Results of Proficiency Test
Gasoil (ASTM Spec)
October 2012

Organised by: Institute for Interlaboratory Studies
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1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies organizes every year proficiency tests for Gasoil. In the annual proficiency testing program of 2012-2013, it was decided to continue the proficiency test for the analysis of Gasoil in accordance with the latest applicable version of ASTM D975 specification.
In the main PT, 167 laboratories in 76 different countries have participated. In the PT for Cetane Number, 53 laboratories in 29 different countries participated. In the PT for the Total Contamination on Gasoil, 51 laboratories in 28 different countries and in the PT for the Oxidation Stability on Gasoil, 48 laboratories in 26 different countries participated.
See appendix 3 for the number of participants per country. In this report, the results of the 2012 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 2012/2013 it was decided to dedicate one of the two annual gasoil round robins (the autumn round) to the ASTM specification and the other (the spring round) to the EN specification.
In this ASTM specification round robin, it was decided to send identical low sulphur gasoil samples for the regular round robin (1*1 L glass bottle and 1*0.5 L glass botlle, both labelled #12103), for the Cetane Number round robin (4*1L glass bottle, all labelled #12104) and for the Total Contamination round robin (1*1L, 85% filled glass bottle, labelled #12105). For the Oxidation stability round robin (1*0.5L glass bottle labelled #12106), it was decided to send a gasoil positive on oxidation stability from a batch of retained Gasoil samples.
Sample analyses for fit-for-use and homogeneity testing were subcontracted.
Participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

2.1 ACCREDITATION

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

2.2 PROTOCOL

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

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

2.4.1 regular low sulphur winter Gasoil

From the 600 litre low sulphur Gasoil (automotive diesel), which was purchased from the local market, approx. 400 litre was homogenized and 200 amber glass bottles of 1L and 200 amber glass bottles of 0.5L, with inner and outer caps were filled and were labelled #12103. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 10 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3		Density @ 15 °C in kg/m^3
sample #12105-1	834.46	sample #12105-6	834.47
sample #12105-2	834.48	sample #12105-7	834.47
sample #12105-3	834.47	sample #12105-8	834.47
sample #12103-4	834.47	sample #12103-9	834.46
sample #12103-5	834.47	sample #12103-10	834.46

Table 1: homogeneity test results of subsamples #12103

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 #12103)	0.02
reference test	ASTM D4052:11
0.3*R (reference test)	0.16

Table 2: precision data of the subsamples #12103

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #12103 was assumed.

2.4.2 Gasoil for Cetane Number

The remaining 300 litre low sulphur Gasoil (automotive diesel), was homogenized and 230 amber glass bottles of 1L, with inner and outer caps were filled and labelled #12104. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 8 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #12104-1	834.49
sample #12104-2	834.47
sample #12104-3	834.47
sample #12104-4	834.47
sample #12104-5	834.46
sample #12104-6	834.46
sample #12104-7	834.47
sample #12104-8	834.47

Table 3: homogeneity test results of subsamples #12104

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 #12104)	0.03
reference test	ASTM D4052:11
0.3*R (reference test)	0.16

Table 4: precision data of the subsamples #12104

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #12104 was assumed.

2.4.3 Total contamination

The remaining material of the low sulphur Gasoil (automotive diesel) was homogenized and divided over 70 amber glass bottles of 1L with inner and outer caps and labelled #12105.
For the Total Contamination determination, each of the 70 filled bottles was spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. The addition was checked by weighting each bottle before and after addition of the spike.

2.4.4 Oxidation Stability

For the Oxidation Stability determination, 50 liter of Gasoil from a batch of retained Gasoil, was homogenised and subsequently divided over 68 amber glass bottles of 0.5L, with inner and outer caps and labelled #12106. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 8 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #12106-1	837.50
sample #12106-2	837.50
sample #12106-3	837.50
sample #12106-4	837.50
sample #12106-5	837.50
sample #12106-6	837.51
sample #12106-7	837.51
sample #12106-8	837.51

Table 5: homogeneity test results of subsamples #12106

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 #12106)	0.01
reference test	ASTM D4052:11
0.3*R (reference test)	0.16

Table 6: precision data of the subsamples #12106

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #12106 was assumed.

