Results of Proficiency Test
Gasoil (ASTM Spec)
October 2010

Organised by: Institute for Interlaboratory Studies
                Spijkenisse, the Netherlands

Authors: ing. R.J. Starink
Correctors: dr. R.G. Visser & ing. L. Sweere
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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 2010-2011, 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 this interlaboratory study, 168 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 2010/2011 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.
For this ASTM specification round robin it was decided to send two different samples of Gasoil, 1*1 L low sulphur Gasoil, labelled #1062 and 1*0.5 L low sulphur winter Gasoil, labelled #1059. For the Total Contamination round robin, it was decided to send one sample of 1L, labelled #1064 and for the Oxidation stability round robin it was decided to send one liter of a sample B10, labelled #1065).
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 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 Gasoil

The 300 litre low sulphur Gasoil (automotive diesel) was purchased from the local market. After homogenization, the material was subsequently divided over 267 amber glass bottles of 1L with inner and outer caps. The first 70 1L bottles, meant for Total Contamination, were labelled #1064, all other 1L bottles were labelled #1062. 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 #1064-1	837.91
sample #1064-2	837.91
sample #1064-3	837.91
sample #1062-4	837.91
sample #1062-5	837.91
sample #1062-6	837.91
sample #1062-7	837.90
sample #1062-8	837.91

table 1: homogeneity test of subsamples #1062 and #1064

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 #1062)	0.01
reference test	ASTM D4052:09
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples #1062 and #1064

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #1062 and #1064 was assumed.

2.4.2 regular low sulphur winter Gasoil

The 200 litre low sulphur winter Gasoil (automotive diesel) was purchased from the local market during the winter of 2009. After homogenization, 198 amber glass bottles of 0.5L were filled, labelled #1059 and closed with inner and outer caps. 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 #1059-1	833.85
sample #1059-2	833.84
sample #1059-3	833.84
sample #1059-4	833.85
sample #1059-5	833.87
sample #1059-6	833.84
sample #1059-7	833.84
sample #1059-8	833.84

table 3: homogeneity test of subsamples #1059

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 #1059)	0.03
reference test	ASTM D4052:09
0.3*R (reference test)	0.15

Table 4: precision data of the subsamples #1059

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #1059 was assumed.

2.4.3 Total contamination

For the Total Contamination determination, each of the 70 filled bottles (see 2.4.1) was spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 20 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspension. The addition was checked by weighting each bottle before and after addition of the spike.

2.4.4 Oxidation Stability

For the Oxidation Stability determination, samples from a previous Gasoil with 10% FAME (iis10G03) were used. 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 $^{\circ}$C in kg/m^3
sample #1065-1	846.17
sample #1065-2	846.16
sample #1065-3	846.12
sample #1065-4	846.17
sample #1065-5	846.14
sample #1065-6	846.17
sample #1065-7	846.14
sample #1065-8	846.17

Table 5: precision data of the subsamples #1065

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 #1065)	0.05
reference test	ASTM D4052:09
0.3*R (reference test)	0.15

Table 6: precision data of the subsamples #1065

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #1065 was assumed.

Depending on the registration of the participant: one bottle of 1L #1062, one bottle of 0.5L #1059, 1 bottle of 1L #1064 and/or 1 bottle of 1L labelled #1065 were sent to the participating laboratories on September 15, 2010.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSIS

The participants were asked to determine on the samples #1062: Aromatics by FIA, Ash Content, Cetane Index (D979 and D4737), 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, Ramsbottom Carbon Residue, Sulphur content and Total Acid Number. On sample #1059 was requested to be determined: Cloud Point, Cold Filter Plugging Point (CFPP), Colour ASTM, Lubricity by HFRR, Nitrogen, Pour Point and Water content. On sample #1064 only Total Contamination was requested to be determined. On sample #1065 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.

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:

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

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:

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

4   EVALUATION

In this interlaboratory study, some major problems with customs clearance were encountered during dispatch of the samples to Brazil, Georgia, Iran, Mexico, Myanmar and Russia.
For the regular Gasoil PT: Twenty-five participants reported the test results after the final reporting date and eight participants did not report any test results at all.
For the Total Contamination PT: ten participants reported the test results after the final reporting date and eight participants did not report any test results at all.
For the Oxidation Stability PT: four participants reported the test results after the final reporting date and four participants did not report any test results at all.
Finally, 167 participants reported in total 2926 numerical results. Observed were 88 outlying results, which is 3.0%. 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: Cetane Index (D976 and D4737), Cloud Point, CFPP, Colour, Density, Distillation (FBP-A, 50% recovered-M, volume at 350ºC), FAME, Flash Point, 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.

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

Ash: Three 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.

C.I. D976:   Regretfully, no reproducibility limits are mentioned in ASTM D976:06. The calculated reproducibility is large in comparison with the findings of the previous i.i.s. proficiency test (see also iis09G02). It was remarkable that eleven (!) 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. Sixty-nine participants reported results according procedure A of ISO4264:95/IP380:98/ASTM D4737 and twenty 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 D975:09. 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. It was remarkable to find that nine participants probably made a calculation error.

Cloud Point: This determination was not problematic. Only one statistical outlier was observed and the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D2500:09.

CFPP: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of IP309:99/EN116.

Colour ASTM: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility 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 thirteen statistical outliers were observed. All calculated reproducibilities, except for 10% recovered, were, after rejection of the statistical outliers, in agreement with the requirements of ASTM D86:10.
The manual method was problematic. In total fifteen statistical outliers were observed. All calculated reproducibilities, except for 50% recovered, were after rejection of the statistical outliers, not in agreement with the requirements of ASTM D86:10.
The determination of the recovery at a volume of 250ºC and 350ºC is problematic for some individual laboratories. In total 5 statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is almost in agreement for volume at 250ºC and in good agreement for volume at 350ºC.

FAME: This determination was problematic for a number of laboratories. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D7371:07.

Flash Point: This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D93:10.

Kin. visc. 40°C: This determination was problematic. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D445:09.

Lubricity: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in good agreement with ASTM D6079:04.

Nitrogen: This determination was very problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with ASTM D4629:10.

Pour Point: This determination as not problematic. No statistical outliers were observed. The calculated reproducibility is almost in agreement with ASTM D97:09. Additional spread may be caused by the rounding of the results.

Ramsbottom CR: From the 59 reporting laboratories, 38 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 18 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 107 mg/kg. Eight statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D5453:09. When the ASTM D5453, ASTM D4294 and ISO20846 results are evaluated separately, only the calculated reproducibility of the ASTM D4294 results is in full agreement with the requirements of the respective method.

Total Acid Number: This determination was problematic for a number of laboratories. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D974:08e1.

Water: This determination was only problematic for one laboratory. Only one statistical outlier was observed and the calculated reproducibility after rejection of the statistical outlier 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.

Total Contamination: This determination was very problematic at the level of 23 mg/kg. Eight 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 somewhat smaller, but still not at all in agreement with the requirements of the standard. It is unclear if 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 0.3 mg/100mL. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D2274:08. The small number of test results as well as the rounding of the reported test results may explain (part of) the large spread observed. Another explanation for the large spread may be the interference of FAME.

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	Sample id	unit	n	average	2.8 * sd	R (lit)
Aromatics by FIA	#1062	%M/M	37	22.54	7.12	3.70
Ash content	#1062	%M/M	57	0.00083	0.00142	(0.00500)
Cetane Index ASTM D976	#1062		82	53.526	0.697	Unknown
Cetane Index ASTM D4737	#1062		105	54.215	1.888	Unknown
Cloud Point	#1059	°C	116	-9.96	2.46	4.00
Cold Filter Plugging Point	#1059	°C	89	-26.77	6.21	5.33
Colour ASTM	#1059		64	1.03	0.46	1.00
Copper Corrosion 3hrs@50ºC	#1062		122	1	n.a.	n.a.
Density @ 15 °C	#1062	kg/m^3	145	837.86	0.33	0.50
IBP (automated)	#1062	°C	102	180.46	9.81	9.93
10% recovery (automated)	#1062	°C	101	224.68	5.44	4.94
50% recovery (automated)	#1062	°C	106	278.28	3.00	2.97
90% recovery (automated)	#1062	°C	106	336.07	5.35	5.04
95% recovery (automated)	#1062	°C	102	353.96	8.77	9.05
FBP (automated)	#1062	°C	107	364.09	7.14	7.10
IBP (manual)	#1062	°C	39	179.34	10.11	6.66
10% recovery (manual)	#1062	°C	39	221.74	5.57	4.40
50% recovery (manual)	#1062	°C	38	277.20	2.82	3.69
90% recovery (manual)	#1062	°C	40	335.69	4.80	4.07
90% recovery (manual)	#1062	°C	35	354.08	7.74	5.54
FBP (manual)	#1062	°C	38	363.81	7.83	3.92
Volume at 250ºC	#1062	%V/V	134	25.81	3.19	2.78
Volume at 350ºC	#1062	%V/V	131	94.28	1.90	2.13
FAME	#1062	%V/V	49	0.641	0.350	0.742
Flash Point PMcc	#1062	°C	142	67.39	4.75	4.78
Kinematic Viscosity @ 40 °C	#1062	mm^2/s	126	3.0800	0.0396	0.0335
Lubricity by HFRR	#1059	µm	61	297.8	114.4	136.0
Nitrogen	#1059	mg/kg	35	63.88	18.21	6.88
Pour Point	#1059	ºC	94	-29.12	7.18	6.60
Ramsbottom Carbon Residue	#1062	%M/M	18	0.0712	0.1126	0.0310
Total Sulphur	#1062	mg/kg	101	107.23	25.61	19.32
Total Acid Number	#1062	mgKOH/kg	57	0.0188	0.0149	0.0400
Water	#1059	mg/kg	100	48.0	39.2	172.4
Water and Sediment (D2709)	#1059	%V/V	18	<0.05	n.a.	n.a.
Water and Sediment (D1796)	#1059	%V/V	14	<0.05	n.a.	n.a.
Total Contamination	#1064	mg/kg	31	22.80	7.72	5.40
Oxidation Stability	#1065	mg/100mL	11	0.263	0.847	0.759

table 7: summary of tests results of Gasoil #1059, #1062, #1064 and #1065

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 2010 WITH PREVIOUS PTS.

	October 2010	February 2010	October 2009	February 2009
Number of reporting labs	167	72	178	75
Number of results reported	2926	1322	4104	1346
Statistical outliers	88	58	78	45
Percentage outliers	3.0%	4.4%	1.9%	3.3%

table 8: 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 2010 *)	February 2010	October 2009	February 2009
Aromatics (FIA)	--	n.e.	n.e.	n.e.
Ash content	(++)	(++)	(++)	(++)
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.	n.e.
Sulphur	--	++	+/-	++
Total Acid Number	++	++	++	++
Water content	++	++	++	++
Total Contamination	--	--	--	n.e.
Oxidation Stability	--	n.e.	n.e.	n.e.

table 9: comparison determinations against the standard
results between brackets is 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 Aromatics by FIA on sample #1062; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52	D1319	23.8		0.95	904		-----		-----
62	D1319	24.4		1.40	912		-----		-----
92	D1319	19.4		-2.38	922		-----		-----
120	D1319	20.902		-1.24	951		-----		-----
132	D1319	24.48		1.46	962	D1319	21.4		-0.87
140		-----		-----	963	D1319	21.39		-0.87
150	D1319	23.2		0.50	971	D1319	18.42		-3.12
158	D1319	23.9		1.03	994		-----		-----
159	D1319	25.63		2.33	995		-----		-----
169		-----		-----	996		-----		-----
171	D1319	25.42		2.18	997		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1017	D1319	28.23		4.30
194		-----		-----	1033		-----		-----
217		-----		-----	1038		-----		-----
221		-----		-----	1059	D1319	20.6		-1.47
224		-----		-----	1065		-----		-----
225		-----		-----	1080		-----		-----
228		-----		-----	1081	IP391	24.3		1.33
230	D1319	23.15		0.46	1108	EN12916	24.8		1.71
237		-----		-----	1109	D1319	20.8		-1.32
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140		-----		-----
253	D1319	26.10		2.69	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167		-----		-----
311		-----		-----	1171	D1319	26.50		2.99
312	D1319	19.6	C,17.12	-2.23	1201		-----		-----
317		-----		-----	1203		-----		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D1319	22.2		-0.26
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340		-----		-----	1227		-----		-----
343		-----		-----	1237		-----		-----
344		-----		-----	1251	D1319	21.3		-0.94
370	D1319	18.16		-3.32	1254		-----		-----
430		-----		-----	1266		-----		-----
447	D1319	18.62		-2.97	1284		-----		-----
463	EN12916	22.45		-0.07	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D1319	24.3		1.33	1299		-----		-----
495		-----		-----	1340		-----		-----
496		-----		-----	1345		-----		-----
507		-----		-----	1366		-----		-----
511		-----		-----	1409		-----		-----
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427		-----		-----
562		-----		-----	1428		-----		-----
575		-----		-----	1430		-----		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608	D1319	24.93		1.80	1433		-----		-----
657	D1319	22.0		-0.41	1510		-----		-----
663		-----		-----	1528	EN12916	19.9		-2.00
671	D1319	22.9223		0.29	1543		-----		-----
704		-----		-----	1616		-----		-----
732		-----		-----	1621		-----		-----
750		-----		-----	1629		-----		-----
781		-----		-----	1631		-----		-----
784		-----		-----	1632		-----		-----
823		-----		-----	1634		-----		-----
824	D1319	21.9		-0.49	1636		-----		-----
825		-----		-----	1650		-----		-----
840	D1319	22.02		-0.40	1656		-----		-----
862	D1319	24.6		1.56	1709		-----		-----
863		-----		-----	1712		-----		-----
873	D1319	23.4		0.65	1720		-----		-----
874		-----		-----	1724		-----		-----
875		-----		-----	1807	D1319	17.24		-4.01

1810		-----		-----
1811		-----		-----
1825		-----		-----
1833		-----		-----
1834		-----		-----
1842		-----		-----
1849		-----		-----
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
2129	D1319	21.8		-0.56
2146		-----		-----
7006		-----		-----
7008		-----		-----

normality	OK
n	37
outliers	0
mean (n)	22.54
st.dev. (n)	2.542
R(calc.)	7.12
R(D1319:10)	3.70
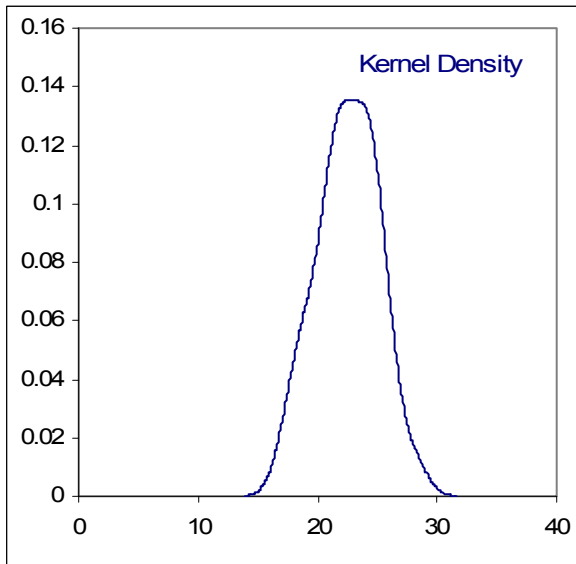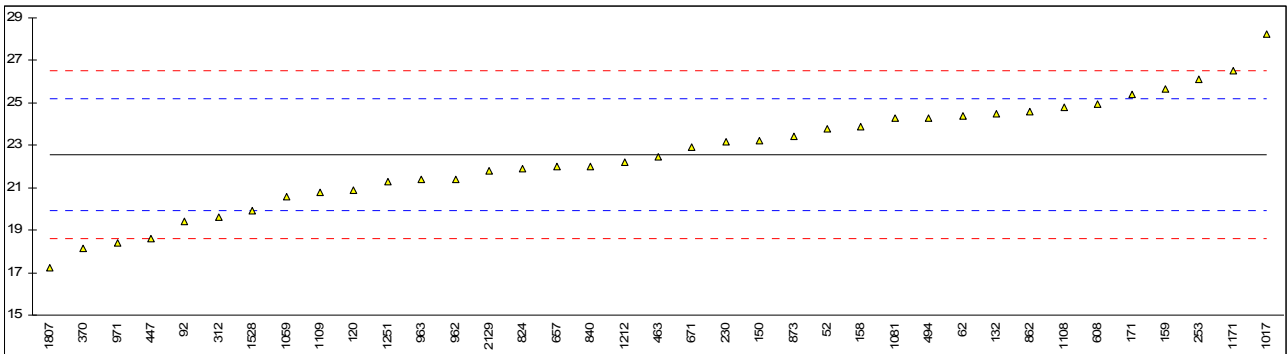
Determination of Ash on sample #1062; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D482	<0.001		-----
52	D482	<0.001		-----	904	D482	<0.001		-----
62	D482	<0.001		-----	912	D482	<0.001		-----
92	D482	0.00019		-----	922	D482	0.003768	G(0.01)	-----
120	D482	<0.001		-----	951		-----		-----
132	D482	<0.001		-----	962	D482	0.0010		-----
140	D482	<0.001		-----	963	D482	0.00109		-----
150	D482	<0.001		-----	971	D482	0.00083		-----
158	D482	0.000	ex	-----	994	D482	0.0008		-----
159	D482	0.0018		-----	995	D482	0.00076		-----
169	D482	<0.001		-----	996	D482	0.0010		-----
171	D482	<0.0001		-----	997	D482	0.00083		-----
175		-----		-----	1006	D482	0.0002		-----
193		-----		-----	1017	D482	0.00064		-----
194		-----		-----	1033		-----		-----
217		-----		-----	1038	D482	<0.001		-----
221	D482	0.001		-----	1059	ISO6245	<0.001		-----
224		-----		-----	1065		-----		-----
225	D482	0.0045	G(0.01)	-----	1080	ISO6245	0.002		-----
228	D482	<0.001		-----	1081	D482	<0.0010		-----
230	D482	0.0004		-----	1108		-----		-----
237	D482	0.00030		-----	1109	D482	<0.0001		-----
238	D482	0.00018		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140	D482	0.002		-----
253	D482	0.0011		-----	1146	D482	0.0003		-----
254	D482	<0.01		-----	1155	ISO6245	0.00152		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273	D482	0.0004		-----	1167	ISO6245	0.0007		-----
311	D482	<0.001		-----	1171	ISO6245	0.000662		-----
312		-----		-----	1201	D482	<0.005		-----
317	D482	<0.001		-----	1203	ISO6245	0.001		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D482	0.0000	ex	-----
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D482	0.0009		-----	1227		-----		-----
343	D482	<0.001		-----	1237		-----		-----
344	D482	0.00133		-----	1251	D482	<0.005		-----
370	D482	0.0006		-----	1254	D482	0.00073		-----
430		-----		-----	1266		-----		-----
447	IP4	<0.001		-----	1284	D482	0.0017		-----
463	D482	<0.001		-----	1288	D482	0.001		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D482	<0.001		-----	1299	D482	0.0000	ex	-----
495	D482	<0.001		-----	1340	ISO6245	0.0001		-----
496	D482	<0.0001		-----	1345	D482	0.001		-----
507	D482	<0.001		-----	1366		-----		-----
511		-----		-----	1409	ISO6245	<0.01		-----
529		-----		-----	1417		-----		-----
541	D482	<0.001		-----	1419		-----		-----
557		-----		-----	1427	D482	0.000	ex	-----
562		-----		-----	1428	ISO6245	<0.001		-----
575	D482	0.0008		-----	1430	D482	0.0001		-----
603	D482	<0.005		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608	D482	0.004	G(0.01)	-----	1433	D482	<0.001		-----
657	D482	0.0020		-----	1510	D482	0.0001		-----
663	D482	<0.001		-----	1528	ISO6245	0.0013		-----
671	D482	0.00117		-----	1543		-----		-----
704	D482	0.00091		-----	1616		-----		-----
732	D482	0.00155		-----	1621	D482	0.0012		-----
750		-----		-----	1629		-----		-----
781	D482	0.0007		-----	1631	D482	<0.001		-----
784	D482	0.00093		-----	1632		-----		-----
823	D482	0.0009		-----	1634		-----		-----
824	D482	0.001		-----	1636	D482	0.00071		-----
825		-----		-----	1650	D482	0.0002		-----
840	D482	0.00028		-----	1656	IP4	<0.001		-----
862	D482	0.0003		-----	1709	D482	0.0004		-----
863	D482	<0.001		-----	1712	D482	0.0004		-----
873	D482	0.0008		-----	1720		-----		-----
874		-----		-----	1724	D482	0.0002		-----
875	D482	<0.001		-----	1807	ISO6245	0.0002		-----

1810		-----	-----
1811		-----	-----
1825	D482	0.0012	-----
1833	D482	<0.001	-----
1834		-----	-----
1842		-----	-----
1849	D482	0.00128	-----
1906		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
2129	D482	0.00068	-----
2146		-----	-----
7006		-----	-----
7008		-----	-----

normality	OK
n	57
outliers	3
mean (n)	0.00083
st.dev. (n)	0.000506
R(calc.)	0.00142
R(D482:07)	(0.00500)

ex = excluded, zero is not a real result
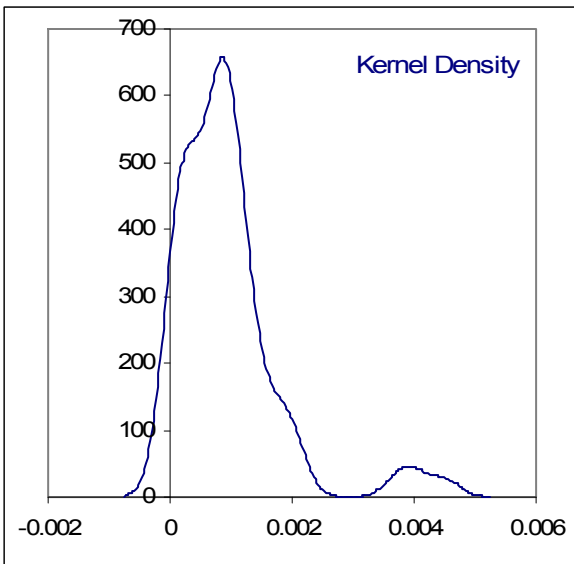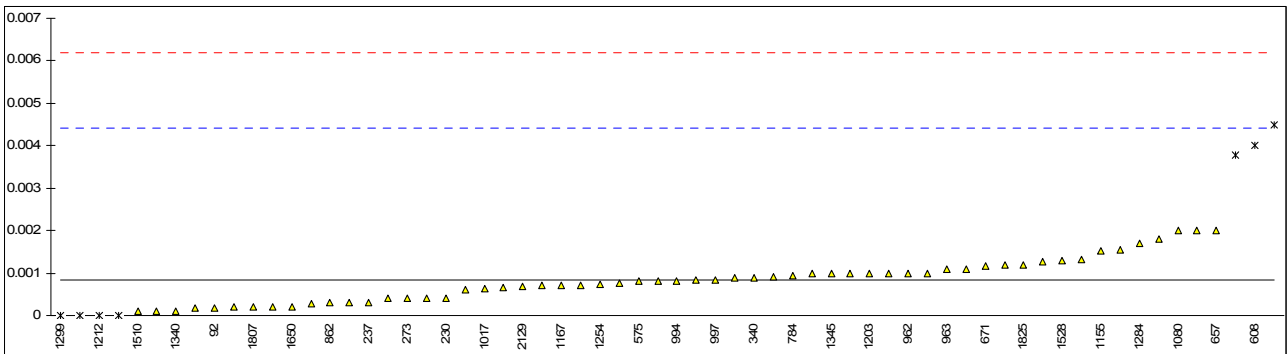
Determination of Calculated Cetane Index ASTM D976 on sample #1062

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D976	53.35		-----
52	D976	53.7		-----	904	D976	53.6		-----
62	D976	53.6		-----	912	D976	54.1		-----
92	D976	53.621		-----	922	D976	53		-----
120		-----		-----	951		-----		-----
132	D976	53.4	E	-----	962	D976	53.0	E	-----
140	D976	54.36	DG(0.05), E	-----	963	D976	53	E	-----
150	D976	53.57		-----	971	D976	53.4		-----
158	D976	54.4	DG(0.05), E	-----	994	D976	53.2		-----
159	D976	53.6	E	-----	995	D976	53.33		-----
169		-----		-----	996	D976	53.4		-----
171	D976	53.28	E	-----	997		-----		-----
175	D976	53.9	E	-----	1006	D976	53.5		-----
193		-----		-----	1017	D976	53.213		-----
194		-----		-----	1033	D976	53.6		-----
217	D976	53.601		-----	1038		-----		-----
221	D976	53.43		-----	1059		-----		-----
224	D976	53.54		-----	1065	D976	53.7		-----
225	D976	53.46		-----	1080		-----		-----
228	D976	53.4		-----	1081		-----		-----
230	D976	53.43		-----	1108		-----		-----
237	D976	53.2		-----	1109		-----		-----
238	D976	52.803	G(0.05)	-----	1113		-----		-----
240	D976	53.49		-----	1126	D976	53.7		-----
252		-----		-----	1140		-----		-----
253	D976	53.4		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256	D976	53.5	C,52.25	-----	1159	D976	54.09938		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167		-----		-----
311	D976	53.8		-----	1171		-----		-----
312	D976	53.9		-----	1201	D976	53.6		-----
317	D976	53.4		-----	1203	D976	53.9		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D976	54.62	G(0.05), E	-----
336		-----		-----	1218		-----		-----
337		-----		-----	1225	D976	53.6		-----
340		-----		-----	1227		-----		-----
343		-----		-----	1237		-----		-----
344		-----		-----	1251	D976	53.7		-----
370	D976	53.66		-----	1254	D976	53.438		-----
430		-----		-----	1266		-----		-----
447	D976	53.82		-----	1284	D976	53.27		-----
463	D976	53.4		-----	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D976	53.49		-----	1299	D976	53.60		-----
495	D976	53.39		-----	1340		-----		-----
496		-----		-----	1345	D976	53.6		-----
507	D976	53.15		-----	1366		-----		-----
511	D976	53.1		-----	1409		-----		-----
529		-----		-----	1417		-----		-----
541	D976	53.5		-----	1419	D976	53.7		-----
557		-----		-----	1427		-----		-----
562	D976	53.7		-----	1428		-----		-----
575	D976	53.1		-----	1430		-----		-----
603	D976	53.0	E	-----	1431		-----		-----
604	D976	53.39		-----	1432		-----		-----
608	D976	53.5		-----	1433		-----		-----
657	D976	53.5		-----	1510		-----		-----
663	D976	53.8		-----	1528		-----		-----
671	D976	53.0		-----	1543		-----		-----
704	D976	53.3		-----	1616		-----		-----
732	D976	53.62		-----	1621	D976	53.4		-----
750	D976	53.8		-----	1629		-----		-----
781	D976	53.6		-----	1631		-----		-----
784	D976	53.6		-----	1632	D976	53.8	C,55.1	-----
823	D976	53.66		-----	1634		-----		-----
824	D976	53.7		-----	1636	D976	53.98		-----
825	D976	53.75		-----	1650		-----		-----
840	D976	53.51		-----	1656		-----		-----
862	D976	53.52		-----	1709	D976	53.64		-----
863	D976	53.49		-----	1712		-----		-----
873	D976	53.8		-----	1720		-----		-----
874	D976	53.5		-----	1724	D976	54.0	E	-----
875		-----		-----	1807	D976	53.6		-----

= CORRECTED VERSION = Gasoil: iis10G04

1810		-----		-----
1811		-----		-----
1825	D976	54.94	G(0.01)	-----
1833		-----		-----
1834		-----		-----
1842		-----		-----
1849		-----		-----
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
2129	D976	53.5		-----
2146		-----		-----
7006		-----		-----
7008		-----		-----

		After manual recalculation	
normality	not OK	not OK	
n	82	86	
outliers	5	1	
mean (n)	53.526	53.550	
st.dev. (n)	0.2488	0.2582	
R(calc.)	0.697	0.723	
R(D976:06)	unknown	unknown	Compare R(iis10G02) = 0.486

Recalculated values (= E)

