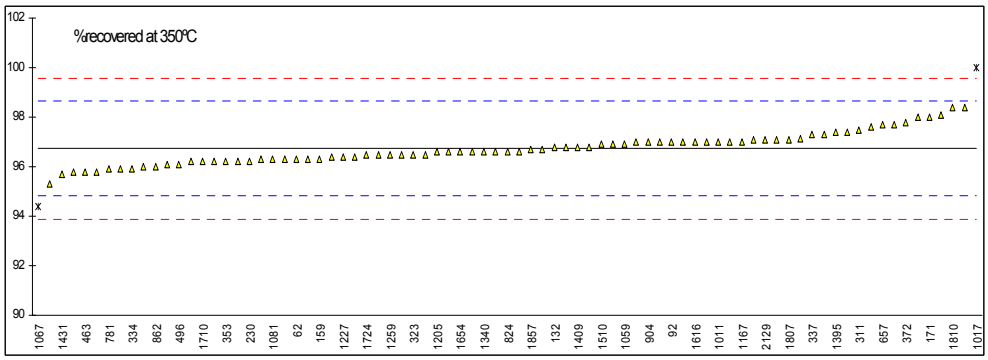
lab	method	%residue	mark	z(targ)	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)
51		-----		-----	-----		-----	-----		-----
52	D86	1.4		-----	31.7		-1.04	95.8		-0.98
62	D86	1.2		-----	32.4		-0.31	96.3		-0.45
92	D86	1.7		-----	32.2		-0.52	97.0		0.28
120	D86	1.5		-----	33.1		0.43	-----		-----
132	D86	1.4		-----	32.3		-0.41	96.8		0.07
140	D86	1.4		-----	33.4		0.75	-----		-----
150	D86	1.8		-----	33.0		0.33	-----		-----
158	D86	1.3		-----	31.7		-1.04	-----		-----
159	D86	1.7		-----	31.9		-0.83	96.3		-0.45
169	D86	1.4		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171	D86	0.5		-----	32.5	fr 30.2	-0.20	98.0		1.34
175	D86	1.3		-----	-----		-----	-----		-----
193	D86	1.5		-----	32.8		0.12	-----		-----
217		-----		-----	-----		-----	-----		-----
221		-----		-----	-----		-----	-----		-----
224		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
228		-----		-----	-----		-----	-----		-----
230	D86	1.4		-----	31.5		-1.25	96.2		-0.56
240		-----		-----	-----		-----	-----		-----
252		-----		-----	-----		-----	-----		-----
253		-----		-----	-----		-----	-----		-----
254		-----		-----	-----		-----	-----		-----
256		-----		-----	-----		-----	-----		-----
258	D86	1.6		-----	33.0		0.33	-----		-----
273	D86	2.9		-----	33.0		0.33	-----		-----
311	D86	0.2		-----	33.4		0.75	97.5		0.81
312	D86	2.0		-----	31.4		-1.36	96.6		-0.14
317	D86	0.9		-----	32.8		0.12	96.7		-0.03
323	D86	1.1		-----	32.6		-0.10	96.5		-0.24
334	D86	1.4		-----	32.2		-0.52	95.9		-0.87
335	D86	1.0		-----	33.1		0.43	96.2		-0.56
336	D86	1.4		-----	33.5		0.85	96.1		-0.66
337	D86	1.3		-----	35.3	DG(0.05)	2.75	97.3		0.60
338		-----		-----	-----		-----	-----		-----
340	D86	1.8		-----	33.7		1.06	96.6		-0.14
344		-----		-----	-----		-----	-----		-----
353	IP123	1.3		-----	31.7		-1.04	96.2		-0.56
370		-----		-----	-----		-----	-----		-----
372	D86	1.8		-----	32.7		0.01	97.8		1.13
430		-----		-----	-----		-----	-----		-----
431		-----		-----	-----		-----	-----		-----
445	D86	1.8		-----	31.6		-1.15	96.4		-0.35
447	D86	1.4		-----	32.4		-0.31	96.0		-0.77
463	D86	1.6		-----	31.8		-0.94	95.8		-0.98
485	D86	1.8		-----	33.15		0.48	98.00		1.34
495	D86	1.4		-----	33.8		1.17	97.1		0.39
496	D86	1.6		-----	31.7		-1.04	96.1		-0.66
507		-----		-----	-----		-----	-----		-----
511		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
562	D86	1.7		-----	32.4		-0.31	97.0		0.28
575		-----		-----	-----		-----	-----		-----
592		-----		-----	-----		-----	-----		-----
603		-----		-----	-----		-----	-----		-----
604	D86	1.4		-----	33.2		0.54	96.5		-0.24
608		-----		-----	-----		-----	-----		-----
631		-----		-----	-----		-----	-----		-----
657	D86	0.8		-----	32.4		-0.31	97.7		1.02
663	D86	1.6		-----	31.7		-1.04	-----		-----
671	D86	1.0		-----	35	DG(0.05)	2.43	-----		-----
732		-----		-----	-----		-----	-----		-----
759		-----		-----	-----		-----	-----		-----
781	D86	1.4		-----	32.7		0.01	95.9		-0.87
823		-----		-----	-----		-----	-----		-----
824	D86	1.2		-----	32.6		-0.10	96.6		-0.14
825	D86	1.3		-----	31.9		-0.83	95.9		-0.87
840	D86	1.4		-----	33.59		0.95	97.14		0.43
862	D86	1.7		-----	33.6		0.96	96.0		-0.77
863		-----		-----	-----		-----	-----		-----
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
887		-----		-----	-----		-----	-----		-----

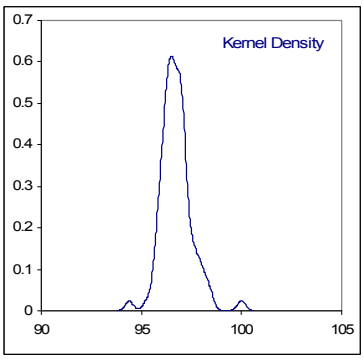
904	D86	1.2	-----	33.0		0.33	97.0		0.28
922		-----	-----	-----		-----	-----		-----
951		-----	-----	-----		-----	-----		-----
962		-----	-----	-----		-----	-----		-----
963	D86	1.5	-----	32.5		-0.20	97.0		0.28
971		-----	-----	-----		-----	-----		-----
994		-----	-----	-----		-----	-----		-----
995		-----	-----	-----		-----	-----		-----
996		-----	-----	-----		-----	-----		-----
997		-----	-----	-----		-----	-----		-----
998		-----	-----	-----		-----	-----		-----
1006	D86	1.6	-----	-----		-----	-----		-----
1011	D86	1.0	-----	32.8		0.12	97.0		0.28
1017	D86	2.0	-----	33.0		0.33	100.0	G(0.01)	3.44
1033	D86	2.0	-----	32.5		-0.20	96.5		-0.24
1038	D86	1.4	-----	-----		-----	-----		-----
1059	D86	2.0	-----	33.1		0.43	96.9		0.18
1065	D86	1.0	-----	32.6		-0.10	97.0		0.28
1067	D86	1.4	-----	31.9		-0.83	94.4	G(0.05)	-2.45
1080	D86	1.6	-----	33.0		0.33	96.2		-0.56
1081	D86	1.5	-----	31.4		-1.36	96.3		-0.45
1108	D86	1.1	-----	33.3		0.64	97.0		0.28
1109	D86	1.5	-----	32.8		0.12	96.8		0.07
1124	ISO3405	2.1	-----	31.4		-1.36	-----		-----
1126		-----	-----	33.0		0.33	97.4		0.70
1134	D86	2.5	-----	32.3		-0.41	95.3		-1.51
1140	D86	1.4	-----	36.3	G(0.01)	3.80	>100.0		-----
1146		-----	-----	-----		-----	-----		-----
1161	ISO3405	1.5	-----	33.2		0.54	-----		-----
1167	ISO3405	1.0	-----	34.0		1.38	97.0		0.28
1171		-----	-----	-----		-----	-----		-----
1186		-----	-----	-----		-----	-----		-----
1205	D86	1.8	-----	32.4		-0.31	96.6		-0.14
1212	D86	2.1	-----	33.1	ex	0.43	-----		-----
1227	D86	1.0	-----	32.1		-0.62	96.4		-0.35
1259	D86	1.4	-----	32.5		-0.20	96.5		-0.24
1284	D86	1.8	-----	30.6		-2.20	97.3		0.60
1297		-----	-----	-----		-----	-----		-----
1299	D86	1.5	-----	32.5		-0.20	96.3		-0.45
1340	ISO3405	1.4	-----	33.0		0.33	96.6		-0.14
1395	D86	1.4	-----	33.2		0.54	97.4		0.70
1399	D86	1.0	-----	34.3		1.69	-----		-----
1409	D86	1.6	-----	33.1		0.43	96.8		0.07
1419		-----	-----	32.1		-0.62	96.6		-0.14
1427	D86	1.4	-----	32.8		0.12	96.3		-0.45
1428	ISO3405	1.7	-----	32.5		-0.20	97.0		0.28
1430		-----	-----	-----		-----	-----		-----
1431	D86	2.6	-----	31.8		-0.94	95.7		-1.09
1433	D86	1.2	-----	33.0		0.33	96.8		0.07
1437	D86	1.6	-----	31.3		-1.46	96.6		-0.14
1451		-----	-----	-----		-----	-----		-----
1454		-----	-----	-----		-----	-----		-----
1459	D86	1.4	-----	33.2		0.54	98.1		1.44
1510	D86	1.4	-----	33.7		1.06	96.9		0.18
1616	D86	1.6	-----	31.5		-1.25	97.0		0.28
1621	D86	1.0	-----	32.6		-0.10	95.8		-0.98
1629		-----	-----	-----		-----	-----		-----
1631	D86	1.15	-----	32.7		0.01	96.3		-0.45
1634	D86	1.4	-----	33.2		0.54	97.6	fr 98.7	0.91
1636	D86	1.4	-----	32.0		-0.73	96.4		-0.35
1643		-----	-----	-----		-----	-----		-----
1654	D86	1.5	-----	33.0		0.33	96.6		-0.14
1709	D86	1.4	-----	32.6		-0.10	-----		-----
1710	D86	1.5	-----	32.9		0.22	96.2		-0.56
1720	D86	1.4	-----	33.4		0.75	96.2		-0.56
1724	D86	1.4	-----	33.2		0.54	96.5		-0.24
1807	D86	1.8	-----	33.5		0.85	97.1		0.39
1810	D86	0.5	-----	32.8		0.12	98.4		1.76
1811	D86	0.5	-----	32.8		0.12	98.4		1.76
1833	D86	1.4	-----	33.6		0.96	97.1		0.39
1849	ISO3405	1.4	-----	34.4		1.80	96.5		-0.24
1857	D86	1.4	-----	33.2		0.54	96.7		-0.03
1862		-----	-----	-----		-----	-----		-----
1906		-----	-----	-----		-----	-----		-----
1915		-----	-----	-----		-----	-----		-----
1938	D86	1.8	-----	33.2		0.54	96.9		0.18
1948	D86	1.0	-----	33.9		1.27	97.7		1.02
1949		-----	-----	-----		-----	-----		-----
2129	D86	1.3	-----	33.0		0.33	97.1		0.39

normality	not OK	not OK
n	92	79
outliers	3	2
mean (n)	32.69	96.73
st.dev. (n)	0.727	0.634
R(calc.)	2.04	1.78
R(D86:11a)	2.66	2.66







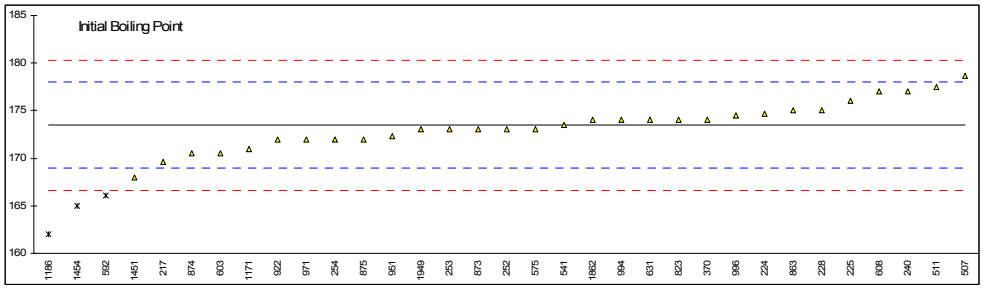


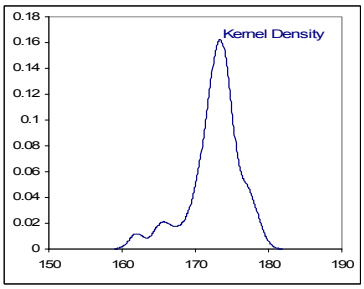
Determination of Distillation (manual) on sample #11074; result in °C

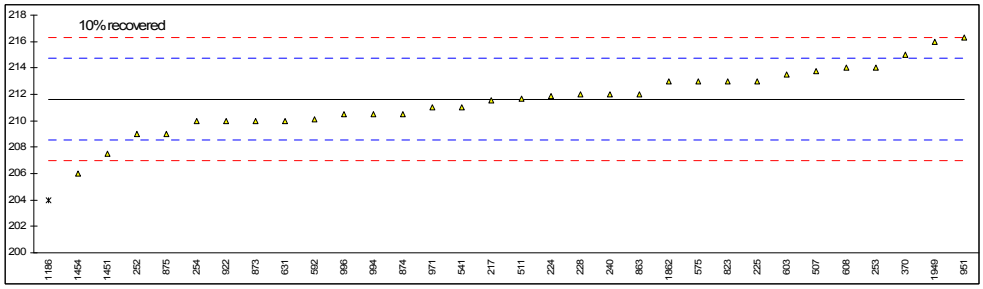
lab	method	IBP	mark	10%rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
51		-----		-----		-----		-----		-----		-----	
52		-----		-----		-----		-----		-----		-----	
62		-----		-----		-----		-----		-----		-----	
92		-----		-----		-----		-----		-----		-----	
120		-----		-----		-----		-----		-----		-----	
132		-----		-----		-----		-----		-----		-----	
140		-----		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----		-----	
158		-----		-----		-----		-----		-----		-----	
159		-----		-----		-----		-----		-----		-----	
169		-----		-----		-----		-----		-----		-----	
170		-----		-----		-----		-----		-----		-----	
171		-----		-----		-----		-----		-----		-----	
175		-----		-----		-----		-----		-----		-----	
193		-----		-----		-----		-----		-----		-----	
217	D86	169.56		211.52		266.47		323.41		339.39		350.18	
221		-----		-----		-----		-----		-----		-----	
224	D86	174.68		211.85		268.69		326.69		346.03		352.03	
225	D86	176.0		213.0		269.0		326.0		348.0		352.0	
228	D86	175.0		212.0		269.0		326.0		343.0		352.0	
230		-----		-----		-----		-----		-----		-----	
240	D86	177.0		212.0		269.0		326.0		345.0		353.0	
252	D86	173.0		209.0		268.0		324.0		-----		351.0	
253	D86	173.0		214.0		269.0		324.0		341.0		354.0	
254	D86	172.0		210.0		268.0		323.0		-----		352.0	
256		-----		-----		-----		-----		-----		-----	
258		-----		-----		-----		-----		-----		-----	
273		-----		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----		-----	
317		-----		-----		-----		-----		-----		-----	
323		-----		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----		-----	
335		-----		-----		-----		-----		-----		-----	
336		-----		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----		-----	
338		-----		-----		-----		-----		-----		-----	
340		-----		-----		-----		-----		-----		-----	
344		-----		-----		-----		-----		-----		-----	
353		-----		-----		-----		-----		-----		-----	
370	D86	174.0		215.0		268.5		324.5		341.0		353.0	
372		-----		-----		-----		-----		-----		-----	
430		-----		-----		-----		-----		-----		-----	
431		-----		-----		-----		-----		-----		-----	
445		-----		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----		-----	
485		-----		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----		-----	
496		-----		-----		-----		-----		-----		-----	
507	D86	178.70		213.75		269.30		325.80		342.30		356.30	
511	D86	177.5		211.7		268.3		325.1		342.5		353.5	
529		-----		-----		-----		-----		-----		-----	
541	D86	173.5		211.0		268.5		321.5		-----		353.0	
557		-----		-----		-----		-----		-----		-----	
562		-----		-----		-----		-----		-----		-----	
575	D86	173		213		270		326		343		351	
592	D86	166.1	DG(5)	210.1		267.3		322.3		337.6		351.8	
603	D86	170.5		213.5		268.0		322.5		343.5		349.0	
604		-----		-----		-----		-----		-----		-----	
608	D86	177.0		214.0		270.0		326.0		343.0		353.5	
631	D86	174.0		210.0		268.0		321.0		335.0	fr 337.0	350.0	
657		-----		-----		-----		-----		-----		-----	
663		-----		-----		-----		-----		-----		-----	
671		-----		-----		-----		-----		-----		-----	
732		-----		-----		-----		-----		-----		-----	
759		-----		-----		-----		-----		-----		-----	
781		-----		-----		-----		-----		-----		-----	
823	D86	174.0		213.0		268.4		327.9		342.8		357.6	fr 457.6
824		-----		-----		-----		-----		-----		-----	
825		-----		-----		-----		-----		-----		-----	
840		-----		-----		-----		-----		-----		-----	
862		-----		-----		-----		-----		-----		-----	
863	D86	175.0		212.0		268.5		323.5		341.5		353.0	
873	D86	173.0		210.0		268.5		325.0		344.0		352.0	
874	D86	170.5		210.5		268.5		325.0		343.0		352.0	
875	D86	172.0		209.0		268.5		323.5		341.5		351.0	
887		-----		-----		-----		-----		-----		-----	