Depending on the registration of the participant: one bottle of 1L and one bottle of 0.5L, labelled #12103, four bottles of 1L #12104, one bottle of 1L #12105 and/or 1 bottle of 0.5L labelled #12106 were sent to the participating laboratories on September 12, 2012.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSIS

The participants were asked to determine on the samples #12103: Acid number (TAN), Aromatics by FIA, Ash Content, Cetane Index (D979 and D4737), Cold Filter Plugging Point, Cloudpoint, Color ASTM, Copper Corrosion, Density @ 15°C, Distillation (IBP, 5%, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250ºC and 350ºC), FAME content, Flash Point PMcc, Kinematic Viscosity @ 40°C, Lubricity by HFRR, Nitrogen, Pour Point, Ramsbottom Carbon Residue, Sulphur content, Water content and Water & Sediment (D2709 & D1796).
On sample #12104: Cetane number and/or DCN were requested to be determined, on sample #12105 only Total Contamination was requested to be determined and on sample #12106 only Oxidation Stability was requested to be determined. The participants were also requested to report additional information for some determinations.

To get comparable results a detailed report form, on which the units were prescribed as well as some of the required standards and a letter of instructions were prepared and made available for download on the iis website (www.iisnl.com). A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were gathered. The original data are tabulated per determination in the appendix 1 of this report. The laboratories are presented by their code numbers.

Directly after deadline, a reminder fax was sent to those laboratories that had not yet reported.

Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the (raw data of the) reported results. Additional or corrected results have been used for data analysis and the original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

Statistical calculations were performed as described in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…' were not used in the statistical evaluation. First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the conclusions of statistical evaluation should be used with due care. In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

Finally, the reproduciblities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are under the X-axis.
The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 4; nos.13 and 14).

3.3 Z-SCORES

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

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

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

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

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

4 EVALUATION

In this interlaboratory study, problems with customs clearance were encountered during dispatch of the samples to Brazil, Colombia, Equatorial Guinea, Indonesia, Iran, Israel, Kazakhstan, Malaysia, Mexico, Mauritius, P.R. of China, Pakistan, Qatar, Republic of Djibouti, Russia, Saudi Arabia, Tanzania and Turkmenistan.

For the regular Gasoil PT: Fourty-one participants reported test results after the final reporting date and nine participants did not report any test results at all.

For the Cetane Number PT: fourteen 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: twelve participants reported the test results after the final reporting date and nine participants did not report any test results at all.
For the Oxidation Stability PT: nine participants reported the test results after the final reporting date and ten participants did not report any test results at all.
Finally, 158 participants reported in total 3086 numerical results. Observed were 97 outlying results, which is 3.1%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER TEST

In this section, the results are discussed per test.

Acid Number (Total): This determination was 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 D974:12.

Ash: Four statistical outliers were observed. Regretfully, the ash content for this sample was below or near the application range of the method. Still the calculated reproducibility after rejection of the statistical outliers is smaller then the extrapolated reproducibility of ASTM D482:07.

Aromatics (FIA): This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not 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). Four reported test results were excluded for statistical evaluation as the reported test method EN12916 is not technically equivalent to ASTM D1319.

C.I. D976: Regretfully, no reproducibility limits are mentioned in ASTM D976:11. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is large in comparison with the findings of the previous i.i.s. proficiency test (see also iis11G04). Eight participants possibly made calculation errors.

C.I. D4737: This determination is problematic. The data appeared to have a non-gaussian distribution. In this case, it appeared that not all participants used the same calculation method. Ninety-three participants reported results according

procedure A of ISO4264:95/IP380:98/ASTM D4737 and six participants reported results according ASTM D4737 procedure B.
Up to 2003 ISO4264 and ASTM D4737 were equivalent test methods. However since 2003 only in ASTM D4737 two possible calculation methods for Cetane Index are given. The actual calculation method to be used depends on the type of Gasoil that is specified in table 1 of ASTM D975:12. This makes it rather confusing because the latest version of ISO4264 is said to be similar to ASTM D4737:96a(01) and in this version only calculation A is described. Nine participants possibly 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 outliers is in good agreement with the requirements of ASTM D2500:11.

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

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

Conradson Carbon Residue: This determination was not problematic. Only one statistical outlier was observed and the calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D189.10e1.

Ramsbottom CR: From the 21 reporting laboratories, 6 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 15 Ramsbottom CR test results were evaluated separately, only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the requirements of ASTM D524:10.

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. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D4052:11.

Distillation: The automated method was not problematic. In total fourteen statistical outliers were observed. All calculated reproducibilities were, after rejection of the statistical outliers, in agreement with the requirements of ASTM D86:11b.

The manual method was problematic. In total four statistical outliers were observed. However, all the calculated reproducibilities, except for 50% recovered and volume at 350ºC, were, after rejection of the statistical outliers, not in agreement with the requirements of ASTM D86:11b.