132	D976	54.08	-----
140	D976	53.72	-----
158	D976	53.17	-----
159	D976	53.81	-----
171	D976	53.50	-----
175	D976	54.13	-----
603	D976	53.42	-----
962	D976	53.43	-----
963	D976	53.45	-----
1212	D976	53.66	-----
1724	D976	54.23	-----
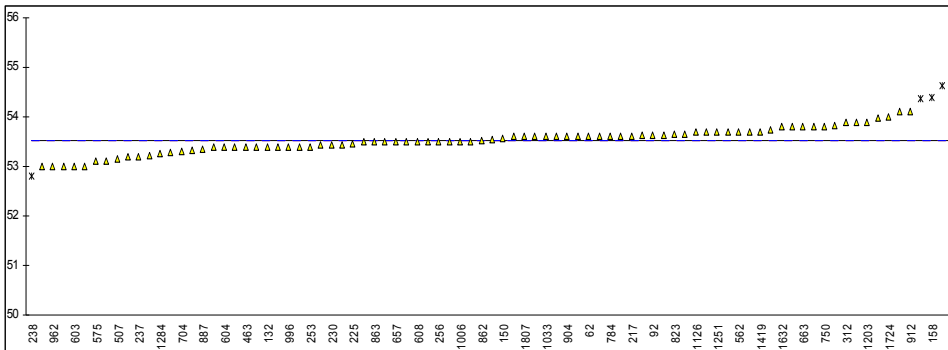
before manual correction
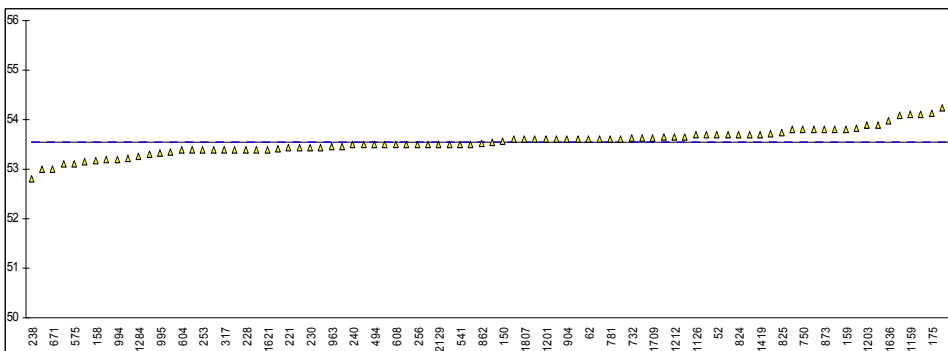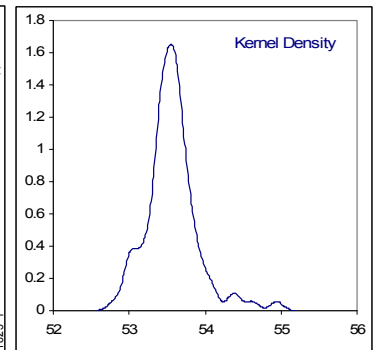
after manual correction
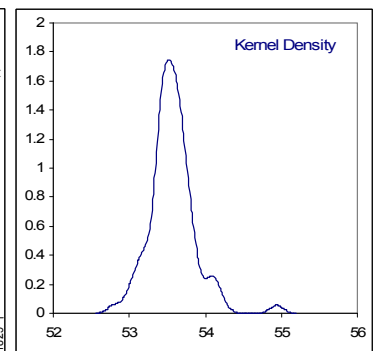
Determination of Calculated Cetane Index D4737 on sample #1062

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D4737A	54.35		-----
52	D4737A	54.9		-----	904	D4737	54.5		-----
62	D4737A	54.3		-----	912		-----		-----
92	D4737	55.199		-----	922		-----		-----
120		-----		-----	951		-----		-----
132	D4737B	53.5	E	-----	962	D4737A	54.4		-----
140	D4737A	54.4	E	-----	963	D4737A	54.4		-----
150	D4737A	54.95		-----	971	D4737A	54.2		-----
158	D4737B	52.9	E	-----	994	D4737B	52		-----
159	D4737A	55.1		-----	995	D4737B	52.11		-----
169	D4737	53.08		-----	996	D4737B	52.3		-----
171	D4737A	54.59		-----	997		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1017	D4737A	54.185		-----
194		-----		-----	1033	IP380	54.2		-----
217	D4737A	54.743	E	-----	1038	D4737A	54.80		-----
221	D4737A	54.15		-----	1059	ISO4264	53.8		-----
224		-----		-----	1065	D4737A	54.5		-----
225	D4737	53.95		-----	1080	D4737A	54.3		-----
228		-----		-----	1081	ISO4264	54.5		-----
230		-----		-----	1108	D4737	54.1		-----
237	D4737	52.4		-----	1109	D4737A	54.6		-----
238		-----		-----	1113		-----		-----
240	D4737B	54.18		-----	1126		-----		-----
252		-----		-----	1140	IP380	54.6		-----
253		-----		-----	1146		-----		-----
254	D4737B	52.2		-----	1155	D4737B	53.71		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161	D4737A	54.2		-----
273		-----		-----	1167	ISO4264	54.040		-----
311	D4737	54.6		-----	1171	ISO4264	53.874	E	-----
312	D4737A	55.0		-----	1201	D4737A	54.2		-----
317	D4737A	54.3		-----	1203	ISO4264	54.8		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D4737A	53.65	E	-----
336	D4737A	54.9		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D4737	54.44		-----	1227		-----		-----
343	D4737A	54.6		-----	1237	D4737A	53.99		-----
344	D4737A	54.58		-----	1251	D4737A	54.7		-----
370	D4737A	54.13		-----	1254	D4737A	54.466		-----
430		-----		-----	1266	ISO4264	54.15	E	-----
447	D4737A	54.86		-----	1284	D4737A	54.1	C,51.7	-----
463	D4737A	54.4		-----	1288	D4737A	54.6		-----
485	D4737A	54.2		-----	1293		-----		-----
488	D4737A	54.3		-----	1297		-----		-----
494	D4737B	53.80		-----	1299	D4737	54.50		-----
495	D4737B	53.74		-----	1340	D4737	54.77		-----
496	D4737B	54.58		-----	1345	D4737	54.5		-----
507		-----		-----	1366		-----		-----
511	D4737B	53.2	C,51.8	-----	1409	ISO4264A	54.4	E	-----
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427		-----		-----
562		-----		-----	1428	ISO4264	54.7		-----
575		-----		-----	1430	D4737	54.5		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608		-----		-----	1433	D4737A	53.5		-----
657	D4737A	54.6		-----	1510		-----		-----
663	D4737A	54.9		-----	1528	ISO4264	55		-----
671	D4737	52.7		-----	1543		-----		-----
704	D4737B	53.0	C,51.6	-----	1616		-----		-----
732		-----		-----	1621	D4737A	53.9		-----
750	D4737	54.4		-----	1629		-----		-----
781	D4737B	53.9		-----	1631	D4737A	54.44	E	-----
784	D4737B	53.3		-----	1632	ISO4264A	55.0	C,56.6	-----
823	D4737A	54.54		-----	1634	ISO4264	54.73		-----
824	D4737A	54.8		-----	1636		-----		-----
825		-----		-----	1650	IP380	54.2		-----
840	D4737B	54.00		-----	1656	IP380	54.0		-----
862	D4737A	54.36		-----	1709	D4737A	54.64		-----
863	D4737B	53.84		-----	1712	ISO4264	54.8		-----
873	D4737	54.6		-----	1720	D4737	55.10		-----
874	D4737B	54.0		-----	1724	IP380	55.5		-----
875	D4737B	53.6		-----	1807	ISO4264	54.8		-----

= CORRECTED VERSION = Gasoil: iis10G04

1810	D4737A	54.2	-----	
1811	ISO4264	54.8	-----	
1825		-----	-----	
1833	D4737A	54.42	-----	
1834		-----	-----	
1842		-----	-----	
1849	D4737	54.33	-----	
1906		-----	-----	
1936	ISO4264	54.75	-----	
1937	ISO4264	54.2	-----	
1938	D4737	53.8	-----	
1948		-----	-----	
2129	D4737A	54.1	-----	
2146		-----	-----	
7006		-----	-----	
7008		-----	-----	

		After manual recalculation
normality	not OK	not OK
n	105	105
outliers	0	0
mean (n)	54.215	54.248
st.dev. (n)	0.6745	0.6639
R(calc.)	1.888	1.859
R(D4737:10)	unknown	unknown

Recalculated values (= E)

					Only Method A	Only Method B
132	D4737B	54.88	-----			
140	D4737A	54.76	-----	normality	OK	OK
158	D4737B	53.63	-----	n	69	20
217	D4737A	54.47	-----	outliers	0	0
1171	ISO4264	52.52	-----	mean (n)	54.461	53.423
1212	D4737A	54.62	-----	st.dev. (n)	0.3671	0.7864
1266	ISO4264	54.59	-----	R(calc.)	1.028	2.202
1409	ISO4264	54.01	-----	R(D4737:10)	unknown	Unknown
1631	D4737A	53.97	-----	R(iis10G01)	0.844	1.243
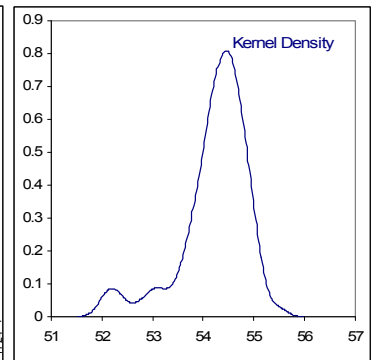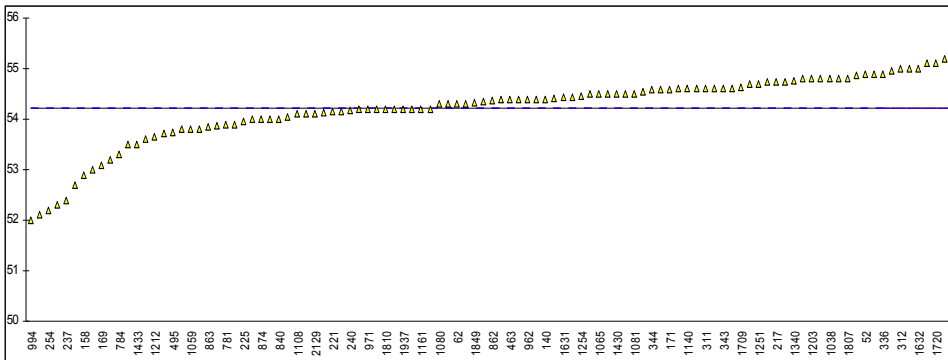
before manual correction
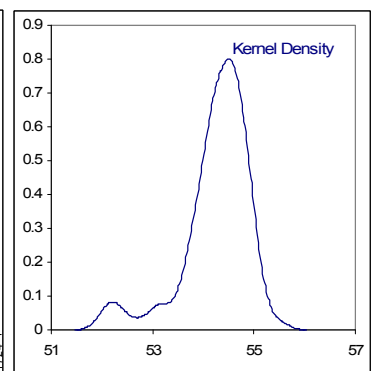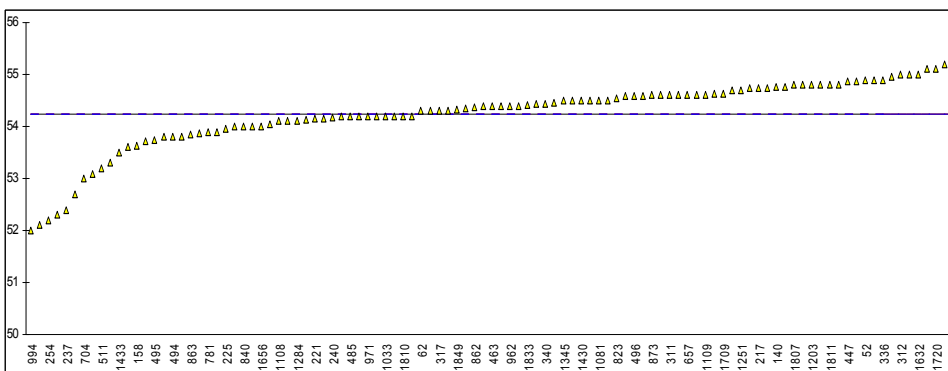
after manual correction

Determination of Cloud Point on sample #1059; result in °C,

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52	D2500	-10		-0.03	904	D2500	-10		-0.03
62	D2500	-10		-0.03	912	D2500	-10		-0.03
92	D2500	-11		-0.73	922	D2500	-12		-1.43
120	D2500	-11		-0.73	951		-----		-----
132	D2500	-9		0.67	962	D2500	-9		0.67
140	D5773	-10.2		-0.17	963	D2500	-8		1.37
150	D2500	-11		-0.73	971	D2500	-11		-0.73
158	D2500	-11		-0.73	994	D2500	-9		0.67
159	D2500	-10.0		-0.03	995	D2500	-10		-0.03
169		-----		-----	996		-----		-----
171	D2500	-10.0		-0.03	997		-----		-----
175	D2500	-10		-0.03	1006		-----		-----
193		-----		-----	1017	D2500	-11		-0.73
194		-----		-----	1033	D5772	-10.5		-0.38
217		-----		-----	1038	D5773	-10.3		-0.24
221	D2500	-10		-0.03	1059	ISO3015	-10		-0.03
224		-----		-----	1065	D5771	-10.5		-0.38
225	D2500	-9		0.67	1080	D2500	-11		-0.73
228	D2500	-10		-0.03	1081	D5772	-10		-0.03
230		-----		-----	1108	D5771	-10		-0.03
237	D2500	-9		0.67	1109	D5773	-9.9		0.04
238	D2500	-11		-0.73	1113		-----		-----
240	D2500	-9		0.67	1126		-----		-----
252		-----		-----	1140	D5773	-9.5		0.32
253	D2500	-9		0.67	1146		-----		-----
254	D2500	<-6		<2.77	1155	ISO3015	-10.0		-0.03
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167	EN23015	-9		0.67
311	D2500	-10		-0.03	1171	ISO3015	-11.0		-0.73
312	D2500	-10		-0.03	1201	D2500	-10		-0.03
317	D5771	-9.8		0.11	1203	EN23015	-10		-0.03
334	D2500	-11		-0.73	1205		-----		-----
335	EN23015	-11		-0.73	1212	D2500	-11		-0.73
336	EN23015	-10		-0.03	1218		-----		-----
337	D2500	-10		-0.03	1225	D2500	-10.0		-0.03
340	EN23015	-11		-0.73	1227	D2500	-10.6		-0.45
343	D2500	-11		-0.73	1237	EN3015	-11		-0.73
344	D2500	-12.2		-1.57	1251	D2500	-10		-0.03
370	D2500	-9		0.67	1254	D2500	-9.5		0.32
430		-----		-----	1266	EN23015	-9.5		0.32
447	D2500	-10		-0.03	1284	D5773	-9.6		0.25
463	D2500	-11		-0.73	1288	D2500	-9		0.67
485		-----		-----	1293		-----		-----
488		-----		-----	1297	D5771	-10.4		-0.31
494	D2500	-10		-0.03	1299	D2500	-10.1		-0.10
495	D2500	-10		-0.03	1340	ISO3015	-9		0.67
496	D5772	-10		-0.03	1345	D2500	-8.0		1.37
507	D2500	-10		-0.03	1366		-----		-----
511		-----		-----	1409	D2500	-11		-0.73
529		-----		-----	1417	IP444	-11		-0.73
541	D2500	-9		0.67	1419	EN23015	-9.2		0.53
557		-----		-----	1427	D5773	-12.00		-1.43
562	D2500	-8		1.37	1428	EN23015	-10		-0.03
575		-----		-----	1430	D5771	-9		0.67
603		-----		-----	1431		-----		-----
604	D2500	-8	C,-6	1.37	1432		-----		-----
608	D2500	-8		1.37	1433		-----		-----
657	D2500	-9		0.67	1510	D2500	-10		-0.03
663	D2500	-10		-0.03	1528	EN23015	-11		-0.73
671	D2500	-9		0.67	1543		-----		-----
704	D2500	-9.5		0.32	1616		-----		-----
732	D2500	-9		0.67	1621	D2500	-10		-0.03
750	D2500	-10		-0.03	1629		-----		-----
781	D2500	-11		-0.73	1631	D5771	-9.2		0.53
784	D2500	-11		-0.73	1632		-----		-----
823	D2500	-10		-0.03	1634		-----		-----
824	D2500	-9		0.67	1636	D2500	-9		0.67
825	D2500	-10		-0.03	1650	D5771	-10		-0.03
840	D2500	-9		0.67	1656	IP444	-10		-0.03
862	D2500	-10		-0.03	1709	D2500	-11		-0.73
863	D2500	-10		-0.03	1712	ISO3015	-8		1.37
873	D2500	-9		0.67	1720	D5773	-10.6		-0.45
874	D2500	-9		0.67	1724	D2500	-11		-0.73
875	D2500	-11		-0.73	1807	D2500	-11		-0.73

= CORRECTED VERSION =   Gasoil: iis10G04

1810	D2500	-10		-0.03
1811	D2500	-9		0.67
1825		-----		-----
1833	D2500	-10		-0.03
1834	EN23015	-10.25		-0.20
1842		-----		-----
1849		-----		-----
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948	EN23015	-6	G(0.01)	2.77
2129	IP444	-10		-0.03
2146		-----		-----
7006		-----		-----
7008	D2500	-9		0.67

normality	not OK
n	116
outliers	1
mean (n)	-9.96
st.dev. (n)	0.878
R(calc.)	2.46
R(D2500:09)	4.00
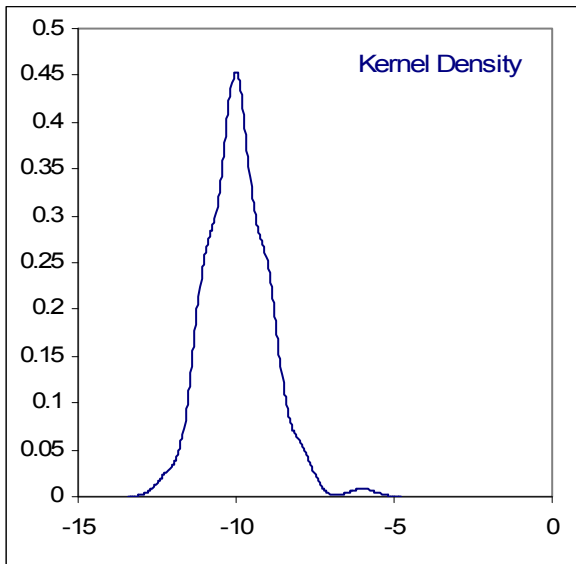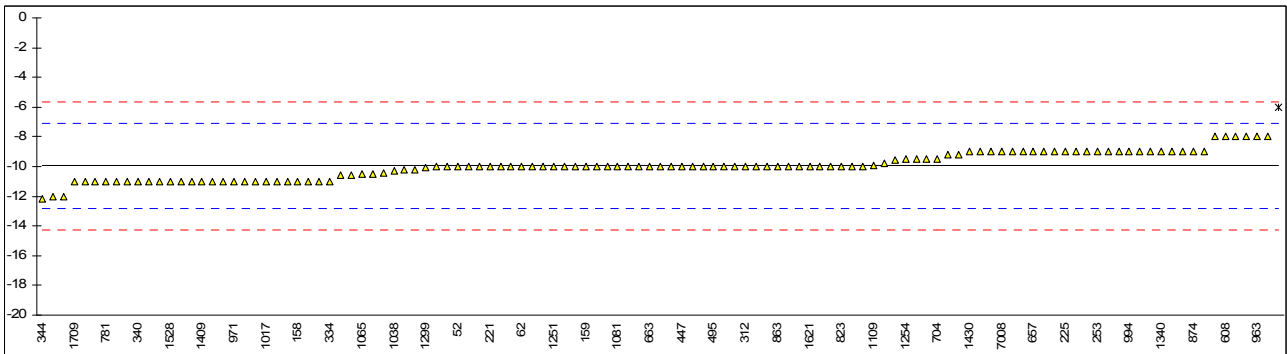
Determination of Cold Filter Plugging Point on sample #1059; result in ºC

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52		-----		-----	904	IP309	-23		1.98
62		-----		-----	912		-----		-----
92		-----		-----	922		-----		-----
120	D6371	-25		0.93	951		-----		-----
132		-----		-----	962	D6371	-22		2.51
140		-----		-----	963	IP309	-23		1.98
150	D6371	-28.0		-0.64	971	D6371	-19	G(0.05)	4.08
158		-----		-----	994	D6371	-24		1.46
159		-----		-----	995	D6371	-24		1.46
169		-----		-----	996		-----		-----
171	D6371	-30.0		-1.69	997		-----		-----
175		-----		-----	1006	D6371	-26		0.41
193		-----		-----	1017	EN116	-27		-0.12
194		-----		-----	1033	IP309	-29		-1.17
217		-----		-----	1038		-----		-----
221		-----		-----	1059	EN116	-28		-0.64
224		-----		-----	1065	D6371	-28		-0.64
225		-----		-----	1080	EN116	-28.0		-0.64
228		-----		-----	1081	EN116	-30		-1.69
230		-----		-----	1108	D6371	-30		-1.69
237		-----		-----	1109	IP309	-29.0		-1.17
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252	IP309	-24.0		1.46	1140	IP309	-26		0.41
253		-----		-----	1146		-----		-----
254		-----		-----	1155	EN160	-24.0		1.46
256		-----		-----	1159		-----		-----
258		-----		-----	1161	EN116	-23		1.98
273		-----		-----	1167	EN116	-24		1.46
311	D6371	-25		0.93	1171	EN116	-25.0		0.93
312	D6371	-30		-1.69	1201	D6371	-27		-0.12
317	D6371	-25.0		0.93	1203	EN116	-28		-0.64
334	EN116	-25		0.93	1205		-----		-----
335	EN116	-29		-1.17	1212	EN116	-29		-1.17
336	EN116	-28		-0.64	1218		-----		-----
337	D6371	-26		0.41	1225	D6371	-26.0		0.41
340		-----		-----	1227	IP309	-26		0.41
343	EN116	-26		0.41	1237	EN116	-30		-1.69
344	EN116	-22		2.51	1251	D6371	-27		-0.12
370	IP309	-27		-0.12	1254	IP309	-28.5		-0.91
430		-----		-----	1266	EN116	-27.5		-0.38
447	IP309	-29		-1.17	1284		-----		-----
463	D6371	-28		-0.64	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D6371	-29		-1.17	1299	D6371	-28		-0.64
495	D6371	-29		-1.17	1340	EN116	-25	C,-21	0.93
496	D6371	-30		-1.69	1345	IP309	-25.0		0.93
507		-----		-----	1366		-----		-----
511		-----		-----	1409	EN116	-22		2.51
529		-----		-----	1417		-----		-----
541	D6371	<-19		<4.08	1419	EN116	-28		-0.64
557		-----		-----	1427	D6371	-26.00		0.41
562		-----		-----	1428	EN116	-26		0.41
575		-----		-----	1430	EN116	-22		2.51
603		-----		-----	1431	D6371	-30		-1.69
604		-----		-----	1432		-----		-----
608		-----		-----	1433		-----		-----
657	D6371	-27		-0.12	1510	IP309	-25		0.93
663		-----		-----	1528	EN116	-28		-0.64
671		-----		-----	1543		-----		-----
704	D6371	-26		0.41	1616		-----		-----
732	D6371	-26		0.41	1621		-----		-----
750	D6371	-29.5		-1.43	1629		-----		-----
781	D6371	-25		0.93	1631	D6371	-29		-1.17
784		-----		-----	1632	EN116	-27		-0.12
823	D6371	-25		0.93	1634		-----		-----
824	D6371	-26		0.41	1636	D6371	-26		0.41
825	D6371	-26		0.41	1650	EN116	-31		-2.22
840		-----		-----	1656	IP309	-28		-0.64
862	D6371	-25		0.93	1709	D6371	-24		1.46
863	IP309	-25		0.93	1712	EN116	-29		-1.17
873	IP309	-25		0.93	1720		-----		-----
874	IP309	-27		-0.12	1724	IP309	-27		-0.12
875	IP309	-25		0.93	1807	EN116	-31		-2.22

= CORRECTED VERSION =   Gasoil: iis10G04

1810	D6371	-28	-0.64
1811	D6371	-28	-0.64
1825		-----	-----
1833	D6371	-29	-1.17
1834	EN116	-26.25	0.27
1842		-----	-----
1849	D6371	-27	-0.12
1906		-----	-----
1936	EN116	-29	-1.17
1937	D6371	-27	-0.12
1938	D6371	-29	-1.17
1948		-----	-----
2129	D6371	-28	-0.64
2146		-----	-----
7006		-----	-----
7008		-----	-----

normality	not OK
n	89
outliers	1
mean (n)	-26.77
st.dev. (n)	2.217
R(calc.)	6.21
R(IP309:99)	5.33

Kernel Density
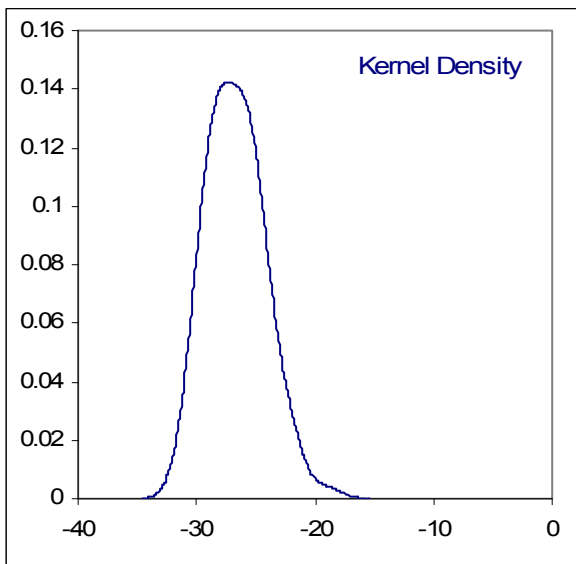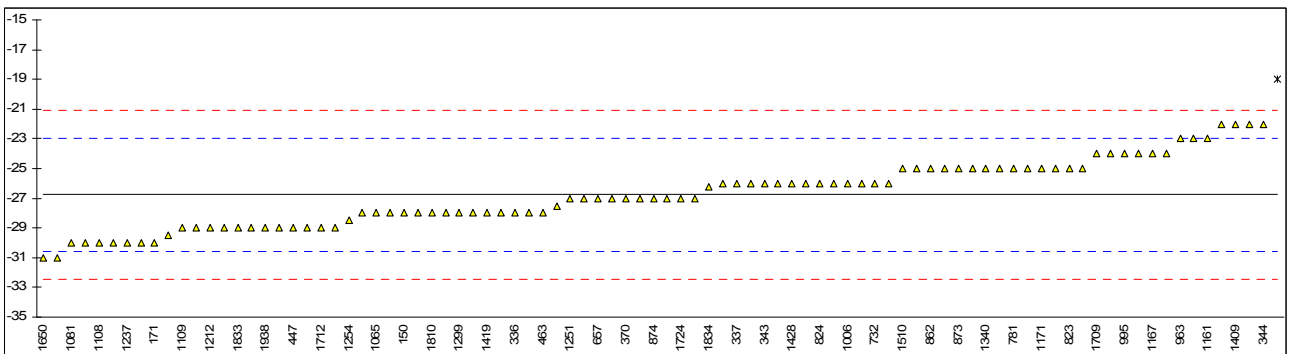
Determination of Colour ASTM on sample #1059;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D1500	L1.0		-----
52	D1500	L1		-----	904	D1500	L1.5		-----
62	D1500	L1.0		-----	912	D1500	L1.5		-----
92	D1500	1.0		-0.08	922	D1500	L2.0		-----
120	D1500	1.0		-0.08	951		-----		-----
132	D1500	L1.0		-----	962	D1500	L1.5		-----
140	D1500	0.5		-1.48	963	D1500	L1.5		-----
150	D1500	1.0		-0.08	971	D1500	1.0		-0.08
158	D1500	1.0		-0.08	994	D1500	L1.0		-----
159	D1500	1.0		-0.08	995	D1500	1.0		-0.08
169		-----		-----	996		-----		-----
171	D1500	L1.0		-----	997		-----		-----
175	D1500	1.0		-0.08	1006	D1500	L1.5		-----
193		-----		-----	1017		-----		-----
194		-----		-----	1033	D1500	L1		-----
217	D1500	1		-0.08	1038		-----		-----
221	D1500	L1		-----	1059	D1500	L1.0		-----
224	D1500	1.0		-0.08	1065		-----		-----
225	D1500	L1.0		-----	1080	D1500	1.0		-0.08
228	D1500	L1.0		-----	1081	D6045	L1.5		-----
230	D1500	L1.0		-----	1108	D1500	1.0		-0.08
237	D1500	L1.0		-----	1109	D1500	L1.5		-----
238	D1500	L1.0		-----	1113	D1500	L1.0		-----
240	D1500	L1.0		-----	1126		-----		-----
252	D1500	L1.5		-----	1140	D6045	1.3		0.76
253	D1500	L1.0		-----	1146		-----		-----
254	D1500	L1.0		-----	1155	D1500	1.0		-0.08
256	D1500	1.5		1.32	1159	D1500	L1.0		-----
258		-----		-----	1161	D6045	1.3		0.76
273	D1500	L1.0		-----	1167	D156	1.2		0.48
311	D1500	L1.0		-----	1171	D1500	1.04		0.04
312	D1500	L1.0		-----	1201	D1500	L1.0		-----
317	D1500	L1.0		-----	1203	D1500	1.0		-0.08
334	D1500	1.0		-0.08	1205	D1500	1		-0.08
335		-----		-----	1212	D1500	L0.5		-----
336	D1500	L1.0		-----	1218		-----		-----
337		-----		-----	1225	D1500	1.0		-0.08
340	D1500	L1.0		-----	1227	D1500	1		-0.08
343	D1500	L1.0		-----	1237		-----		-----
344	D1500	1.0		-0.08	1251	D1500	L1.0		-----
370	D1500	1.0		-0.08	1254	D1500	1.0		-0.08
430		-----		-----	1266	D1500	1.0		-0.08
447	D6045	1.0		-0.08	1284	D6045	0.7		-0.92
463	D1500	1.0		-0.08	1288	D1500	L1.0		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297	D1500	1.0		-0.08
494	D1500	L1.0		-----	1299	D6045	L1.5		-----
495	D1500	1.0		-0.08	1340	D1500	1.1		0.20
496	D1500	1.0		-0.08	1345	D1500	1.0		-0.08
507	D1500	L1.0		-----	1366		-----		-----
511	D6045	1.0		-0.08	1409	D1500	1		-0.08
529		-----		-----	1417	D6045	1.0		-0.08
541	D1500	L1.0		-----	1419	D1500	1.0		-0.08
557		-----		-----	1427		-----		-----
562	D1500	L1.5		-----	1428	D6045	1.1		0.20
575	D1500	L1.5		-----	1430	D1500	1.0		-0.08
603	D1500	1.0		-0.08	1431	D1500	1.5		1.32
604	D1500	1.0		-0.08	1432		-----		-----
608	D1500	1.0		-0.08	1433		-----		-----
657	D1500	L1.5		-----	1510	D1500	L1.0		-----
663	D1500	L1.0		-----	1528	D1500	1		-0.08
671	D1500	L1.0		-----	1543		-----		-----
704	D1500	L0.5		-----	1616		-----		-----
732	D1500	1.0		-0.08	1621	D1500	1		-0.08
750		-----		-----	1629		-----		-----
781	D1500	1.0		-0.08	1631		-----		-----
784	D1500	1.0		-0.08	1632	D1500	1.0		-0.08
823	D1500	0.5		-1.48	1634		-----		-----
824	D1500	L1.5		-----	1636	D1500	1		-0.08
825	D1500	1.5		1.32	1650		-----		-----
840	D1500	1.0		-0.08	1656	IP196	L0.5		-----
862	D1500	1.2		0.48	1709	D1500	1.0		-0.08
863	D1500	L1.0		-----	1712	D1500	1.0		-0.08
873	D6045	1.0		-0.08	1720	D1500	1.0		-0.08
874	D1500	L1.0		-----	1724		-----		-----
875	D6045	1.0		-0.08	1807	D1500	L1.0		-----