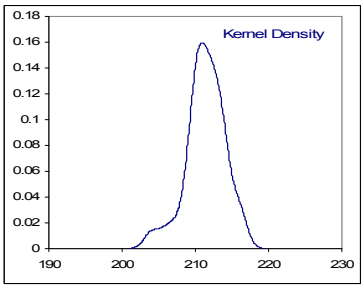
904		-----		-----		-----		-----		-----		-----
922	D86	172		210		268		323		337		350
951	D86	172.36		216.29		270.22		326.14		346.11		356.09
962		-----		-----		-----		-----		-----		-----
963		-----		-----		-----		-----		-----		-----
971	D86	172.0		211.0		268.0		321.5		336.0		354.0
994	D86	174.0		210.5		270.0		323.0		342.0		350.5
995		-----		-----		-----		-----		-----		-----
996	D86	174.5		210.5		269.5		325.5		342.5		350.5
997		-----		-----		-----		-----		-----		-----
998		-----		-----		-----		-----		-----		-----
1006		-----		-----		-----		-----		-----		-----
1011		-----		-----		-----		-----		-----		-----
1017		-----		-----		-----		-----		-----		-----
1033		-----		-----		-----		-----		-----		-----
1038		-----		-----		-----		-----		-----		-----
1059		-----		-----		-----		-----		-----		-----
1065		-----		-----		-----		-----		-----		-----
1067		-----		-----		-----		-----		-----		-----
1080		-----		-----		-----		-----		-----		-----
1081		-----		-----		-----		-----		-----		-----
1108		-----		-----		-----		-----		-----		-----
1109		-----		-----		-----		-----		-----		-----
1124		-----		-----		-----		-----		-----		-----
1126		-----		-----		-----		-----		-----		-----
1134		-----		-----		-----		-----		-----		-----
1140		-----		-----		-----		-----		-----		-----
1146		-----		-----		-----		-----		-----		-----
1161		-----		-----		-----		-----		-----		-----
1167		-----		-----		-----		-----		-----		-----
1171	ISO3405	171.00		-----		-----		-----		-----		-----
1186	D86	162	C,G(5)	204	C,ex	263	C,G(1)	321	C,ex	347.9	ex	331	C,G(1)
1205		-----		-----		-----		-----		-----		-----
1212		-----		-----		-----		-----		-----		-----
1227		-----		-----		-----		-----		-----		-----
1259		-----		-----		-----		-----		-----		-----
1284		-----		-----		-----		-----		-----		-----
1297		-----		-----		-----		-----		-----		-----
1299		-----		-----		-----		-----		-----		-----
1340		-----		-----		-----		-----		-----		-----
1395		-----		-----		-----		-----		-----		-----
1399		-----		-----		-----		-----		-----		-----
1409		-----		-----		-----		-----		-----		-----
1419		-----		-----		-----		-----		-----		-----
1427		-----		-----		-----		-----		-----		-----
1428		-----		-----		-----		-----		-----		-----
1430		-----		-----		-----		-----		-----		-----
1431		-----		-----		-----		-----		-----		-----
1433		-----		-----		-----		-----		-----		-----
1437		-----		-----		-----		-----		-----		-----
1451	D86	168.0		207.5		266.0		321.5		337.0		354.5
1454	D86	165	DG(5)	206		266		322		340		348
1459		-----		-----		-----		-----		-----		-----
1510		-----		-----		-----		-----		-----		-----
1616		-----		-----		-----		-----		-----		-----
1621		-----		-----		-----		-----		-----		-----
1629		-----		-----		-----		-----		-----		-----
1631		-----		-----		-----		-----		-----		-----
1634		-----		-----		-----		-----		-----		-----
1636		-----		-----		-----		-----		-----		-----
1643		-----		-----		-----		-----		-----		-----
1654		-----		-----		-----		-----		-----		-----
1709		-----		-----		-----		-----		-----		-----
1710		-----		-----		-----		-----		-----		-----
1720		-----		-----		-----		-----		-----		-----
1724		-----		-----		-----		-----		-----		-----
1807		-----		-----		-----		-----		-----		-----
1810		-----		-----		-----		-----		-----		-----
1811		-----		-----		-----		-----		-----		-----
1833		-----		-----		-----		-----		-----		-----
1849		-----		-----		-----		-----		-----		-----
1857		-----		-----		-----		-----		-----		-----
1862	D86	174.0		213.0		269.0		325.5		344.5		355.0
1906		-----		-----		-----		-----		-----		-----
1915		-----		-----		-----		-----		-----		-----
1938		-----		-----		-----		-----		-----		-----
1948		-----		-----		-----		-----		-----		-----
1949	D86	173.0		216.0		270.0		325.0		344.5		351.5
2129		-----		-----		-----		-----		-----		-----

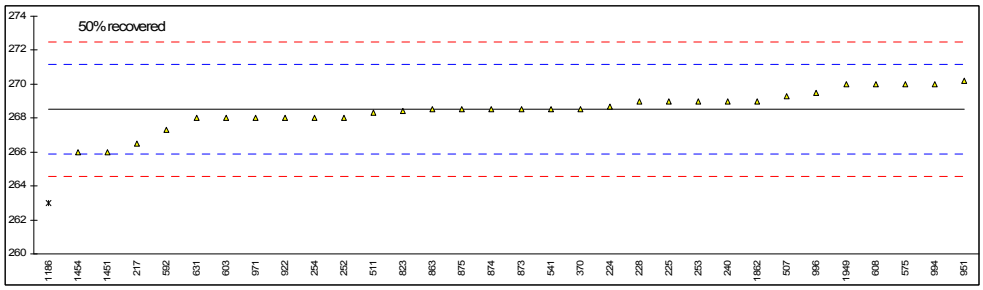
normality	OK	OK	not OK	OK	OK	OK
n	30	31	31	31	28	31
outliers	3	0	1	0	0	1
mean (n)	173.46	211.64	268.52	324.25	341.88	352.35
st.dev. (n)	2.374	2.31	1.072	1.807	3.159	2.148
R(calc.)	6.65	6.46	3.00	5.06	8.84	6.02
R(D86:11a)	6.35	4.33	3.67	3.97	5.54	3.98

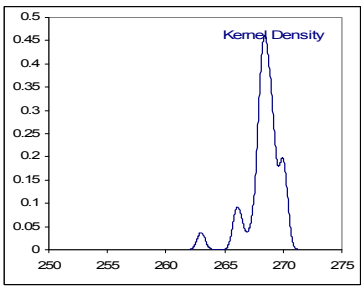


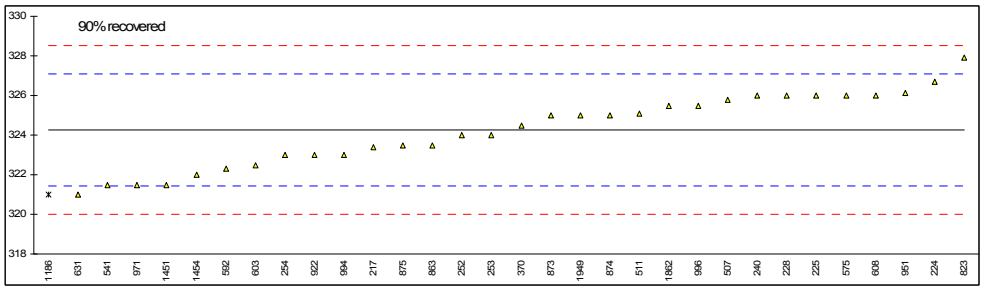


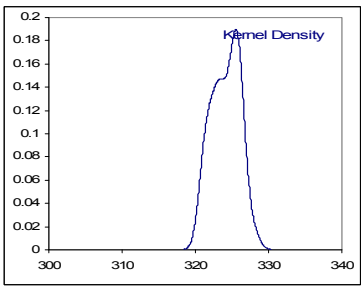


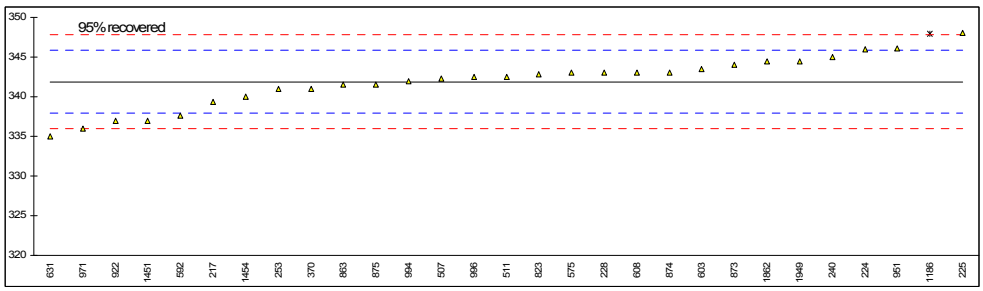


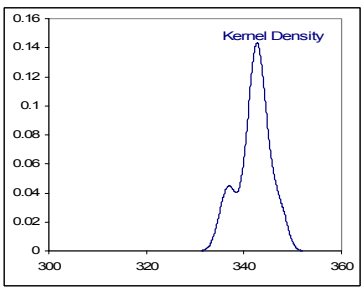


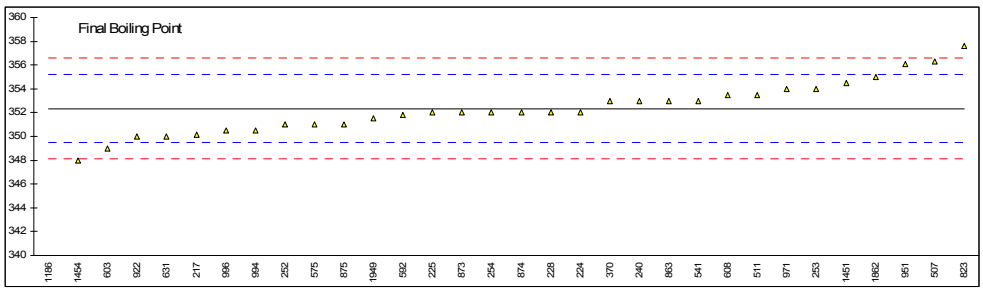


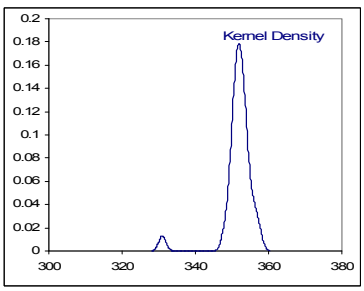










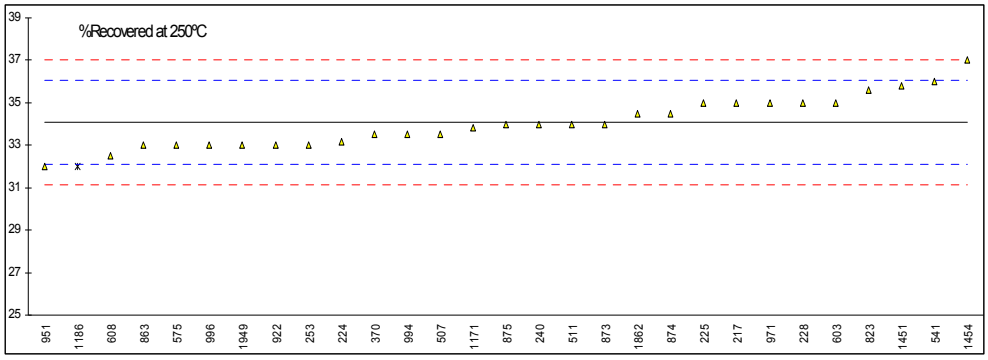


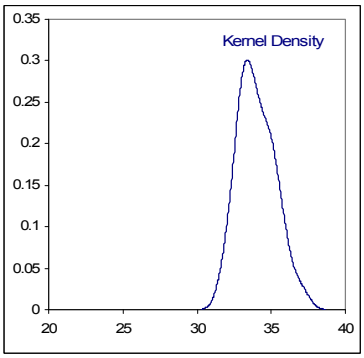
Determination of Distillation (Manual) on sample #11074; result in %V/V

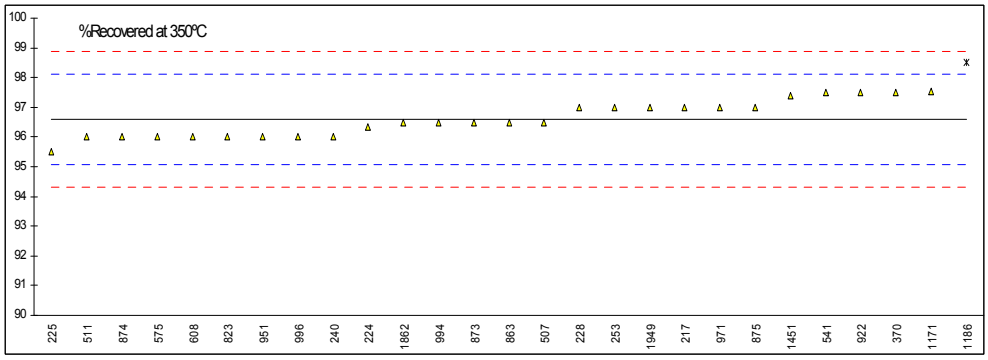
lab	method	%residue	mark	z(targ)	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)
51		-----		-----	-----		-----	-----		-----
52		-----		-----	-----		-----	-----		-----
62		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
120		-----		-----	-----		-----	-----		-----
132		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
169		-----		-----	-----		-----	-----		-----
170		-----		-----	-----		-----	-----		-----
171		-----		-----	-----		-----	-----		-----
175		-----		-----	-----		-----	-----		-----
193		-----		-----	-----		-----	-----		-----
217	D86	1.1		-----	35.0		0.93	97.0		0.52
221		-----		-----	-----		-----	-----		-----
224	D86	1.8		-----	33.17		-0.93	96.33		-0.36
225		-----		-----	35.0		0.93	95.5		-1.45
228	D86	1.5		-----	35.0		0.93	97.0		0.52
230		-----		-----	-----		-----	-----		-----
240	D86	1.6		-----	34.0		-0.09	96.0		-0.80
252		-----		-----	-----		-----	-----		-----
253	D86	1.4		-----	33.0		-1.10	97.0		0.52
254		-----		-----	-----		-----	-----		-----
256		-----		-----	-----		-----	-----		-----
258		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311		-----		-----	-----		-----	-----		-----
312		-----		-----	-----		-----	-----		-----
317		-----		-----	-----		-----	-----		-----
323		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
338		-----		-----	-----		-----	-----		-----
340		-----		-----	-----		-----	-----		-----
344		-----		-----	-----		-----	-----		-----
353		-----		-----	-----		-----	-----		-----
370	D86	1.5		-----	33.5		-0.60	97.5		1.17
372		-----		-----	-----		-----	-----		-----
430		-----		-----	-----		-----	-----		-----
431		-----		-----	-----		-----	-----		-----
445		-----		-----	-----		-----	-----		-----
447		-----		-----	-----		-----	-----		-----
463		-----		-----	-----		-----	-----		-----
485		-----		-----	-----		-----	-----		-----
495		-----		-----	-----		-----	-----		-----
496		-----		-----	-----		-----	-----		-----
507	D86	1		-----	33.50		-0.60	96.50		-0.14
511	D86	1.0		-----	34.0		-0.09	96.0		-0.80
529		-----		-----	-----		-----	-----		-----
541	D86	1.5		-----	36.0		1.95	97.5		1.17
557		-----		-----	-----		-----	-----		-----
562		-----		-----	-----		-----	-----		-----
575	D86	1.7		-----	33		-1.10	96.0		-0.80
592	D86	1.7		-----	-----		-----	-----		-----
603	D86	1.4		-----	35.0		0.93	-----		-----
604		-----		-----	-----		-----	-----		-----
608	D86	1.6		-----	32.5		-1.61	96.0		-0.80
631	D86	1.0		-----	-----		-----	-----		-----
657		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
671		-----		-----	-----		-----	-----		-----
732		-----		-----	-----		-----	-----		-----
759		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
823	D86	1.0		-----	35.6		1.54	96.0		-0.80
824		-----		-----	-----		-----	-----		-----
825		-----		-----	-----		-----	-----		-----
840		-----		-----	-----		-----	-----		-----
862		-----		-----	-----		-----	-----		-----
863	D86	1.2		-----	33.0		-1.10	96.5		-0.14
873	D86	2.0		-----	34.0		-0.09	96.5		-0.14
874	D86	0.0	ex	-----	34.5		0.42	96.0		-0.80
875	D86	1.4		-----	34.0		-0.09	97.0		0.52
887		-----		-----	-----		-----	-----		-----

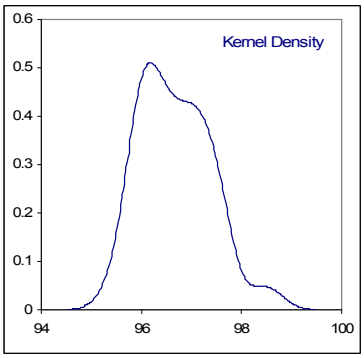
904		-----	-----	-----		-----	-----		-----
922	D86	1.2	-----	33		-1.10	97.5		1.17
951	D86	1	-----	32		-2.12	96		-0.80
962		-----	-----	-----		-----	-----		-----
963		-----	-----	-----		-----	-----		-----
971	D86	1.5	-----	35.0		0.93	97.0		0.52
994	D86	1.5	-----	33.5		-0.60	96.5		-0.14
995		-----	-----	-----		-----	-----		-----
996	D86	2.0	-----	33.0		-1.10	96.0		-0.80
997		-----	-----	-----		-----	-----		-----
998		-----	-----	-----		-----	-----		-----
1006		-----	-----	-----		-----	-----		-----
1011		-----	-----	-----		-----	-----		-----
1017		-----	-----	-----		-----	-----		-----
1033		-----	-----	-----		-----	-----		-----
1038		-----	-----	-----		-----	-----		-----
1059		-----	-----	-----		-----	-----		-----
1065		-----	-----	-----		-----	-----		-----
1067		-----	-----	-----		-----	-----		-----
1080		-----	-----	-----		-----	-----		-----
1081		-----	-----	-----		-----	-----		-----
1108		-----	-----	-----		-----	-----		-----
1109		-----	-----	-----		-----	-----		-----
1124		-----	-----	-----		-----	-----		-----
1126		-----	-----	-----		-----	-----		-----
1134		-----	-----	-----		-----	-----		-----
1140		-----	-----	-----		-----	-----		-----
1146		-----	-----	-----		-----	-----		-----
1161		-----	-----	-----		-----	-----		-----
1167		-----	-----	-----		-----	-----		-----
1171	ISO3405	2.00	-----	33.82		-0.27	97.53		1.21
1186	D86	1.75	-----	32.0	ex	-2.12	98.5	C,ex	2.49
1205		-----	-----	-----		-----	-----		-----
1212		-----	-----	-----		-----	-----		-----
1227		-----	-----	-----		-----	-----		-----
1259		-----	-----	-----		-----	-----		-----
1284		-----	-----	-----		-----	-----		-----
1297		-----	-----	-----		-----	-----		-----
1299		-----	-----	-----		-----	-----		-----
1340		-----	-----	-----		-----	-----		-----
1395		-----	-----	-----		-----	-----		-----
1399		-----	-----	-----		-----	-----		-----
1409		-----	-----	-----		-----	-----		-----
1419		-----	-----	-----		-----	-----		-----
1427		-----	-----	-----		-----	-----		-----
1428		-----	-----	-----		-----	-----		-----
1430		-----	-----	-----		-----	-----		-----
1431		-----	-----	-----		-----	-----		-----
1433		-----	-----	-----		-----	-----		-----
1437		-----	-----	-----		-----	-----		-----
1451	D86	1.2	-----	35.8		1.74	97.4		1.04
1454	D86	1.8	-----	37		2.97	-----		-----
1459		-----	-----	-----		-----	-----		-----
1510		-----	-----	-----		-----	-----		-----
1616		-----	-----	-----		-----	-----		-----
1621		-----	-----	-----		-----	-----		-----
1629		-----	-----	-----		-----	-----		-----
1631		-----	-----	-----		-----	-----		-----
1634		-----	-----	-----		-----	-----		-----
1636		-----	-----	-----		-----	-----		-----
1643		-----	-----	-----		-----	-----		-----
1654		-----	-----	-----		-----	-----		-----
1709		-----	-----	-----		-----	-----		-----
1710		-----	-----	-----		-----	-----		-----
1720		-----	-----	-----		-----	-----		-----
1724		-----	-----	-----		-----	-----		-----
1807		-----	-----	-----		-----	-----		-----
1810		-----	-----	-----		-----	-----		-----
1811		-----	-----	-----		-----	-----		-----
1833		-----	-----	-----		-----	-----		-----
1849		-----	-----	-----		-----	-----		-----
1857		-----	-----	-----		-----	-----		-----
1862	D86	1.5	-----	34.5		0.42	96.5		-0.14
1906		-----	-----	-----		-----	-----		-----
1915		-----	-----	-----		-----	-----		-----
1938		-----	-----	-----		-----	-----		-----
1948		-----	-----	-----		-----	-----		-----
1949	D86	1.4	-----	33.0		-1.10	97.0		0.52
2129		-----	-----	-----		-----	-----		-----

normality	OK	not OK
n	28	26
outliers	0	0
mean (n)	34.09	96.61
st.dev. (n)	1.183	0.604
R(calc.)	3.31	1.69
R(D86:11a)	2.75	2.13