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

Flash Point: This determination was not problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D93:11 (procedure A).

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

Lubricity: This determination may be problematic. Three statistical outliers were observed. The calculated reproducibility is not in agreement with ASTM D6079:11. However, when the calculated reproducibilities for ASTM D6079 and for ISO12156 (equal to ASTM D7688/IP450) were separate evaluated, both calculated reproducibilities are in full agreement with the requirements of the respected standards. Therefore, the variety test methods explain the large spread found.

Nitrogen: This determination (for mg/kg and mg/l) was very problematic. In total three statistical outliers were observed. However, both calculated reproducibilities after rejection of the statistical outliers are not at all in agreement with ASTM D4629:12.

Pour Point: This determination was problematic for a number of laboratories. Two statistical outliers and one false negative result were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D97:11.

Sulphur: This determination was problematic for a number of laboratories at the level of 8.9 mg/kg. Eight statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5453:11.

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

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

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

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

DCN - D6890: This determination was not problematic. In total three statistical outliers were observed. However, the calculated reproducibilities after rejection of the statistical outliers are both in good agreement with the ASTM D6890:11. The results of one laboratory were excluded from statistical evaluation, as the used test method is not equivalent to ASTM D6890 or D7170.

DCN - D7170: This determination was not problematic. No statistical outliers were observed. However, the calculated reproducibilities after rejection of the statistical outliers are both in good agreement with the ASTM D7170:11.

Total Contamination: This determination was very problematic at the level of 13.7 mg/kg. The samples were spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. Therefore, the minimal contamination concentration to be found was known (added amount = 9.9 mg/kg). The laboratories should be able to find at least 6.3 mg/kg [9.9 $mg/kg_{(added\ amount)}$ – 3.6 $mg/kg_{(R\ D6217)}$].
Four laboratories reported lower amounts than 6.3 mg/kg and were rejected prior to data analysis. After excluding of the four laboratories, two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D6217:11 or EN12662:08. It is unclear whether the laboratories that reported results according EN12662 used 800 mL (as prescribed in EN12662) or 1 Liter as prescribed in ASTM D6217. The correctness of the sample pretreatment is critical for this determination.

Oxidation Stability: This determination may be problematic. Both test methods ASTM D2274 and ISO12205 are technically equivalent. However, the reporting result shall be expressed in mg/100ml according to ASTM D2274 and in g/m^3 according to ISO12205. When all results are calculated into mg/100ml, this determination was not problematic at the level of 0.21 mg/100mL. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D2274:10.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of participating laboratories that participated. The average results of the evaluated parameters, calculated reproducibilities and reproducibilities, derived from literature standards (in casu ASTM standards) are compared in the next tables.

Parameters	unit	n	average	2.8 * sd	R (lit)
Acid Number (TAN)	mgKOH/g	67	0.018	0.025	0.040
Ash content	%M/M	63	0.0008	0.0011	(0.0050)
Aromatics by FIA	%M/M	30	22.28	5.55	3.70
Cetane Index ASTM D976		82	53.30	0.77	unknown
Cetane Index ASTM D4737		94	53.80	1.18	unknown
Cloud Point	°C	118	-10.7	2.8	4.0
Cold Filter Plugging Point	°C	96	-30.3	7.2	5.7
Colour ASTM		69	0.5	0.2	1.0
Conradson Carbon Residue	%M/M	55	0.025	0.032	0.031
Ramsbottom Carbon Residue	%M/M	13	0.081	0.052	0.032
Copper Corrosion 3hrs@50ºC		120	1(1a)	unknown	unknown
Density @ 15 °C	kg/m^3	141	834.42	0.40	0.52
IBP (automated)	°C	104	176.0	9.8	9.7
10% recovery (automated)	°C	102	216.7	5.0	4.8
50% recovery (automated)	°C	105	271.2	2.7	3.0
90% recovery (automated)	°C	106	324.9	4.6	4.9
95% recovery (automated)	°C	105	341.3	6.8	8.5
FBP (automated)	°C	106	352.0	6.8	7.1
Volume at 250ºC (automated)	%V/V	92	30.9	2.6	2.7
Volume at 350ºC (automated)	%V/V	86	97.8	1.8	2.7
IBP (manual)	°C	38	175.0	8.9	6.4
10% recovery (manual)	°C	38	214.1	7.5	4.3
50% recovery (manual)	°C	38	270.3	3.6	3.6
90% recovery (manual)	°C	37	325.0	5.4	3.9
90% recovery (manual)	°C	36	341.6	8.2	5.4
FBP (manual)	°C	36	351.8	5.4	4.0
Volume at 250ºC (manual)	%V/V	37	32.1	3.7	2.8
Volume at 350ºC (manual)	%V/V	33	96.8	1.7	2.2
FAME	%V/V	30	0.05	0.12	(0.71)
Flash Point PMcc	°C	146	64.27	3.92	4.56
Kinematic Viscosity @ 40 °C	mm^2/s	124	2.786	0.037	0.031
Lubricity by HFRR	µm	62	340	90	80
Nitrogen	mg/kg	38	56.9	16.7	6.5
Nitrogen	mg/l	20	48.4	13.3	6.0
Pour Point	ºC	97	-31.4	5.8	6.6
Total Sulphur	mg/kg	100	8.9	2.5	3.0
Water	mg/kg	111	47.5	33.2	171.4
Water and Sediment (D2709)	%V/V	23	<0.005	unknown	unknown
Water and Sediment (D1796)	%V/V	24	<0.005	unknown	unknown