1810		-----	-----
1811		-----	-----
1825		-----	-----
1833		-----	-----
1834		-----	-----
1842		-----	-----
1849		-----	-----
1906		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
2129	D6045	1.3	0.76
2146		-----	-----
7006		-----	-----
7008	D1500	1.0	-0.08

normality	not OK
n	64
outliers	0
mean (n)	1.03
st.dev. (n)	0.163
R(calc.)	0.46
R(D1500:07)	1.00
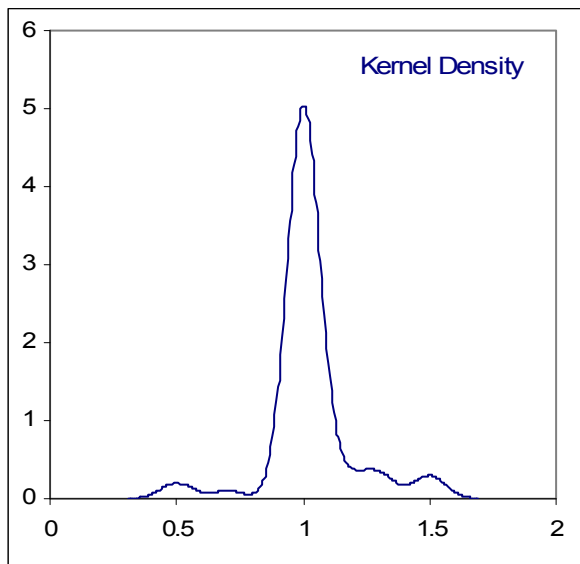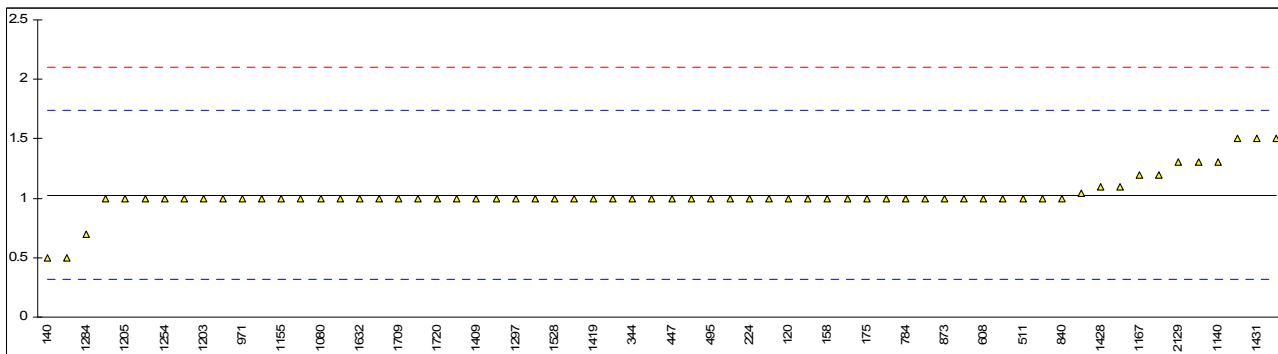
Determination of Copper Corrosion (3 hrs @ 50°C) on sample #1062;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D130	<1A		-----
52	D130	1A		-----	904	D130	1A		-----
62	D130	1B		-----	912	D130	1A		-----
92	D130	1A		-----	922	D130	1A		-----
120	D130	1A		-----	951		-----		-----
132	D130	1A		-----	962	D130	1A		-----
140	D130	1A		-----	963	D130	1A		-----
150	D130	1A		-----	971	D130	1A		-----
158	D130	1A		-----	994	D130	1A		-----
159	D130	1A		-----	995	D130	1A		-----
169	D130	1A		-----	996	D130	1A		-----
171	D130	1A		-----	997		-----		-----
175	D130	1A		-----	1006	D130	1A		-----
193		-----		-----	1017	D130	1A		-----
194		-----		-----	1033	IP154	1B		-----
217	D130	1A		-----	1038	D130	1A		-----
221	D130	1A		-----	1059	ISO2160	1A		-----
224		-----		-----	1065		-----		-----
225	D130	1A		-----	1080	D130	1A		-----
228	D130	1A		-----	1081	D130	1A		-----
230	D130	1A		-----	1108	D130	1A		-----
237	D130	1A		-----	1109	D130	1A		-----
238	D130	1A		-----	1113	D130	1A		-----
240		-----		-----	1126		-----		-----
252	D130	1A		-----	1140	D130	1A		-----
253	D130	1A		-----	1146		-----		-----
254	D130	1A		-----	1155	ISO2160	1A		-----
256		-----		-----	1159	D130	1A		-----
258	D130	1		-----	1161	ISO2160	1		-----
273	D130	1A		-----	1167	D130	1A		-----
311	D130	1A		-----	1171	ISO2160	1A		-----
312	D130	1A		-----	1201	D130	1A		-----
317	D130	1A		-----	1203	ISO2160	1		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D130	1A		-----
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D130	1A		-----	1227	D130	1A		-----
343	D130	1A		-----	1237	ISO2160	1A		-----
344	D130	1A		-----	1251	D130	1A		-----
370	D130	1A		-----	1254	D130	1A		-----
430		-----		-----	1266		-----		-----
447	D130	1A		-----	1284	D130	1A		-----
463	D130	1A		-----	1288	D130	1A		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D130	1A		-----	1299	D130	1A		-----
495	D130	1A		-----	1340	ISO2160	1A		-----
496	D130	1A		-----	1345	D130	1A		-----
507	D130	1A		-----	1366		-----		-----
511	D130	1A		-----	1409	ISO2160	1A		-----
529		-----		-----	1417		-----		-----
541	D130	1		-----	1419		-----		-----
557		-----		-----	1427	D130	1A		-----
562	D130	1		-----	1428	ISO2160	1A		-----
575	D130	1A		-----	1430	D130	1A		-----
603	D130	1A		-----	1431	D130	1A		-----
604		-----		-----	1432		-----		-----
608	D130	1A		-----	1433	D130	1A		-----
657	D130	1		-----	1510	D130	1A		-----
663	D130	1A		-----	1528	D130	1B		-----
671	D130	1A		-----	1543		-----		-----
704	D130	1A		-----	1616		-----		-----
732		-----		-----	1621	D130	1A		-----
750	D130	1A		-----	1629		-----		-----
781	D130	1A		-----	1631	D130	1		-----
784	D130	1A		-----	1632		-----		-----
823	D130	1		-----	1634	D130	1A		-----
824	D130	1A		-----	1636	D130	1A		-----
825	D130	1A		-----	1650	D130	1A		-----
840	D130	1A		-----	1656	IP154	1A		-----
862	D130	1A		-----	1709	D130	1A		-----
863	D130	1A		-----	1712	ISO2160	1A		-----
873	D130	1A		-----	1720	D130	1A		-----
874	D130	1A		-----	1724	D130	1A		-----
875	D130	1A		-----	1807	ISO2160	1A		-----

1810		-----	-----
1811	D130	1	-----
1825	D130	1A	-----
1833	D130	1A	-----
1834		-----	-----
1842		-----	-----
1849	D130	1B	-----
1906		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948	D130	1A	-----
2129	D130	1A	-----
2146		-----	-----
7006		-----	-----
7008	D130	1A	-----

normality	n.a.
n	122
outliers	0
mean (n)	1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D130:04e1)	n.a.

Determination of Density @15 °C, on sample #1062; result in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51	D4052	837.9		0.24	887	D4052	837.83		-0.15
52	D4052	837.9		0.24	904	D4052	838.0		0.80
62	D4052	837.9		0.24	912	D4052	837.90		0.24
92	D4052	837.9		0.24	922	D4052	837.88		0.13
120	D4052	837.8		-0.32	951		-----		-----
132	D4052	836.89	G(0.05)	-5.42	962	D4052	837.9		0.24
140	D4052	837.9	C,838.8	0.24	963	D4052	837.9		0.24
150	D4052	838.0		0.80	971	D4052	837.8		-0.32
158	D4052	837.8	U,0.8378 kg/L?	-0.32	994	D4052	837.8		-0.32
159	D4052	837.8		-0.32	995	D4052	837.84		-0.10
169	D4052	837.6		-1.44	996	D1298	837.7		-0.88
171	D4052	837.9		0.24	997	D4052	837.7		-0.88
175	D4052	837.9		0.24	1006	D4052	837.9		0.24
193		-----		-----	1017	D4052	837.9		0.24
194		-----		-----	1033	IP365	837.9		0.24
217	D1298	837.0	G(0.05)	-4.80	1038	D4052	837.7		-0.88
221	D4052	837.9		0.24	1059	D4052	837.8		-0.32
224		-----		-----	1065	D4052	837.8		-0.32
225	D4052	838.1		1.36	1080	ISO12185	837.9		0.24
228	D1298	837.7		-0.88	1081	ISO12185	838.0		0.80
230	D1298	837.6		-1.44	1108	D4052	837.9		0.24
237		-----		-----	1109	D4052	837.8		-0.32
238	D1298	837.7		-0.88	1113		-----		-----
240	D4052	837.9	U,0.8379 kg/L?	0.24	1126	D4052	837.87		0.07
252	D4052	838.1		1.36	1140	D4052	837.9		0.24
253	D4052	837.8		-0.32	1146	D4052	837.90		0.24
254	D4052	837.8		-0.32	1155	ISO3675	837.74		-0.66
256	D4052	837.8		-0.32	1159	D1298	837.5		-2.00
258	D1298	837.8	C,837.3	-0.32	1161	ISO12185	837.86		0.02
273	D4052	837.9		0.24	1167	ISO12185	837.8		-0.32
311	D4052	837.9		0.24	1171	D4052	838.1		1.36
312	D4052	837.7		-0.88	1201	D4052	837.7		-0.88
317	D4052	837.9		0.24	1203	ISO12185	837.9		0.24
334	D4052	837.8		-0.32	1205	D4052	837.84		-0.10
335	ISO12185	837.9		0.24	1212	D4052	837.9		0.24
336	D4052	837.8		-0.32	1218	D4052	837.9		0.24
337	D4052	837.8		-0.32	1225	D4052	837.6		-1.44
340	D4052	837.81		-0.26	1227	D4052	837.9		0.24
343	D4052	837.88		0.13	1237	ISO12185	837.7		-0.88
344	D4052	837.9		0.24	1251	D4052	837.9		0.24
370	D4052	837.8		-0.32	1254	D4052	837.87	U,0.83787 kg/L?	0.07
430		-----		-----	1266	ISO3675	837.8	C,838.8	-0.32
447	D4052	837.82		-0.21	1284	D4052	839.12	G(0.05)	7.07
463	D4052	837.86		0.02	1288	D4052	837.9		0.24
485	D4052	837.8		-0.32	1293	ISO12185	837.84	U,0.83784 kg/L?	-0.10
488	D4052	837.7		-0.88	1297	D4052	837.9		0.24
494	D4052	837.91		0.30	1299	D4052	837.82		-0.21
495	D4052	837.9		0.24	1340	ISO12185	837.9		0.24
496	D4052	837.81		-0.26	1345	D4052	837.8		-0.32
507	D1298	837.4		-2.56	1366		-----		-----
511	D4052	837.9		0.24	1409	ISO12185	837.8		-0.32
529		-----		-----	1417	IP365	837.7		-0.88
541	D4052	837.9		0.24	1419	ISO12185	837.7		-0.88
557		-----		-----	1427	D4052	837.8	U,0.83784 kg/L?	-0.32
562	D4052	838.1	U,0.8381 kg/L?	1.36	1428	ISO12185	837.9		0.24
575	D1298	837.9		0.24	1430	D4052	837.1	G(0.05)	-4.24
603	D4052	838.21		1.98	1431	D4052	838.00		0.80
604	D4052	838.01		0.86	1432		-----		-----
608	D4052	837.9	U,0.8379 kg/L?	0.24	1433	D4052	837.9		0.24
657	D4052	838.0		0.80	1510	IP365	837.9	U,0.8379 kg/L?	0.24
663	D4052	837.9		0.24	1528	ISO12185	837.78		-0.43
671	D4052	838.1		1.36	1543		-----		-----
704	D4052	837.7		-0.88	1616		-----		-----
732	D4052	837.8		-0.32	1621	D4052	838.0		0.80
750	D4052	837.5		-2.00	1629		-----		-----
781	D4052	837.8		-0.32	1631	D4052	837.9		0.24
784	D4052	837.8		-0.32	1632	D7042	837.67		-1.05
823	D4052	837.85		-0.04	1634	D4052	837.9		0.24
824	D4052	837.9		0.24	1636	D4052	837.9		0.24
825	D4052	837.9		0.24	1650	D4052	837.87		0.07
840	D4052	837.89		0.18	1656	IP365	838.0		0.80
862	D4052	837.89		0.18	1709	D4052	838.0		0.80
863	D4052	837.99		0.74	1712	ISO12185	838.1		1.36
873	D4052	838.0		0.80	1720	D4052	838.1		1.36
874	D4052	837.9		0.24	1724	D4052	837.0	U,G(0.05)	-4.80
875	D4052	837.9		0.24	1807	ISO12185			-----

1810	D4052	837.8		-0.32
1811	D4052	837.7		-0.88
1825	D1298	832.5	G(0.05)	-30.00
1833	D4052	837.8		-0.32
1834	ISO12185	837.892		0.20
1842		-----		-----
1849	D4052	837.9		0.24
1906		-----		-----
1936	ISO12185	837.95		0.52
1937	ISO12185	837.9		0.24
1938	D4052	837.9		0.24
1948	ISO12185	837.9		0.24
2129	D4052	837.9		0.24
2146	ISO12185	837.86		0.02
7006	D4052	838.0	U,0.8380 kg/L?	0.80
7008	D1298	837.7	C,836.5	-0.88

normality	not OK
n	145
outliers	6
mean (n)	837.86
st.dev. (n)	0.119
R(calc.)	0.33
R(D4052:09)	0.50

Kernel Density
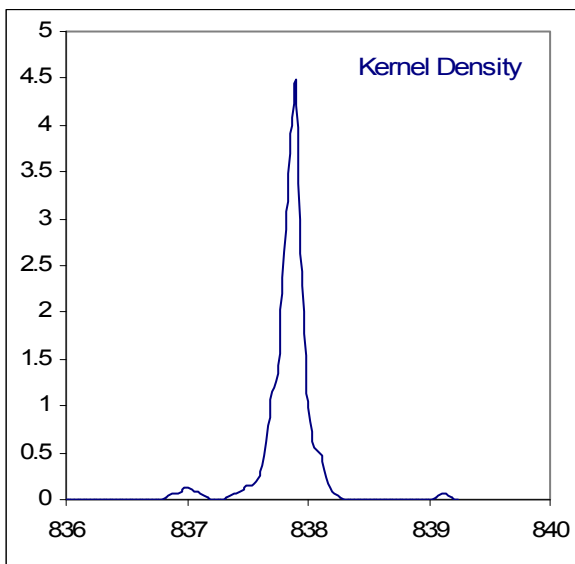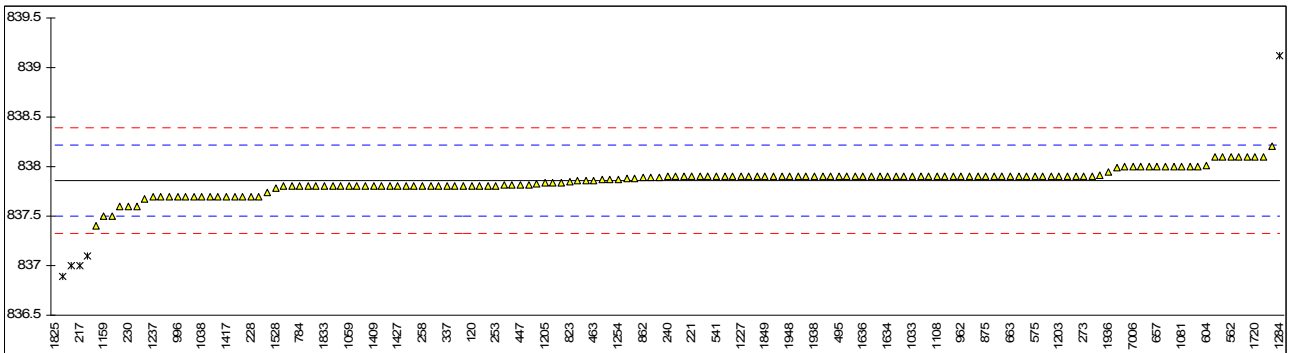
Determination of Distillation (automated) on sample #1062; result in °C

lab	method	IBP		10% rec		50% rec	90% rec	95% rec		FBP	
51	D86	182.6		224.0		277.9	339.3	361.4		364.7	
52	D86	180.9		227.3		278.8	338.5	358.4		363.9	
62	D86	184.3		222.6		278.4	334.9	351.5		365.7	
92	D86	187.0		229.5		279.5	335.0	351.0		364.5	
120	D86	180.9		224.2		278.3	338.8	358.6		362.0	
132	D86	180.2		227.3		279.1	336.5	354.1		365.3	
140	D86	179.8		226.1		279.0	334.4	350.8		360.8	
150	D86	181.0		227.5		279.2	334.3	350.7		357.4	
158	D86	164.8	G(0.05)	224.0		276.0	334.2	354.2		363.4	
159	D86	184.0		228.1		279.3	335.6	352.3		362.6	
169	D86	159.3	G(0.01)	217.8	G(0.05)	275.7	338.3	360.2		362.6	
171	D86	181.6		226.1		277.9	336.0	354.6		364.8	
175	D86	186.6		227.3	C,210.6	281.2	340.4	359.9		366.6	
193		-----		-----		-----	-----	-----		-----	
194				-----		-----	-----	-----		-----	
217				-----		-----	-----	-----		-----	
221				-----		-----	-----	-----		-----	
224				-----		-----	-----	-----		-----	
225				-----		-----	-----	-----		-----	
228				-----		-----	-----	-----		-----	
230				-----		-----	-----	-----		-----	
237				-----		-----	-----	-----		-----	
238				-----		-----	-----	-----		-----	
240				-----		-----	-----	-----		-----	
252	D86	179.1		224.2		277.7	333.7	349.8		360.4	
253		-----		-----		-----	-----	-----		-----	
254		-----		-----		-----	-----	-----		-----	
256		-----		-----		-----	-----	-----		-----	
258	D86	174.9		222.7		279.2	336.2	352.0		361.4	
273	D86	180.1		232.4	G(0.05)	280.6	339.3	356.8		358.4	
311	D86	177.4		223.4		279.6	339.1	360.1		368.4	
312	D86	184.8		226.7		279.5	336.3	353.8		364.3	
317	D86	178.2		223.9		277.2	335.7	353.9		363.9	
334	D86	180.3		222.9		277.2	335.0	352.0		366.2	
335	D86	185.2		223.0		279.0	338.4	359.6		366.9	
336	D86	182.7		226.5		278.9	337.3	355.8		366.8	
337		-----		-----		-----	-----	-----		-----	
340	D86	178.2		223.2		278.4	338.0	356.6		361.6	
343	D86	173.1		226.7		277.6	332.2	346.7	G(0.05)	357.5	C,355.1
344	D86	180.4		225.8		278.0	336.7	355.4		364.9	
370		-----		-----		-----	-----	-----		-----	
430		-----		-----		-----	-----	-----		-----	
447	D86	178.0		226.6		279.2	336.7	354.7		367.7	
463	D86	174.5		225.0		277.3	336.2	354.6		362.9	
485	D86	181.45		222.65		277.20	334.20	351.15		362.75	
488	D86	178.90		224.20		276.60	335.10	354.70		365.00	
494	D86	179.6		223.4		277.8	335.1	352.9		363.3	
495	D86	178.8		223.4		277.3	335.1	352.8		363.1	
496	D86	181.1		225.9		279.4	339.5	360		364.9	
507		-----		-----		-----	-----	-----		-----	
511		-----		-----		-----	-----	-----		-----	
529		-----		-----		-----	-----	-----		-----	
541		-----		-----		-----	-----	-----		-----	
557		-----		-----		-----	-----	-----		-----	
562	D86	185.0		226.1		279.2	335.3	351.3		364.8	
575		-----		-----		-----	-----	-----		-----	
603		-----		-----		-----	-----	-----		-----	
604	D86	177.8		223.2		277.5	335.8	353.4		364.2	
608		-----		-----		-----	-----	-----		-----	
657	D86	177.8		226.5		278.0	334.6	351.3		364.5	
663	D86	185.0		227.2		279.2	334.6	350.5		364.7	
671	D86	181.1		225.9		275.9	335.8	358.9		360.5	
704		-----		-----		-----	-----	-----		-----	
732		-----		-----		-----	-----	-----		-----	
750		-----		-----		-----	-----	-----		-----	
781		-----		-----		-----	-----	-----		-----	
784		-----		-----		-----	-----	-----		-----	
823	D86	182.8		224.2		278.6	335.5	352.2		366.3	
824	D86	186.1		226.6		278.8	335.9	353.4		365.7	
825	D86	179.2		225.9		279.2	337.1	355.1		364.1	
840	D86	180.05		224.35		277.90	336.30	354.30		365.45	
862	D86	175.7		223.6		278.0	336.2	354.2		366.5	
863		-----		-----		-----	-----	-----		-----	
873	D86	177.5		224.0		279.5	341.0	358.0	C,365	368.5	
874		-----		-----		-----	-----	-----		-----	
875		-----		-----		-----	-----	-----		-----	
887		-----		-----		-----	-----	-----		-----	

904	D86	180.0		225.0		278.5		335.0		353.5		358.5
912		-----		-----		-----		-----		-----		-----
922		-----		-----		-----		-----		-----		-----
951		-----		-----		-----		-----		-----		-----
962		-----		-----		-----		-----		-----		-----
963	D86	182.4		224.7		277.6		333.7		349.3		362.9
971	D86	183.2		222.6		277.2		335.3		352.6		367.3
994		-----		-----		-----		-----		-----		-----
995		-----		-----		-----		-----		-----		-----
996		-----		-----		-----		-----		-----		-----
997		-----		-----		-----		-----		-----		-----
1006	D86	178.8		223.3		278.1		337.6		351.9		364.9
1017	D86	183.1		225.2		276.4		330.6		344.5	G(0.05)	359.2
1033	IP123	177		222		278.2		336.4		353.3		364.4
1038	D86	182.9		226.7		278.6		334.7		350.2		363.4
1059	D86	178.9		221.1		276.3		333.0		349.0		362.7
1065	D86	184.0		222.8		278.7		337.7		356.5		367.4
1080	D86	179.8		222.3		278.2		336.8		354.7		365.0
1081	D86	181.7		224.6		278.7		337.0		-----		364.3
1108	D86	176.2		222.4		277.2		333.9		349.4		363.5
1109	D86	180.3		225.5		278.4		335.4		351.6		362.6
1113		-----		-----		-----		-----		-----		-----
1126	In house	179.7		224.0		279.1		337.0		354.6		369.4
1140	D86	175.1		224.9		278.3		337.7		359.2		365.5
1146		-----		-----		-----		-----		-----		-----
1155	ISO3405	185.0		228.3		279.3		335.7		358.6		368.2
1159		-----		-----		-----		-----		-----		-----
1161	ISO3405	174.8		221.7		277.8		337.5		355.0		364.2
1167	ISO3405	170.45		221.40		277.05		336.10		352.55		362.25
1171		-----		-----		-----		-----		-----		-----
1201	D86	174.1		221.6	C,208	278.0	C,221.6	335.3	C,278	352.5	C,335.3	362.1
1203	ISO3405	181.5		225.0		280.0		337.3		353.8		362.4
1205	D86	182.7		224.1	C,208.4	278.5		337.0		355.8		362.5
1212	D86	177.2		225.0		278.7		335.8		352.6		365.1
1218	D86	183.6		226.5		279.3		338.0		356.0		361.3
1225	D86	179.7		223.6		278.0		336.3		354.5		364.1
1227	D86	178.9		218.7	G(0.05)	276.8		334.2		350.4		364.2
1237		-----		-----		-----		-----		-----		-----
1251	D86	180.7		225.5	C,210.1	278.7	C,225.5	337.1	C,278.7	356.6	C,337.1	365.2
1254	D86	178.7		225.4		277.5		336.1		355.1		364.1
1266	ISO3405	183.6		224.6		278.5		336.6		352.7		359.5
1284	D86	182.7		224.5		278.8		336.9		355.5		366.8
1288	D86	181.0		224.0		279.0		338.1		355.1		360.2
1293		-----		-----		-----		-----		-----		-----
1297		-----		-----		-----		-----		-----		-----
1299	D86	181.2		224.2		278.2		336.6		354.6		366.7
1340	D86	181.30		225.85		279.0		337.10		355.60		364.95
1345		-----		-----		-----		-----		-----		-----
1366		-----		-----		-----		-----		-----		-----
1409	ISO3405	178.3		222.1		276.7		333.4		349.6		360.8
1417		-----		-----		-----		-----		-----		-----
1419	ISO3405	186.2		225.5		279.3		336.0		354.3		365.7
1427		-----		-----		-----		-----		-----		-----
1428	ISO3405	179.8		225.3		278.8		335.6		352.8		364.9
1430	D86	162.5	G(0.01)	220.9		278.3		339.5		359.9		361.5
1431	D86	188.5		226.6		277.9		334.4		350.6		364.5
1432		-----		-----		-----		-----		-----		-----
1433	D86	180.3		218.3	G(0.05)	276		332.8		349.3		363.6
1510	D86	183.7		225.2		278.5		336.9		355.6		366.4
1528	D86	181.7		228.2		279.0		335.2		350.9		366.4
1543		-----		-----		-----		-----		-----		-----
1616		-----		-----		-----		-----		-----		-----
1621	D86	169.1	G(0.05)	219.5	G(0.05)	277.7		338.4		359.5		366.7
1629		-----		-----		-----		-----		-----		-----
1631	D86	175.5		221.3		277.1		334.4		350.1		364.5
1632	D86	185.5		226.7		279.3		335.6		351.4		359.9
1634	D86	177.5		227.3		278.1		334.8		351.4		365.4
1636	D86	176.4		225.0		280.4		338.6		356.8		367.4
1650	D86	179.6		222.5		277.6		336.7		354.5		368.1
1656	IP123	172.0		222.5		276.8		331.6		345.0	G(0.05)	359.8
1709	D86	181.6		225.5		278.8		336.4		353.7		365.9
1712	D86	183.8		224.9		279.5		338.2		356.5		365.8
1720	D86	183.0		227.9		280.3		340.1		361.7		366.5
1724	D86	185.6		227.7		280.1		336.5		353.4		364.8
1807	ISO3405	182.3		227.7		277.8		333.6		349.3		363.6
1810	D86	178.1		222.4		277.5		334.4		350.4		363.8
1811	D86	180		224.4		278.7		336.1		353.5		364.8
1825		-----		-----		-----		-----		-----		-----
1833	D86	179		224		278		335		353		366
1834	ISO3405	184.5		223.0		278.2		335.0		350.4		361.7