Determination of FAME Content on sample #11074; result in %V/V

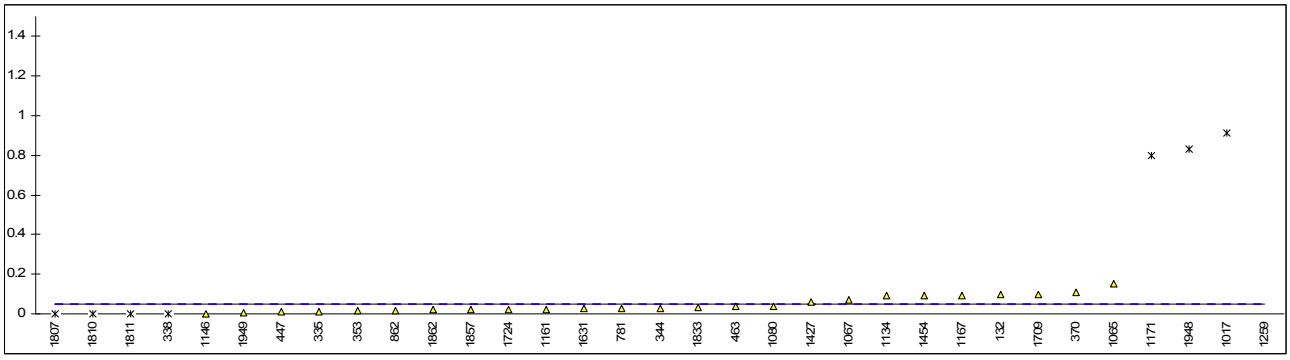
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52		-----		-----	887		-----		-----
62		-----		-----	904		-----		-----
92		-----		-----	922		-----		-----
120	D7371	<1.00		-----	951		-----		-----
132	D7371	0.1		-----	962		-----		-----
140		-----		-----	963		-----		-----
150	D7371	<0.25		-----	971		-----		-----
158		-----		-----	994		-----		-----
159		-----		-----	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D7371	<0.01		-----	998		-----		-----
175		-----		-----	1006	EN14078	n.d.		-----
193		-----		-----	1011	EN14078	<0.05		-----
217		-----		-----	1017	EN14078	0.91522	G(0.05)	-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038		-----		-----
225		-----		-----	1059	EN14078	<0.05		-----
228		-----		-----	1065	EN14078	0.15		-----
230		-----		-----	1067	EN14078	0.073		-----
240		-----		-----	1080	EN14078	0.04		-----
252		-----		-----	1081		-----		-----
253		-----		-----	1108		-----		-----
254		-----		-----	1109		-----		-----
256		-----		-----	1124	EN14078	<0.05		-----
258		-----		-----	1126		-----		-----
273		-----		-----	1134	EN14078	0.09		-----
311	EN14078	<0.05		-----	1140	D7371	<0.1		-----
312	EN14078	<0.05		-----	1146	D7371	0.00099		-----
317		-----		-----	1161	EN14078	0.023		-----
323	EN14078	<0.05		-----	1167	EN14078	0.0919		-----
334		-----		-----	1171	EN14078	0.80	G(0.01)	-----
335	EN14078	0.01		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	INH-1111	<0.05		-----
338	EN14078	0.0	ex	-----	1227		-----		-----
340	EN14078	<0.05		-----	1259	D7371	3.191	G(0.01)	-----
344	EN14078	0.027		-----	1284		-----		-----
353	EN14078	0.0137		-----	1297		-----		-----
370	EN14078	0.11		-----	1299	D7371	<0.05		-----
372	D7371	<1.00		-----	1340		-----		-----
430		-----		-----	1395	D7371	<0.01		-----
431		-----		-----	1399		-----		-----
445	EN14078	<0.05		-----	1409	EN14078	<0.05		-----
447	EN14078	0.01		-----	1419	EN14078	<0.05		-----
463	EN14078	0.04		-----	1427	D7371	0.062		-----
485		-----		-----	1428	EN14078	<0.05		-----
495	EN14078	<0.05		-----	1430		-----		-----
496	EN14078	<0.1		-----	1431		-----		-----
507		-----		-----	1433		-----		-----
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541		-----		-----	1454	EN14078	0.09		-----
557		-----		-----	1459	D7371	<0.02		-----
562		-----		-----	1510		-----		-----
575		-----		-----	1616		-----		-----
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631	EN14078	0.0258		-----
608		-----		-----	1634		-----		-----
631		-----		-----	1636		-----		-----
657	EN14078	<1.7		-----	1643		-----		-----
663		-----		-----	1654		-----		-----
671		-----		-----	1709	EN14078	0.1		-----
732		-----		-----	1710	EN14078	<0.05		-----
759		-----		-----	1720		-----		-----
781	EN14078	0.0268		-----	1724	EN14078	0.021		-----
823		-----		-----	1807	EN14078	0.00	ex	-----
824		-----		-----	1810	D7371	0.0	ex	-----
825		-----		-----	1811	D7371	0	ex	-----
840		-----		-----	1833	D7371	0.03		-----
862	D7371	0.019		-----	1849		-----		-----
863		-----		-----	1857	EN14078	0.020		-----
873	EN14078	<0.1		-----	1862	EN14078	0.020		-----
874		-----		-----	1906		-----		-----

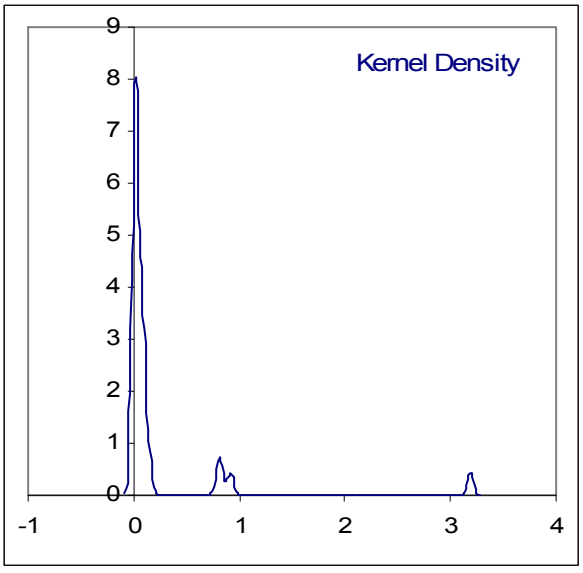
1915		-----		-----
1938		-----		-----
1948	EN14078	0.83	G(0.01)	-----
1949	EN14078	0.007		-----
2129	EN14078	<0.2		-----

normality	not OK
n	25
outliers	4
mean (n)	0.048
st.dev. (n)	0.0406
R(calc.)	0.114
R(D7371:07)	(0.713)

Application range ASTM D7371 = 1.0 – 20%V/V
Compare R(EN14078) = 0.026

Lab 338 result excluded zero is not a real result
Lab 1807 result excluded zero is not a real result
Lab 1810 result excluded zero is not a real result
Lab 1811 result excluded zero is not a real result





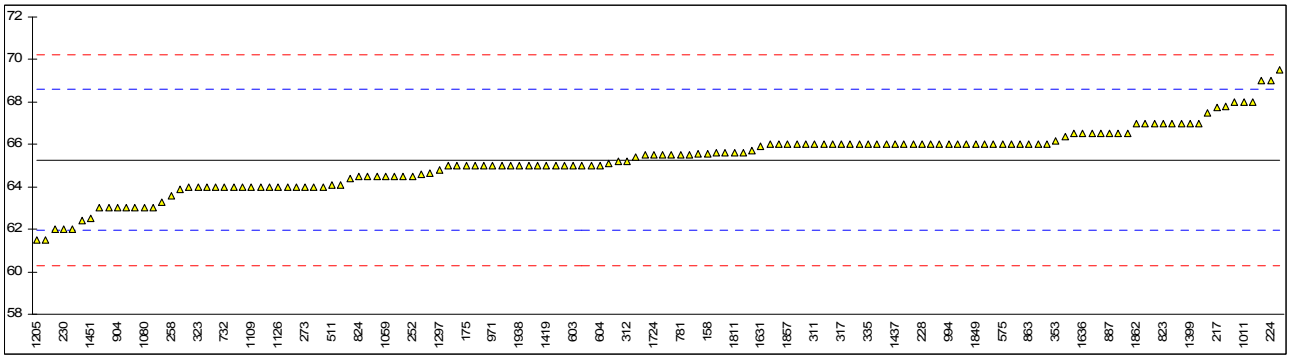
Determination of Flash Point PMcc,on sample #11074; result in °C

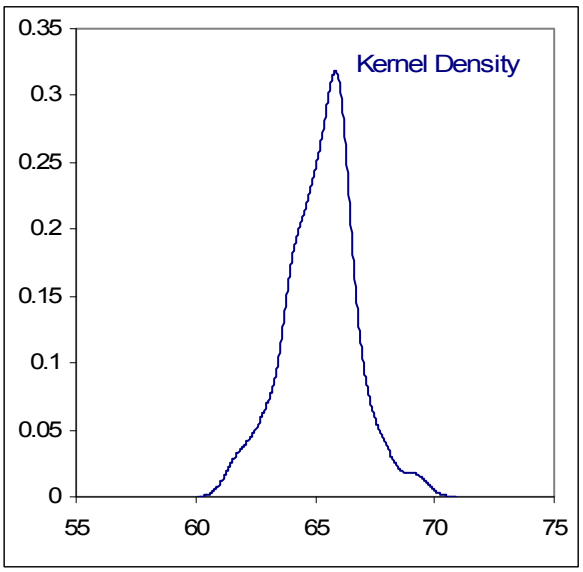
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D93A	65.0		-0.16
52	D93A	64.0		-0.77	887	D93A	66.5		0.74
62	D93A	66.0		0.44	904	D93A	63.0		-1.37
92	D93A	64.0		-0.77	922	D93A	66.0		0.44
120	D93A	64.4		-0.52	951	D93A	64.57		-0.42
132	D93A	65.0		-0.16	962		-----		-----
140	D93A	65.6		0.20	963	D93A	64.0		-0.77
150	D93A	66.5		0.74	971	D93A	65.0		-0.16
158	D93A	65.6	U, reported in F	0.18	994	D93A	66.0		0.44
159	D93A	61.5		-2.28	995		-----		-----
169	D93A	65.6		0.20	996	D93A	65.5		0.14
170		-----		-----	997		-----		-----
171	D93A	63.3		-1.19	998		-----		-----
175	D93A	65		-0.16	1006	D93A	65		-0.16
193	D93A	65.55		0.17	1011	D93A	68		1.65
217	D93A	67.72		1.48	1017	D93A	66.0		0.44
221	D93A	62.0		-1.97	1033	IP34A	67.8		1.53
224	D93A	69.02		2.27	1038	D93A	64.0		-0.77
225	D93	64.0		-0.77	1059	ISO2719A	64.5		-0.46
228	D93A	66.0		0.44	1065	D93	63		-1.37
230	D93A	62.0		-1.97	1067	D93A	69.0		2.26
240	D93A	63.0		-1.37	1080	D93A	63.0		-1.37
252	D93A	64.5		-0.46	1081	D93AE	66.0		0.44
253	D93A	66.0		0.44	1108	D93A	65.0		-0.16
254	D93A	64.0		-0.77	1109	D93A	64.0		-0.77
256		-----		-----	1124	ISO3679	66.38		0.67
258	D93A	63.59		-1.01	1126	D93	64.0		-0.77
273	D93	64		-0.77	1134	D93A	64.5		-0.46
311	D93A	66.0		0.44	1140	D93	65.0		-0.16
312	D93A	65.2		-0.04	1146	D93A	65.0		-0.16
317	D93A	66.0		0.44	1161	ISO2719	66.5		0.74
323	D93A	64.0		-0.77	1167	ISO2719A	65		-0.16
334	D93A	66		0.44	1171	ISO2719A	65.43		0.10
335	D93A	66.0		0.44	1186		-----		-----
336	D93A	66.0		0.44	1205	D93A	61.5		-2.28
337	D93A	67.0		1.05	1212	D93A	66.0		0.44
338	ISO2719	66		0.44	1227	D93A	63.9		-0.83
340	D93	65.0		-0.16	1259	D93A	68.0		1.65
344	D93A	65.0		-0.16	1284	D93A	63.0		-1.37
353	IP34A	66.175		0.55	1297	D93A	64.8		-0.28
370	D93A	66.0		0.44	1299	D93A	69.5		2.56
372	D93A	64.0		-0.77	1340	ISO2719A	66.5		0.74
430		-----		-----	1395		-----		-----
431		-----		-----	1399	D93C	67.0		1.05
445	D93A	67.0		1.05	1409	D93A	66.5		0.74
447	D93A	65.6		0.20	1419	EN ISO2719A	65		-0.16
463	D93A	66.0		0.44	1427	D93A	67.0		1.05
485	D93A	66.0		0.44	1428	ISO2719A	64.5		-0.46
495	D93A	66.0		0.44	1430		-----		-----
496	D93A	65.1		-0.10	1431	D93A	65.2		-0.04
507	D93	64.50		-0.46	1433	D93	66		0.44
511	D93A	64.1		-0.71	1437	D93A	66.0		0.44
529	D93	68		1.65	1451	D93A	62.5		-1.67
541	D93	66.0		0.44	1454	D93A	66.0		0.44
557		-----		-----	1459	D93A	64.5		-0.46
562	D93A	67.5		1.35	1510	D93A	65		-0.16
575	D93	66		0.44	1616	D93-A	66.0		0.44
592		-----		-----	1621	D93A	64.0		-0.77
603	D93A	65.0		-0.16	1629	D93A	62.4		-1.73
604	D93A	65.0		-0.16	1631	D93A	65.9		0.38
608	D93A	64.62		-0.39	1634	D93A	66.0		0.44
631	D93A	63.0		-1.37	1636	D93A	66.5		0.74
657	D93A	66.0		0.44	1643	D93A	67		1.05
663	D93A	65.0		-0.16	1654	D93A	66.5		0.74
671	D93A	63		-1.37	1709	D93A	64		-0.77
732	D93A	64.0		-0.77	1710	D93A	65.0		-0.16
759		-----		-----	1720	D93B	65.5		0.14
781	D93A	65.5		0.14	1724	D93	65.5		0.14
823	D93A	67.0		1.05	1807	D93A	66.0		0.44
824	D93A	64.5		-0.46	1810	D93A	65.5		0.14
825	D93A	65.5		0.14	1811	D93A	65.6		0.20
840	D93A	64.1		-0.71	1833	D93A	64		-0.77
862	D93A	64.0		-0.77	1849	ISO2719A	66		0.44
863	D93A	66.0		0.44	1857	D93A	66.0		0.44
873	D93A	66.0		0.44	1862	D93A	67.0		1.05
874	D93A	66.0		0.44	1906		-----		-----

1915		-----	-----
1938	D93	65	-0.16
1948	D93	67.0	1.05
1949	D93A	65.69	0.26
2129	D93A	62.0	-1.97

normality	not OK
n	140
outliers	0
mean (n)	65.27
st.dev. (n)	1.464
R(calc.)	4.10
R(D93:11 proc A)	4.63