Table 7: summary of tests results of Gasoil #12103
NB results between brackets may be near or below the limit of detection

Cetane Number		32	54.2	2.5	4.6
DCN (ASTM D6890)		9	55.7	2.3	2.8
DCN (ASTM D7170)		4	58.4	4.2	4.5

Table 8: summary of tests results of Gasoil #12104

Total Contamination	mg/kg	36	13.7	6.6	4.2

Table 9: summary of tests results of Gasoil #12105

Oxidation Stability	mg/100mL	32	0.21	0.35	0.72

Table 10: summary of tests results of Gasoil #12106

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 2012 WITH PREVIOUS PTS.

	October 2012	*October 2011*	*October 2010*	*February 2010*
Number of reporting labs	158	163	167	72
Number of results reported	3086	2882	2926	1322
Statistical outliers	97	84	88	58
Percentage outliers	3.1%	2.9%	3.0%	4.4%

Table 11: comparison with previous proficiency tests.

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.
The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given the following table:

	*October 2012**	*October 2011**	*October 2010**	*February 2010*
Acid Number (Total)	++	++	++	++
Ash content	(++)	(++)	(++)	(++)
Aromatics (FIA)	--	--	--	n.e.
Cloud Point	++	++	++	++
Cold Filter Plugging Point	--	--	-	++
Colour ASTM	++	++	++	++
Conradson Carbon Residue	+/-	n.e.	n.e.	n.e.
Ramsbottom Carbon Residue	--	--	--	n.e.
Density @ 15 °C	++	++	++	++
Distillation – automated mode	+	++	+/-	++
Distillation – manual mode	--	--	--	+
FAME	(++)	(++)	++	++
Flash Point PMcc	++	++	+/-	++
Kinematic Viscosity @ 40 °C	-	--	-	--
Lubricity by HFRR	-	--	++	+
Nitrogen content	--	--	--	--
Pour Point	++	++	+/-	++
Sulphur	+	+	--	++
Water content	++	++	++	++
Cetane Number	++	+	+	n.e.
DCN (ASTM D6890)	++	--	++	n.e.
Ignition Delay (D6890)	++	--	++	n.e.
DCN (ASTM D7170)	+	n.e.	n.e.	n.e.
Ignition Delay (D7170)	+/-	n.e.	n.e.	n.e.
Total Contamination	--	--	--	--
Oxidation Stability	++	--	--	n.e.