1842		-----		-----	-----	-----	-----	-----
1849	D86	180.7		223.5	278.0	334.3	350.2	367.1
1906		-----		-----	-----	-----	-----	-----
1936	ISO3405	185.9		226.6	278.7	335.4	352.6	366.2
1937	D86	181.9		223.4	277.5	334.5	350.9	365.9
1938	D86	172.9		221.3	276.3	333.5	350.9	363.6
1948	D86	175.6		223.2	276.6	333.5	349.9	363.3
2129	D86	167.6	G(0.05)	221.2	277.8	335.7	352.9	362.2
2146	ISO3405	182.4		226.6	279.6	340.0	358.1	358.3
7006	D86	181.1		-----	-----	-----	-----	368.3
7008		-----		-----	-----	-----	-----	-----
	normality	OK	OK	OK	OK	OK	not OK
	n	102	101	106	106	102	107
	outliers	5	5	0	0	3	0
	mean (n)	180.46	224.68	278.28	336.07	353.96	364.09
	st.dev. (n)	3.505	1.941	1.073	1.911	3.133	2.552
	R(calc.)	9.81	5.44	3.00	5.35	8.77	7.14
	R(D86:10a)	9.93	4.94	2.97	5.04	9.05	7.10
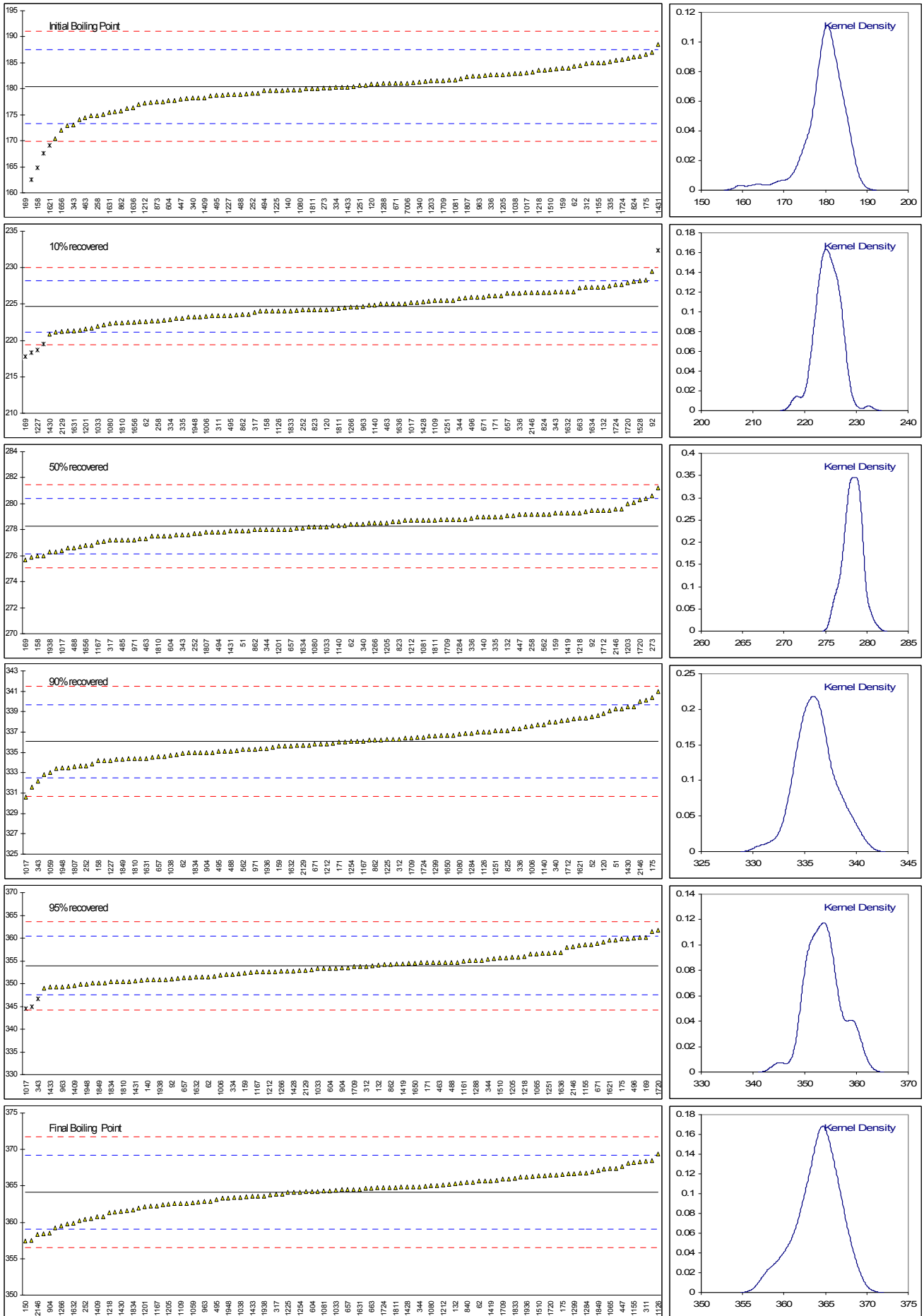
Determination of Distillation (manual) on sample #1062; result in °C

lab	method	IBP		10% rec		50% rec		90% rec		95% rec		FBP	
51		-----		-----		-----		-----		-----		-----	
52		-----		-----		-----		-----		-----		-----	
62		-----		-----		-----		-----		-----		-----	
92		-----		-----		-----		-----		-----		-----	
120		-----		-----		-----		-----		-----		-----	
132		-----		-----		-----		-----		-----		-----	
140		-----		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----		-----	
158		-----		-----		-----		-----		-----		-----	
159		-----		-----		-----		-----		-----		-----	
169		-----		-----		-----		-----		-----		-----	
171		-----		-----		-----		-----		-----		-----	
175		-----		-----		-----		-----		-----		-----	
193		-----		-----		-----		-----		-----		-----	
194		-----		-----		-----		-----		-----		-----	
217	D86	176.8		222.8		276.8		337.7		356.7		360.7	
221	D86	179.0		222.5		277.5		334.0		349.0		359.0	
224	D86	183.09		222.58		277.75		337.76		355.89		366.21	
225	D86	175.0		220.0		277.0		339.0		359.0		362.0	
228	D86	179.0		220.0		277.0		336.0		350.0		358.0	
230	D86	181.0		221.2		276.8		333.4		347.9		368.4	
237	D86	173.0		203.5	G(0.01)	276.0		333.0		345.0	G(0.05)	364.0	
238	D86	169.0	G(0.05)	203.0	G(0.01)	274.0		333.0	C,331	345.5	G(0.05)	357.0	G(0.05)
240	D86	182.0		222.0		278.0		339.0		358.0	C,360	365.0	
252		-----		-----		-----		-----		-----		-----	
253	D86	181		223		277		336		354		367	
254	D86	178.0		221.0		278.0		334.0		-----		364.0	
256	D86	175		225		278		337		356		362	
258		-----		-----		-----		-----		-----		-----	
273		-----		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----		-----	
317		-----		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----		-----	
335		-----		-----		-----		-----		-----		-----	
336		-----		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----		-----	
340		-----		-----		-----		-----		-----		-----	
343		-----		-----		-----		-----		-----		-----	
344		-----		-----		-----		-----		-----		-----	
370	D86	180.5		220.0		278.5		335.0		352.5		360.5	
430		-----		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----		-----	
485		-----		-----		-----		-----		-----		-----	
488		-----		-----		-----		-----		-----		-----	
494		-----		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----		-----	
496		-----		-----		-----		-----		-----		-----	
507	D86	184.65		223.20		275.20		336.75		351.75		368.75	
511	D86	183.5		220.5		275.8		334.7		352.3		362.8	
529		-----		-----		-----		-----		-----		-----	
541	D86	176.0	C,167	220.0		278.0		334.0		-----		363.0	
557		-----		-----		-----		-----		-----		-----	
562		-----		-----		-----		-----		-----		-----	
575	D86	183		220		276		333		345	G(0.05)	353	G(0.05)
603	D86	174.0		222.0		278.0		336.0		354.0		365.0	
604		-----		-----		-----		-----		-----		-----	
608	D86	173.5		222.5		278.0		337.0		354.0		365.0	
657		-----		-----		-----		-----		-----		-----	
663		-----		-----		-----		-----		-----		-----	
671		-----		-----		-----		-----		-----		-----	
704	D86	172.7		218.7		276.3		332.7		352.0		360.5	
732	INH-2177	183.0		220.5		278.3		335.0		354.0		361.5	
750	D86	180.0		221.0		278.5		337.0		359.0		365.5	
781	D86	181.0		223.0		278.0		336.0		355.0		366.0	
784	D86	182.0		219.0		278.0		334.0		350.5		363.0	
823		-----		-----		-----		-----		-----		-----	
824		-----		-----		-----		-----		-----		-----	
825		-----		-----		-----		-----		-----		-----	
840		-----		-----		-----		-----		-----		-----	
862		-----		-----		-----		-----		-----		-----	
863	D86	185.0		224.0		278.0		335.0		352.0		364.5	
873		-----		-----%		-----		-----		-95--		-----	
874	D86	177.0		223.5		278.0		337.5		358.0		365.5	
875	D86	179.0		222.0		278.0		334.0		355.0		365.0	
887	D86	185.0		225.0		277.0		335.5		352.5		360.5	

= CORRECTED VERSION =   Gasoil: iis10G04

904		-----	-----	-----		-----		-----		-----	
912	D86	174.0	225.5	281.0	G(0.05)	336.5		354.5		358.0	C,370.5
922	D86	176	222	276		330	G(0.05)	346	G(0.05)	360	
951		-----	-----	-----		-----		-----		-----	
962	D86	181.5	224.5	277.5		335.0		353.5		365.0	
963		-----	-----	-----		-----		-----		-----	
971		-----	-----	-----		-----		-----		-----	
994	D86	178.0	220.0	276.0		335.5		356.0		363.5	
995	D86	180.62	221.05	276.9		335.4		354.8		364.166	
996	D86	178.0	221.0	278.0		336.0		355.0		363.0	
997	D86	183.5	221	277		336		354		364.5	
1006		-----	-----	-----		-----		-----		-----	
1017		-----	-----	-----		-----		-----		-----	
1033		-----	-----	-----		-----		-----		-----	
1038		-----	-----	-----		-----		-----		-----	
1059		-----	-----	-----		-----		-----		-----	
1065		-----	-----	-----		-----		-----		-----	
1080		-----	-----	-----		-----		-----		-----	
1081		-----	-----	-----		-----		-----		-----	
1108		-----	-----	-----		-----		-----		-----	
1109		-----	-----	-----		-----		-----		-----	
1113		-----	-----	-----		-----		-----		-----	
1126		-----	-----	-----		-----		-----		-----	
1140		-----	-----	-----		-----		-----		-----	
1146		-----	-----	-----		-----		-----		-----	
1155		-----	-----	-----		-----		-----		-----	
1159	D86	184.939	226.114	280.343	G(0.05)	337.586		352.762		354.770	G(0.05)
1161		-----	-----	-----		-----		-----		-----	
1167		-----	-----	-----		-----		-----		-----	
1171	ISO3405	178.25	218.77	270.31	G(0.01)	336.84		356.85		368.36	
1201		-----	-----	-----		-----		-----		-----	
1203		-----	-----	-----		-----		-----		-----	
1205		-----	-----	-----		-----		-----		-----	
1212		-----	-----	-----		-----		-----		-----	
1218		-----	-----	-----		-----		-----		-----	
1225		-----	-----	-----		-----		-----		-----	
1227		-----	-----	-----		-----		-----		-----	
1237	ISO3405	180.59	219.56	277.50		337.45		357.43		366.42	
1251		-----	-----	-----		-----		-----		-----	
1254		-----	-----	-----		-----		-----		-----	
1266		-----	-----	-----		-----		-----		-----	
1284		-----	-----	-----		-----		-----		-----	
1288		-----	-----	-----		-----		-----		-----	
1293		-----	-----	-----		-----		-----		-----	
1297		-----	-----	-----		-----		-----		-----	
1299		-----	-----	-----		-----		-----		-----	
1340		-----	-----	-----		-----		-----		-----	
1345	D86	180.0	224.0	278.0		338.0		356.5		365.0	
1366		-----	-----	-----		-----		-----		-----	
1409		-----	-----	-----		-----		-----		-----	
1417		-----	-----	-----		-----		-----		-----	
1419		-----	-----	-----		-----		-----		-----	
1427		-----	-----	-----		-----		-----		-----	
1428		-----	-----	-----		-----		-----		-----	
1430		-----	-----	-----		-----		-----		-----	
1431		-----	-----	-----		-----		-----		-----	
1432		-----	-----	-----		-----		-----		-----	
1433		-----	-----	-----		-----		-----		-----	
1510		-----	-----	-----		-----		-----		-----	
1528		-----	-----	-----		-----		-----		-----	
1543		-----	-----	-----		-----		-----		-----	
1616		-----	-----	-----		-----		-----		-----	
1621		-----	-----	-----		-----		-----		-----	
1629		-----	-----	-----		-----		-----		-----	
1631		-----	-----	-----		-----		-----		-----	
1632		-----	-----	-----		-----		-----		-----	
1634		-----	-----	-----		-----		-----		-----	
1636		-----	-----	-----		-----		-----		-----	
1650		-----	-----	-----		-----		-----		-----	
1656		-----	-----	-----		-----		-----		-----	
1709		-----	-----	-----		-----		-----		-----	
1712		-----	-----	-----		-----		-----		-----	
1720		-----	-----	-----		-----		-----		-----	
1724		-----	-----	-----		-----		-----		-----	
1807		-----	-----	-----		-----		-----		-----	
1810		-----	-----	-----		-----		-----		-----	
1811		-----	-----	-----		-----		-----		-----	
1825	D86	176.3	218.35	276.4		333.4		350.44		366.5	
1833		-----	-----	-----		-----		-----		-----	
1834		-----	-----	-----		-----		-----		-----	

1842		-----		-----		-----	-----	-----	-----
1849		-----		-----		-----	-----	-----	-----
1906		-----		-----		-----	-----	-----	-----
1936		-----		-----		-----	-----	-----	-----
1937		-----		-----		-----	-----	-----	-----
1938		-----		-----		-----	-----	-----	-----
1948		-----		-----		-----	-----	-----	-----
2129		-----		-----		-----	-----	-----	-----
2146		-----		-----		-----	-----	-----	-----
7006		-----		-----		-----	-----	-----	-----
7008	D86	169	G(0.05)	221		277	337	352	367

normality	OK	OK	not OK	OK	OK	OK
n	39	39	38	40	35	38
outliers	2	2	3	1	4	3
mean (n)	179.34	221.74	277.20	335.69	354.08	363.81
st.dev. (n)	3.609	1.991	1.007	1.714	2.766	2.796
R(calc.)	10.11	5.57	2.82	4.80	7.74	7.83
R(D86:10a)	6.66	4.40	3.69	4.07	5.54	3.92
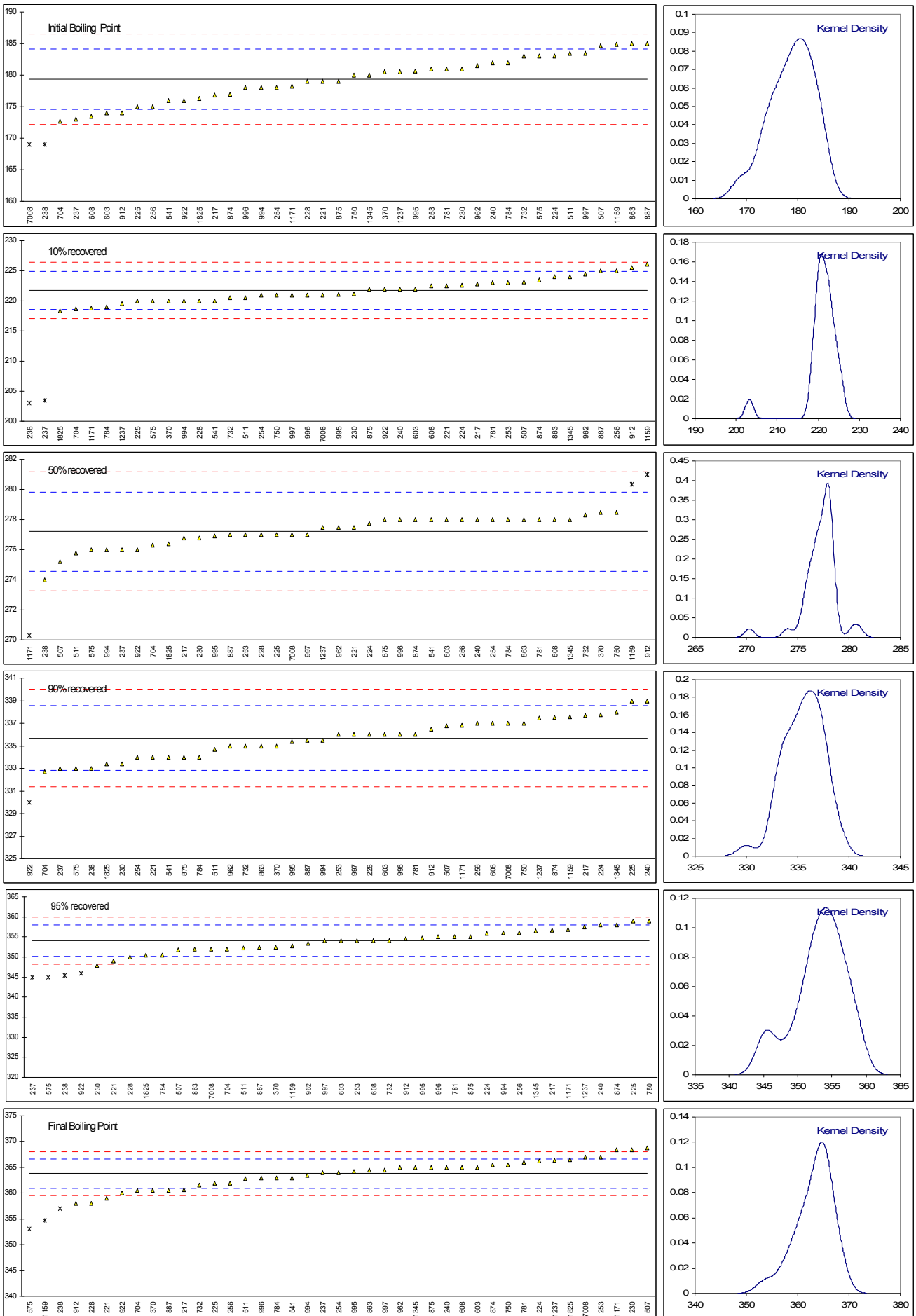
Determination of Distillation (automated and manual) on sample #1062; result in %V/V

lab	method	Vol 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	remarks
51	D86	26.0		0.19	92.8		-1.94	
52	D86	24.4		-1.42	93.4		-1.15	
62	D86	25.5		-0.32	94.6		0.42	
92	D86	23.7		-2.13	94.8		0.69	
120		-----		-----	-----		-----	
132	D86	24.5		-1.32	93.8		-0.63	
140	D86	24.3		-1.52	94.8		0.69	
150	D86	23.9		-1.92	94.8		0.69	
158	D86	26.2		0.39	94.2		-0.10	
159	D86	24.21		-1.61	94.31		0.04	
169		-----		-----	-----		-----	
171	D86	24.6		-1.22	94.1		-0.23	
175		-----		-----	-----		-----	
193		-----		-----	-----		-----	
194		-----		-----	-----		-----	
217	D86	26.20		0.39	93.23		-1.37	
221	D86	26.5		0.69	95.5		1.61	
224	D86	25.4		-0.42	94.5		0.29	
225	D86	28.5		2.70	93.0		-1.68	
228	D86	27.0		1.19	95.0		0.95	
230	D86	27.5		1.70	96.0		2.26	
237	D86	29.0		3.21	96.0	C,97.0	2.26	
238	D86	29.0		3.21	96.0		2.26	
240	D86	26.0		0.19	93.0		-1.68	
252	D86	26.3		0.49	95.0		0.95	
253	D86	26		0.19	94		-0.36	
254		-----		-----	-----		-----	
256	D86	26.0		0.19	94.0		-0.36	
258		-----		-----	-----		-----	
273	D86	23		-2.83	93.5		-1.02	
311	D86	24.5		-1.32	93.1		-1.54	
312	D86	24.1		-1.72	94.3		0.03	
317	D86	26.4		0.59	94.2		-0.10	
334	D86	26.5		0.69	94.5		0.29	
335	D86	25.5		-0.32	93.3		-1.28	
336	D86	25.2		-0.62	93.8		-0.63	
337		-----		-----	-----		-----	
340	D86	26.6		0.79	94.8		0.69	
343	D86	25		-0.82	96		2.26	
344		-----		-----	-----		-----	
370	D86	25.5		-0.32	94.5		0.29	
430		-----		-----	-----		-----	
447	D86	25.0		-0.82	93.9		-0.49	
463	D86	26.6		0.79	93.9		-0.49	
485	D86	26.05		0.24	94.75		0.62	
488	D86	26.50		0.69	94.10		-0.23	
494	D86	26.1		0.29	94.3		0.03	
495	D86	26.3		0.49	94.4		0.16	
496	D86	24.5		-1.32	92.9		-1.81	
507	D86	26		0.19	94		-0.36	
511	D86	28.0		2.20	94.0		-0.36	
529		-----		-----	-----		-----	
541	D86	28.0		2.20	95.0		0.95	
557		-----		-----	-----		-----	
562	D86	24.95		-0.87	94.65		0.49	
575	D86	32	G(0.01)	6.22	97.6	G(0.01)	4.36	
603	D86	27		1.19	94		-0.36	
604	D86	28		2.20	94		-0.36	
608	D86	27.0		1.19	94.0		-0.36	
657	D86	24.9		-0.92	94.6		0.42	
663	D86	24		-1.82	95		0.95	
671	D86	25.0		-0.82	93.5		-1.02	
704	D86	27.2		1.39	94.7		0.56	
732	INH-2177	25.5		-0.32	94.0		-0.36	
750	D86	27		1.19	94		-0.36	
781	D86	25.0		-0.82	93.5		-1.02	
784	D86	26.5		0.69	95.0		0.95	
823	D86	25.3		-0.52	94.5		0.29	
824	D86	24.2		-1.62	94.3		0.03	
825	D86	24.3		-1.52	93.8		-0.63	
840	D86	25.8		-0.01	94.1		-0.23	
862	D86	25.9		0.09	94.1		-0.23	
863	D86	25.0		-0.82	94.6		0.42	
873	D86	26.0		0.19	92.0	G(0.05)	-2.99	
874	D86	26.0		0.19	93.5		-1.02	
875	D86	26.0		0.19	94.0		-0.36	
887	D86	27		1.19	94		-0.36	

= CORRECTED VERSION =

904	D86	28.0	2.20	94.5		0.29
912	D86	26.0	0.19	94.0		-0.36
922	D86	27	1.19	96		2.26
951		-----	-----	-----		-----
962	D86	25.0	-0.82	94.0		-0.36
963	D86	25.0	-0.82	95.0		0.95
971	D86	25.8	-0.01	94.3		0.03
994	D86	26.5	0.69	94.0		-0.36
995	D86	26.9	1.09	94.5		0.29
996	D86	26.0	0.19	93.5		-1.02
997	D86	26.5	0.69	93.5		-1.02
1006		-----	-----	-----		-----
1017	D86	25.6	-0.21	96.3	G(0.05)	2.66
1033	IP123	26.1	0.29	94.2		-0.10
1038		-----	-----	-----		-----
1059	D86	26.6	0.79	95.2		1.21
1065	D86	26.2	0.39	93.6		-0.89
1080	D86	25.7	-0.11	94.0		-0.36
1081		-----	-----	-----		-----
1108	D86	25.9	0.09	95.1		1.08
1109	D86	25.1	-0.72	94.6		0.42
1113		-----	-----	-----		-----
1126	IN HOUSE	24.9	-0.92	93.7		-0.76
1140	D86	27.0	1.19	94.7		0.56
1146		-----	-----	-----		-----
1155	ISO3405	23.7	-2.13	93.7		-0.76
1159	D86	26.0	0.19	95.0		0.95
1161	ISO3405	26.4	0.59	94.0		-0.36
1167	ISO3405	26.00	0.19	93.85		-0.56
1171	ISO3405	26.89	1.08	93.44		-1.10
1201	D86	26.2	0.39	94.6		0.42
1203	ISO3405	24.7	-1.12	94.3		0.03
1205	D86	26.5	0.69	95.0		0.95
1212	D86	24.8	-1.02	94.3		0.03
1218		-----	-----	-----		-----
1225	D86	26.2	0.39	94.0		-0.36
1227	D86	27.7	1.90	94.9		0.82
1237	ISO3405	24.9	-0.92	93.4		-1.15
1251	D86	25.3	-0.52	93.7		-0.76
1254	D86	26.0	0.19	94.0		-0.36
1266	ISO3405	25.4	-0.42	94.2		-0.10
1284	D86	25.5	-0.32	94.1		-0.23
1288		-----	-----	-----		-----
1293		-----	-----	-----		-----
1297		-----	-----	-----		-----
1299	D86	26.0	0.19	94.0		-0.36
1340	ISO3405	24.75	-1.07	93.95		-0.43
1345	D86	26.5	0.69	93.5		-1.02
1366		-----	-----	-----		-----
1409	ISO3405	27.1	1.29	95.1		1.08
1417		-----	-----	-----		-----
1419	ISO3405	25.3	-0.52	94.1		-0.23
1427		-----	-----	-----		-----
1428	ISO3405	24.6	-1.22	94.4		0.16
1430		-----	-----	-----		-----
1431	D86	25.0	-0.82	94.9		0.82
1432		-----	-----	-----		-----
1433	D86	27.5	1.70	95		0.95
1510	D86	25.5	-0.32	93.9		-0.49
1528	D86	24.5	-1.32	94.8		0.69
1543		-----	-----	-----		-----
1616		-----	-----	-----		-----
1621	D86	26.7	0.89	93.4		-1.15
1629		-----	-----	-----		-----
1631	D86	26.9	1.09	94.9		0.82
1632	D86	24.5	-1.32	94.4		0.16
1634	D86	25.5	-0.32	94.6		0.42
1636	D86	24.0	-1.82	93.5		-1.02
1650	D86	26.4	0.59	94.0		-0.36
1656	IP123	26.1	0.29	96.8	G(0.05)	3.31
1709	D86	25.1	-0.72	94.1		-0.23
1712	D86	24.6	-1.22	94.2		-0.10
1720	D86	24.5	-1.32	92.6		-2.20
1724	D86	23.5	-2.33	94.2		-0.10
1807	ISO3405	25.35	-0.47	95.22		1.24
1810	D86	24.9	-0.92	94.8		0.69
1811	D86	24.6	-1.22	94.3		0.03
1825	D86	27.5	1.70	95		0.95
1833	D86	26	0.19	94		-0.36
1834	ISO3405	25.7	-0.11	94.9		0.82