Lab 158 reported 150ºF





Determination of Kinematic Viscosity @ 40°C,on sample #11074; result in mm^2/s

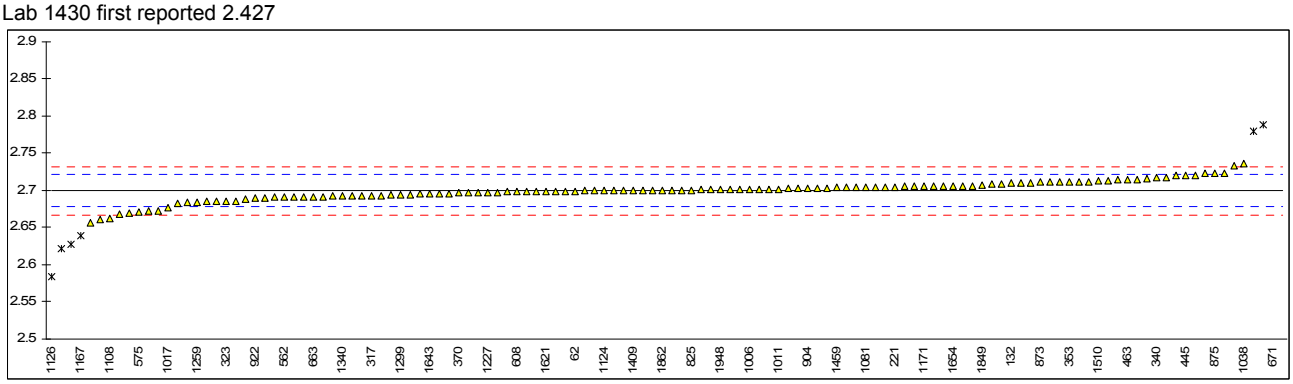
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D445	2.723		2.15
52	D445	2.711		1.04	887	D445	2.706		0.58
62	D445	2.699		-0.07	904	D445	2.703		0.30
92	D445	2.7136		1.28	922	D7042	2.6900		-0.90
120	D445	2.716		1.50	951	D445	2.6719		-2.57
132	D445	2.7096		0.91	962		-----		-----
140	D445	2.712		1.13	963	D445	2.692		-0.71
150	D445	2.696		-0.34	971	D445	2.7111		1.05
158	D445	2.685		-1.36	994		-----		-----
159	D445	2.703		0.30	995		-----		-----
169	D445	2.69937		-0.03	996		-----		-----
170		-----		-----	997		-----		-----
171	D445	2.718		1.69	998		-----		-----
175	D445	2.693		-0.62	1006	D445	2.7016		0.17
193	D445	2.7089		0.85	1011	D445	2.7020		0.21
217		-----		-----	1017	D445	2.6761		-2.18
221	D445	2.705		0.49	1033	IP71	2.627	G(0.01)	-6.71
224		-----		-----	1038	D445	2.736		3.35
225	D445	2.704		0.40	1059	D445	2.691		-0.80
228	D445	2.7793	C,G(0.01)	7.35	1065	D445	2.714		1.32
230	D445	2.7001		0.04	1067	D445	2.622	G(0.01)	-7.17
240	D445	2.7065		0.63	1080	D445	2.700		0.03
252	D445	2.6900		-0.90	1081	D445	2.704		0.40
253	D445	2.673		-2.47	1108	D445	2.663		-3.39
254	D445	2.685		-1.36	1109	D445	2.6690		-2.83
256		-----		-----	1124	ISO3104	2.6998		0.01
258	D445	2.6833		-1.51	1126	D445	2.584	G(0.01)	-10.68
273	D445	2.697		-0.25	1134	D445	2.704		0.40
311	D445	2.693		-0.62	1140	D445	2.685		-1.36
312	D445	2.693		-0.62	1146	D445	2.69879		-0.09
317	D445	2.693		-0.62	1161	ISO3104	4.215	C,G(0.01)	139.85
323	D445	2.685		-1.36	1167	ISO3104	2.639	G(0.01)	-5.60
334		-----		-----	1171	ISO3104	2.7059		0.57
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D445	2.6924		-0.67
338		-----		-----	1227	D445	2.6969		-0.26
340	D445	2.7171		1.60	1259	D445	2.684		-1.45
344		-----		-----	1284	D445	2.733		3.07
353	IP71	2.71152		1.09	1297	D7042	2.7016		0.17
370	D445	2.6964		-0.31	1299	D445	2.694		-0.53
372	D445	2.702		0.21	1340	ISO3104	2.6929		-0.63
430		-----		-----	1395	D445	2.689	C	-0.99
431	D445	2.7054		0.53	1399	D445	2.6990		-0.07
445	D445	2.7207		1.94	1409	D445	2.700		0.03
447	D445	2.6965		-0.30	1419	ISO3104	2.694		-0.53
463	D445	2.7146		1.37	1427	D445	2.701		0.12
485		-----		-----	1428	ISO3104	2.696		-0.34
495	D445	2.6838		-1.47	1430	D445	2.6995	C	-0.02
496	D445	2.7060		0.58	1431	D7042	2.703		0.30
507	D445	2.7149		1.40	1433	D445	2.66842		-2.89
511	D445	2.7205		1.92	1437	D445	2.700		0.03
529		-----		-----	1451	D445	2.7013		0.15
541	D445	2.706		0.58	1454	IP71	2.698		-0.16
557		-----		-----	1459	D7042	2.7039		0.39
562	D445	2.691		-0.80	1510	D445	2.713		1.23
575	D445	2.6708		-2.67	1616	D445	2.789	G(0.01)	8.24
592		-----		-----	1621	D445	2.699		-0.07
603	D445	2.656		-4.03	1629		-----		-----
604	D445	2.6614		-3.54	1631	D445	2.7054		0.53
608	D445	2.6981		-0.15	1634		-----		-----
631	D445	2.7096		0.91	1636	D445	2.7032		0.32
657	D445	2.702		0.21	1643	D445	2.696		-0.34
663	D445	2.692		-0.71	1654	D445	2.706		0.58
671	D445	4.09296	G(0.01)	128.59	1709	D445	2.692		-0.71
732	D445	2.6965		-0.30	1710	D445	2.700		0.03
759		-----		-----	1720	D445	2.704		0.40
781	D445	2.721		1.96	1724	D445	2.7028		0.29
823	D445	2.6914		-0.77	1807	D445	2.701		0.12
824	D445	2.723		2.15	1810	D445	2.7006		0.08
825	D445	2.7007		0.09	1811	D445	2.7006		0.08
840	D445	2.7080		0.77	1833	D445	2.71		0.95
862	D445	2.7048		0.47	1849	ISO3104	2.7076		0.73
863	D445	2.7228		2.13	1857	D445	2.712		1.13
873	D445	2.711	C	1.04	1862	D445	2.7005		0.07
874	D445	2.699		-0.07	1906		-----		-----

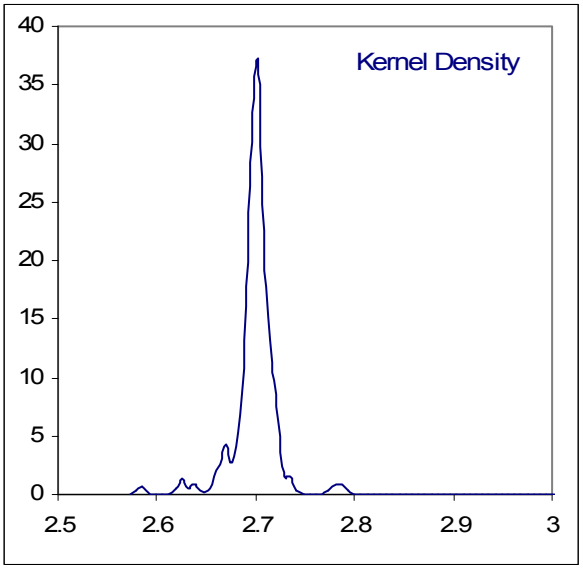
1915		-----	-----
1938	D445	2.6982	-0.14
1948	D445	2.7011	0.13
1949	D445	2.6955	-0.39
2129	D445	2.6949	-0.44

normality	not OK
n	120
outliers	8
mean (n)	2.6997
st.dev. (n)	0.01345
R(calc.)	0.0377
R(D445:11a)	0.0303

Corrections

Lab 228 first reported 2.7973
Lab 873 first reported 2.711
Lab 1161 first reported 2.582
Lab 1395 first reported 2.636
Lab 1430 first reported 2.427



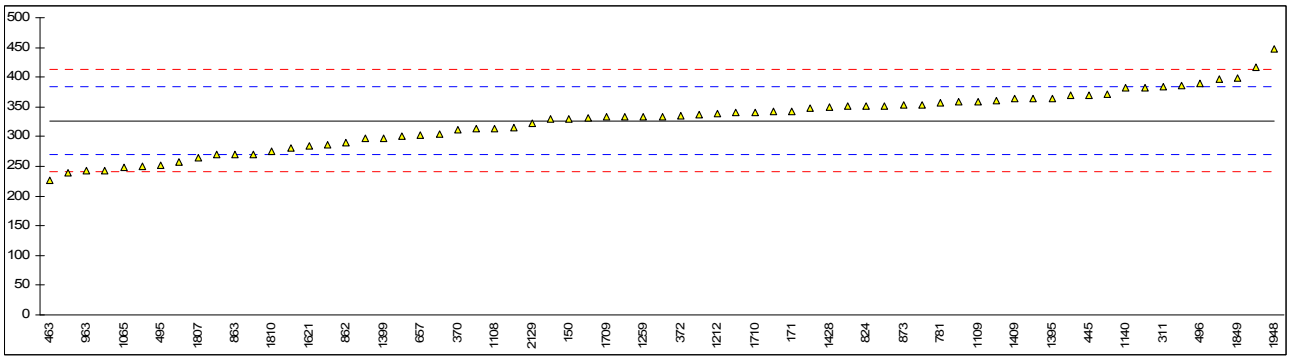


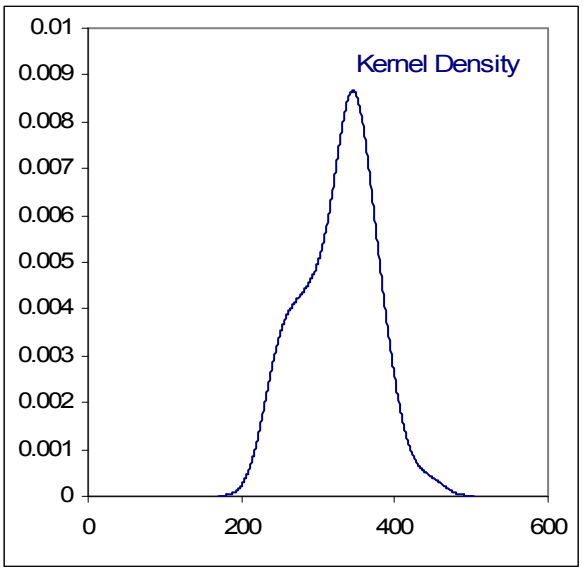
Determination of Lubricity by HFRR on sample #11074; result in µm

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52		-----		-----	887		-----		-----
62		-----		-----	904		-----		-----
92		-----		-----	922		-----		-----
120	D6079	347.5		0.72	951		-----		-----
132	D6079	361		1.19	962		-----		-----
140		-----		-----	963	D6079	242		-2.97
150	D6079	330		0.11	971		-----		-----
158		-----		-----	994		-----		-----
159	D6079	270		-1.99	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D6079	342.5		0.55	998		-----		-----
175		-----		-----	1006	D6079	297		-1.05
193		-----		-----	1011	ISO12156	300		-0.94
217		-----		-----	1017	ISO12156	243		-2.94
221		-----		-----	1033	IP450	313		-0.49
224		-----		-----	1038		-----		-----
225		-----		-----	1059	ISO12156	397		2.45
228		-----		-----	1065	ISO12156	248		-2.76
230		-----		-----	1067	ISO12156	365		1.33
240		-----		-----	1080	D6079	353		0.91
252		-----		-----	1081	ISO12156	342		0.53
253		-----		-----	1108	D6079	313		-0.49
254		-----		-----	1109	IP450	358		1.09
256		-----		-----	1124		-----		-----
258		-----		-----	1126		-----		-----
273		-----		-----	1134	IP450	315		-0.42
311	D6079	384		2.00	1140	D6079	382		1.93
312	D6079	337		0.35	1146		-----		-----
317		-----		-----	1161	ISO12156	269.1		-2.02
323	ISO12156	383		1.96	1167	ISO12156	304		-0.80
334	D6079	329		0.07	1171		-----		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	ISO12156	339		0.42
338		-----		-----	1227		-----		-----
340	ISO12156	371		1.54	1259	D6079	333		0.21
344		-----		-----	1284		-----		-----
353		-----		-----	1297		-----		-----
370	D6079	311		-0.56	1299	ISO12156	351		0.84
372	D6079	335		0.28	1340	ISO12156	352		0.88
430	D6079	369		1.47	1395	D6079	365		1.33
431		-----		-----	1399	INH96	298		-1.01
445	ISO12156	370		1.51	1409	ISO12156	364		1.30
447	IP450	385		2.03	1419	ISO12156	334		0.25
463	ISO12156	225.7		-3.54	1427	D6079	257.5		-2.43
485		-----		-----	1428	ISO12156	350		0.81
495	D6079	252		-2.62	1430		-----		-----
496	D6079	389		2.17	1431		-----		-----
507		-----		-----	1433		-----		-----
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541		-----		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562		-----		-----	1510		-----		-----
575		-----		-----	1616	D6079	286		-1.43
592		-----		-----	1621	D6079	285		-1.47
603		-----		-----	1629		-----		-----
604		-----		-----	1631	ISO12156	417		3.15
608		-----		-----	1634		-----		-----
631	D7611	240		-3.04	1636		-----		-----
657	D6079	302		-0.87	1643		-----		-----
663		-----		-----	1654		-----		-----
671		-----		-----	1709	D6079	333		0.21
732		-----		-----	1710	D6079	341		0.49
759		-----		-----	1720		-----		-----
781	ISO12156	356		1.02	1724	IP450	333		0.21
823	D6079	280		-1.64	1807	EN12156	265		-2.17
824	D6079	351		0.84	1810	D6079	275		-1.82
825		-----		-----	1811	D6079	250		-2.69
840		-----		-----	1833	D6079	358		1.09
862	D6079	290		-1.29	1849	ISO12156	399.4		2.54
863	ISO12156	270.0		-1.99	1857		-----		-----
873	D6079	353		0.91	1862	ISO12156	341		0.49
874		-----		-----	1906		-----		-----

1915		-----	-----
1938		-----	-----
1948	D6079	447.67	4.23
1949	D6079	332	0.18
2129	IP450	322	-0.17

		Only D6079:	Only ISO12156:
normality	not OK	OK	OK
n	67	35	30
outliers	0	0	0
mean (n)	326.9	325.2	332.7
st.dev. (n)	47.86	45.86	49.19
R(calc.)	134.0	128.4	137.7
R(D6079:11)	80.0	80.0	102.0



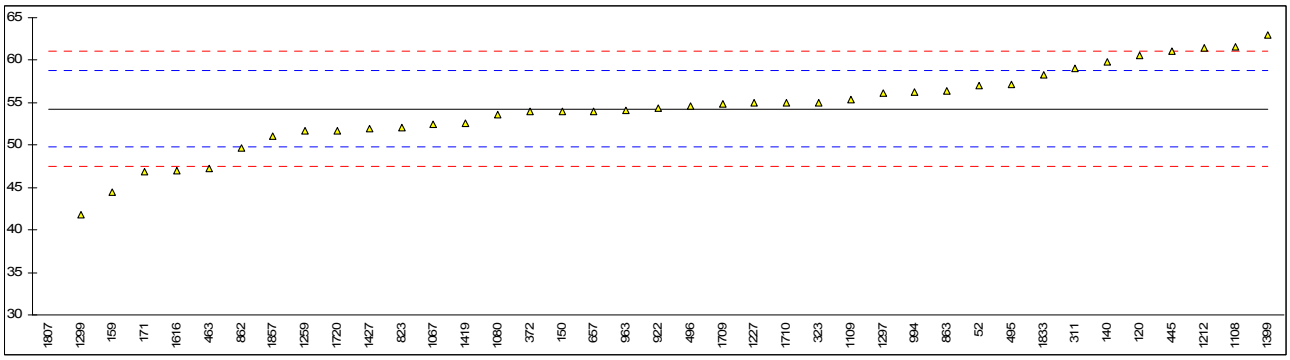


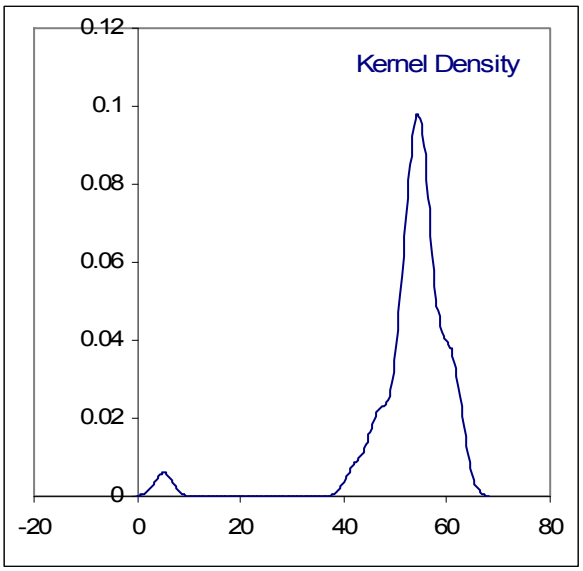
Determination of Nitrogen on sample #11074; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52	D4629	57		1.21	887		-----		-----
62		-----		-----	904		-----		-----
92		-----		-----	922	D4629	54.35		0.04
120	D4629	60.5		2.76	951		-----		-----
132		-----		-----	962		-----		-----
140	D4629	59.8		2.45	963	D4629	54.1		-0.07
150	D4629	54		-0.11	971		-----		-----
158		-----		-----	994	D4629	56.3		0.90
159	D4629	44.5		-4.32	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D4629	46.9		-3.25	998		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1011		-----		-----
217		-----		-----	1017		-----		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038		-----		-----
225		-----		-----	1059		-----		-----
228		-----		-----	1065		-----		-----
230		-----		-----	1067	D4629	52.4		-0.82
240		-----		-----	1080	D4629	53.53		-0.32
252		-----		-----	1081		-----		-----
253		-----		-----	1108	D4629	61.6		3.25
254		-----		-----	1109	D4629	55.3		0.46
256		-----		-----	1124		-----		-----
258		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
311	D4629	59		2.10	1140		-----		-----
312		-----		-----	1146		-----		-----
317		-----		-----	1161		-----		-----
323	D4629	55		0.33	1167		-----		-----
334		-----		-----	1171		-----		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D4629	61.4		3.16
338		-----		-----	1227	D4629	54.92		0.29
340		-----		-----	1259	D4629	51.664		-1.15
344		-----		-----	1284		-----		-----
353		-----		-----	1297	D4629	56.07		0.80
370		-----		-----	1299	D4629	41.8		-5.51
372	D4629	54		-0.11	1340		-----		-----
430		-----		-----	1395		-----		-----
431		-----		-----	1399	D4629	63		3.87
445	D5762	61.1		3.03	1409		-----		-----
447		-----		-----	1419	D4629	52.57		-0.75
463	D4629	47.30		-3.08	1427	D4629	51.92		-1.03
485		-----		-----	1428		-----		-----
495	D4629	57.1		1.26	1430		-----		-----
496	D4629	54.66		0.18	1431		-----		-----
507		-----		-----	1433		-----		-----
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541		-----		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562		-----		-----	1510		-----		-----
575		-----		-----	1616	D4629	46.93		-3.24
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631		-----		-----
608		-----		-----	1634		-----		-----
631		-----		-----	1636		-----		-----
657	D4629	54		-0.11	1643		-----		-----
663		-----		-----	1654		-----		-----
671		-----		-----	1709	D4629	54.8		0.24
732		-----		-----	1710	D4629	55		0.33
759		-----		-----	1720	D4629	51.7		-1.13
781		-----		-----	1724		-----		-----
823	D4629	52.1		-0.95	1807	D4629	5.01	G(0.01)	-21.79
824		-----		-----	1810		-----		-----
825		-----		-----	1811		-----		-----
840		-----		-----	1833	D4629	58.3		1.79
862	D4629	49.7		-2.02	1849		-----		-----
863	D4629	56.4		0.95	1857	D4629	51		-1.44
873		-----		-----	1862		-----		-----
874		-----		-----	1906		-----		-----

1915	-----	-----
1938	-----	-----
1948	-----	-----
1949	-----	-----
2129	-----	-----

normality	OK
n	38
outliers	1
mean (n)	54.26
st.dev. (n)	4.753
R(calc.)	13.31
R(D4629:10)	6.33



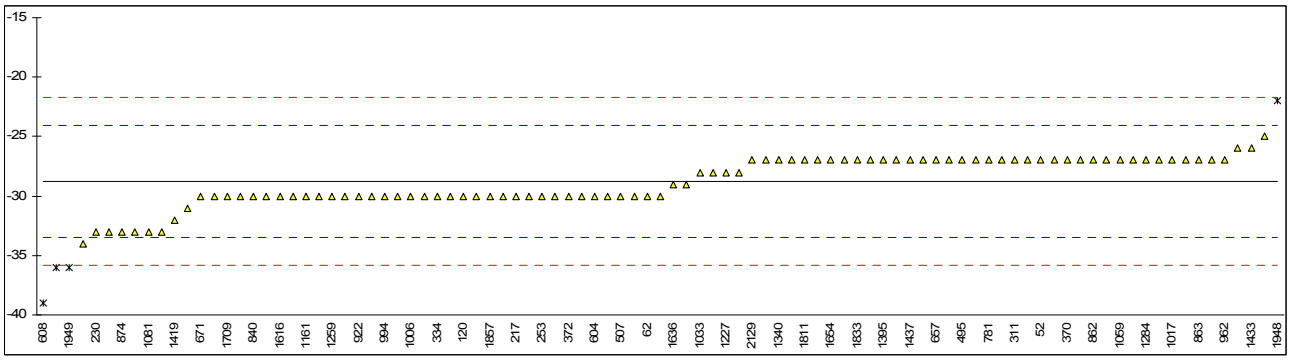


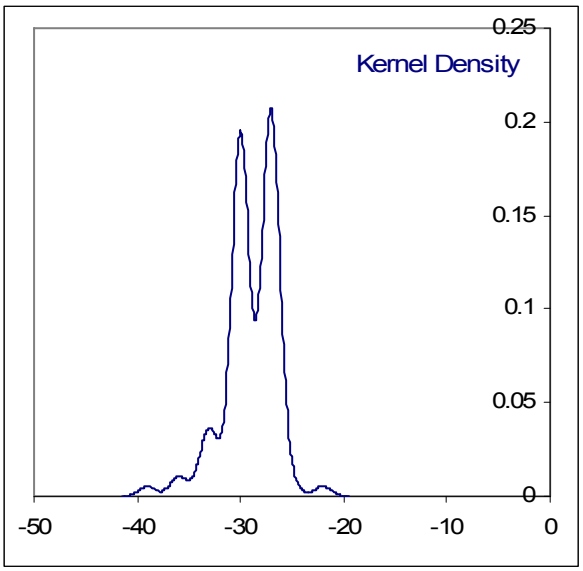
Determination of Pour Point on sample #11074; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D97	-27		0.76
52	D5949	-27		0.76	887		-----		-----
62	D97	-30		-0.51	904	D97	-30		-0.51
92		-----		-----	922	D97	-30		-0.51
120	D97	-30		-0.51	951	D97	<-24		-----
132	D97	<-23		-----	962	D97	-27		0.76
140	D5949	-30		-0.51	963	D97	-27		0.76
150	D97	<-33		-----	971		-----		-----
158		-----		-----	994	D97	-30		-0.51
159	D97	-30.0		-0.51	995		-----		-----
169	D97	<-30		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D97	-30		-0.51	998		-----		-----
175	D97	-27		0.76	1006	D97	-30		-0.51
193		-----		-----	1011		-----		-----
217	D97	-30		-0.51	1017	D5950	-27.0		0.76
221	D97	-30		-0.51	1033	IP15	-28		0.34
224		-----		-----	1038		-----		-----
225		-----		-----	1059	ISO3016	-27		0.76
228	D97	<-21		-----	1065	D5950	-27		0.76
230	D97	-33.0		-1.78	1067	D97	-27		0.76
240	D97	-30		-0.51	1080	D5950	-30		-0.51
252		-----		-----	1081	D5950	-33		-1.78
253	D97	-30		-0.51	1108	D5950	-27		0.76
254	D97	<-10		-----	1109		-----		-----
256		-----		-----	1124	ISO3016	-29		-0.08
258		-----		-----	1126		-----		-----
273	D97	<-24		-----	1134		-----		-----
311	D97	-27		0.76	1140		-----		-----
312	D5950	-28		0.34	1146	D97	-26		1.19
317	D5949	-25		1.61	1161	ISO3016	-30		-0.51
323		-----		-----	1167	ISO3016	-30		-0.51
334	D97	-30		-0.51	1171	ISO3016	-30.0		-0.51
335		-----		-----	1186		-----		-----
336	INH-60105	-27		0.76	1205		-----		-----
337		-----		-----	1212	D97	-30		-0.51
338		-----		-----	1227	D97	-28		0.34
340	D5950	-30		-0.51	1259	D97	-30		-0.51
344		-----		-----	1284	D5950	-27.0		0.76
353		-----		-----	1297	D5950	-28		0.34
370	D97	-27		0.76	1299	D97	-27		0.76
372	D97	-30		-0.51	1340	ISO3016	-27		0.76
430		-----		-----	1395	D97	-27		0.76
431		-----		-----	1399		-----		-----
445	D97	-36	DG(0.05)	-3.05	1409	D97	-31		-0.93
447	D97	-30		-0.51	1419	D97	-32		-1.36
463	D97	-27		0.76	1427	D5950	-27		0.76
485		-----		-----	1428	D6749	-27		0.76
495	D97	-27		0.76	1430	D5950	-34		-2.21
496	D97	-27.0		0.76	1431		-----		-----
507	D97	-30		-0.51	1433	ISO3016	-26		1.19
511		-----		-----	1437	D97	-27		0.76
529	D97	<-24		-----	1451		-----		-----
541	D97	<-24		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D97	-30		-0.51	1510		-----		-----
575		-----		-----	1616	D6749	-30		-0.51
592		-----		-----	1621	D97	-33		-1.78
603	D97	-30		-0.51	1629		-----		-----
604	D97	-30		-0.51	1631	D97	-27		0.76
608	D97	-39	G(0.01)	-4.33	1634		-----		-----
631	D97	-30		-0.51	1636	D6749	-29		-0.08
657	D97	-27		0.76	1643		-----		-----
663	D97	-27		0.76	1654	D97	-27.0		0.76
671	D97	-30		-0.51	1709	D97	-30		-0.51
732	D97	-30		-0.51	1710	D97	-27		0.76
759		-----		-----	1720		-----		-----
781	D97	-27		0.76	1724	D97	-27		0.76
823	D97	-33		-1.78	1807	D97	<-24		-----
824	D97	-30		-0.51	1810	D97	-30		-0.51
825	D97	-27		0.76	1811	D97	-27		0.76
840	D97	-30		-0.51	1833	D97	-27		0.76
862	D97	-27		0.76	1849		-----		-----
863	D97	-27		0.76	1857	D97	-30		-0.51
873	D97	-33		-1.78	1862	D97	-27		0.76
874	D97	-33		-1.78	1906		-----		-----

1915		-----		-----
1938		-----		-----
1948	D97	-22	G(0.05)	2.89
1949	D97	-36	DG(0.05)	-3.05
2129	D97	-27		0.76

normality	not OK
n	91
outliers	4
mean (n)	-28.80
st.dev. (n)	1.979
R(calc.)	5.54
R(D97:11)	6.60





Determination of Ramsbottom Carbon Residue on sample #11074; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D4530	0.014	ex	-4.66
52		-----		-----	887		-----		-----
62		-----		-----	904		-----		-----
92		-----		-----	922		-----		-----
120	D524	0.1040		3.79	951		-----		-----
132	D524	0.057		-0.62	962		-----		-----
140	D524	0.0677		0.38	963		-----		-----
150	D524	0.05		-1.28	971	D524	0.07979		1.52
158	D524	0.08		1.54	994		-----		-----
159		-----		-----	995		-----		-----
169	D524	0.055		-0.81	996		-----		-----
170		-----		-----	997		-----		-----
171	D524	0.0848		1.99	998		-----		-----
175	D524	0.08		1.54	1006	D524	0.0738		0.96
193		-----		-----	1011	D524	<0.04		-----
217		-----		-----	1017		-----		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038		-----		-----
225		-----		-----	1059	ISO10370	0.02	ex	-4.09
228		-----		-----	1065		-----		-----
230		-----		-----	1067	D4530	0.02	ex	-4.09
240		-----		-----	1080	D524	0.02		-4.09
252		-----		-----	1081	ISO10370	0.02	ex	-4.09
253		-----		-----	1108		-----		-----
254		-----		-----	1109		-----		-----
256		-----		-----	1124	ISO10370	0.031	ex	-3.06
258		-----		-----	1126		-----		-----
273	D4530	0.05	ex	-1.28	1134	D189	0.01	ex	-5.03
311		-----		-----	1140	D4530	0.015	ex	-4.56
312		-----		-----	1146		-----		-----
317	D4530	<0.10	ex	-----	1161	ISO10370	0.0195	ex	-4.14
323	D4530	<0.10	ex	-----	1167	ISO10370	0.07	ex	0.60
334		-----		-----	1171	ISO6615	0.038	ex	-2.40
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D524	<0.10		-----
338		-----		-----	1227	D4530	0	ex	-5.97
340		-----		-----	1259	D524	0.044		-1.84
344		-----		-----	1284		-----		-----
353		-----		-----	1297		-----		-----
370		-----		-----	1299	D524	0.03	C	-3.15
372	D4530	<0.10	ex	-----	1340	ISO10370	0.01335	ex	-4.72
430		-----		-----	1395		-----		-----
431		-----		-----	1399	D4530	0.01	ex	-5.03
445		-----		-----	1409	ISO10370	<0.10	ex	-----
447		-----		-----	1419		-----		-----
463	ISO10370	<0.01	ex	-----	1427		-----		-----
485		-----		-----	1428		-----		-----
495		-----		-----	1430	D189	0.04247	ex	-1.98
496		-----		-----	1431		-----		-----
507		-----		-----	1433	D4530	0.0129	ex	-4.76
511		-----		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541	D524	0.013		-4.75	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D524	0.0668		0.30	1510		-----		-----
575		-----		-----	1616		-----		-----
592		-----		-----	1621	D4530	0.0086	ex	-5.16
603		-----		-----	1629		-----		-----
604		-----		-----	1631	D524	0.007		-5.31
608		-----		-----	1634		-----		-----
631	D4530	0.0197	ex	-4.12	1636		-----		-----
657	D524	0.08		1.54	1643		-----		-----
663		-----		-----	1654		-----		-----
671		-----		-----	1709	D524	0.074		0.98
732		-----		-----	1710	D4530	0.027	ex	-3.44
759		-----		-----	1720		-----		-----
781		-----		-----	1724	D4530	0.0067	ex	-5.34
823	D524	0.083		1.82	1807	D4530	0.0	ex	-5.97
824		-----		-----	1810		-----		-----
825		-----		-----	1811		-----		-----
840		-----		-----	1833	D524	0.13		6.23
862	D4530	0.004	ex	-5.59	1849	ISO10370	0.01575	ex	-4.49
863		-----		-----	1857	D4530Calc	0.01	ex	-5.03
873		-----		-----	1862	D189Calc	0.026	ex	-3.53
874		-----		-----	1906		-----		-----

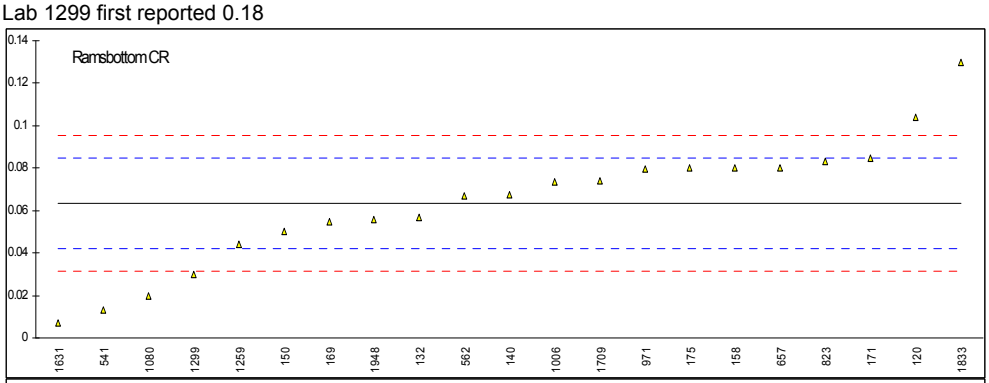
1915		-----	-----
1938		-----	-----
1948	D524	0.0558	-0.73
1949		-----	-----
2129		-----	-----

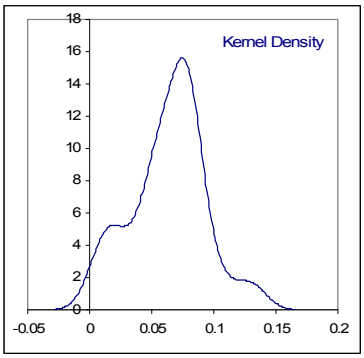
	Only RCR		Only CCR		Only CCR micro
normality	OK		OK		not OK
n	21		4		19
outliers	0		0		0
mean (n)	0.0636		0.0291		0.0204
st.dev. (n)	0.02976		0.01452		0.01582
R(calc.)	0.0833		0.0407		0.0443
R(D524:10)	0.0298	R(D189)	0.0327	R(D4530)	0.1414

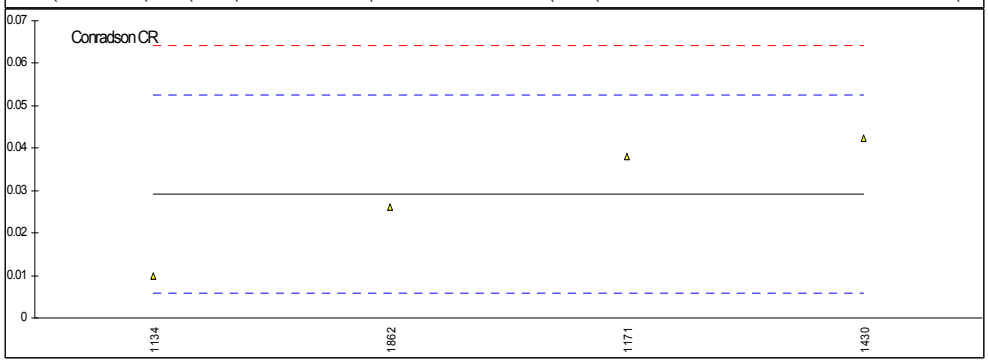
Ex = results are excluded as the testmethods are not comparable with ASTM D524