1842		-----	-----	-----	-----
1849	D86	25.7	-0.11	95.0	0.95
1906		-----	-----	-----	-----
1936	ISO3405	24.8	-1.02	94.4	0.16
1937	D86	25.8	-0.01	94.3	0.03
1938	D86	27.7	1.90	94.8	0.69
1948	D86	26.8	0.99	95	0.95
2129	D86	27.1	1.29	95.2	1.21
2146	ISO3405	24.9	-0.92	92.9	-1.81
7006		-----	-----	-----	-----
7008	D86	26	0.19	94	-0.36

|				
	normality	OK		not OK
	n	134		131
	outliers	1		4
	mean (n)	25.81		94.28
	st.dev. (n)	1.140		0.679
	R(calc.)	3.19		1.90
	R(D86:10a)	2.78		2.13
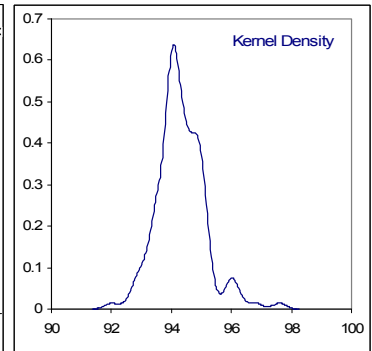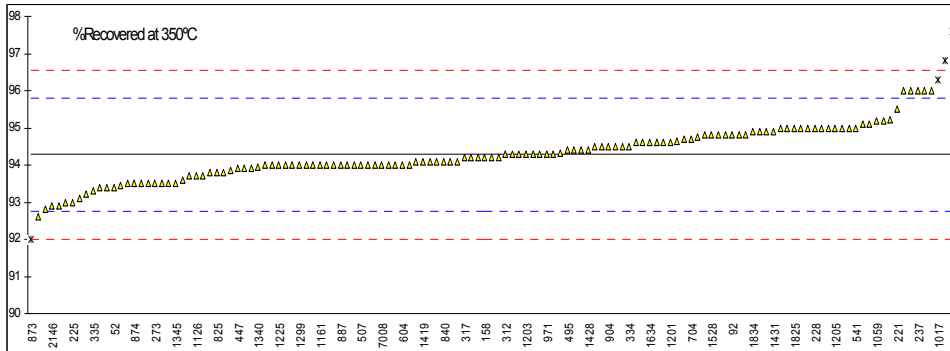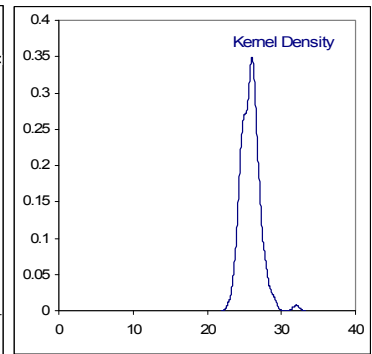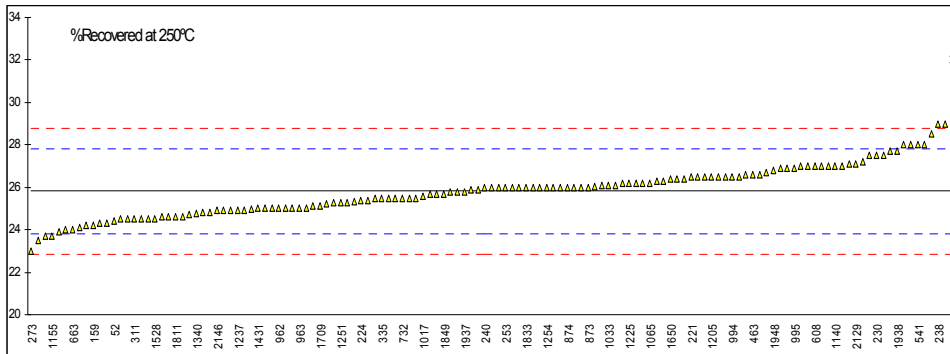
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Determination of FAME Content on sample #1062; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52		-----		-----	904		-----		-----
62		-----		-----	912		-----		-----
92		-----		-----	922		-----		-----
120		-----		-----	951		-----		-----
132		-----		-----	962		-----		-----
140		-----		-----	963		-----		-----
150		-----		-----	971		-----		-----
158		-----		-----	994		-----		-----
159		-----		-----	995		-----		-----
169		-----		-----	996		-----		-----
171	D7371	0.06	G(0.01)	-2.19	997		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1017	EN14078	0.867		0.85
194		-----		-----	1033	D7371	0.61		-0.12
217		-----		-----	1038		-----		-----
221		-----		-----	1059	EN14078	0.9		0.98
224		-----		-----	1065	EN14078	0.74		0.37
225		-----		-----	1080	EN14078	0.5		-0.53
228		-----		-----	1081		-----		-----
230		-----		-----	1108	D7371	0.61		-0.12
237		-----		-----	1109		-----		-----
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140	D7371	0.575		-0.25
253		-----		-----	1146	D7371	0.32		-1.21
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161	EN14078	0.42		-0.83
273		-----		-----	1167	D7371	0.644		0.01
311		-----		-----	1171	EN14078	1.6	C,1.4 G(0.01)	3.62
312		-----		-----	1201	D7371	0.6		-0.15
317		-----		-----	1203	EN14078	0.61		-0.12
334		-----		-----	1205		-----		-----
335	EN14078	0.59		-0.19	1212	D7371	0.61		-0.12
336		-----		-----	1218		-----		-----
337		-----		-----	1225	EN14078	0.435		-0.78
340	EN14078	0.62		-0.08	1227		-----		-----
343	EN14078	<1.7		-----	1237	EN14078	0.6		-0.15
344	EN14078	0.583		-0.22	1251	D7371	0.7		0.22
370	EN14078	0.72		0.30	1254	EN14078	0.539		-0.38
430		-----		-----	1266	EN14078	0.7		0.22
447	EN14078	0.58		-0.23	1284		-----		-----
463	EN14078	0.688		0.18	1288		-----		-----
485	EN14078	0.7		0.22	1293		-----		-----
488		-----		-----	1297		-----		-----
494		-----		-----	1299	EN14078	0.59		-0.19
495	EN14078	0.64		0.00	1340		-----		-----
496	EN14078	0.624		-0.06	1345		-----		-----
507		-----		-----	1366		-----		-----
511		-----		-----	1409	EN14078	0.57		-0.27
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427	D7371	1.55	G(0.01)	3.43
562		-----		-----	1428	EN14078	0.61		-0.12
575		-----		-----	1430		-----		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608		-----		-----	1433		-----		-----
657	EN14078	0.74		0.37	1510	D7371	0.7		0.22
663		-----		-----	1528	EN14078	0.724		0.31
671		-----		-----	1543		-----		-----
704		-----		-----	1616		-----		-----
732		-----		-----	1621		-----		-----
750		-----		-----	1629		-----		-----
781	EN14078	0.60		-0.15	1631	EN14078	0.77		0.49
784		-----		-----	1632	EN14078	1.0		1.36
823		-----		-----	1634		-----		-----
824		-----		-----	1636	EN14078	0.888		0.93
825		-----		-----	1650	EN14078	0.64		0.00
840		-----		-----	1656	EN14078	0.6		-0.15
862	EN14078	0.60		-0.15	1709	EN14078	0.64		0.00
863		-----		-----	1712	EN14078	0.60		-0.15
873	EN14078	0.72		0.30	1720		-----		-----
874		-----		-----	1724	EN14078	0.587		-0.20
875		-----		-----	1807	EN14078	0.559		-0.31

= CORRECTED VERSION =   Gasoil: iis10G04

1810	D7371	0.6	-0.15
1811	D7371	0.5	-0.53
1825		-----	-----
1833	D7371	0.90	0.98
1834		-----	-----
1842		-----	-----
1849		-----	-----
1906		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
2129	EN14078	0.541	-0.38
2146		-----	-----
7006		-----	-----
7008		-----	-----

normality	not OK
n	49
outliers	3
mean (n)	0.641
st.dev. (n)	0.1250
R(calc.)	0.350
R(D7371:07)	0.742

Compare R(EN14078) = 0.0551

Kernel Density
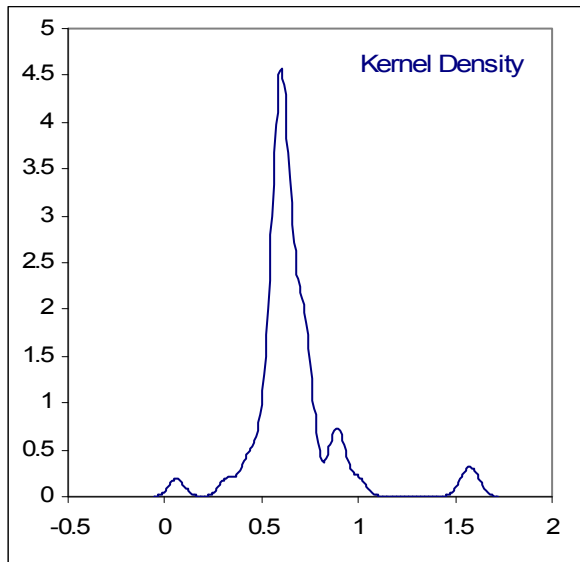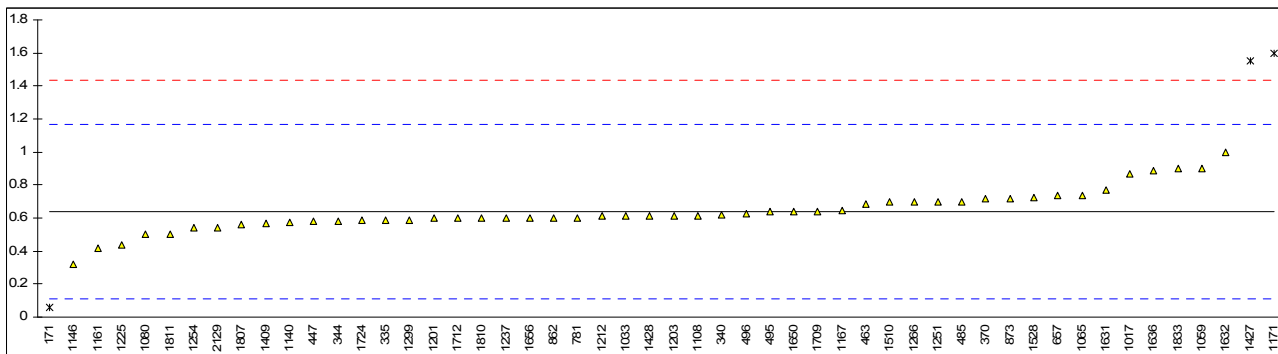
Determination of Flash Point PMcc,on sample #1062; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51	D93A	66.0		-0.81	887	D93A	67.5		0.07
52	D93A	67.0		-0.23	904	D93A	66.0		-0.81
62	D93C	68.0		0.36	912	D93A	66.0		-0.81
92	D93A	66.0		-0.81	922	D93A	69.5		1.24
120	D93A	65.5555		-1.07	951		-----		-----
132	D93A	65.4		-1.16	962	D93A	66.0		-0.81
140	D93A	69.0		0.94	963	D93A	66.0		-0.81
150		-----		-----	971	D93A	66.0		-0.81
158	D93A	68		0.36	994	D93A	66.0		-0.81
159	D93A	67.2	U, 158 ºF	-0.11	995	D93A	67.5		0.07
169	D93	66.1		-0.75	996	D93A	67.0		-0.23
171	D93B	64.4		-1.75	997	D93	67		-0.23
175	D93A	65.7		-0.99	1006	D93	67		-0.23
193		-----		-----	1017	D93A	68.0		0.36
194		-----		-----	1033	IP34A	69.5		1.24
217	D93A	63.0		-2.57	1038	D93A	68.0		0.36
221	D93A	67.0		-0.23	1059	ISO2719A	68.0		0.36
224	D93A	69.03		0.96	1065	D93A	65		-1.40
225	D93	69.0		0.94	1080	D93A	66		-0.81
228	D93A	73.0		3.29	1081	D93A	65.0		-1.40
230	D93A	64.0		-1.98	1108	D93A	65.0		-1.40
237	D93A	67.0		-0.23	1109	D93A	66.5		-0.52
238	D93	67.0		-0.23	1113		-----		-----
240	D93B	67.0		-0.23	1126	D93	63.5		-2.27
252	D93A	68.0		0.36	1140	D93	71.3		2.29
253	D93A	66.5		-0.52	1146	D93A	67.2		-0.11
254	D93A	66.0		-0.81	1155	ISO2719	66.59		-0.47
256	D93	69.5		1.24	1159	D93A	69.68184		1.34
258	D93A	67.5		0.07	1161	ISO2719	69.0		0.94
273	D93	68		0.36	1167	ISO2719	67.0		-0.23
311	D93A	70		1.53	1171	ISO2719	68.15		0.45
312	D93A	67.0		-0.23	1201	D93A	68.0		0.36
317	D93A	68.0		0.36	1203	ISO2719A	67.5		0.07
334	D93A	70.0		1.53	1205	D93A	67.0		-0.23
335	ISO2719	68.0		0.36	1212	D93A	68		0.36
336	ISO2719	68.5		0.65	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D93	69.5		1.24	1227	D93	67.9		0.30
343	D93A	70		1.53	1237	ISO2719A	65		-1.40
344	D93A	68		0.36	1251	D93A	69.0		0.94
370	D93A	68.5		0.65	1254	D93A	69.9		1.47
430		-----		-----	1266		-----		-----
447	D93A	68.9		0.89	1284	D93A	65.0		-1.40
463	D93A	69.0		0.94	1288	D93A	68.0		0.36
485	D93A	67.5		0.07	1293		-----		-----
488		-----		-----	1297	D93A	68.0		0.36
494	D93	67.0		-0.23	1299	D93A	66.5		-0.52
495	D93	69.0		0.94	1340	ISO2719	69		0.94
496	D93A	66.2		-0.69	1345	D93	66.0		-0.81
507	D93A	65.5		-1.10	1366		-----		-----
511	D93A	65.1		-1.34	1409	ISO2719A	69.5		1.24
529		-----		-----	1417		-----		-----
541	D93	65.6		-1.05	1419	ISO2719	68.0		0.36
557		-----		-----	1427	D93A	66.0		-0.81
562	D93	65.0		-1.40	1428	ISO2719	67.5		0.07
575	D93	64.0		-1.98	1430		-----		-----
603	D93	65.0		-1.40	1431	D93A	68.3		0.53
604	D93	66.0		-0.81	1432		-----		-----
608	D93	66.0		-0.81	1433	D93	71		2.11
657	D93A	70.0		1.53	1510	D93	67		-0.23
663	D93A	67.0		-0.23	1528	ISO2719	69		0.94
671	D93A	66		-0.81	1543		-----		-----
704	D93A	66.0		-0.81	1616		-----		-----
732	D93A	66		-0.81	1621	D93A	66.0		-0.81
750	D93	69.5		1.24	1629	D93A	72.1		2.76
781	D93A	67.0		-0.23	1631	D93A	69.0		0.94
784	D93A	66.7		-0.40	1632	ISO2719A	68.55		0.68
823	D93	67.0		-0.23	1634	D93	67.5		0.07
824	D93A	67.0		-0.23	1636	D93A	67.0		-0.23
825	D93	69		0.94	1650	D93A	69.3		1.12
840	D93A	66.0		-0.81	1656	IP34	69.0		0.94
862	D93A	65.0		-1.40	1709	D93A	67.0		-0.23
863	D93A	66.5		-0.52	1712	ISO2719A	69.5		1.24
873	D93A	67.0		-0.23	1720	D93	67.5		0.07
874	D93A	67.0		-0.23	1724	D93	68		0.36
875	D93A	67.0		-0.23	1807	D93A	65.5		-1.10

= CORRECTED VERSION =
Gasoil: iis10G04

1810	D93A	68.0		0.36
1811	D93	66		-0.81
1825	D93A	74.2	G(0.05)	3.99
1833	D93A	69		0.94
1834		-----		-----
1842		-----		-----
1849	D93A	69		0.94
1906		-----		-----
1936	ISO2719	68		0.36
1937	ISO2719	67		-0.23
1938	D93	70		1.53
1948	D93A	69		0.94
2129	D93A	68.0		0.36
2146		-----		-----
7006		-----		-----
7008	D93A	66		-0.81

|	
normality	not OK
n	142
outliers	1
mean (n)	67.39
st.dev. (n)	1.696
R(calc.)	4.75
R(D93:10)	4.78
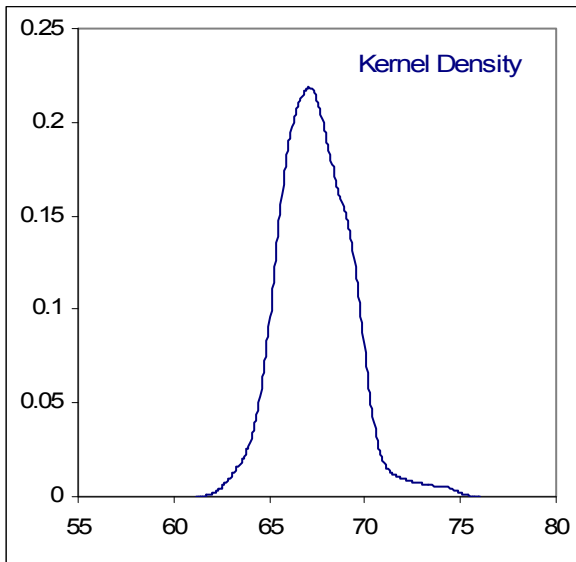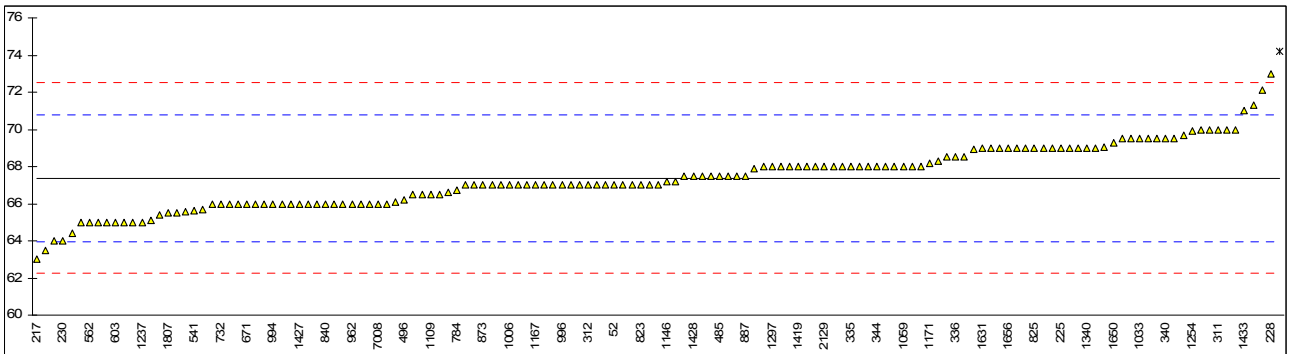
Determination of Kinematic Viscosity @ 40°C, on sample #1062; result in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51	D445	3.0689		-0.93	887	D445	3.060		-1.67
52	D445	3.070		-0.84	904	D445	2.9426	G(0.01)	-11.50
62	D445	3.097		1.42	912	D445	3.082	C,3.025	0.17
92	D445	3.0750		-0.42	922	D445	3.0867		0.56
120	D445	3.0405		-3.31	951		-----		-----
132	D445	3.0782		-0.15	962	D445	3.099		1.59
140	D445	3.094		1.17	963	D445	3.0622		-1.49
150	D445	3.068		-1.00	971	D445	3.0494		-2.56
158		-----		-----	994	D445	3.0608		-1.61
159	D445	3.0745		-0.46	995	D445	3.0710		-0.75
169	D445	3.07155		-0.71	996		-----		-----
171	D445	3.076		-0.33	997	D445	3.070		-0.84
175	D445	3.071		-0.75	1006	D445	3.074		-0.50
193		-----		-----	1017		-----		-----
194		-----		-----	1033	IP71	3.089		0.75
217	D445	3.5945	G(0.01)	43.06	1038		-----		-----
221	D445	3.0953		1.28	1059	ISO3104	3.108		2.34
224		-----		-----	1065	D445	3.075		-0.42
225	D445	3.093		1.09	1080	D445	3.078		-0.17
228	D445	3.1426	G(0.01)	5.24	1081	D445	3.065		-1.26
230	D445	3.07615		-0.32	1108	D445	3.096		1.34
237	D445	3.076		-0.33	1109	D445	3.0760		-0.33
238	D445	3.0712		-0.74	1113	D445	3.097		1.42
240	D445	3.0849		0.41	1126	D445	3.044		-3.01
252		-----		-----	1140	D445	3.100		1.67
253	D445	3.065		-1.26	1146	D445	3.0690		-0.92
254		-----		-----	1155	ISO3104	3.0671		-1.08
256	D445	3.2425	G(0.01)	13.60	1159	D445	3.16426	G(0.01)	7.05
258	D445	3.064		-1.34	1161	ISO3104	3.098		1.51
273	D445	3.092		1.00	1167	ISO3104	3.0660		-1.17
311	D445	3.071		-0.75	1171	ISO3104	3.0779		-0.18
312	D445	3.089		0.75	1201	D445	3.092		1.00
317	D445	3.0805		0.04	1203	ISO3104	3.075		-0.42
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D7042	3.073		-0.59
336		-----		-----	1218		-----		-----
337		-----		-----	1225	D445	3.0814		0.12
340	D445	3.0893		0.78	1227	D445	3.0705		-0.79
343	D445	3.1226		3.57	1237	ISO3104	3.106		2.18
344		-----		-----	1251	D445	3.096		1.34
370	D445	3.0683		-0.98	1254	D445	3.0763		-0.31
430		-----		-----	1266	ISO3104	3.068		-1.00
447	D445	3.0735		-0.54	1284	D445	3.4937	G(0.01)	34.62
463	D445	3.0945		1.21	1288	D445	3.085		0.42
485		-----		-----	1293		-----		-----
488		-----		-----	1297	D7042	3.0733		-0.56
494	D445	3.082		0.17	1299	D445	3.081		0.08
495	D445	3.0707		-0.78	1340	ISO3104	3.0894		0.79
496	D445	3.094		1.17	1345	D445	3.083		0.25
507	D445	3.0955		1.30	1366		-----		-----
511	D445	3.0888		0.74	1409	ISO3104	3.079		-0.08
529		-----		-----	1417		-----		-----
541	D445	3.060		-1.67	1419	ISO3104	3.074		-0.50
557		-----		-----	1427	D445	3.079		-0.08
562	D445	3.1073		2.29	1428	ISO3104	3.079		-0.08
575	D445	3.0607		-1.61	1430	D445	3.096		1.34
603	D445	3.056		-2.01	1431	D445	3.0837		0.31
604	D445	3.1210		3.43	1432		-----		-----
608	D445	3.062		-1.51	1433	D445	3.069		-0.92
657	D445	3.084		0.34	1510	D445	3.089		0.75
663	D445	3.112		2.68	1528	ISO3104	3.10096		1.75
671	D445	3.082202		0.18	1543		-----		-----
704	D445	3.0793		-0.06	1616		-----		-----
732	D445	3.0725		-0.63	1621	D445	3.074		-0.50
750	D445	3.091		0.92	1629		-----		-----
781	D445	3.091		0.92	1631	D445	3.06		-1.67
784	D445	3.079		-0.08	1632	D7042	3.0865		0.54
823	D445	3.0758		-0.35	1634		-----		-----
824	D445	3.077		-0.25	1636	D445	3.0750		-0.42
825	D445	3.0778		-0.18	1650	D445	3.0800		0.00
840	D445	3.0866		0.55	1656	IP71	3.079		-0.08
862	D445	3.0586		-1.79	1709	D445	3.071		-0.75
863	D445	3.081		0.08	1712	ISO3104	3.0754		-0.38
873	D445	3.084		0.34	1720	D445	3.102		1.84
874	D445	3.0810		0.08	1724	D445	3.0795		-0.04
875	D445	3.078		-0.17	1807	ISO3104	3.0768		-0.27

= CORRECTED VERSION = Gasoil: iis10G04

1810	D445	3.0931		1.10
1811	D445	3.0919		1.00
1825	D445	3.2	G(0.01)	10.04
1833	D445	3.06		-1.67
1834	ISO3104	3.0753		-0.39
1842		-----		-----
1849	D445	3.092		1.00
1906		-----		-----
1936		-----		-----
1937	D445	3.065		-1.26
1938	D445	3.0695		-0.88
1948	D445	3.0865		0.54
2129	D445	3.08689		0.58
2146		-----		-----
7006		-----		-----
7008	D445	3.10		1.67

normality	OK	
n	126	
outliers	7	
mean (n)	3.0800	
st.dev. (n)	0.01415	
R(calc.)	0.0396	
R(D445:09)	0.0335	
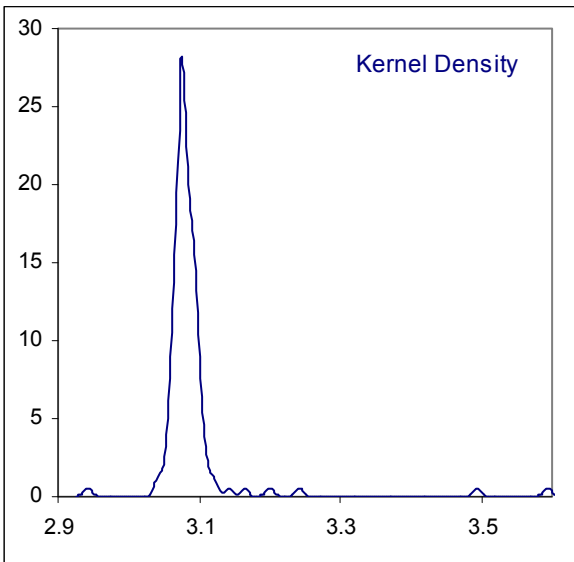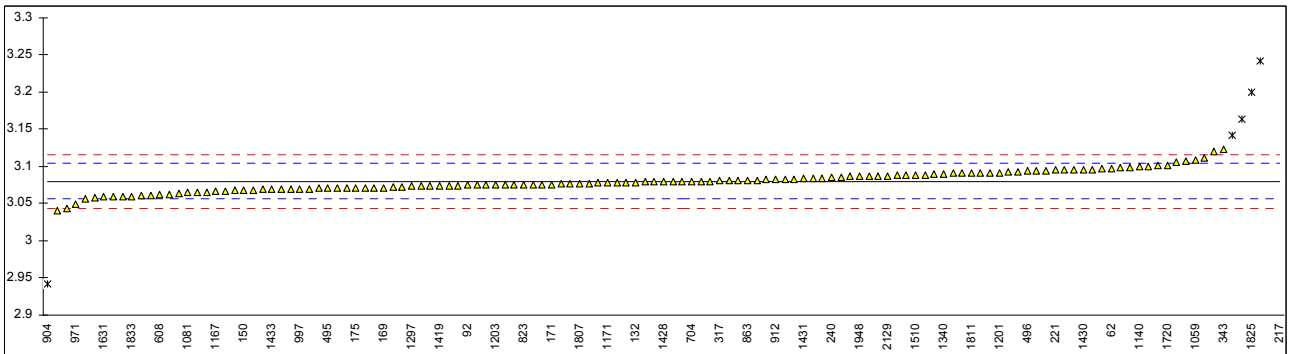
Determination of Lubricity by HFRR on sample #1059; result in µm