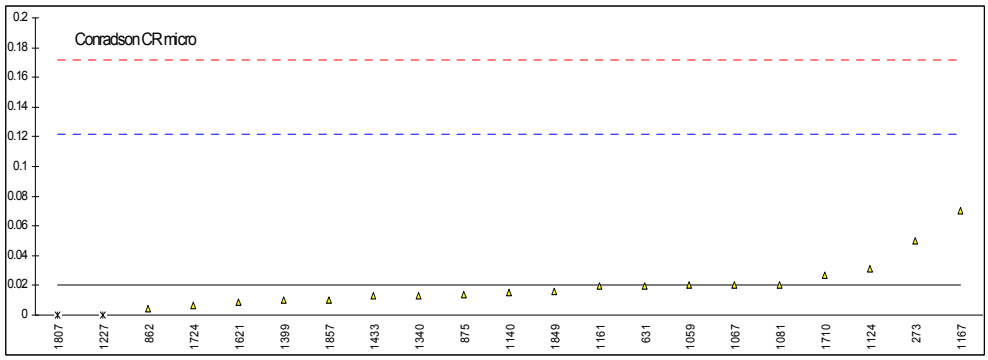
Corrections

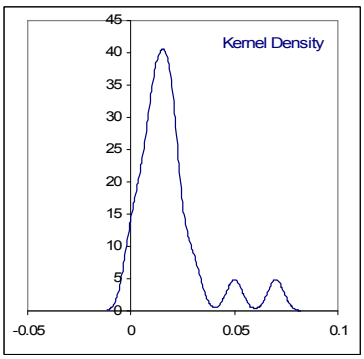
Lab 1299 first reported 0.18









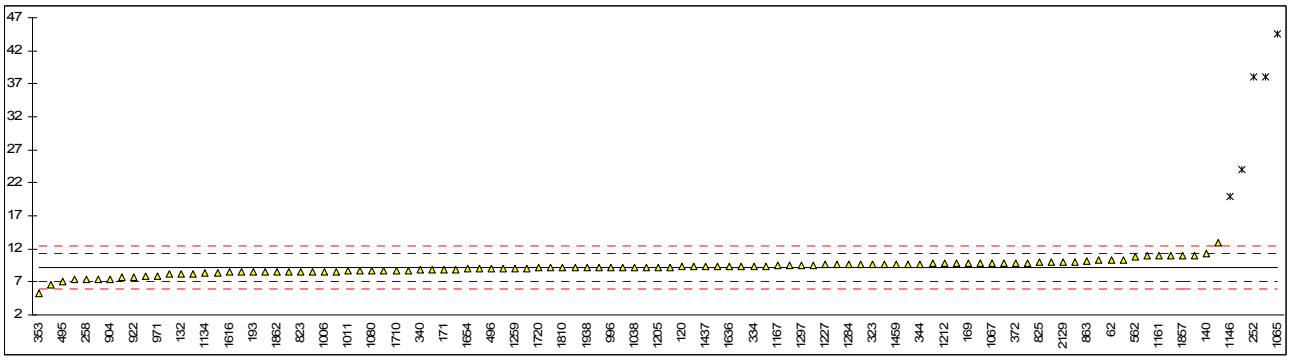


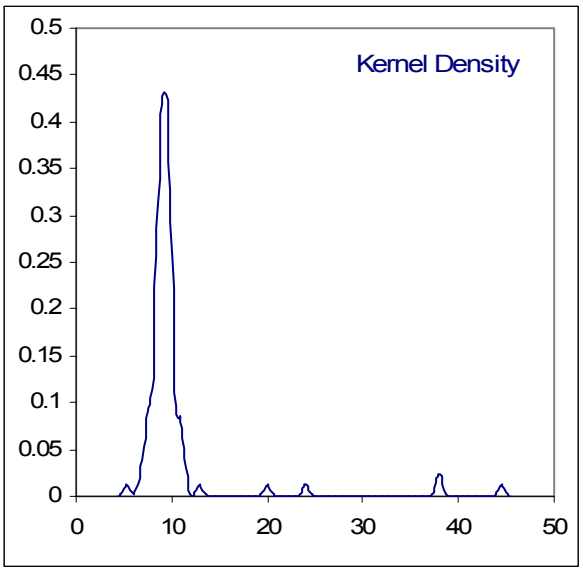
Determination of Sulphur Content on sample #11074; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D5453	10.39		1.13
52	D5453	9.9		0.68	887		-----		-----
62	D5453	10.3		1.04	904	D5453	7.4		-1.62
92	D5453	9.66		0.46	922	D5453	7.75		-1.30
120	D7039	9.3		0.13	951	D4294	<100		-----
132	D5453	8.17		-0.91	962		-----		-----
140	D5453	11.29		1.95	963	D3120	8.4		-0.70
150	D5453	9.1		-0.06	971	D3120	7.8740		-1.18
158		-----		-----	994	D5453	9.86		0.64
159	D5453	8.59		-0.52	995		-----		-----
169	D5453	9.79		0.58	996	D5453	9.12		-0.04
170		-----		-----	997		-----		-----
171	D5453	8.86		-0.28	998		-----		-----
175		-----		-----	1006	D5453	8.6		-0.52
193	D7039	8.5		-0.61	1011	ISO20846	8.61		-0.51
217		-----		-----	1017		-----		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038	D2622	9.2		0.03
225		-----		-----	1059	ISO20846	8.7		-0.42
228		-----		-----	1065	D7212	44.5	G(0.01)	32.41
230		-----		-----	1067	D5453	9.8		0.59
240		-----		-----	1080	D5453	8.64		-0.48
252	D4294	38	G(0.01)	26.45	1081	ISO20846	9.4		0.22
253		-----		-----	1108	D5453	9.0		-0.15
254	D4294	38	G(0.01)	26.45	1109	D7039	7.8		-1.25
256		-----		-----	1124	ISO20884	7.68		-1.36
258	D5453	7.36		-1.65	1126	ISO20846	9.3		0.13
273		-----		-----	1134	D5453	8.3		-0.79
311	D5453	9.2		0.03	1140	D5453	7.36		-1.65
312	D5453	8.6		-0.52	1146	D5453	20	G(0.01)	9.94
317	D2622	9.6		0.40	1161	ISO20846	10.93		1.62
323	ISO20846	9.6		0.40	1167	ISO20846	9.46		0.27
334	D5453	9.4		0.22	1171	ISO20846	8.53		-0.58
335		-----		-----	1186	D5453	6.60		-2.35
336	ISO20846	9.2		0.03	1205	ISO20884	9.2		0.03
337		-----		-----	1212	D5453	9.76		0.55
338	ISO20846	10.9		1.59	1227	D5453	9.6		0.40
340	D5453	8.8		-0.33	1259	D5453	9.02		-0.13
344	D5453	9.73		0.52	1284	D5453	9.6		0.40
353	IP531	5.31		-3.53	1297	D5453	9.54		0.35
370	D5453	8.72		-0.41	1299	D5453	9.7		0.49
372	D5453	9.9		0.68	1340	ISO20846	9.56		0.37
430		-----		-----	1395		-----		-----
431		-----		-----	1399		-----		-----
445	D5453	8.48		-0.63	1409	ISO20846	10.3		1.04
447	D5453	8.14		-0.94	1419	ISO20846	10.98		1.67
463	D5453	9.06		-0.09	1427	D5453	10.06		0.82
485	D5453	8.50		-0.61	1428	ISO20846	9.2		0.03
495	D5453	7.1		-1.89	1430	In house	10		0.77
496	D5453	9.00		-0.15	1431		-----		-----
507		-----		-----	1433		-----		-----
511		-----		-----	1437	D5453	9.3		0.13
529		-----		-----	1451		-----		-----
541	D5453	9.4		0.22	1454		-----		-----
557		-----		-----	1459	D5453	9.7		0.49
562	D5453	10.85		1.55	1510		-----		-----
575	D4294	24	G(0.01)	13.61	1616	D5453	8.48		-0.63
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631	D5453	8.99		-0.16
608	D5453	12.91		3.44	1634		-----		-----
631		-----		-----	1636	D5453	9.31		0.14
657	D5453	9.6		0.40	1643		-----		-----
663		-----		-----	1654	D5453	8.93		-0.21
671	D5453	8.87		-0.27	1709	D5453	9.52		0.33
732	D4294	<100		-----	1710	D5453	8.7		-0.42
759		-----		-----	1720	D5453	9.1		-0.06
781	D5453	9.76		0.55	1724	D5453	8.61		-0.51
823	D5453	8.53		-0.58	1807	D5453	8.2		-0.88
824	D5453	9.8		0.59	1810	D5453	9.1		-0.06
825	D5453	10.0		0.77	1811	D5453	9.10		-0.06
840	D4294	7.4		-1.62	1833	D5453	9.1		-0.06
862	D5453	9.3		0.13	1849	D5453	8.86		-0.28
863	D5453	10.1		0.86	1857	EN20846	11.0		1.69
873	D4294	<150		-----	1862	ISO20846	8.5		-0.61
874	ISO20847	<20		-----	1906		-----		-----

1915		-----	-----
1938	D5453	9.1	-0.06
1948	D5453	9.75	0.54
1949	D4294	11	1.69
2129	D5453	10.05	0.81

		Only D5453 data:
normality	not OK	OK
n	100	71
outliers	5	1
mean (n)	9.16	9.17
st.dev. (n)	1.048	0.955
R(calc.)	2.94	2.67
R(D5453:09)	3.05	3.05





Determination of Water Content on sample #11074; result in mg/kg

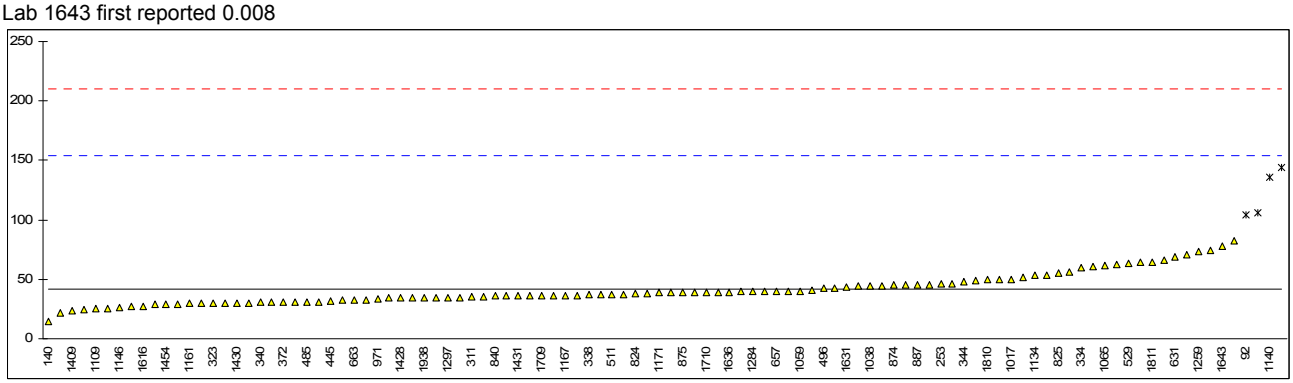
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875	D6304	38.856		-0.04
52	D6304	31		-0.18	887	D6304	45		0.07
62	D6304	30.8		-0.19	904	D6304	45.4		0.07
92	E203	103.9	G(0.01)	1.11	922		-----		-----
120	D6304	51.5		0.18	951	D95	<500	U	-----
132	D6304	34		-0.13	962		-----		-----
140	D6304	14.7		-0.47	963	D6304	40.98		0.00
150	D6304	39		-0.04	971	D6304	33.1083		-0.14
158		-----		-----	994		-----		-----
159		-----		-----	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D6304	27		-0.25	998		-----		-----
175		-----		-----	1006	D6304	49		0.14
193	D6304	33		-0.15	1011		-----		-----
217		-----		-----	1017	D6304	50		0.16
221		-----		-----	1033	IP438	74.3		0.59
224		-----		-----	1038	D6304	44		0.05
225		-----		-----	1059	ISO12937	40		-0.02
228		-----		-----	1065	D6304	61.64		0.36
230	D95	<500		-----	1067	D6304	34		-0.13
240		-----		-----	1080	D6304	35		-0.11
252	D95	<500.0		-----	1081	D6304	144	G(0.01)	1.83
253	D6304	46		0.08	1108	D6304	45		0.07
254	D95	<500		-----	1109	D6304	25.4		-0.28
256		-----		-----	1124	ISO12937	32.43		-0.16
258		-----		-----	1126		-----		-----
273	D6304	36		-0.09	1134	IP438	53		0.21
311	D6304	35		-0.11	1140	IP438	135.5	G(0.01)	1.68
312	ISO12937	43		0.03	1146	D6304	26		-0.27
317	D6304	56		0.26	1161	ISO12937	29.516		-0.21
323	D6304	30		-0.20	1167	ISO12937	36.36		-0.09
334	D6304	60		0.33	1171	ISO12937	38.68		-0.05
335	ISO12937	30.1		-0.20	1186		-----		-----
336		-----		-----	1205		-----		-----
337	D6304	30		-0.20	1212	D6304	53.0		0.21
338	D6304	36.74		-0.08	1227	D6304	37.4		-0.07
340	D6304	30.4		-0.19	1259	D6304	73.5		0.57
344	ISO12937	47.8		0.12	1284	D6304	40.0		-0.02
353	IP439	82		0.72	1297	D6304	34.5		-0.12
370	ISO12937	44		0.05	1299	EN12937	21.7		-0.35
372	D6304	31		-0.18	1340	ISO12937	36.662		-0.08
430		-----		-----	1395	D6304	39.81		-0.03
431		-----		-----	1399	IP438	36		-0.09
445	D6304	32		-0.16	1409	ISO12937	24		-0.31
447	IP438	60.7		0.35	1419		-----		-----
463	D6304	30		-0.20	1427		-----		-----
485	D6304	31		-0.18	1428	ISO12937	34		-0.13
495	D6304	66		0.44	1430	D6304	30.0		-0.20
496	D6304	42.6		0.02	1431	D6304	36		-0.09
507		-----		-----	1433	D6304	71		0.53
511	D6304	37.0312		-0.08	1437		-----		-----
529	D6304	63.8		0.40	1451		-----		-----
541	D6304	31		-0.18	1454	IP438	28.86		-0.22
557		-----		-----	1459	D6304	24.5		-0.30
562	E203	64	C	0.40	1510	D6304	34		-0.13
575		-----		-----	1616	D6304	27.30		-0.25
592		-----		-----	1621	D6304	37		-0.08
603		-----		-----	1629		-----		-----
604		-----		-----	1631	D6304	43.6		0.04
608		-----		-----	1634		-----		-----
631	D6304	69		0.49	1636	D6304	39.4		-0.03
657	D6304	40		-0.02	1643	D1744	78	C	0.65
663	D6304	33		-0.15	1654	D6304	28.70		-0.22
671		-----		-----	1709	D6304	36		-0.09
732		-----		-----	1710	D6304	39		-0.04
759		-----		-----	1720		-----		-----
781	D6304	38.7		-0.05	1724	D6304	39.4		-0.03
823	D6304	44.3		0.05	1807	D6304	50		0.16
824	D6304	38		-0.06	1810	D6304	50		0.16
825	E203	55		0.24	1811	D6304	64		0.40
840	D6304	36.0		-0.09	1833	D6304	38.4698		-0.05
862	D6304	36.2		-0.09	1849	ISO12937	25.6		-0.28
863	D6304	46.2		0.09	1857	IP438	40		-0.02
873	D6304	40		-0.02	1862	IP438	29		-0.22
874	D6304	45		0.07	1906	D4377	106	G(0.01)	1.15

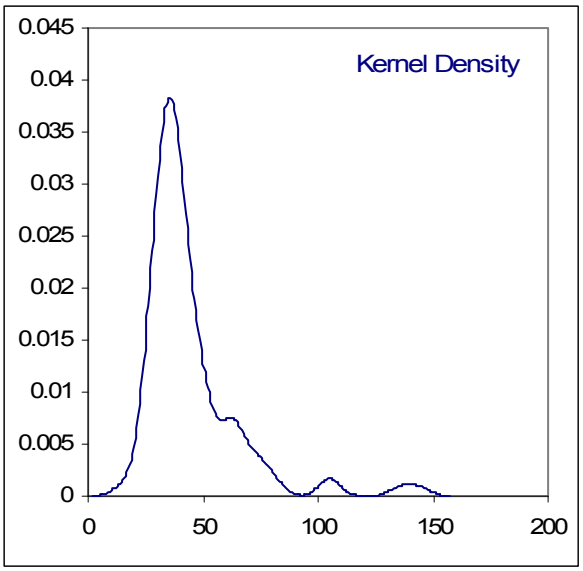
1915		-----	-----
1938	D6304	34	-0.13
1948	D6304	34.7771	-0.12
1949	IP439	62.4	0.38
2129		-----	-----

normality	not OK
n	102
outliers	4
mean (n)	41.25
st.dev. (n)	13.206
R(calc.)	36.98
R(D6304:07)	157.38

Corrections

Lab 562 first reported 157
Lab 951 reported in a deviating unit (Vol%)
Lab 1643 first reported 0.008





Determination of Water and sediment (D2709) on sample #11074; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52	D2709	<0.005		-----	887		-----		-----
62		-----		-----	904	D2709	<0.05		-----
92	D2709	0		-----	922		-----		-----
120	D2709	0		-----	951		-----		-----
132	D2709	0		-----	962		-----		-----
140		-----		-----	963	D2709	0		-----
150	D2709	0		-----	971	D2709	0		-----
158	D2709	0		-----	994		-----		-----
159		-----		-----	995		-----		-----
169		-----		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D2709	0		-----	998		-----		-----
175	D2709	0		-----	1006		-----		-----
193		-----		-----	1011	D2709	<0.005		-----
217		-----		-----	1017	D2709	<0.005		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038	D2709	0		-----
225		-----		-----	1059		-----		-----
228		-----		-----	1065		-----		-----
230		-----		-----	1067		-----		-----
240		-----		-----	1080		-----		-----
252		-----		-----	1081		-----		-----
253		-----		-----	1108		-----		-----
254		-----		-----	1109	D2709	0.00		-----
256		-----		-----	1124		-----		-----
258		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
311		-----		-----	1140		-----		-----
312		-----		-----	1146		-----		-----
317		-----		-----	1161	D2709	0.005		-----
323		-----		-----	1167		-----		-----
334		-----		-----	1171		-----		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212		-----		-----
338		-----		-----	1227		-----		-----
340		-----		-----	1259		-----		-----
344	D2709	<0.05		-----	1284		-----		-----
353		-----		-----	1297		-----		-----
370		-----		-----	1299	D2709	<0.005		-----
372		-----		-----	1340		-----		-----
430		-----		-----	1395	D2709	<0.05		-----
431		-----		-----	1399		-----		-----
445	D2709	<0.001		-----	1409		-----		-----
447		-----		-----	1419		-----		-----
463	D2709	0.005		-----	1427		-----		-----
485		-----		-----	1428		-----		-----
495		-----		-----	1430		-----		-----
496		-----		-----	1431		-----		-----
507	D2709	0		-----	1433	D2709	0		-----
511	D2709	0		-----	1437		-----		-----
529	D2709	0		-----	1451		-----		-----
541	D2709	<0.05		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562	D2709	0.00		-----	1510		-----		-----
575		-----		-----	1616		-----		-----
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631		-----		-----
608		-----		-----	1634		-----		-----
631	D2709	0		-----	1636	D2709	<0.05		-----
657	D2709	<0.005		-----	1643		-----		-----
663	D2709	0		-----	1654		-----		-----
671	D2709	0.01		-----	1709	D2709	0		-----
732		-----		-----	1710		-----		-----
759		-----		-----	1720		-----		-----
781	D2709	0.005		-----	1724		-----		-----
823	D2709	0		-----	1807		-----		-----
824	D2709	0		-----	1810		-----		-----
825	D2709	<0.005		-----	1811		-----		-----
840	D2709	<0.005		-----	1833		-----		-----
862	D2709	<0.005		-----	1849		-----		-----
863	D2709	<0.005		-----	1857		-----		-----
873		-----		-----	1862		-----		-----
874		-----		-----	1906		-----		-----

1915		-----	-----
1938		-----	-----
1948		-----	-----
1949	D2709	<0.005	-----
2129		-----	-----

normality	n.a.
n	25
outliers	0
mean (n)	<0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D2709:11e1)	n.a.

Determination of Water and sediment (D1796) on sample #11074; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	875		-----		-----
52		-----		-----	887		-----		-----
62		-----		-----	904	D1796	<0.05		-----
92		-----		-----	922		-----		-----
120	D1796	0		-----	951		-----		-----
132	D1796	0.00		-----	962		-----		-----
140	D1796	<0.025		-----	963		-----		-----
150		-----		-----	971	D1796	0		-----
158		-----		-----	994		-----		-----
159		-----		-----	995		-----		-----
169	D1796	0.000		-----	996		-----		-----
170		-----		-----	997		-----		-----
171	D1796	0.00		-----	998		-----		-----
175		-----		-----	1006		-----		-----
193	D1796	0.00		-----	1011		-----		-----
217		-----		-----	1017		-----		-----
221		-----		-----	1033		-----		-----
224		-----		-----	1038		-----		-----
225		-----		-----	1059	ISO3734	<0.05		-----
228		-----		-----	1065		-----		-----
230		-----		-----	1067		-----		-----
240		-----		-----	1080		-----		-----
252		-----		-----	1081		-----		-----
253		-----		-----	1108		-----		-----
254		-----		-----	1109	D1796	0.00		-----
256		-----		-----	1124		-----		-----
258		-----		-----	1126		-----		-----
273		-----		-----	1134		-----		-----
311	D1796	0.00		-----	1140		-----		-----
312		-----		-----	1146		-----		-----
317		-----		-----	1161		-----		-----
323		-----		-----	1167		-----		-----
334		-----		-----	1171		-----		-----
335		-----		-----	1186		-----		-----
336		-----		-----	1205		-----		-----
337		-----		-----	1212	D1796	<0.05		-----
338		-----		-----	1227		-----		-----
340		-----		-----	1259	D1796	0.1		-----
344		-----		-----	1284		-----		-----
353		-----		-----	1297		-----		-----
370		-----		-----	1299		-----		-----
372		-----		-----	1340		-----		-----
430		-----		-----	1395	D1796	<0.05		-----
431		-----		-----	1399		-----		-----
445		-----		-----	1409		-----		-----
447		-----		-----	1419		-----		-----
463	D1796	0.00		-----	1427	D1796	<0.005		-----
485		-----		-----	1428		-----		-----
495		-----		-----	1430		-----		-----
496		-----		-----	1431		-----		-----
507	D1796	0		-----	1433		-----		-----
511	D1796	0.00		-----	1437		-----		-----
529		-----		-----	1451		-----		-----
541	D1796	<0.1		-----	1454		-----		-----
557		-----		-----	1459		-----		-----
562		-----		-----	1510		-----		-----
575		-----		-----	1616	D1796	0.00		-----
592		-----		-----	1621		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1631		-----		-----
608		-----		-----	1634		-----		-----
631		-----		-----	1636		-----		-----
657	D1796	0.00		-----	1643		-----		-----
663	D1796	0.00		-----	1654		-----		-----
671		-----		-----	1709		-----		-----
732		-----		-----	1710		-----		-----
759		-----		-----	1720		-----		-----
781	D1796	0.00		-----	1724		-----		-----
823	D1796	0		-----	1807		-----		-----
824		-----		-----	1810		-----		-----
825		-----		-----	1811		-----		-----
840	D1796	0.00		-----	1833	D1796	<0.5		-----
862		-----		-----	1849		-----		-----
863		-----		-----	1857		-----		-----
873		-----		-----	1862		-----		-----
874		-----		-----	1906		-----		-----

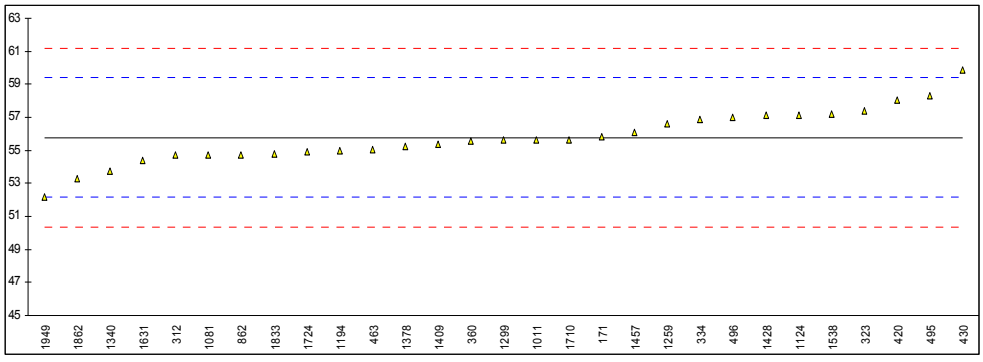
1915	-----	-----
1938	-----	-----
1948	-----	-----
1949	-----	-----
2129	-----	-----

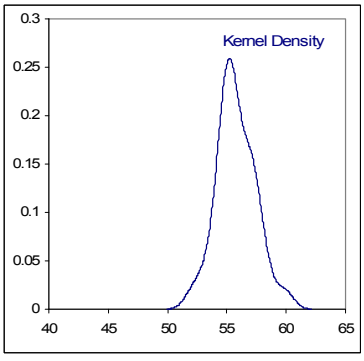
normality	n.a.
n	18
outliers	0
mean (n)	<0.1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D1796:11)	n.a.