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52		-----		-----	904		-----		-----
62		-----		-----	912		-----		-----
92		-----		-----	922		-----		-----
120		-----		-----	951		-----		-----
132	D6079	242		-1.15	962		-----		-----
140		-----		-----	963		-----		-----
150	D6079	277.0		-0.43	971		-----		-----
158		-----		-----	994		-----		-----
159	D6079	253.0		-0.92	995	D6079	255		-0.88
169		-----		-----	996		-----		-----
171	D6079	291.5		-0.13	997		-----		-----
175		-----		-----	1006	D6079	305		0.15
193		-----		-----	1017		-----		-----
194		-----		-----	1033	IP450	252		-0.94
217		-----		-----	1038	IP450	356		1.20
221		-----		-----	1059	ISO12156	343		0.93
224		-----		-----	1065	ISO12156	239		-1.21
225		-----		-----	1080	ISO12156	267		-0.63
228		-----		-----	1081	ISO12156	276		-0.45
230		-----		-----	1108	D6079	251		-0.96
237		-----		-----	1109	IP450	284		-0.28
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140	IP450	263		-0.72
253		-----		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161	ISO12156	303.5		0.12
273		-----		-----	1167	ISO12156	251.8		-0.95
311	D6079	287		-0.22	1171		-----		-----
312	ISO12156	314		0.33	1201		-----		-----
317		-----		-----	1203	ISO12156	339		0.85
334	ISO12156	401		2.12	1205		-----		-----
335		-----		-----	1212	ISO12156	283		-0.31
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D6079	373		1.55	1227		-----		-----
343	EN12156	299	C,206	0.02	1237		-----		-----
344		-----		-----	1251	D6079	335		0.77
370	ISO12156	373		1.55	1254	ISO12156	247		-1.05
430	D6079	250.5		-0.97	1266		-----		-----
447	IP450	273		-0.51	1284		-----		-----
463	ISO12156	304.3		0.13	1288	ISO12156	298		0.00
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D6079	285		-0.26	1299	D6079	251		-0.96
495	ISO12156	305		0.15	1340	ISO12156	318		0.42
496	D6079	332		0.70	1345		-----		-----
507		-----		-----	1366		-----		-----
511		-----		-----	1409	ISO12156	324		0.54
529		-----		-----	1417		-----		-----
541		-----		-----	1419	ISO12156	342		0.91
557		-----		-----	1427	D6079	250.0		-0.98
562		-----		-----	1428	ISO12156	324		0.54
575		-----		-----	1430		-----		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608		-----		-----	1433		-----		-----
657	D6079	296		-0.04	1510		-----		-----
663		-----		-----	1528	ISO12156	355		1.18
671		-----		-----	1543		-----		-----
704		-----		-----	1616		-----		-----
732		-----		-----	1621	D6079	313.5		0.32
750		-----		-----	1629		-----		-----
781	D6079	290		-0.16	1631	ISO12156	248		-1.03
784		-----		-----	1632		-----		-----
823	D6079	320		0.46	1634		-----		-----
824		-----		-----	1636		-----		-----
825		-----		-----	1650	ISO12156	256		-0.86
840		-----		-----	1656	IP450	349		1.05
862	D6079	310		0.25	1709	D6079	295		-0.06
863	ISO12156	243.5		-1.12	1712	ISO12156	296		-0.04
873	D6079	321		0.48	1720		-----		-----
874		-----		-----	1724	IP450	405		2.21
875		-----		-----	1807	ISO12156	280		-0.37

= CORRECTED VERSION =   Gasoil: iis10G04

1810	D6079	258	-0.82
1811	D6079	305	0.15
1825		-----	-----
1833	ISO12156	256	-0.86
1834	ISO12156	287	-0.22
1842		-----	-----
1849	D6079	360	1.28
1906		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948		-----	-----
2129	IP450	306	0.17
2146		-----	-----
7006		-----	-----
7008		-----	-----

		Only D6079:	Only ISO12156
normality	OK	OK	OK
n	61	26	28
outliers	0	0	0
mean (n)	297.8	292.5	299.0
st.dev. (n)	40.86	35.29	41.52
R(calc.)	114.4	98.8	116.3
R(D6079:04e1)	136.0	136.0	102.0
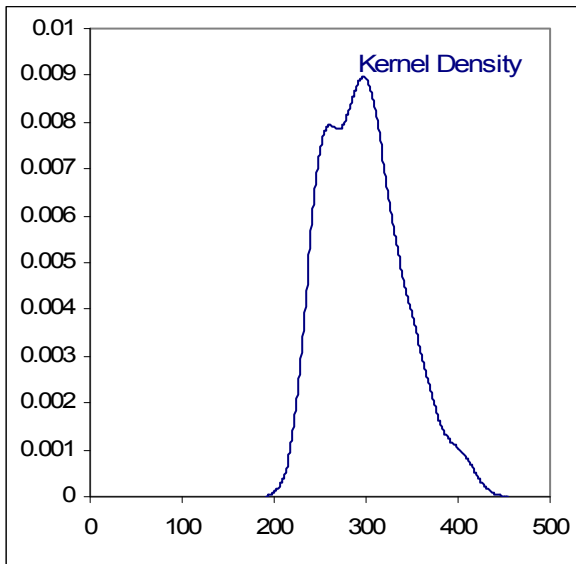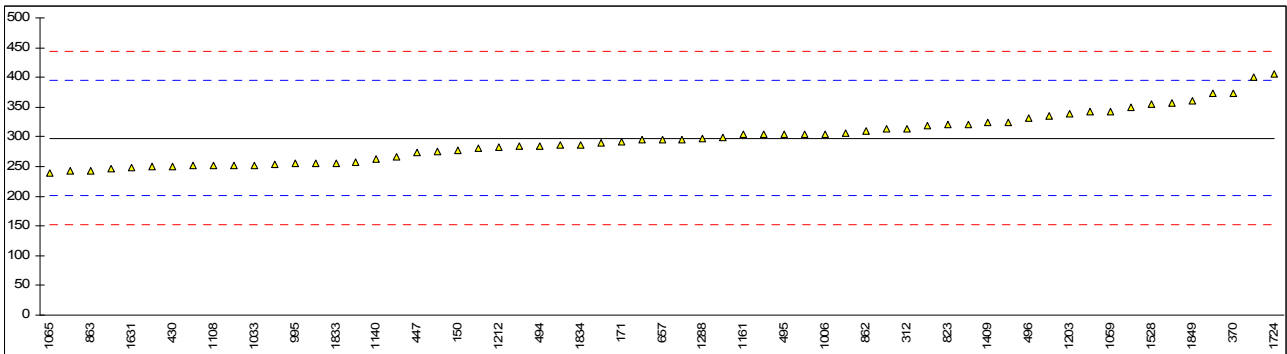
Determination of Nitrogen on sample #1059; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52	D4629	53		-4.43	904		-----		-----
62		-----		-----	912		-----		-----
92		-----		-----	922	D4629	59.53		-1.77
120	D4629	50		-5.65	951		-----		-----
132	D4629	60.7		-1.29	962		-----		-----
140	D4629	62.3		-0.64	963	D4629	63.55		-0.13
150	D4629	66.4		1.02	971		-----		-----
158		-----		-----	994	D4629	65.94		0.84
159	D4629	61.51		-0.96	995		-----		-----
169		-----		-----	996		-----		-----
171	D4629	64.40		0.21	997		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1017		-----		-----
194		-----		-----	1033		-----		-----
217		-----		-----	1038		-----		-----
221		-----		-----	1059		-----		-----
224		-----		-----	1065		-----		-----
225		-----		-----	1080	D4629	63		-0.36
228		-----		-----	1081		-----		-----
230		-----		-----	1108	D4629	60.7		-1.29
237		-----		-----	1109	D4629	72.3		3.43
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140		-----		-----
253		-----		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167		-----		-----
311	D4629	57		-2.80	1171		-----		-----
312		-----		-----	1201	D4629	61.5		-0.97
317	D4629	78		5.74	1203	D6366	66.1		0.90
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D4629	64.1		0.09
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340		-----		-----	1227	D4629	65.8		0.78
343		-----		-----	1237		-----		-----
344		-----		-----	1251		-----		-----
370		-----		-----	1254		-----		-----
430		-----		-----	1266		-----		-----
447		-----		-----	1284		-----		-----
463	D4629	76.07		4.96	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297	D4629	68.69		1.96
494	D4629	69.0		2.08	1299	D4629	53.1		-4.39
495	D4629	68.8		2.00	1340		-----		-----
496	D4629	60.79		-1.26	1345		-----		-----
507		-----		-----	1366		-----		-----
511		-----		-----	1409		-----		-----
529		-----		-----	1417		-----		-----
541		-----		-----	1419	D4629	63.10		-0.32
557		-----		-----	1427		-----		-----
562		-----		-----	1428		-----		-----
575		-----		-----	1430		-----		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608	D4629	53.44		-4.25	1433		-----		-----
657	D4629	62.6		-0.52	1510		-----		-----
663		-----		-----	1528		-----		-----
671		-----		-----	1543		-----		-----
704		-----		-----	1616		-----		-----
732		-----		-----	1621		-----		-----
750		-----		-----	1629		-----		-----
781		-----		-----	1631		-----		-----
784		-----		-----	1632		-----		-----
823	D4629	56		-3.21	1634		-----		-----
824		-----		-----	1636		-----		-----
825		-----		-----	1650		-----		-----
840		-----		-----	1656		-----		-----
862	D4629	68.3		1.80	1709	D4629	67.6		1.51
863	D4629	63.0		-0.36	1712		-----		-----
873		-----		-----	1720	D4629	62.8		-0.44
874		-----		-----	1724	D4629	73		3.71
875		-----		-----	1807		-----		-----

= CORRECTED VERSION =

1810		-----		-----
1811		-----		-----
1825		-----		-----
1833		-----		-----
1834		-----		-----
1842		-----		-----
1849		-----		-----
1906	D5291	1777	G(0.01)	696.94
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
2129		-----		-----
2146		-----		-----
7006	D4629	73.7		3.99
7008		-----		-----

normality	OK
n	35
outliers	1
mean (n)	63.88
st.dev. (n)	6.504
R(calc.)	18.21
R(D4629:10)	6.88
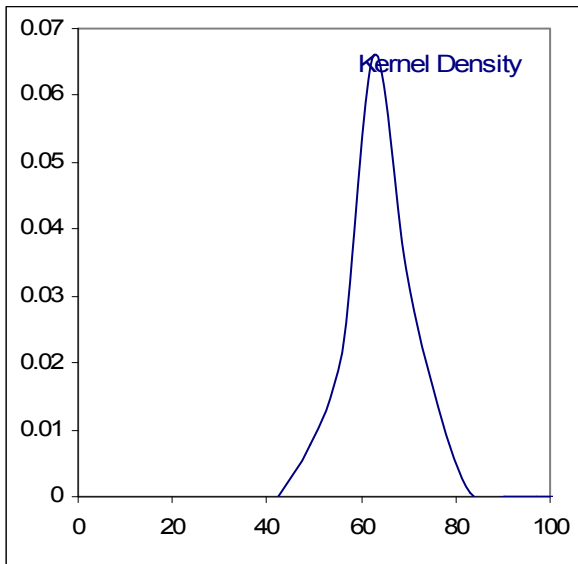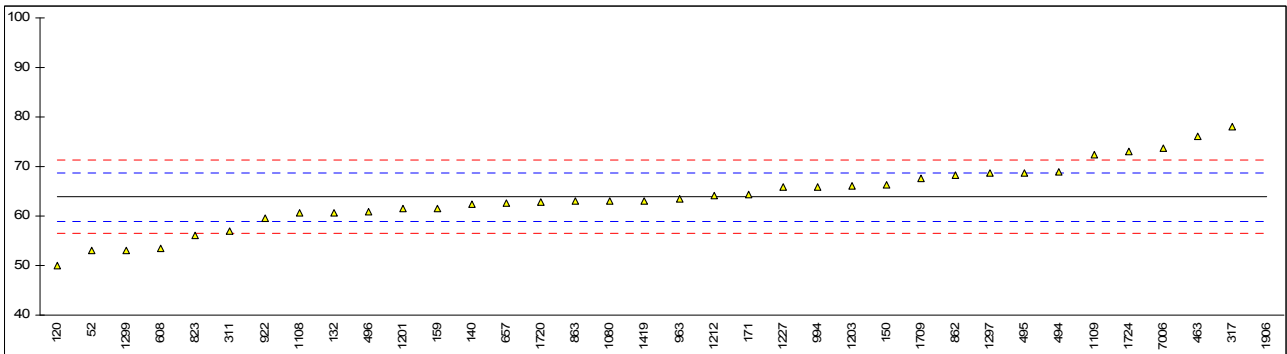
Determination of Pour Point on sample #1059; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52	D97	-27		0.90	904	D97	-27		0.90
62	D97	-30		-0.37	912	D97	-27		0.90
92		-----		-----	922	D97	-30		-0.37
120	D97	-36		-2.92	951		-----		-----
132	D97	<-24		-----	962	D97	-30		-0.37
140	D5949	-32.8		-1.56	963	D97	-27		0.90
150		-----		-----	971	D97	-30		-0.37
158		-----		-----	994	D97	-30		-0.37
159	D97	-30		-0.37	995	D97	-30		-0.37
169		-----		-----	996		-----		-----
171	D97	-30		-0.37	997		-----		-----
175	D97	-27		0.90	1006	D97	-24		2.17
193		-----		-----	1017	D97	-24		2.17
194		-----		-----	1033	IP15	-33		-1.65
217		-----		-----	1038		-----		-----
221	D97	<-12		-----	1059	ISO3016	-27		0.90
224		-----		-----	1065	D5950	-30		-0.37
225	D97	<-24		-----	1080	D97	-30		-0.37
228	D97	<-18		-----	1081	D5950	-24		2.17
230		-----		-----	1108	D5950	-30		-0.37
237	D97	<-24		-----	1109		-----		-----
238	D97	<-24		-----	1113	D97	-28		0.48
240	D97	-30		-0.37	1126		-----		-----
252		-----		-----	1140	D5950	-24		2.17
253	D97	-30		-0.37	1146	D97	-31.5		-1.01
254		-----		-----	1155	ISO3016	-30.0		-0.37
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273	D97	<-21		-----	1167	ISO3016	-31		-0.80
311	D97	-27		0.90	1171	ISO3016	-30.0		-0.37
312	D5950	-30		-0.37	1201	D97	-30		-0.37
317	D5949	-27.0		0.90	1203	D97	-28		0.48
334	D97	-30		-0.37	1205		-----		-----
335		-----		-----	1212	D97	-33		-1.65
336		-----		-----	1218		-----		-----
337		-----		-----	1225	D97	-30.0		-0.37
340	D97	-30		-0.37	1227	D97	-28		0.48
343	D97	-27		0.90	1237	ISO3016	-24		2.17
344		-----		-----	1251	D97	-30		-0.37
370	D97	-27		0.90	1254	D97	-30		-0.37
430		-----		-----	1266		-----		-----
447	D97	-36		-2.92	1284	D97	-27.0		0.90
463	D97	-24		2.17	1288	D97	-30		-0.37
485		-----		-----	1293		-----		-----
488		-----		-----	1297	D5950	-28		0.48
494	D6892	-27		0.90	1299	D97	-29		0.05
495	D97	-27		0.90	1340	ISO3016	-30		-0.37
496	D97	-30		-0.37	1345	D97	-30.0		-0.37
507	D97	>-30		-----	1366		-----		-----
511		-----		-----	1409	D97	-32		-1.22
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427	D97	-30.00		-0.37
562	D97	-24		2.17	1428	ISO3016	-30		-0.37
575		-----		-----	1430	D5950	-31		-0.80
603		-----		-----	1431		-----		-----
604	D97	-30		-0.37	1432		-----		-----
608	D97	-30		-0.37	1433		-----		-----
657	D97	-30		-0.37	1510		-----		-----
663	D97	<-18		-----	1528	D97	-27		0.90
671	D97	-27		0.90	1543		-----		-----
704	D97	-30		-0.37	1616		-----		-----
732	D97	-30		-0.37	1621	D97	-30		-0.37
750	D97	-30		-0.37	1629		-----		-----
781	D97	-27		0.90	1631	D97	-30		-0.37
784	D97	-27		0.90	1632		-----		-----
823	D97	-30		-0.37	1634		-----		-----
824	D97	-27		0.90	1636	D6749	-30		-0.37
825	D97	-25		1.75	1650	D5950	-31		-0.80
840	D97	-30		-0.37	1656	IP15	-36		-2.92
862	D97	-30		-0.37	1709	D97	-27		0.90
863	D97	-30		-0.37	1712	ISO3016	-30		-0.37
873	D97	-30		-0.37	1720		-----		-----
874	D97	-30		-0.37	1724	D97	-30		-0.37
875	D97	-30		-0.37	1807	D97	<-24		-----

1810		-----		-----
1811	D97	-28		0.48
1825		-----		-----
1833	D97	-30		-0.37
1834	ISO3016	-29		0.05
1842		-----		-----
1849		-----		-----
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948	D97	-36		-2.92
2129	D97	-24	C,-21	2.17
2146		-----		-----
7006		-----		-----
7008		-----		-----

|	
normality	not OK
n	94
outliers	0
mean (n)	-29.12
st.dev. (n)	2.566
R(calc.)	7.18
R(D97:09)	6.60
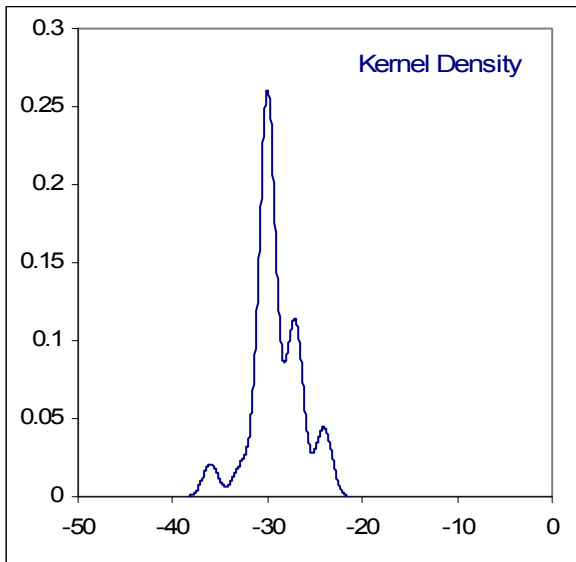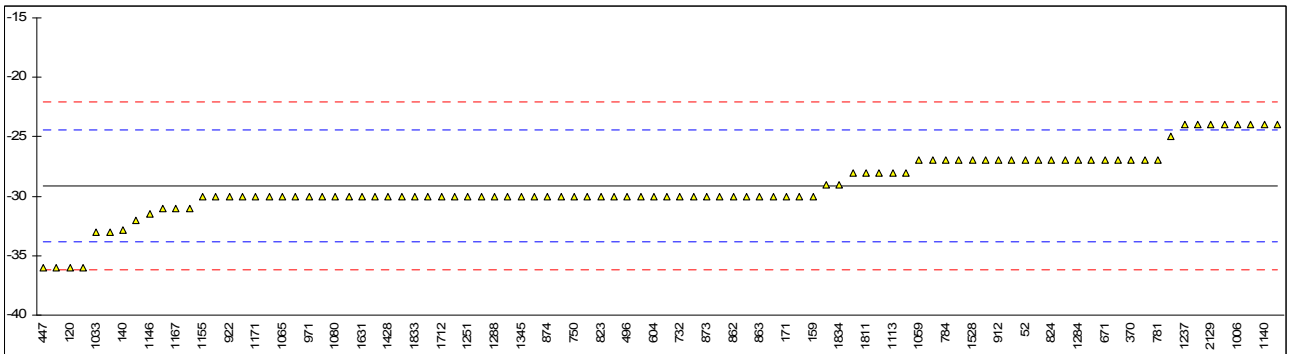
Determination of Ramsbottom Carbon Residue on sample #1062; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52		-----		-----	904		-----		-----
62	D4530	0.04	ex	-2.82	912	D524	0.085		1.25
92		-----		-----	922	D189	0.0084	ex	-5.67
120	D524	0.1442		6.60	951		-----		-----
132	D524	0.130		5.31	962		-----		-----
140	D524	0.09		1.70	963		-----		-----
150	D524	0.09		1.70	971	D524	0.019		-4.71
158	D524	0.11		3.51	994		-----		-----
159	D524	0.078		0.62	995	D189	0.0158	ex	-5.00
169	D524	0.065		-0.56	996		-----		-----
171	D524	0.1025		2.83	997		-----		-----
175		-----		-----	1006	D524	0.1077		3.30
193		-----		-----	1017		-----		-----
194		-----		-----	1033		-----		-----
217		-----		-----	1038		-----		-----
221		-----		-----	1059		-----		-----
224		-----		-----	1065		-----		-----
225		-----		-----	1080	D4530	0.035	ex	-3.27
228		-----		-----	1081	ISO10370	0.03	ex	-3.72
230	D524	0.041		-2.73	1108		-----		-----
237	D189	0.0068	ex	-5.82	1109	D4530	0.005	ex	-5.98
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140	D4530	0.017	ex	-4.89
253		-----		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159	D524	0.045		-2.36
258		-----		-----	1161		-----		-----
273	D189	0.06		-1.01	1167	ISO10370	0.038	ex	-3.00
311		-----		-----	1171	ISO6615	0.05	ex	-1.91
312		-----		-----	1201		-----		-----
317		-----		-----	1203	ISO10370	0.01	ex	-5.53
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D4530	0.001	ex	-6.34
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340		-----		-----	1227	D4530	0.013	ex	-5.26
343	D4530	<0.1	ex	-----	1237		-----		-----
344	D4530	0.01635	ex	-4.95	1251		-----		-----
370	D4530	0.021	ex	-4.53	1254		-----		-----
430		-----		-----	1266		-----		-----
447		-----		-----	1284		-----		-----
463	D4530	0.0063	ex	-5.86	1288	D4530	0.030	ex	-3.72
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494		-----		-----	1299	D4530	0.0281	ex	-3.89
495		-----		-----	1340	ISO10370	0.016	ex	-4.98
496		-----		-----	1345	D189	0.021		-4.53
507		-----		-----	1366		-----		-----
511		-----		-----	1409	ISO10370	<0.10	ex	-----
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427		-----		-----
562	D524	0.049		-2.00	1428	ISO10370	0.033	ex	-3.45
575	D189	0.010	ex	-5.53	1430	D189	0.106	ex	3.14
603	D4530	0.032	ex	-3.54	1431		-----		-----
604		-----		-----	1432		-----		-----
608	D4530	0.03	ex	-3.72	1433	D4530	0.03	ex	-3.72
657		-----		-----	1510		-----		-----
663		-----		-----	1528	ISO10370	0.013	ex	-5.26
671	D4530	0.01999	ex	-4.62	1543		-----		-----
704		-----		-----	1616		-----		-----
732		-----		-----	1621	D4530	0.0179	ex	-4.81
750		-----		-----	1629		-----		-----
781		-----		-----	1631	D4530	0.013	ex	-5.26
784		-----		-----	1632		-----		-----
823		-----		-----	1634		-----		-----
824		-----		-----	1636		-----		-----
825		-----		-----	1650		-----		-----
840		-----		-----	1656	IP398	<0.1	ex	-----
862	D4530	0.02	ex	-4.62	1709	D524	0.076		0.44
863		-----		-----	1712	ISO10370	0.02	ex	-4.62
873	D524	0.018		-4.80	1720		-----		-----
874	D4530/Calc.	0.10	ex	2.60	1724	D4530	0.03	ex	-3.72
875		-----		-----	1807	ISO10370	0.03	ex	-3.72

= CORRECTED VERSION =   Gasoil: iis10G04

1810		-----		-----
1811		-----		-----
1825		-----		-----
1833	D524	0.014		-5.16
1834		-----		-----
1842		-----		-----
1849	D524	0.0169		-4.90
1906		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948	D4530	0.0287	ex	-3.84
2129	IP398	0.03527	ex	-3.24
2146		-----		-----
7006		-----		-----
7008		-----		-----

	Only RCR		**Only CCR**		**Only CCR micro**
normality	OK		OK		not OK
n	18		7		29
outliers	0		1		1
mean (n)	0.0712		0.0246		0.0227
st.dev. (n)	0.04020		0.02153		0.01049
R(calc.)	0.1126		0.0603		0.0294
R(D524:10)	0.0310	R(D189)	(0.0306)	R(D4530)	(0.1415)

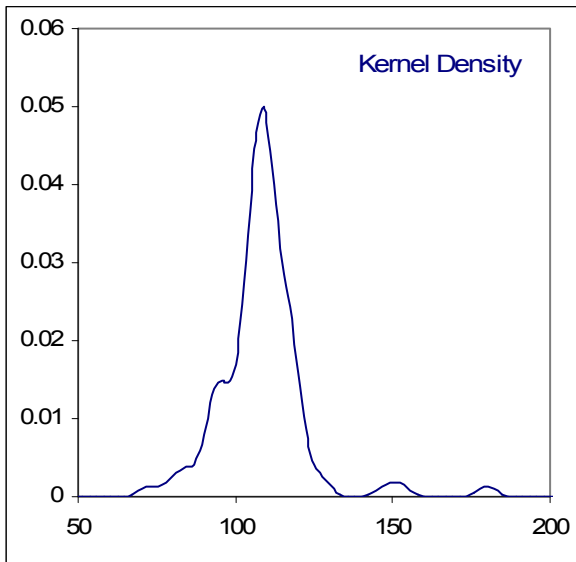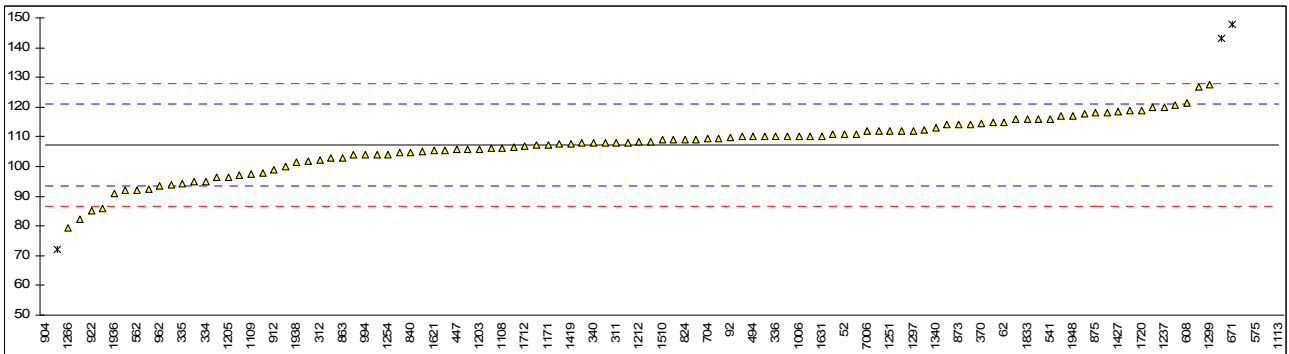ex = results are excluded as the test methods are not comparable with ASTM D524
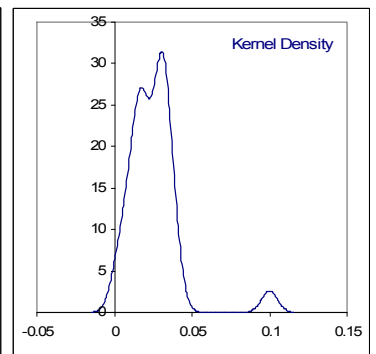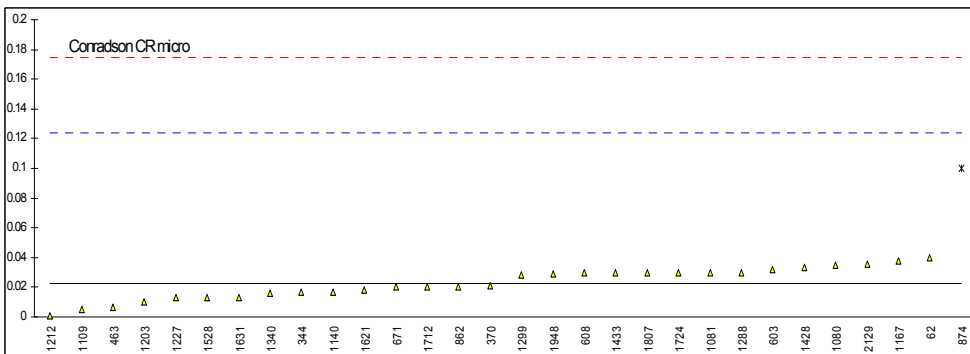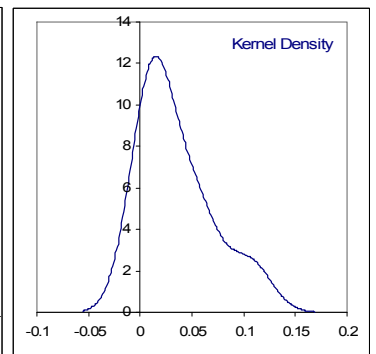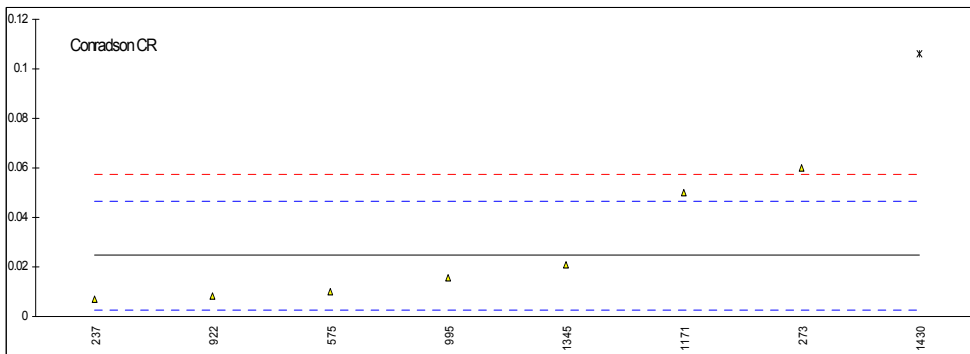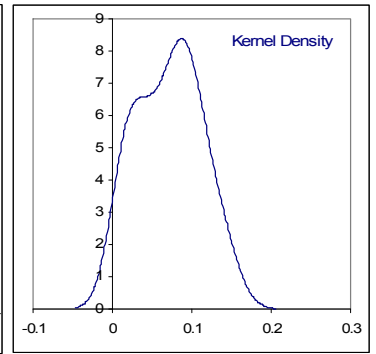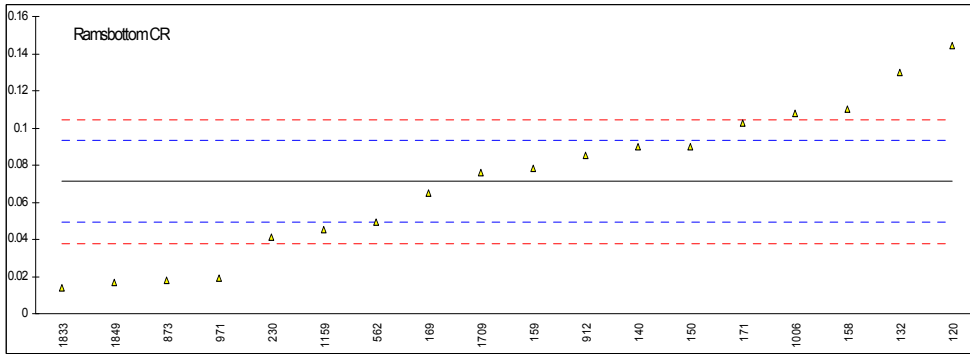
Determination of Sulphur Content on sample #1062; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52	D5453	111		0.55	904	D5453	8.3	G(0.01)	-14.34
62	D5453	115		1.13	912	D5453	99		-1.19
92	D5453	109.7		0.36	922	D5453	85.19		-3.19
120	D2622	112		0.69	951		-----		-----
132	D5453	118.0		1.56	962	D4294	93.3		-2.02
140	D5453	107.9		0.10	963		-----		-----
150	D5453	112.0		0.69	971	D4294	126.78		2.83
158		-----		-----	994	D5453	104		-0.47
159	D4294	153.0	G(0.01)	6.63	995	D5453	109.2		0.29
169	D4294	263.4	G(0.01)	22.64	996	D5453	109.52		0.33
171	D5453	103.89		-0.48	997		-----		-----
175		-----		-----	1006	D5453	110.2		0.43
193		-----		-----	1017		-----		-----
194		-----		-----	1033		-----		-----
217		-----		-----	1038		-----		-----
221		-----		-----	1059	ISO20846	108		0.11
224		-----		-----	1065		-----		-----
225		-----		-----	1080	D5453	103		-0.61
228		-----		-----	1081	D2622	110		0.40
230	D4294	104		-0.47	1108	D5453	106		-0.18
237		-----		-----	1109	D7039	97.6		-1.40
238		-----		-----	1113	D5453	549	G(0.01)	64.03
240	D4294	143	G(0.01)	-15.54	1126	ISO20846	118.8		1.68
252		-----		-----	1140	D5453	82.31		-3.61
253		-----		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161	ISO20846	96.2		-1.60
273		-----		-----	1167	ISO20846	105.65		-0.23
311	D5453	108		0.11	1171	ISO20846	107.36		0.02
312	D2622	102		-0.76	1201	D5453	109		0.26
317	ISO20884	117.8		1.53	1203	ISO20846	105.8		-0.21
334	D5453	95		-1.77	1205	D5453	96.4		-1.57
335	ISO20846	94.06	C,84.06	-1.91	1212	D5453	108.3		0.15
336	ISO20847	110		0.40	1218	ISO20884	106		-0.18
337		-----		-----	1225	ISO20846	117		1.42
340	D5453	108		0.11	1227	D5453	112.4		0.75
343	ISO20846	108.5		0.18	1237	ISO20846	120		1.85
344	D5453	107.49		0.04	1251	D5453	112		0.69
370	D5453	114.6		1.07	1254	D5453	104.15		-0.45
430		-----		-----	1266	ISO20846	79.17		-4.07
447	D5453	105.63		-0.23	1284	D5453	85.76		-3.11
463	D5453	108.01		0.11	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297	D5453	112.08		0.70
494	D5453	110.0		0.40	1299	ISO20846	127.4	C,58.1	2.92
495	D2622	104.7		-0.37	1340	ISO20846	113.05		0.84
496	D5453	110.15		0.42	1345	D5453	110		0.40
507		-----		-----	1366		-----		-----
511		-----		-----	1409	ISO20846	97.7		-1.38
529		-----		-----	1417		-----		-----
541	D5453	116		1.27	1419	ISO20884	107.55		0.05
557		-----		-----	1427	D5453	118.37		1.61
562	D5453	92.2		-2.18	1428	ISO20846	111		0.55
575	D4294	180	G(0.01)	10.55	1430	IN HOUSE	100		-1.05
603	D4294	120		1.85	1431	D5453	94.8		-1.80
604		-----		-----	1432		-----		-----
608	D5453	121.32		2.04	1433		-----		-----
657	D5453	92.4		-2.15	1510	D5453	109		0.26
663		-----		-----	1528	D5453	105.4		-0.27
671	D4294	148	G(0.01)	5.91	1543		-----		-----
704	D5453	109.4		0.31	1616		-----		-----
732		-----		-----	1621	IP531	105.4		-0.27
750		-----		-----	1629		-----		-----
781	D4294	114		0.98	1631	D5453	110.3		0.44
784	D4294	114		0.98	1632	ISO20846	106.5		-0.11
823		-----		-----	1634		-----		-----
824	D5453	109		0.26	1636	D5453	120.8		1.97
825		-----		-----	1650		-----		-----
840	D4294	104.7		-0.37	1656	IP490	105		-0.32
862	D5453	107.1		-0.02	1709	D5453	114.7		1.08
863	D5453	103.0		-0.61	1712	ISO20846	107		-0.03
873	D4294	114		0.98	1720	D5453	119		1.71
874	D4294	111		0.55	1724	D5453	97		-1.48
875	D5453	118		1.56	1807	ISO20846	93.66		-1.97

= CORRECTED VERSION =   Gasoil: iis10G04

1810	D5453	116		1.27
1811	D5453	116		1.27
1825		-----		-----
1833	D5453	116		1.27
1834		-----		-----
1842		-----		-----
1849	D5453	101.71		-0.80
1906		-----		-----
1936	ISO20846	91		-2.35
1937	ISO20848	92		-2.21
1938	D5453	101.3		-0.86
1948	D5453	117.0		1.42
2129	IP496	110.2		0.43
2146	ISO20846	72.249	G(0.05)	-5.07
7006	D5453	111.8		0.66
7008		-----		-----

|		Only D5453:	Only D4294	Only ISO20846
normality	not OK	not OK	OK	not OK
n	101	59	9	23
outliers	8	2	5	1
mean (n)	107.23	107.47	111.31	105.37
st.dev. (n)	9.147	8.710	9.735	10.948
R(calc.)	25.61	24.39	27.26	30.65
R(D5453:09)	19.32	19.35	40.00	13.38

Determination of Total Acid Number (TAN) on sample #1062; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D664	0.024		0.36
52	D664	0.01		-0.62	904	D664	0.019		0.01
62	D974	0.021		0.15	912	D664	<0.05		-----
92		-----		-----	922	D974	0.03	C,0.107	0.78
120		-----		-----	951		-----		-----
132		-----		-----	962	D664	0.017		-0.13
140	D664	0.0198		0.07	963	D974	0.0174		-0.10
150	D974	0.01		-0.62	971	D974	0.0165		-0.16
158		-----		-----	994		-----		-----
159	D664	0.02		0.08	995	D664	0.0228		0.28
169		-----		-----	996		-----		-----
171	D664	0.0205		0.12	997		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1017	D974	0.0202		0.10
194		-----		-----	1033	D974	0.02		0.08
217		-----		-----	1038	D974	0.017		-0.13
221		-----		-----	1059	ISO6619	<0.05		-----
224		-----		-----	1065	D664	0.0156		-0.22
225		-----		-----	1080	D664	0.02		0.08
228		-----		-----	1081	D664	0.04	G(0.05)	1.48
230	D974	0.0177		-0.08	1108		-----		-----
237	D974	0.0187		-0.01	1109	D974	0.0193		0.03
238		-----		-----	1113	D664	0.10	G(0.01)	5.68
240		-----		-----	1126		-----		-----
252		-----		-----	1140	D3242	0.014		-0.34
253		-----		-----	1146	D664	0.020		0.08
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167		-----		-----
311		-----		-----	1171		-----		-----
312	D974	0.016		-0.20	1201	D664	0.022		0.22
317	D974	0.023		0.29	1203	ISO6618	0.02		0.08
334		-----		-----	1205		-----		-----
335		-----		-----	1212	D664	0.026		0.50
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D664	0.031		0.85	1227		-----		-----
343		-----		-----	1237		-----		-----
344		-----		-----	1251	D664	0.01		-0.62
370	D974	0.026		0.50	1254	D664	0.0196		0.06
430		-----		-----	1266		-----		-----
447	D664	0.0138		-0.35	1284	D664	0.0135		-0.37
463	D974	0.0184		-0.03	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494	D664	0.019		0.01	1299	D664	0.05	G(0.05)	2.18
495	D664	0.024		0.36	1340		-----		-----
496	D664	0.024		0.36	1345	D974	0.021		0.15
507	D664	0.041	DG(0.05)	1.55	1366		-----		-----
511		-----		-----	1409	D664	0.02		0.08
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427		-----		-----
562		-----		-----	1428	D664	0.026		0.50
575		-----		-----	1430		-----		-----
603		-----		-----	1431	D664	0.010		-0.62
604		-----		-----	1432		-----		-----
608	D664	0.0185		-0.02	1433		-----		-----
657	D664	0.046	DG(0.05)	1.90	1510		-----		-----
663		-----		-----	1528		-----		-----
671	D974	0.01527		-0.25	1543		-----		-----
704	D664	0.016		-0.20	1616		-----		-----
732		-----		-----	1621	D664	0.04	DG(0.05)	1.48
750		-----		-----	1629		-----		-----
781	D664	0.040	DG(0.05)	1.48	1631		-----		-----
784		-----		-----	1632		-----		-----
823	D664	0.023		0.29	1634		-----		-----
824		-----		-----	1636		-----		-----
825		-----		-----	1650	D664	0.027		0.57
840	D664	0.0141		-0.33	1656	IP139	0.02		0.08
862	D974	0.0235		0.33	1709	D664	0.014		-0.34
863	D664	0.013		-0.41	1712		-----		-----
873	D664	0.008		-0.76	1720		-----		-----
874		-----		-----	1724	D664	0.0282		0.66
875		-----		-----	1807	EN14104	0.006		-0.90

1810		-----		-----	
1811		-----		-----	
1825		-----		-----	
1833	D664	0.0165	C,0.1395	-0.16	
1834		-----		-----	
1842		-----		-----	
1849		-----		-----	
1906		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948		-----		-----	
2129	D664	0.01488		-0.27	
2146		-----		-----	
7006		-----		-----	
7008		-----		-----	

|		Only D974	Only D664
normality	OK	OK	OK
n	57	21	36
outliers	7	0	7
mean (n)	0.0188	0.0189	0.0189
st.dev. (n)	0.00534	0.00503	0.00552
R(calc.)	0.0149	0.0141	0.0155
R(D974:08e1)	0.0400	0.0400	0.1437
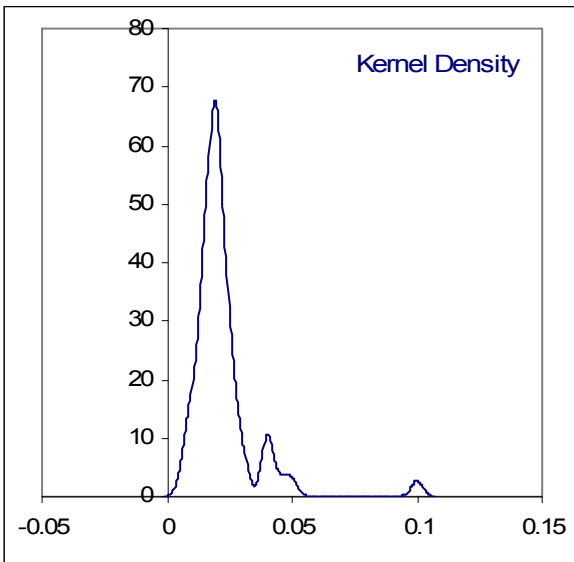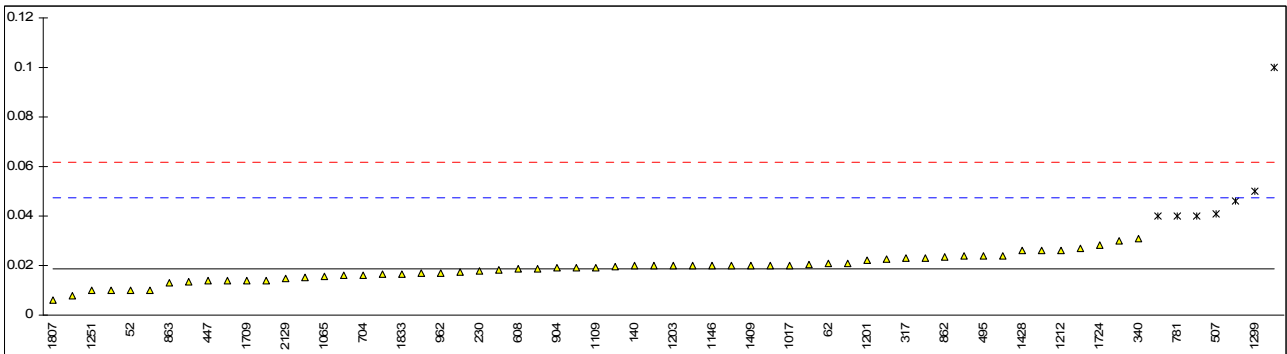
Determination of Water Content on sample #1059; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D6304	40.98		-0.11
52	D6304	45		-0.05	904	D6304	53		0.08
62	D6304	47.0		-0.02	912	D6304	43		-0.08
92	E203	71.61		0.38	922	D95	<500		-----
120	D6304	45.8		-0.04	951		-----		-----
132	D6304	33		-0.24	962	D6304	50		0.03
140	D6304	32.4		-0.25	963	D6304	54.395		0.10
150	D6304	36.4		-0.19	971	D6304	43.75		-0.07
158	D6304	43		-0.08	994		-----		-----
159		-----		-----	995	D6304	46.4		-0.03
169	D6304	53		0.08	996		-----		-----
171	D6304	34		-0.23	997		-----		-----
175		-----		-----	1006	D6304	59.5		0.19
193		-----		-----	1017	D6304	88.465		0.66
194		-----		-----	1033	IP438	45		-0.05
217		-----		-----	1038		-----		-----
221		-----		-----	1059	ISO12937	40		-0.13
224		-----		-----	1065	D6304	97.6		0.81
225		-----		-----	1080	ISO12937	85		0.60
228		-----		-----	1081	D6304	38		-0.16
230	D95	<500		-----	1108	D6304	47.1		-0.01
237	D95	<500		-----	1109	D6304	29.09		-0.31
238	D95	<500.0		-----	1113		-----		-----
240	D95	<500		-----	1126		-----		-----
252		-----		-----	1140	IP438	68.7		0.34
253	D6304	65		0.28	1146	D6304	25		-0.37
254	D95	<500		-----	1155	ISO12937	40.32		-0.13
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273	D6304	42.8		-0.08	1167	ISO12937	44.12		-0.06
311	D6304	40		-0.13	1171	ISO12937	41.57		-0.10
312	ISO12937	45		-0.05	1201	D6304	40		-0.13
317	D6304	40.3		-0.13	1203	ISO12937	40		-0.13
334	ISO12937	31		-0.28	1205		-----		-----
335		-----		-----	1212	D6304	42.6		-0.09
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D6304	43		-0.08	1227	D6304	43		-0.08
343	EN12937	41.7		-0.10	1237	ISO12937	51		0.05
344	ISO12937	46.0		-0.03	1251	D6304	60		0.19
370	ISO12937	41.1		-0.11	1254	D6304	46.7		-0.02
430		-----		-----	1266		-----		-----
447	IP438	42.0		-0.10	1284	D6304	109		0.99
463	D6304	35.0		-0.21	1288		-----		-----
485	D6304	33		-0.24	1293		-----		-----
488	D6304	45		-0.05	1297	D6304	41.5		-0.11
494	D6304	45		-0.05	1299	D6304	44.6		-0.06
495	EN12937	43		-0.08	1340	ISO12937	36.49		-0.19
496	D6304	57.8		0.16	1345	D6304	46		-0.03
507		-----		-----	1366		-----		-----
511		-----		-----	1409	ISO12937	62	C,475	0.23
529		-----		-----	1417		-----		-----
541		-----		-----	1419	ISO12937	60.47		0.20
557		-----		-----	1427	ISO12937	50		0.03
562		-----		-----	1428	ISO12937	50		0.03
575		-----		-----	1430	D6304	39		-0.15
603	D6304	40.8		-0.12	1431	D6304	44		-0.07
604		-----		-----	1432		-----		-----
608		-----		-----	1433		-----		-----
657	D6304	45.95		-0.03	1510		-----		-----
663	D6304	45		-0.05	1528	ISO12937	48.8		0.01
671		-----		-----	1543		-----		-----
704	D6304	44.2		-0.06	1616		-----		-----
732		-----		-----	1621	D6304	25		-0.37
750	D6304	42.3		-0.09	1629		-----		-----
781	D6304	32.4		-0.25	1631	D6304	50.7		0.04
784		-----		-----	1632		-----		-----
823	D6304	38.0		-0.16	1634		-----		-----
824		-----		-----	1636	D6304	55.77		0.13
825	D6304	71.6		0.38	1650	IP438	46		-0.03
840	D6304	61.2		0.21	1656	IP438	43		-0.08
862	D6304	41.8		-0.10	1709	D6304	43		-0.08
863	D6304	61.0		0.21	1712	ISO12937	48		0.00
873	D6304	43		-0.08	1720		-----		-----
874	D6304	43		-0.08	1724	D6304	44		-0.07
875	D6304	39		-0.15	1807	ISO12937	43.47		-0.07

= CORRECTED VERSION = Gasoil: iis10G04

1810	D6304	50		0.03
1811	D6304	81		0.54
1825		-----		-----
1833	D6304	40.7		-0.12
1834	ISO12937	53.2		0.08
1842		-----		-----
1849	D6304	46.0		-0.03
1906	D4377	549	G(0.01)	8.14
1936	ISO12937	48		0.00
1937	ISO12937	39		-0.15
1938	D6304	74		0.42
1948	ISO12937	42.96		-0.08
2129	IP439	65		0.28
2146		-----		-----
7006		-----		-----
7008		-----		-----

normality	not OK
n	100
outliers	1
mean (n)	48.0
st.dev. (n)	13.99
R(calc.)	39.2
R(D6304:07)	172.4
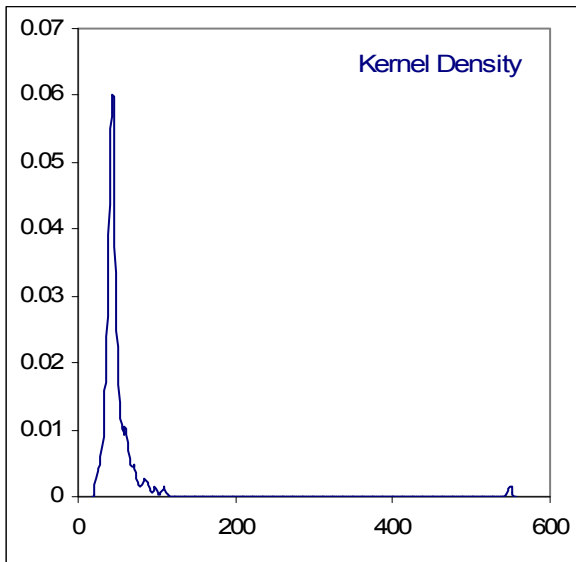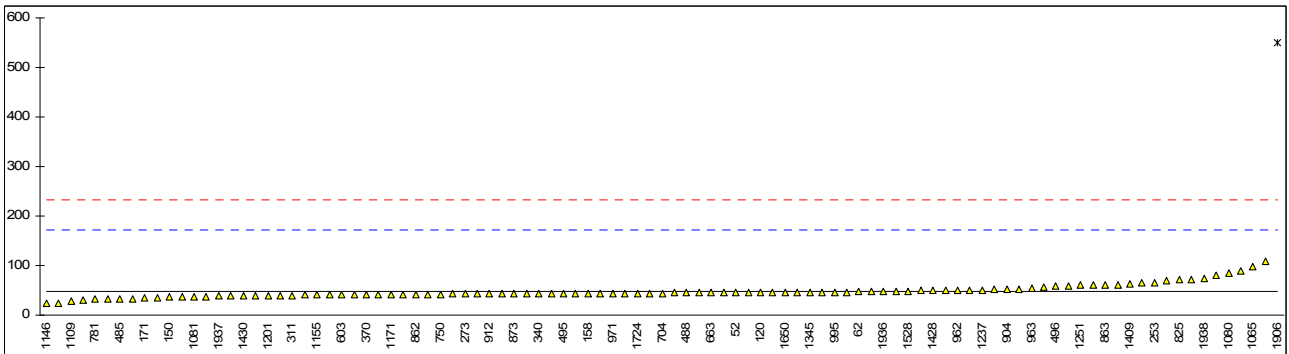
Determination of Water and sediment (D2709) on sample #1059; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887		-----		-----
52	D2709	<0.005		-----	904	D2709	<0.01		-----
62	D2709	0.0		-----	912		-----		-----
92	D2709	0		-----	922		-----		-----
120	D2709	0		-----	951		-----		-----
132	D2709	0		-----	962		-----		-----
140		-----		-----	963		-----		-----
150	D2709	0		-----	971	D2709	<0.005		-----
158		-----		-----	994		-----		-----
159	D2709	<0.005		-----	995		-----		-----
169		-----		-----	996		-----		-----
171	D2709	0		-----	997		-----		-----
175		-----		-----	1006		-----		-----
193		-----		-----	1017		-----		-----
194		-----		-----	1033		-----		-----
217		-----		-----	1038	D2709	0		-----
221		-----		-----	1059		-----		-----
224		-----		-----	1065		-----		-----
225		-----		-----	1080		-----		-----
228		-----		-----	1081		-----		-----
230		-----		-----	1108		-----		-----
237		-----		-----	1109	D2709	0		-----
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140		-----		-----
253		-----		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167		-----		-----
311		-----		-----	1171		-----		-----
312		-----		-----	1201		-----		-----
317		-----		-----	1203		-----		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212		-----		-----
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340	D2709	0		-----	1227		-----		-----
343	D2709	<0.05		-----	1237		-----		-----
344	D2709	<0.05		-----	1251		-----		-----
370		-----		-----	1254		-----		-----
430		-----		-----	1266		-----		-----
447		-----		-----	1284		-----		-----
463		-----		-----	1288	D2709	0		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494		-----		-----	1299	D2709	<0.01		-----
495		-----		-----	1340		-----		-----
496		-----		-----	1345		-----		-----
507	D2709	0		-----	1366		-----		-----
511		-----		-----	1409		-----		-----
529		-----		-----	1417		-----		-----
541		-----		-----	1419		-----		-----
557		-----		-----	1427	D2709	0		-----
562	D2709	0.00		-----	1428		-----		-----
575		-----		-----	1430		-----		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608		-----		-----	1433		-----		-----
657	D2709	<0.005		-----	1510		-----		-----
663	D2709	0		-----	1528		-----		-----
671	D2709	<0.01		-----	1543		-----		-----
704	D2709	<0.005		-----	1616		-----		-----
732		-----		-----	1621	D2709	0.005		-----
750		-----		-----	1629		-----		-----
781	D2709	0.005		-----	1631		-----		-----
784		-----		-----	1632		-----		-----
823	D2709	0		-----	1634		-----		-----
824	D2709	0.00		-----	1636		-----		-----
825		-----		-----	1650		-----		-----
840	D2709	<0.005		-----	1656		-----		-----
862	D2709	<0.005		-----	1709		-----		-----
863	D2709	<0.005		-----	1712		-----		-----
873	D2709	0		-----	1720		-----		-----
874		-----		-----	1724		-----		-----
875		-----		-----	1807		-----		-----

= CORRECTED VERSION =   Gasoil: iis10G04

1810	-----	-----
1811	-----	-----
1825	-----	-----
1833	-----	-----
1834	-----	-----
1842	-----	-----
1849	-----	-----
1906	-----	-----
1936	-----	-----
1937	-----	-----
1938	-----	-----
1948	-----	-----
2129	-----	-----
2146	-----	-----
7006	-----	-----
7008	-----	-----

normality	n.a.
n	18
outliers	0
mean (n)	<0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D2709:06)	n.a.

Determination of Water and sediment (D1796) on sample #1059; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
51		-----		-----	887	D1796	<0.005		-----
52		-----		-----	904		-----		-----
62	D1796	0.0		-----	912		-----		-----
92		-----		-----	922		-----		-----
120		-----		-----	951		-----		-----
132	D1796	0.00		-----	962		-----		-----
140	D1796	0		-----	963		-----		-----
150	D1796	0		-----	971		-----		-----
158	D1796	0.00		-----	994		-----		-----
159		-----		-----	995		-----		-----
169	D1796	0.0		-----	996		-----		-----
171	D1796	0		-----	997		-----		-----
175		-----		-----	1006	D1796	<0.05		-----
193		-----		-----	1017		-----		-----
194		-----		-----	1033		-----		-----
217		-----		-----	1038		-----		-----
221		-----		-----	1059	ISO3734	<0.05		-----
224		-----		-----	1065		-----		-----
225		-----		-----	1080		-----		-----
228		-----		-----	1081		-----		-----
230		-----		-----	1108		-----		-----
237		-----		-----	1109		-----		-----
238		-----		-----	1113		-----		-----
240		-----		-----	1126		-----		-----
252		-----		-----	1140		-----		-----
253		-----		-----	1146		-----		-----
254		-----		-----	1155		-----		-----
256		-----		-----	1159		-----		-----
258		-----		-----	1161		-----		-----
273		-----		-----	1167		-----		-----
311		-----		-----	1171		-----		-----
312		-----		-----	1201		-----		-----
317		-----		-----	1203		-----		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1212		-----		-----
336		-----		-----	1218		-----		-----
337		-----		-----	1225		-----		-----
340		-----		-----	1227		-----		-----
343		-----		-----	1237		-----		-----
344		-----		-----	1251		-----		-----
370		-----		-----	1254		-----		-----
430		-----		-----	1266		-----		-----
447		-----		-----	1284		-----		-----
463		-----		-----	1288		-----		-----
485		-----		-----	1293		-----		-----
488		-----		-----	1297		-----		-----
494		-----		-----	1299	D1796	<0.005		-----
495		-----		-----	1340		-----		-----
496		-----		-----	1345		-----		-----
507	D1796	0		-----	1366		-----		-----
511		-----		-----	1409		-----		-----
529		-----		-----	1417		-----		-----
541	D1796	<0.1		-----	1419		-----		-----
557		-----		-----	1427	D1796	0		-----
562	D1796	0.00		-----	1428	D1796	<0.05		-----
575		-----		-----	1430		-----		-----
603		-----		-----	1431		-----		-----
604		-----		-----	1432		-----		-----
608		-----		-----	1433		-----		-----
657	D1796	<0.025		-----	1510		-----		-----
663	D1796	0.00		-----	1528		-----		-----
671		-----		-----	1543		-----		-----
704		-----		-----	1616		-----		-----
732		-----		-----	1621		-----		-----
750		-----		-----	1629		-----		-----
781	D1796	0.00		-----	1631		-----		-----
784		-----		-----	1632		-----		-----
823	D1796	0		-----	1634		-----		-----
824		-----		-----	1636		-----		-----
825		-----		-----	1650		-----		-----
840	D1796	<0.05		-----	1656		-----		-----
862		-----		-----	1709		-----		-----
863		-----		-----	1712		-----		-----
873	D1796	0.00		-----	1720		-----		-----
874		-----		-----	1724		-----		-----
875		-----		-----	1807		-----		-----
1810		-----		-----					

= CORRECTED VERSION =   Gasoil: iis10G04

1811	-----	-----
1825	-----	-----
1833	-----	-----
1834	-----	-----
1842	-----	-----
1849	-----	-----
1906	-----	-----
1936	-----	-----
1937	-----	-----
1938	-----	-----
1948	-----	-----
2129	-----	-----
2146	-----	-----
7006	-----	-----
7008	-----	-----

normality	unknown
n	14
outliers	0
mean (n)	0
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D1796:04)	n.a.