Determination of Cetane Number on sample #11075;

lab	method	value	mark	z(targ)	filtered	remarks
171	D613	55.8		0.01	NO	
225		-----		-----	-----	
311		-----		-----	-----	
312	D613	54.7		-0.64	NO	
323	D613	57.4		0.94	NO	
334	D613	56.9		0.65	NO	
338		-----		-----	-----	
360	D613	55.54		-0.15	NO	
420	D613	58.07		1.34	NO	
430	D613	59.9		2.41	NO	
444		-----		-----	-----	
445		-----		-----	-----	
447		-----		-----	-----	
463	D613	55.05		-0.43	NO	
495	D613	58.3		1.47	NO	
496	D613	57.01		0.72	NO	
657		-----		-----	-----	
671		-----		-----	-----	
862	D613	54.71		-0.63	NO	
962		-----		-----	-----	
1011	D613	55.6		-0.11	NO	
1067		-----		-----	-----	
1080		-----		-----	-----	
1081	D613	54.7		-0.64	-----	
1124	D613	57.11		0.77	NO	
1134		-----		-----	-----	
1161		-----		-----	-----	
1167		-----		-----	-----	
1194	D613	55.0		-0.46	NO	
1259	D613	56.60		0.47	NO	
1299	D613	55.6		-0.11	NO	
1340	D613	53.71		-1.22	-----	
1378	D613	55.23		-0.33	YES	
1395		-----		-----	-----	
1409	ISO4264	55.4		-0.23	NO	
1419		-----		-----	-----	
1428	D613	57.1		0.77	NO	
1454		-----		-----	-----	
1457	D613	56.09		0.18	YES	
1538	ISO5165	57.20		0.83	NO	
1616		-----		-----	-----	
1631	D613	54.4		-0.82	NO	
1710	D613	55.6		-0.11	NO	
1724	D613	54.91		-0.52	-----	
1807		-----		-----	-----	
1810		-----		-----	-----	
1833	D613	54.8		-0.58	NO	
1857		-----		-----	-----	
1862	D613	53.3		-1.46	NO	
1949	INH52709	52.2		-2.11	NO	

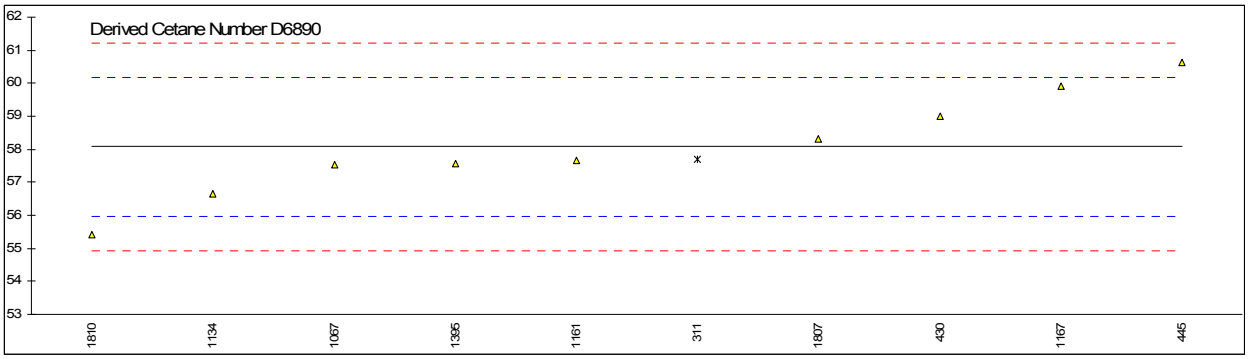
normality	OK
n	29
outliers	0
mean (n)	55.79
st.dev. (n)	1.607
R(calc.)	4.50
R(D613:10a)	4.77





Determination of Derived Cetane Number (D6890) on sample #11075;

lab	method	value	mark	z(targ)	Ignition delay	mark	z(targ)	Air temp	remarks
171		-----		-----	-----		-----	-----	
225		-----		-----	-----		-----	-----	
311	D7668	57.7	ex	-0.36	3.12	ex	-5.47	-----	
312		-----		-----	-----		-----	-----	
323		-----		-----	-----		-----	-----	
334		-----		-----	-----		-----	-----	
338		-----		-----	-----		-----	-----	
360		-----		-----	-----		-----	-----	
420		-----		-----	-----		-----	-----	
430	D6890	59.0		0.89	3.42		-1.03	532	
444		-----		-----	-----		-----	-----	
445	IP498	60.64		2.45	3.321		-2.50	569.2	
447		-----		-----	-----		-----	-----	
463		-----		-----	-----		-----	-----	
495		-----		-----	-----		-----	-----	
496		-----		-----	-----		-----	-----	
657		-----		-----	-----		-----	-----	
671		-----		-----	-----		-----	-----	
862		-----		-----	-----		-----	-----	
962		-----		-----	-----		-----	-----	
1011		-----		-----	-----		-----	-----	
1067	D6890	57.52		-0.53	3.575		1.26	581.0	
1080		-----		-----	-----		-----	-----	
1081		-----		-----	-----		-----	-----	
1124		-----		-----	-----		-----	-----	
1134	D6890	56.66		-1.35	3.575		1.26	558.8	
1161	D6890	57.65		-0.40	3.508		0.27	589.4	
1167	D6890	59.9		1.75	3.37		-1.77	587.1	
1194		-----		-----	-----		-----	-----	
1259		-----		-----	-----		-----	-----	
1299		-----		-----	-----		-----	-----	
1340		-----		-----	-----		-----	-----	
1378		-----		-----	-----		-----	-----	
1395	D6890	57.58		-0.47	3.513		0.35	552.4	
1409		-----		-----	-----		-----	-----	
1419		-----		-----	-----		-----	-----	
1428		-----		-----	-----		-----	-----	
1454		-----		-----	-----		-----	-----	
1457		-----		-----	-----		-----	-----	
1538		-----		-----	-----		-----	-----	
1616		-----		-----	-----		-----	-----	
1631		-----		-----	-----		-----	-----	
1710		-----		-----	-----		-----	-----	
1724		-----		-----	-----		-----	-----	
1807	D6890	58.31		0.23	3.465		-0.36	577.0	
1810	D6890	55.4		-2.56	3.66		2.52	582.1	
1833		-----		-----	-----		-----	-----	
1857		-----		-----	-----		-----	-----	
1862		-----		-----	-----		-----	-----	
1949		-----		-----	-----		-----	-----	
	normality	OK			OK				
	n	9			9				
	outliers	0			0				
	mean (n)	58.07			3.49				
	st.dev. (n)	1.609			0.108				
	R(calc.)	4.51			0.30				
	R(D6890:11)	2.93			0.19				



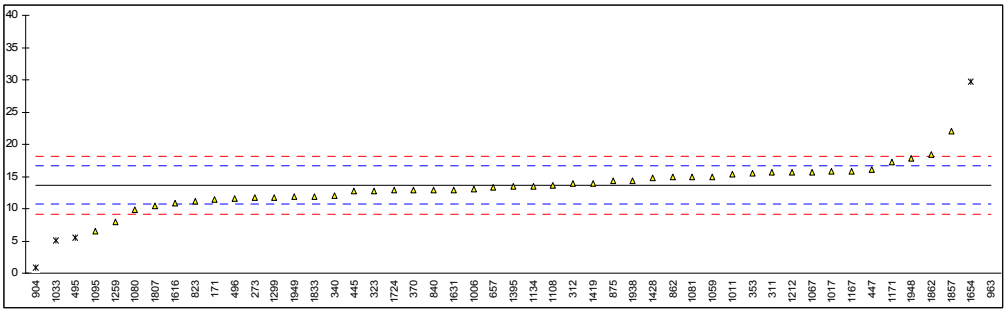
Lab 311 = result excluded, as method is not comparable with ASTM D6890

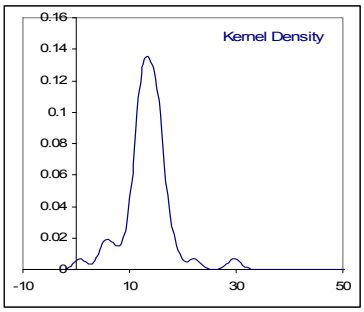
Determination of Derived Cetane Number (D7170) on sample #11075;

lab	method	value	mark	z(targ)	Ignition delay	mark	z(targ)	Air temp	remarks
171		-----		-----	-----		-----	-----	
225		-----		-----	-----		-----	-----	
311		-----		-----	-----		-----	-----	
312		-----		-----	-----		-----	-----	
323		-----		-----	-----		-----	-----	
334		-----		-----	-----		-----	-----	
338		-----		-----	-----		-----	-----	
360		-----		-----	-----		-----	-----	
420		-----		-----	-----		-----	-----	
430		-----		-----	-----		-----	-----	
444		-----		-----	-----		-----	-----	
445		-----		-----	-----		-----	-----	
447		-----		-----	-----		-----	-----	
463		-----		-----	-----		-----	-----	
495		-----		-----	-----		-----	-----	
496	D7170A	57.31		-----	3.04		-----	24	
657		-----		-----	-----		-----	-----	
671		-----		-----	-----		-----	-----	
862		-----		-----	-----		-----	-----	
962	D7170	61.67		-----	2.82		-----	517.6	
1011		-----		-----	-----		-----	-----	
1067		-----		-----	-----		-----	-----	
1080		-----		-----	-----		-----	-----	
1081		-----		-----	-----		-----	-----	
1124		-----		-----	-----		-----	-----	
1134		-----		-----	-----		-----	-----	
1161		-----		-----	-----		-----	-----	
1167		-----		-----	-----		-----	-----	
1194		-----		-----	-----		-----	-----	
1259		-----		-----	-----		-----	-----	
1299		-----		-----	-----		-----	-----	
1340		-----		-----	-----		-----	-----	
1378		-----		-----	-----		-----	-----	
1395		-----		-----	-----		-----	-----	
1409		-----		-----	-----		-----	-----	
1419	D7170	57.93		-----	3.01		-----	570	
1428		-----		-----	-----		-----	-----	
1454		-----		-----	-----		-----	-----	
1457		-----		-----	-----		-----	-----	
1538		-----		-----	-----		-----	-----	
1616		-----		-----	-----		-----	-----	
1631		-----		-----	-----		-----	-----	
1710		-----		-----	-----		-----	-----	
1724		-----		-----	-----		-----	-----	
1807		-----		-----	-----		-----	-----	
1810		-----		-----	-----		-----	-----	
1833		-----		-----	-----		-----	-----	
1857		-----		-----	-----		-----	-----	
1862		-----		-----	-----		-----	-----	
1949		-----		-----	-----		-----	-----	
	normality	n.a.			n.a.				
	n	3			3				
	outliers	0			0				
	mean (n)	58.97			2.957				
	st.dev. (n)	n.a.			n.a.				
	R(calc.)	n.a.			n.a.				
	R(lit)	n.a.			n.a.				

Determination of Total Contamination on sample #11076; result in mg/kg

lab	method	value	mark	z(targ)	remarks
171	D6217	11.43		-1.48	
273	D6217	11.7		-1.30	
311	D6217	15.6		1.31	
312	D6217	13.88		0.16	
317		-----		-----	
323	EN12662	12.8		-0.57	
335		-----		-----	
340	EN12662	12.00		-1.10	
353	IP440	15.576		1.30	
370	EN12662	12.87		-0.52	
445	D6217	12.7		-0.63	
447	IP415	16.09		1.64	
495	D6217	5.5	ex	-5.46	Result excluded, see §4.1
496	D6217	11.54		-1.41	
657	D6217	13.4		-0.16	
671		-----		-----	
823	D6217	11.23		-1.62	
840	D6217	12.93		-0.48	
862	D6217	14.91		0.85	
875	EN12662	14.28		0.43	
904	D6217	0.8	C,G(0.05)	-8.62	First reported 8.2
963	D6217	139.0	G(0.01)	84.10	
994		-----		-----	
1006	EN12662	13.04		-0.40	
1011	EN12662	15.39		1.17	
1017	EN12662	15.74		1.41	
1033	IP415	5.03	ex	-5.78	Result excluded, see §4.1
1059	EN12662	15.0		0.91	
1067	D6217	15.7		1.38	
1080	EN12662	9.8		-2.58	
1081	EN12662	15		0.91	
1095	EN12662	6.5		-4.79	
1108	D6217	13.6		-0.03	
1134	IP415	13.5		-0.10	
1167	EN12662	15.8		1.45	
1171	EN12662	17.1978		2.38	
1212	D6217	15.6		1.31	
1259	D6217	7.9516		-3.82	
1299	EN12662	11.80		-1.24	
1395	EN12662	13.50		-0.10	
1409	EN12662	<6.0	C	<-5.13	False negative?, first reported 7.4
1419	EN12662	13.97		0.22	
1428	EN12662	14.8		0.78	
1616	D6217	10.82		-1.89	
1631	D6217	12.96		-0.46	
1654	D6217	29.70	G(0.01)	10.77	
1724	IP440	12.8546		-0.53	
1807	EN12662	10.4		-2.18	
1833	D6217	11.9		-1.17	
1857	EN12662	22.1		5.67	
1862	IP440	18.43		3.21	
1938	D6217	14.3		0.44	
1948	D6217	17.8		2.79	
1949	EN12662	11.9		-1.17	
					Only ASTM D6217 data
	normality	OK			OK
	n	44			19
	outliers	3	Spike:		3
	mean (n)	13.64	10.4	Rec. <131%	13.16
	st.dev. (n)	2.718			2.248
	R(calc.)	7.61			6.30
	R(D6217:08)	4.17		Compare R(EN12662) = 3.98	4.10

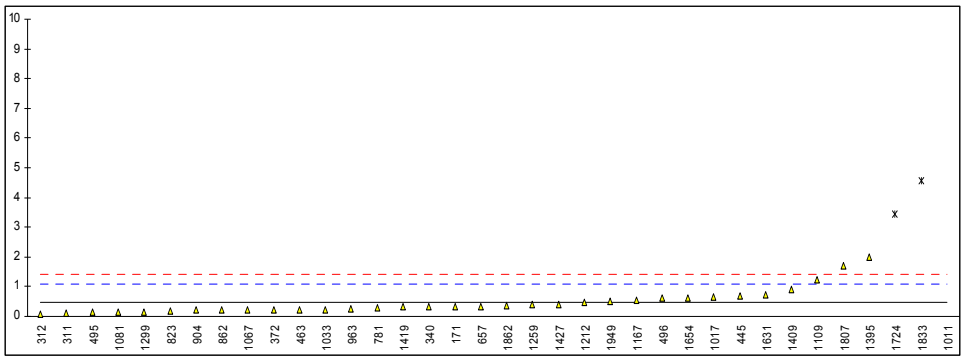


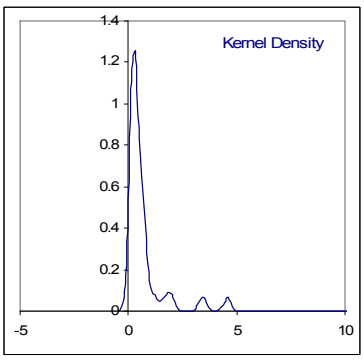


Determination of Oxidation Stability on sample #11077; result in mg/100mL

lab	method	value	mark	z(targ)	Remarks
171	D2274	0.314		-0.51	
311	D2274	0.1		-1.19	
312	D2274	0.09		-1.22	
323		-----		-----	
335		-----		-----	
340	D2274	0.31		-0.52	
372	D2274	0.2		-0.87	
445	D2274	0.7		0.72	
447		-----		-----	
463	D2274	0.228		-0.79	
495	D2274	0.14		-1.07	
496	D2274	0.60		0.40	
657	D2274	0.34		-0.43	
781	D2274	0.29		-0.59	
823	D2274	0.17		-0.97	
862	D2274	0.20		-0.87	
904	D2274	0.2		-0.87	
963	D2274	0.257		-0.69	
1011	ISO12205	45.8	G(0.01)	144.23	
1017	ISO12205	0.657		0.58	
1033	D2274	0.229		-0.78	
1065		-----		-----	
1067	D2274	0.2		-0.87	
1081	D2274	0.14		-1.07	
1108		-----		-----	
1109	D2274	1.22		2.37	
1134		-----		-----	
1167	D2274	0.54	C	0.21	First reported 5.4
1212	D2274	0.46		-0.05	
1259	D2274	0.40		-0.24	
1299	D2274	0.143		-1.06	
1395	D2274	2.00	C	4.85	First reported 4.29
1409	ISO12205	0.9		1.35	
1419	EN12205	0.31		-0.52	
1427	D2274	0.4		-0.24	
1428		-----	W	-----	
1631	D2274	0.742		0.85	
1654	D2274	0.63		0.49	
1724	D2274	3.4286	G(0.01)	9.40	
1807	ISO12205	1.7		3.90	
1833	D2274	4.57	G(0.01)	13.03	
1857		-----		-----	
1862	D2274	0.37	C	-0.33	First reported 3.03
1949	D2274	0.49		0.05	

normality	not OK
n	33
outliers	3
mean (n)	0.475
st.dev. (n)	0.4368
R(calc.)	1.223
R(D2274:10)	0.880





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
51	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
52	0.18	0.53	0.93	1.30	1.32	0.52	-----	-----	-----	-----	-----	-----
62	-0.02	-1.14	0.74	0.26	0.24	0.24	-----	-----	-----	-----	-----	-----
92	1.35	1.84	0.55	-0.20	-0.52	0.71	-----	-----	-----	-----	-----	-----
120	-0.17	0.41	-0.11	0.21	0.43	-0.35	-----	-----	-----	-----	-----	-----
132	-0.75	0.17	0.08	0.21	-0.03	0.00	-----	-----	-----	-----	-----	-----
140	-3.08	0.23	-0.96	-1.18	-0.91	-1.89	-----	-----	-----	-----	-----	-----
150	-0.40	-0.01	-0.49	-0.37	-0.06	-2.01	-----	-----	-----	-----	-----	-----
158	-0.75	1.42	1.02	0.44	0.33	-1.30	-----	-----	-----	-----	-----	-----
159	1.29	1.06	0.74	0.21	0.27	-0.04	-----	-----	-----	-----	-----	-----
169	0.27	-0.90	-0.86	1.01	1.65	0.08	-----	-----	-----	-----	-----	-----
170	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
171	-0.17	0.05	0.46	1.36	1.98	0.20	-----	-----	-----	-----	-----	-----
175	1.32	1.24	2.53	2.51	2.44	0.91	-----	-----	-----	-----	-----	-----
193	0.04	0.69	-0.01	-0.91	-1.08	-0.47	-----	-----	-----	-----	-----	-----
217	-----	-----	-----	-----	-----	-----	-1.72	-0.07	-1.56	-0.59	-1.26	-1.53
221	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
224	-----	-----	-----	-----	-----	-----	0.54	0.14	0.13	1.72	2.10	-0.23
225	-----	-----	-----	-----	-----	-----	1.12	0.88	0.36	1.23	3.09	-0.25
228	-----	-----	-----	-----	-----	-----	0.68	0.24	0.36	1.23	0.56	-0.25
230	0.27	0.77	1.40	1.18	0.76	1.54	-----	-----	-----	-----	-----	-----
240	-----	-----	-----	-----	-----	-----	1.56	0.24	0.36	1.23	1.58	0.45
252	-----	-----	-----	-----	-----	-----	-0.20	-1.70	-0.40	-0.18	-----	-0.95
253	-----	-----	-----	-----	-----	-----	-0.20	1.53	0.36	-0.18	-0.45	1.16
254	-----	-----	-----	-----	-----	-----	-0.64	-1.06	-0.40	-0.88	-----	-0.25
256	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
258	0.47	-0.25	1.12	0.55	0.20	-0.86	-----	-----	-----	-----	-----	-----
273	0.56	0.35	-0.11	0.32	-0.16	-3.35	-----	-----	-----	-----	-----	-----
311	-1.48	-1.32	-0.58	-1.00	-1.08	0.95	-----	-----	-----	-----	-----	-----
312	0.15	1.84	1.21	0.26	-0.16	-0.23	-----	-----	-----	-----	-----	-----
317	-0.11	0.71	0.27	0.09	-0.22	0.44	-----	-----	-----	-----	-----	-----
323	0.33	0.53	-0.01	-0.08	0.07	-0.08	-----	-----	-----	-----	-----	-----
334	0.71	0.23	0.83	1.01	0.93	0.32	-----	-----	-----	-----	-----	-----
335	0.36	-0.07	-0.58	0.32	0.56	0.20	-----	-----	-----	-----	-----	-----
336	0.09	-0.25	-0.39	0.78	0.70	0.12	-----	-----	-----	-----	-----	-----
337	0.76	-2.93	-1.43	-0.77	-1.11	-0.08	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
340	1.20	-1.26	0.36	0.95	0.99	0.52	-----	-----	-----	-----	-----	-----
344	0.59	0.05	0.55	0.15	0.10	0.32	-----	-----	-----	-----	-----	-----
353	-1.13	-0.96	1.21	1.07	0.63	1.26	-----	-----	-----	-----	-----	-----
370	-----	-----	-----	-----	-----	-----	0.24	2.18	-0.02	0.17	-0.45	0.45
372	-0.66	0.35	-0.49	-0.77	-1.11	-0.47	-----	-----	-----	-----	-----	-----
430	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
431	-1.39	-0.37	-1.99	-1.18	-0.55	-----	-----	-----	-----	-----	-----	-----
445	0.50	3.33	0.74	0.21	0.20	0.52	-----	-----	-----	-----	-----	-----
447	0.94	-0.01	0.55	1.18	0.89	1.15	-----	-----	-----	-----	-----	-----
463	-0.58	1.96	1.12	1.41	1.29	1.03	-----	-----	-----	-----	-----	-----
485	-0.42	-0.43	-0.82	-0.89	-1.01	-1.65	-----	-----	-----	-----	-----	-----
495	-0.05	-0.25	-0.77	-0.89	-0.85	0.00	-----	-----	-----	-----	-----	-----
496	1.08	1.18	0.83	1.41	1.02	1.03	-----	-----	-----	-----	-----	-----
507	-----	-----	-----	-----	-----	-----	2.31	1.37	0.59	1.09	0.21	2.78
511	-----	-----	-----	-----	-----	-----	1.78	0.04	-0.17	0.60	0.31	0.81
529	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----	-----	0.02	-0.41	-0.02	-1.94	-----	0.45
557	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
562	0.21	1.60	0.17	-0.77	-0.88	0.44	-----	-----	-----	-----	-----	-----
575	-----	-----	-----	-----	-----	-----	-0.20	0.88	1.13	1.23	0.56	-0.95
592	-----	-----	-----	-----	-----	-----	-3.25	-0.99	-0.93	-1.38	-2.17	-0.39
603	-----	-----	-----	-----	-----	-----	-1.31	1.21	-0.40	-1.24	0.82	-2.36
604	-0.49	-0.13	-0.39	-0.02	0.14	-0.63	-----	-----	-----	-----	-----	-----
608	-----	-----	-----	-----	-----	-----	1.56	1.53	1.13	1.23	0.56	0.81
631	-----	-----	-----	-----	-----	-----	0.24	-1.06	-0.40	-2.30	-3.48	-1.66
657	-1.19	0.23	0.17	-1.18	-1.37	-0.23	-----	-----	-----	-----	-----	-----
663	0.44	1.96	0.83	-0.31	-0.78	-0.31	-----	-----	-----	-----	-----	-----
671	-1.45	-0.49	-3.41	-2.38	-0.62	-1.18	-----	-----	-----	-----	-----	-----
732	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
759	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
781	-0.37	-0.07	0.46	0.78	1.16	0.48	-----	-----	-----	-----	-----	-----
823	-----	-----	-----	-----	-----	-----	0.24	0.88	-0.09	2.57	0.46	3.69
824	-0.26	0.47	-0.11	-0.31	0.07	0.12	-----	-----	-----	-----	-----	-----
825	-1.33	0.05	0.65	1.07	1.06	0.52	-----	-----	-----	-----	-----	-----
840	-1.17	0.38	-0.78	-0.76	-0.90	-0.02	-----	-----	-----	-----	-----	-----
862	-1.68	-0.66	0.27	0.72	1.09	-0.12	-----	-----	-----	-----	-----	-----
863	-----	-----	-----	-----	-----	-----	0.68	0.24	-0.02	-0.53	-0.19	0.45
873	-----	-----	-----	-----	-----	-----	-0.20	-1.06	-0.02	0.53	1.07	-0.25
874	-----	-----	-----	-----	-----	-----	-1.31	-0.73	-0.02	0.53	0.56	-0.25
875	-----	-----	-----	-----	-----	-----	-0.64	-1.70	-0.02	-0.53	-0.19	-0.95

887	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
904	-0.26	-0.37	0.46	-1.92	0.53	1.11	-----	-----	-----	-----	-----	-----
922	-----	-----	-----	-----	-----	-----	-0.64	-1.06	-0.40	-0.88	-2.47	-1.66
951	-----	-----	-----	-----	-----	-----	-0.49	3.01	1.29	1.33	2.14	2.63
962	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
963	0.53	1.24	-0.30	-0.54	-0.62	-0.59	-----	-----	-----	-----	-----	-----
971	-----	-----	-----	-----	-----	-----	-0.64	-0.41	-0.40	-1.94	-2.97	1.16
994	-----	-----	-----	-----	-----	-----	0.24	-0.73	1.13	-0.88	0.06	-1.31
995	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
996	-----	-----	-----	-----	-----	-----	0.46	-0.73	0.75	0.88	0.31	-1.31
997	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
998	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1006	-0.14	-0.37	-0.11	0.84	0.04	0.04	-----	-----	-----	-----	-----	-----
1011	0.50	0.94	-0.11	-1.06	-0.45	-0.67	-----	-----	-----	-----	-----	-----
1017	0.33	0.82	-1.05	-1.75	-1.37	-2.24	-----	-----	-----	-----	-----	-----
1033	1.49	-0.01	0.83	0.84	0.20	0.91	-----	-----	-----	-----	-----	-----
1038	-0.58	-1.20	-0.77	-0.31	0.07	0.04	-----	-----	-----	-----	-----	-----
1059	-0.43	-0.72	-0.67	-0.95	-0.91	-0.19	-----	-----	-----	-----	-----	-----
1065	0.56	0.17	0.55	0.03	-0.49	0.71	-----	-----	-----	-----	-----	-----
1067	0.73	0.47	1.40	3.14	3.59	0.24	-----	-----	-----	-----	-----	-----
1080	0.33	-0.72	-0.11	0.55	0.47	-0.08	-----	-----	-----	-----	-----	-----
1081	1.58	1.84	1.21	0.84	0.63	0.16	-----	-----	-----	-----	-----	-----
1108	-4.80	-0.90	-0.96	-1.06	-0.78	0.32	-----	-----	-----	-----	-----	-----
1109	-0.23	0.17	-0.39	-0.20	-0.09	-0.35	-----	-----	-----	-----	-----	-----
1124	0.33	-0.07	0.93	1.82	2.01	-1.26	-----	-----	-----	-----	-----	-----
1126	-0.26	0.47	-0.49	0.26	0.20	1.86	-----	-----	-----	-----	-----	-----
1134	-0.26	0.41	0.93	1.76	2.11	1.19	-----	-----	-----	-----	-----	-----
1140	-3.57	-3.41	-3.12	-1.81	-0.91	-1.22	-----	-----	-----	-----	-----	-----
1146	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1161	-0.17	-1.77	-0.86	0.49	-0.03	0.24	-----	-----	-----	-----	-----	-----
1167	-2.70	-2.57	-0.49	-1.00	-0.68	-0.39	-----	-----	-----	-----	-----	-----
1171	-----	-----	-----	-----	-----	-----	-1.08	-----	-----	-----	-----	-----
1186	-----	-----	-----	-----	-----	-----	-5.05	-4.94	-4.21	-2.30	3.04	-15.02
1205	-0.08	-0.49	-0.20	-0.83	-0.98	-0.63	-----	-----	-----	-----	-----	-----
1212	0.01	0.41	-0.49	-3.88	-3.74	-7.88	-----	-----	-----	-----	-----	-----
1227	-0.05	-7.28	1.31	0.55	0.60	0.28	-----	-----	-----	-----	-----	-----
1259	-0.95	0.11	-0.01	0.09	0.07	0.08	-----	-----	-----	-----	-----	-----
1284	-0.49	-0.07	-0.49	-0.37	-0.49	0.52	-----	-----	-----	-----	-----	-----
1299	1.11	0.11	0.17	0.09	0.30	0.36	-----	-----	-----	-----	-----	-----
1340	-0.11	0.47	-0.49	-0.48	-0.26	0.40	-----	-----	-----	-----	-----	-----
1395	0.39	-0.01	-0.20	-0.95	-0.98	0.91	-----	-----	-----	-----	-----	-----
1399	-2.15	-2.51	-1.81	-0.08	0.17	-1.42	-----	-----	-----	-----	-----	-----
1409	-0.90	-0.55	-0.01	0.09	-0.09	-0.39	-----	-----	-----	-----	-----	-----
1419	-0.02	0.47	0.74	0.26	0.01	1.03	-----	-----	-----	-----	-----	-----
1427	-0.31	-0.07	-0.30	0.09	0.47	-0.31	-----	-----	-----	-----	-----	-----
1428	-0.14	-0.37	-0.39	-0.48	-0.39	0.36	-----	-----	-----	-----	-----	-----
1430	-12.10	-2.51	-1.43	-0.54	-0.13	-2.40	-----	-----	-----	-----	-----	-----
1431	0.53	1.00	1.78	1.59	1.39	0.99	-----	-----	-----	-----	-----	-----
1433	0.85	-2.21	-0.67	-0.95	-0.91	-0.63	-----	-----	-----	-----	-----	-----
1437	0.30	0.11	0.46	0.84	0.73	0.16	-----	-----	-----	-----	-----	-----
1451	-----	-----	-----	-----	-----	-----	-2.41	-2.68	-1.92	-1.94	-2.47	1.51
1454	-----	-----	-----	-----	-----	-----	-3.73	-3.65	-1.92	-1.59	-0.95	-3.06
1459	-0.40	-0.13	-0.39	-1.00	-1.01	-1.26	-----	-----	-----	-----	-----	-----
1510	0.62	-0.61	-0.86	-0.95	-0.59	0.24	-----	-----	-----	-----	-----	-----
1616	0.18	0.47	1.21	0.09	-0.13	-0.59	-----	-----	-----	-----	-----	-----
1621	0.18	0.35	0.08	1.41	1.78	0.40	-----	-----	-----	-----	-----	-----
1629	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1631	0.04	-0.84	0.27	0.15	0.10	1.19	-----	-----	-----	-----	-----	-----
1634	-0.69	1.00	-0.11	-0.37	-0.55	0.52	-----	-----	-----	-----	-----	-----
1636	0.44	0.77	0.83	0.67	0.53	0.08	-----	-----	-----	-----	-----	-----
1643	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1654	0.71	0.17	-0.39	-0.08	0.04	0.63	-----	-----	-----	-----	-----	-----
1709	-0.69	0.77	-0.30	-1.23	-1.34	-1.50	-----	-----	-----	-----	-----	-----
1710	-0.78	0.77	0.46	0.38	0.60	0.00	-----	-----	-----	-----	-----	-----
1720	-0.75	2.31	1.02	1.93	2.31	0.28	-----	-----	-----	-----	-----	-----
1724	-1.10	0.47	-0.58	-0.25	-0.13	0.32	-----	-----	-----	-----	-----	-----
1807	-0.08	-1.68	-0.58	-0.54	-0.39	-1.69	-----	-----	-----	-----	-----	-----
1810	1.38	0.53	-0.39	-1.41	-2.03	-0.71	-----	-----	-----	-----	-----	-----
1811	0.91	-1.56	-0.49	-1.35	-1.44	-0.08	-----	-----	-----	-----	-----	-----
1833	-1.54	-0.66	-0.96	-0.89	-0.88	0.44	-----	-----	-----	-----	-----	-----
1849	0.44	-1.17	-2.18	-1.92	-1.52	-0.59	-----	-----	-----	-----	-----	-----
1857	-0.26	0.47	-0.39	-0.31	-0.29	0.16	-----	-----	-----	-----	-----	-----
1862	-----	-----	-----	-----	-----	-----	0.24	0.88	0.36	0.88	1.32	1.86
1906	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1915	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1938	-0.58	-0.90	-0.58	-0.77	-0.72	-0.55	-----	-----	-----	-----	-----	-----
1948	-0.26	-0.31	-0.96	-1.23	-1.44	0.32	-----	-----	-----	-----	-----	-----
1949	-----	-----	-----	-----	-----	-----	-0.20	2.82	1.13	0.53	1.32	-0.60
2129	0.91	-0.31	0.36	-0.02	-0.32	0.36	-----	-----	-----	-----	-----	-----

APPENDIX 3
Participants per country

1 laboratory in ARGENTINA
2 laboratories in AUSTRALIA
2 laboratories in AUSTRIA
1 laboratory in AZERBAIJAN
4 laboratories in BELGIUM
1 laboratory in BOLIVIA
1 laboratory in BOSNIA and HERZEGOVINA
1 laboratory in BRAZIL
1 laboratory in BULGARIA
3 laboratories in CANADA
1 laboratory in CHILE
1 laboratory in COLOMBIA
1 laboratory in CÔTE D'IVOIRE
1 laboratory in CROATIA
1 laboratory in CYPRUS
3 laboratories in CZECH REPUBLIC
1 laboratory in EQUATORIAL GUINEA
1 laboratory in ESTONIA
7 laboratories in FRANCE
2 laboratories in GEORGIA
2 laboratories in GERMANY
6 laboratories in GREECE
1 laboratory in GUAM
1 laboratory in HONG KONG
2 laboratories in HUNGARY
1 laboratory in IRAN
1 laboratory in IRELAND
2 laboratories in ISRAEL
1 laboratory in KAZAKHSTAN
2 laboratories in KENYA
3 laboratories in KOREA
1 laboratory in LATVIA
1 laboratory in LITHUANIA
3 laboratories in MALAYSIA
1 laboratory in MAURITIUS
1 laboratory in MEXICO
1 laboratory in MOZAMBIQUE
1 laboratory in MYANMAR
3 laboratories in P.R. of CHINA
1 laboratory in PAKISTAN
1 laboratory in PANAMA
1 laboratory in PERU
1 laboratory in PHILIPPINES
3 laboratories in POLAND
4 laboratories in PORTUGAL
2 laboratories in QATAR
1 laboratory in REPUBLIC OF DJIBOUTI
1 laboratory in REPUBLIC OF GUINEE
1 laboratory in REPUBLIC OF MACEDONIA
8 laboratories in RUSSIA
3 laboratories in SAUDI ARABIA
1 laboratory in SENEGAL
1 laboratory in SINGAPORE
1 laboratory in SLOVAKIA
1 laboratory in SLOVENIA
2 laboratories in SOUTH AFRICA
5 laboratories in SPAIN
1 laboratory in SUDAN
3 laboratories in SWEDEN
3 laboratories in TAIWAN R.O.C.
1 laboratory in TANZANIA
1 laboratory in THAILAND
8 laboratories in THE NETHERLANDS
1 laboratory in TOGO
1 laboratory in TUNISIA
11 laboratories in TURKEY
1 laboratory in TURKMENISTAN
2 laboratories in U.A.E.
11 laboratories in U.S.A.
9 laboratories in UNITED KINGDOM
1 laboratory in UZBEKISTAN
2 laboratories 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:

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