Determination of Total Contamination on sample #1064; result in mg/kg

lab	method	value	mark	z(targ)	remarks
273		-----		-----	
311		-----		-----	
312		-----		-----	
340	EN12662	17.2		-2.91	
343	EN12662	8.0	DG(0.05)	-7.68	
370	EN12662	1.87	G(0.01)	-10.86	
447	IP415	21.81		-0.52	
494		-----		-----	
495		-----		-----	
496		-----		-----	
657	D6217	21.2		-0.83	
704	EN12662	26.89		2.12	
823	D6217	23.28		0.25	
840	D6217	22.76		-0.02	
862	EN12662	17.3		-2.86	
875	IP440	25.6		1.45	
904		-----		-----	
962	D6217	4.2	DG(0.05)	-9.65	
994		-----		-----	
1006	D6217	34.9	G(0.05)	6.28	
1033	IP440	18.1		-2.44	
1059	EN12662	23.9		0.57	
1080	EN12662	23.9		0.57	
1081	EN12662	20		-1.45	
1095	EN12662	22.3		-0.26	
1108	D6217	23		0.10	
1154		-----		-----	
1155	D6217	27.42		2.40	
1161	EN12662	23.2		0.21	
1167	D6217	23.4		0.31	
1171	EN12662	26.8557		2.10	
1203	EN12662	23.2		0.21	
1212	EN12662	4.97	DG(0.05)	-9.25	
1251	D6217	26		1.66	
1254	EN12662	23.72		0.48	
1345	DIN51419	24.65		0.96	
1409	EN12662	22.6		-0.11	
1428	EN12662	20.6		-1.14	
1433	D6217	17.5		-2.75	
1631	EN12662	25.8		1.55	
1650	EN12662	37.92	G(0.05)	7.84	
1724	EN12662	20.52		-1.18	
1807	EN12662	12.3	G(0.05)	-5.45	
1833	EN12662	23.2		0.21	
1936	EN12662	22.6		-0.11	
1937	EN12662	6.3	DG(0.05)	-8.56	
1938	D6217	25.0		1.14	
1948	D6217	23.4		0.31	

Only ASTM D6217 data:

	normality	OK			OK
	n	31			11
	outliers	8	Spike:		2
	mean (n)	22.80	20	Recovery <114%	23.16
	st.dev. (n)	2.758			2.600
	R(calc.)	7.72			7.28
	R(D6217:08)	5.40		Compare R(EN12662) = 6.84	5.43
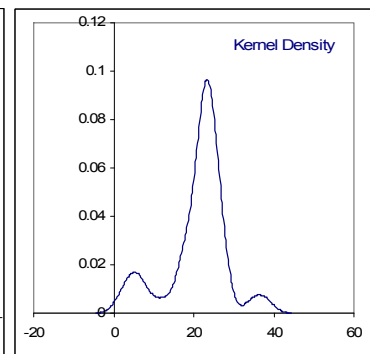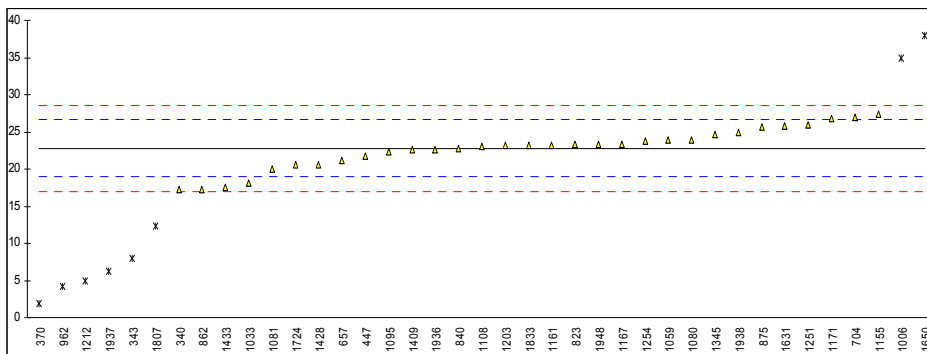
Determination of Oxidation Stability on sample #1065; result in mg/100mL

lab	method	value	mark	z(targ)	remarks
311		-----		-----	
312		-----		-----	
343	D2274	0.7		1.61	
447	D2274	0.143		-0.44	
463		-----		-----	
494	D2274	0.14		-0.45	
495	D2274	0.017		-0.91	
496	ISO12205	0.97		2.61	
657	D2274	0.20		-0.23	
704	ISO12205	5.84	G(0.01)	20.58	
781	D2274	0.057		-0.76	
823		-----		-----	
862	D2274	0.05		-0.79	
904	D2274	3.6	G(0.01)	12.31	
963	D2274	0.171		-0.34	
974	D2274	0.3427		0.29	
1033	D2274	0	ex	-0.97	Result excluded, zero not a real result
1081	D2274	0.1		-0.60	
1095		-----	C	-----	
1108	D2274	1.8	DG(0.01)	5.67	
1167	ISO12205	1.77	DG(0.01)	5.56	
1427	D2274	0.0	ex	-0.97	Result excluded, zero not a real result
1807	ISO12205	<1.0		-----	
1833		-----		-----	

normality	not OK
n	11
outliers	4
mean (n)	0.263
st.dev. (n)	0.3023
R(calc.)	0.847
R(D2274:08)	0.759

Kernel Density
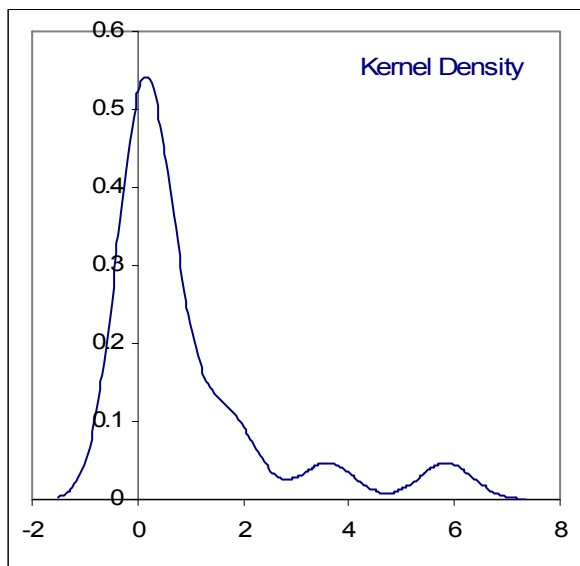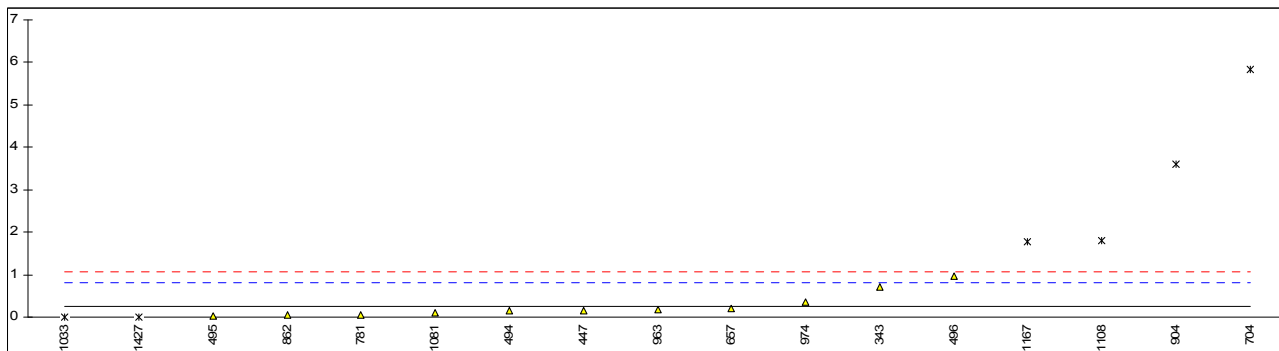
APPENDIX 2
Z-scores Distillation

lab	method	Automated						Manual					
		IBP	10%rec	50%rec	90%rec	95%rec	FBP	IBP	10%rec	50%rec	90%rec	95%rec	FBP
51		0.60	-0.38	-0.36	1.79	2.30	0.24	-----	-----	-----	-----	-----	-----
52		0.12	1.49	0.49	1.35	1.37	-0.08	-----	-----	-----	-----	-----	-----
62		1.08	-1.18	0.12	-0.65	-0.76	0.63	-----	-----	-----	-----	-----	-----
92		1.84	2.73	1.15	-0.60	-0.92	0.16	-----	-----	-----	-----	-----	-----
120		0.12	-0.27	0.02	1.51	1.44	-0.83	-----	-----	-----	-----	-----	-----
132		-0.07	1.49	0.78	0.24	0.04	0.48	-----	-----	-----	-----	-----	-----
140		-0.19	0.81	0.68	-0.93	-0.98	-1.30	-----	-----	-----	-----	-----	-----
150		0.15	1.60	0.87	-0.98	-1.01	-2.64	-----	-----	-----	-----	-----	-----
158		-4.42	-0.38	-2.15	-1.04	0.07	-0.27	-----	-----	-----	-----	-----	-----
159		1.00	1.94	0.96	-0.26	-0.51	-0.59	-----	-----	-----	-----	-----	-----
169		-5.97	-3.90	-2.43	1.24	1.93	-0.59	-----	-----	-----	-----	-----	-----
171		0.32	0.81	-0.36	-0.04	0.20	0.28	-----	-----	-----	-----	-----	-----
175		1.73	1.49	2.76	2.40	1.84	0.99	-----	-----	-----	-----	-----	-----
193		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
194		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
217		-----	-----	-----	-----	-----	-----	-1.06	0.67	-0.31	1.38	1.32	-2.22
221		-----	-----	-----	-----	-----	-----	-0.14	0.48	0.22	-1.16	-2.57	-3.44
224		-----	-----	-----	-----	-----	-----	1.56	0.53	0.41	1.42	0.91	1.71
225		-----	-----	-----	-----	-----	-----	-1.80	-1.11	-0.15	2.27	2.49	-1.29
228		-----	-----	-----	-----	-----	-----	-0.14	-1.11	-0.15	0.21	-2.06	-4.15
230		-----	-----	-----	-----	-----	-----	0.69	-0.34	-0.31	-1.58	-3.12	3.28
237		-----	-----	-----	-----	-----	-----	-2.63	-11.60	-0.91	-1.85	-4.59	0.14
238		-----	-----	-----	-----	-----	-----	-4.30	-11.92	-2.43	-1.85	-4.34	-4.87
240		-----	-----	-----	-----	-----	-----	1.10	0.17	0.60	2.27	1.98	0.85
252		-0.38	-0.27	-0.54	-1.32	-1.29	-1.46	-----	-----	-----	-----	-----	-----
253		-----	-----	-----	-----	-----	-----	0.69	0.80	-0.15	0.21	-0.04	2.28
254		-----	-----	-----	-----	-----	-----	-0.56	-0.47	0.60	-1.16	-----	0.14
256		-----	-----	-----	-----	-----	-----	-1.80	2.07	0.60	0.90	0.97	-1.29
258		-1.57	-1.12	0.87	0.07	-0.61	-1.06	-----	-----	-----	-----	-----	-----
273		-0.10	4.37	2.19	1.79	0.88	-2.25	-----	-----	-----	-----	-----	-----
311		-0.86	-0.72	1.25	1.68	1.90	1.70	-----	-----	-----	-----	-----	-----
312		1.22	1.15	1.15	0.13	-0.05	0.08	-----	-----	-----	-----	-----	-----
317		-0.64	-0.44	-1.02	-0.21	-0.02	-0.08	-----	-----	-----	-----	-----	-----
334		-0.05	-1.01	-1.02	-0.60	-0.61	0.83	-----	-----	-----	-----	-----	-----
335		1.34	-0.95	0.68	1.29	1.75	1.11	-----	-----	-----	-----	-----	-----
336		0.63	1.03	0.59	0.68	0.57	1.07	-----	-----	-----	-----	-----	-----
337		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
340		-0.64	-0.84	0.12	1.07	0.82	-0.98	-----	-----	-----	-----	-----	-----
343		-2.08	1.15	-0.64	-2.15	-2.25	-2.60	-----	-----	-----	-----	-----	-----
344		-0.02	0.64	-0.26	0.35	0.45	0.32	-----	-----	-----	-----	-----	-----
370		-----	-----	-----	-----	-----	-----	0.48	-1.11	0.98	-0.48	-0.80	-2.37
430		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
447		-0.70	1.09	0.87	0.35	0.23	1.42	-----	-----	-----	-----	-----	-----
463		-1.68	0.18	-0.92	0.07	0.20	-0.47	-----	-----	-----	-----	-----	-----
485		0.28	-1.15	-1.02	-1.04	-0.87	-0.53	-----	-----	-----	-----	-----	-----
488		-0.44	-0.27	-1.58	-0.54	0.23	0.36	-----	-----	-----	-----	-----	-----
494		-0.24	-0.72	-0.45	-0.54	-0.33	-0.31	-----	-----	-----	-----	-----	-----
495		-0.47	-0.72	-0.92	-0.54	-0.36	-0.39	-----	-----	-----	-----	-----	-----
496		0.18	0.69	1.06	1.90	1.87	0.32	-----	-----	-----	-----	-----	-----
507		-----	-----	-----	-----	-----	-----	2.20	0.93	-1.52	0.73	-1.18	3.53
511		-----	-----	-----	-----	-----	-----	1.73	-0.79	-1.06	-0.68	-0.90	-0.72
529		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
541		-----	-----	-----	-----	-----	-----	-1.39	-1.11	0.60	-1.16	-----	-0.58
557		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
562		1.28	0.81	0.87	-0.43	-0.82	0.28	-----	-----	-----	-----	-----	-----
575		-----	-----	-----	-----	-----	-----	1.52	-1.11	-0.91	-1.85	-4.59	-7.73
603		-----	-----	-----	-----	-----	-----	-2.22	0.17	0.60	0.21	-0.04	0.85
604		-0.75	-0.84	-0.73	-0.15	-0.17	0.04	-----	-----	-----	-----	-----	-----
608		-----	-----	-----	-----	-----	-----	-2.43	0.48	0.60	0.90	-0.04	0.85
657		-0.75	1.03	-0.26	-0.82	-0.82	0.16	-----	-----	-----	-----	-----	-----
663		1.28	1.43	0.87	-0.82	-1.07	0.24	-----	-----	-----	-----	-----	-----
671		0.18	0.69	-2.24	-0.15	1.53	-1.42	-----	-----	-----	-----	-----	-----
704		-----	-----	-----	-----	-----	-----	-2.76	-1.93	-0.69	-2.06	-1.05	-2.37
732		-----	-----	-----	-----	-----	-----	1.52	-0.79	0.83	-0.48	-0.04	-1.65
750		-----	-----	-----	-----	-----	-----	0.27	-0.47	0.98	0.90	2.49	1.21
781		-----	-----	-----	-----	-----	-----	0.69	0.80	0.60	0.21	0.46	1.56
784		-----	-----	-----	-----	-----	-----	1.10	-1.74	0.60	-1.16	-1.81	-0.58
823		0.66	-0.27	0.30	-0.32	-0.54	0.87	-----	-----	-----	-----	-----	-----
824		1.59	1.09	0.49	-0.10	-0.17	0.63	-----	-----	-----	-----	-----	-----
825		-0.36	0.69	0.87	0.57	0.35	0.00	-----	-----	-----	-----	-----	-----
840		-0.12	-0.19	-0.36	0.13	0.11	0.53	-----	-----	-----	-----	-----	-----
862		-1.34	-0.61	-0.26	0.07	0.07	0.95	-----	-----	-----	-----	-----	-----
863		-----	-----	-----	-----	-----	-----	2.35	1.44	0.60	-0.48	-1.05	0.49
873		-0.84	-0.38	1.15	2.74	1.25	1.74	-----	-----	-----	-----	-----	-----
874		-----	-----	-----	-----	-----	-----	-0.97	1.12	0.60	1.24	1.98	1.21

875	-----	-----	-----	-----	-----	-----	-0.14	0.17	0.60	-1.16	0.46	0.85
887	-----	-----	-----	-----	-----	-----	2.35	2.07	-0.15	-0.13	-0.80	-2.37
904	-0.13	0.18	0.21	-0.60	-0.14	-2.21	-----	-----	-----	-----	-----	-----
912	-----	-----	-----	-----	-----	-----	-2.22	2.39	2.88	0.56	0.21	-4.15
922	-----	-----	-----	-----	-----	-----	-1.39	0.17	-0.91	-3.91	-4.08	-2.72
951	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
962	-----	-----	-----	-----	-----	-----	0.90	1.76	0.22	-0.48	-0.29	0.85
963	0.55	0.01	-0.64	-1.32	-1.44	-0.47	-----	-----	-----	-----	-----	-----
971	0.77	-1.18	-1.02	-0.43	-0.42	1.26	-----	-----	-----	-----	-----	-----
994	-----	-----	-----	-----	-----	-----	-0.56	-1.11	-0.91	-0.13	0.97	-0.22
995	-----	-----	-----	-----	-----	-----	0.53	-0.44	-0.23	-0.20	0.36	0.25
996	-----	-----	-----	-----	-----	-----	-0.56	-0.47	0.60	0.21	0.46	-0.58
997	-----	-----	-----	-----	-----	-----	1.73	-0.47	-0.15	0.21	-0.04	0.49
1006	-0.47	-0.78	-0.17	0.85	-0.64	0.32	-----	-----	-----	-----	-----	-----
1017	0.74	0.30	-1.77	-3.04	-2.93	-1.93	-----	-----	-----	-----	-----	-----
1033	-0.98	-1.52	-0.07	0.18	-0.20	0.12	-----	-----	-----	-----	-----	-----
1038	0.69	1.15	0.30	-0.76	-1.16	-0.27	-----	-----	-----	-----	-----	-----
1059	-0.44	-2.03	-1.86	-1.71	-1.53	-0.55	-----	-----	-----	-----	-----	-----
1065	1.00	-1.06	0.40	0.90	0.79	1.30	-----	-----	-----	-----	-----	-----
1080	-0.19	-1.35	-0.07	0.40	0.23	0.36	-----	-----	-----	-----	-----	-----
1081	0.35	-0.04	0.40	0.52	-----	0.08	-----	-----	-----	-----	-----	-----
1108	-1.20	-1.29	-1.02	-1.21	-1.41	-0.23	-----	-----	-----	-----	-----	-----
1109	-0.05	0.47	0.12	-0.37	-0.73	-0.59	-----	-----	-----	-----	-----	-----
1113	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1126	-0.22	-0.38	0.78	0.52	0.20	2.09	-----	-----	-----	-----	-----	-----
1140	-1.51	0.13	0.02	0.90	1.62	0.55	-----	-----	-----	-----	-----	-----
1146	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1155	1.28	2.05	0.96	-0.21	1.44	1.62	-----	-----	-----	-----	-----	-----
1159	-----	-----	-----	-----	-----	-----	2.32	2.78	2.38	1.30	-0.67	-6.46
1161	-1.60	-1.69	-0.45	0.79	0.32	0.04	-----	-----	-----	-----	-----	-----
1167	-2.83	-1.86	-1.16	0.02	-0.44	-0.73	-----	-----	-----	-----	-----	-----
1171	-----	-----	-----	-----	-----	-----	-0.45	-1.89	-5.22	0.79	1.40	3.25
1201	-1.80	-1.74	-0.26	-0.43	-0.45	-0.79	-----	-----	-----	-----	-----	-----
1203	0.29	0.18	1.62	0.68	-0.05	-0.67	-----	-----	-----	-----	-----	-----
1205	0.63	-0.33	0.21	0.52	0.57	-0.63	-----	-----	-----	-----	-----	-----
1212	-0.92	0.18	0.40	-0.15	-0.42	0.40	-----	-----	-----	-----	-----	-----
1218	0.88	1.03	0.96	1.07	0.63	-1.10	-----	-----	-----	-----	-----	-----
1225	-0.22	-0.61	-0.26	0.13	0.17	0.00	-----	-----	-----	-----	-----	-----
1227	-0.44	-3.39	-1.39	-1.04	-1.10	0.04	-----	-----	-----	-----	-----	-----
1237	-----	-----	-----	-----	-----	-----	0.52	-1.39	0.22	1.21	1.69	1.87
1251	0.07	0.47	0.40	0.57	0.82	0.44	-----	-----	-----	-----	-----	-----
1254	-0.50	0.41	-0.73	0.02	0.35	0.00	-----	-----	-----	-----	-----	-----
1266	0.88	-0.04	0.21	0.29	-0.39	-1.81	-----	-----	-----	-----	-----	-----
1284	0.63	-0.10	0.49	0.46	0.48	1.07	-----	-----	-----	-----	-----	-----
1288	0.15	-0.38	0.68	1.13	0.35	-1.54	-----	-----	-----	-----	-----	-----
1293	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1297	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1299	0.21	-0.27	-0.07	0.29	0.20	1.03	-----	-----	-----	-----	-----	-----
1340	0.24	0.66	0.68	0.57	0.51	0.34	-----	-----	-----	-----	-----	-----
1345	-----	-----	-----	-----	-----	-----	0.27	1.44	0.60	1.59	1.22	0.85
1366	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1409	-0.61	-1.46	-1.49	-1.48	-1.35	-1.30	-----	-----	-----	-----	-----	-----
1417	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1419	1.62	0.47	0.96	-0.04	0.11	0.63	-----	-----	-----	-----	-----	-----
1427	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1428	-0.19	0.35	0.49	-0.26	-0.36	0.32	-----	-----	-----	-----	-----	-----
1430	-5.07	-2.14	0.02	1.90	1.84	-1.02	-----	-----	-----	-----	-----	-----
1431	2.27	1.09	-0.36	-0.93	-1.04	0.16	-----	-----	-----	-----	-----	-----
1432	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1433	-0.05	-3.61	-2.15	-1.82	-1.44	-0.19	-----	-----	-----	-----	-----	-----
1510	0.91	0.30	0.21	0.46	0.51	0.91	-----	-----	-----	-----	-----	-----
1528	0.35	2.00	0.68	-0.48	-0.95	0.91	-----	-----	-----	-----	-----	-----
1543	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1616	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1621	-3.21	-2.93	-0.54	1.29	1.71	1.03	-----	-----	-----	-----	-----	-----
1629	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1631	-1.40	-1.91	-1.11	-0.93	-1.19	0.16	-----	-----	-----	-----	-----	-----
1632	1.42	1.15	0.96	-0.26	-0.79	-1.65	-----	-----	-----	-----	-----	-----
1634	-0.84	1.49	-0.17	-0.71	-0.79	0.51	-----	-----	-----	-----	-----	-----
1636	-1.15	0.18	2.00	1.40	0.88	1.30	-----	-----	-----	-----	-----	-----
1650	-0.24	-1.23	-0.64	0.35	0.17	1.58	-----	-----	-----	-----	-----	-----
1656	-2.39	-1.23	-1.39	-2.48	-2.77	-1.69	-----	-----	-----	-----	-----	-----
1709	0.32	0.47	0.49	0.18	-0.08	0.71	-----	-----	-----	-----	-----	-----
1712	0.94	0.13	1.15	1.18	0.79	0.67	-----	-----	-----	-----	-----	-----
1720	0.72	1.83	1.91	2.24	2.39	0.95	-----	-----	-----	-----	-----	-----
1724	1.45	1.71	1.72	0.24	-0.17	0.28	-----	-----	-----	-----	-----	-----
1807	0.52	1.71	-0.45	-1.37	-1.44	-0.19	-----	-----	-----	-----	-----	-----
1810	-0.67	-1.29	-0.73	-0.93	-1.10	-0.12	-----	-----	-----	-----	-----	-----
1811	-0.13	-0.16	0.40	0.02	-0.14	0.28	-----	-----	-----	-----	-----	-----
1825	-----	-----	-----	-----	-----	-----	-1.26	-2.16	-0.61	-1.58	-1.84	1.92

1833	-0.41	-0.38	-0.26	-0.60	-0.30	0.75	-----	-----	-----	-----	-----	-----
1834	1.14	-0.95	-0.07	-0.60	-1.10	-0.94	-----	-----	-----	-----	-----	-----
1842	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1849	0.07	-0.67	-0.26	-0.98	-1.16	1.19	-----	-----	-----	-----	-----	-----
1906	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1936	1.53	1.09	0.40	-0.37	-0.42	0.83	-----	-----	-----	-----	-----	-----
1937	0.41	-0.72	-0.73	-0.87	-0.95	0.71	-----	-----	-----	-----	-----	-----
1938	-2.13	-1.91	-1.86	-1.43	-0.95	-0.19	-----	-----	-----	-----	-----	-----
1948	-1.37	-0.84	-1.58	-1.43	-1.26	-0.31	-----	-----	-----	-----	-----	-----
2129	-3.63	-1.97	-0.45	-0.21	-0.33	-0.75	-----	-----	-----	-----	-----	-----
2146	0.55	1.09	1.25	2.18	1.28	-2.29	-----	-----	-----	-----	-----	-----
7006	0.18	-----	-----	-----	-----	1.66	-----	-----	-----	-----	-----	-----
7008	-----	-----	-----	-----	-----	-----	-4.30	-0.47	-0.15	0.90	-1.05	2.28

APPENDIX 3
Participants per country

1 laboratory in ARGENTINA	1 laboratory in TANZANIA
2 laboratories in AUSTRALIA	1 laboratory in THAILAND
1 laboratory in AUSTRIA	8 laboratories in THE NETHERLANDS
1 laboratory in AZERBAIJAN	1 laboratory in TOGO
1 laboratory in BELARUS REPUBLIC	1 laboratory in TUNISIA
3 laboratories in BELGIUM	13 laboratories in TURKEY
2 laboratories in BOSNIA and HERZEGOVINA	1 laboratory in TURKMENISTAN
1 laboratory in BRAZIL	2 laboratories in U.A.E.
4 laboratories in CANADA	11 laboratories in U.S.A.
1 laboratory in CHILE	1 laboratory in UKRAINE
1 laboratory in COLOMBIA	8 laboratories in UNITED KINGDOM
1 laboratory in CÔTE D'IVOIRE	1 laboratory in VIETNAM
2 laboratories in CZECH REPUBLIC	
1 laboratory in EQUATORIAL GUINEA	
1 laboratory in FINLAND	
5 laboratories in FRANCE	
3 laboratories in GEORGIA	
3 laboratories in GERMANY	
5 laboratories in GREECE	
1 laboratory in GUAM	
1 laboratory in HONG KONG	
2 laboratories in HUNGARY	
1 laboratory in INDIA	
2 laboratories in IRAN	
1 laboratory in IRELAND	
1 laboratory in ISRAEL	
1 laboratory in KAZAKHSTAN	
2 laboratories in KENYA	
4 laboratories in KOREA	
2 laboratories in LATVIA	
3 laboratories in LITHUANIA	
3 laboratories in MALAYSIA	
1 laboratory in MAURITIUS	
2 laboratories in MEXICO	
1 laboratory in MOZAMBIQUE	
1 laboratory in MYANMAR	
2 laboratories in NIGERIA	
3 laboratories in P.R. of CHINA	
1 laboratory in PAKISTAN	
1 laboratory in PANAMA	
1 laboratory in PERU	
3 laboratories in POLAND	
2 laboratories in PORTUGAL	
1 laboratory in QATAR	
1 laboratory in REPUBLIC OF DJIBOUTI	
1 laboratory in REPUBLIC OF GUINEE	
3 laboratories in REPUBLIC OF MACEDONIA	
1 laboratory in ROMANIA	
6 laboratories in RUSSIA	
2 laboratories in SAUDI ARABIA	
1 laboratory in SENEGAL	
1 laboratory in SERBIA	
1 laboratory in SINGAPORE	
1 laboratory in SLOVAKIA	
2 laboratories in SLOVENIA	
1 laboratory in SOUTH AFRICA	
6 laboratories in SPAIN	
2 laboratories in SUDAN	
2 laboratories in SWEDEN	
3 laboratories in TAIWAN R.O.C.	

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

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