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

*) Evaluated against ASTM D975 specification

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

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

APPENDIX 1

Determination of Acid Number (TAN) on sample #12103; result in mgKOH/g

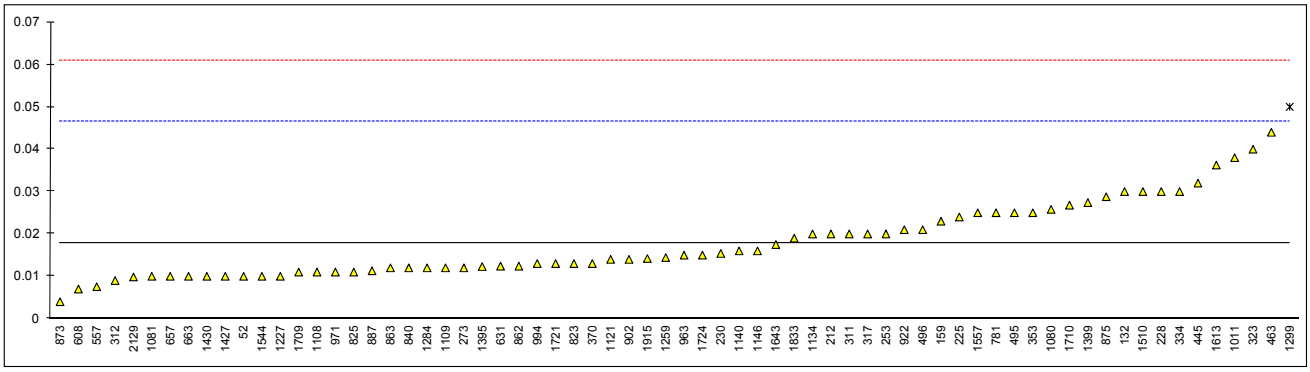
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D664	0.01		-0.55	875	D664	0.02878		0.76
53		-----		-----	887	D664	0.0113		-0.46
62		-----		-----	902	D664	0.014		-0.27
92		-----		-----	904		-----		-----
132	D664	0.03		0.85	922	D664	0.021		0.22
140		-----		-----	951		-----		-----
150	D974	<0.02		-----	962		-----		-----
158		-----		-----	963	D664	0.015		-0.20
159	D664	0.023		0.36	971	D974	0.0110		-0.48
169		-----		-----	994	D974	0.013		-0.34
170		-----		-----	995		-----		-----
171	D664	<0.05		-----	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212	D664	0.02		0.15	1006		-----		-----
217		-----		-----	1011	D664	0.038		1.41
221		-----		-----	1017		-----		-----
224		-----		-----	1026	D664	<0.03		-----
225	D974	0.024		0.43	1033	D664	<0.01		-----
228	D974	0.03		0.85	1038		-----		-----
230	D664	0.0154		-0.18	1059	ISO6619	<0.05		-----
240		-----		-----	1080	D664	0.0258		0.55
253	D664	0.02		0.15	1081	D664	0.01		-0.55
254	D974	<0.05		-----	1095		-----		-----
256		-----		-----	1108	D664	0.011		-0.48
258		-----		-----	1109	D974	0.012		-0.41
273	D974	0.012		-0.41	1121	IP139	0.014		-0.27
311	D974	0.02		0.15	1124		-----		-----
312	D974	0.0090		-0.62	1126		-----		-----
317	D974	0.02		0.15	1131		-----		-----
323	D664	0.04		1.55	1134	D664	0.02		0.15
334	D664	0.03		0.85	1140	D664	0.016		-0.13
335		-----		-----	1146	D664	0.016		-0.13
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227	D664	0.01		-0.55
353	D664	0.025		0.50	1244		-----		-----
370	D974	0.013		-0.34	1259	EN6619	0.01443		-0.24
372	D664	<0.1		-----	1284	D664	0.012		-0.41
402		-----		-----	1297		-----		-----
431		-----		-----	1299	D664	0.05	G(0.05)	2.25
433		-----		-----	1340		-----		-----
445	D664	0.032	C	0.99	1395	D664	0.0123		-0.39
446		-----		-----	1399	D664	0.0274		0.66
447		-----		-----	1417		-----		-----
463	D664	0.044		1.83	1419		-----		-----
495	D664	0.025		0.50	1427	D664	0.01		-0.55
496	D664	0.021		0.22	1428		-----		-----
507		-----		-----	1430	D974	0.01		-0.55
511		-----		-----	1431		-----		-----
541	D664	<0.1	C	-----	1447		-----		-----
557	D664	0.00755		-0.73	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510	D974	0.03		0.85
607		-----		-----	1512		-----		-----
608	D664	0.007		-0.76	1544	D664	0.01		-0.55
621		-----		-----	1557	EN14104	0.025		0.50
631	D974	0.0124		-0.39	1560		-----		-----
657	D664	0.01		-0.55	1561		-----		-----
663	D664	0.01		-0.55	1613	D974	0.03626		1.28
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D664	0.025		0.50	1635		-----		-----
823	D664	0.013		-0.34	1636		-----		-----
824		-----		-----	1643	D664	0.0175		-0.03
825	D664	0.011		-0.48	1654		-----		-----
840	D664	0.012		-0.41	1709	D974	0.011		-0.48
862	D664	0.0124		-0.39	1710	D664	0.0268		0.62
863	D664	0.012		-0.41	1712		-----		-----
873	D664	0.004		-0.97	1720		-----		-----
874		-----		-----	1721	D974	0.013		-0.34

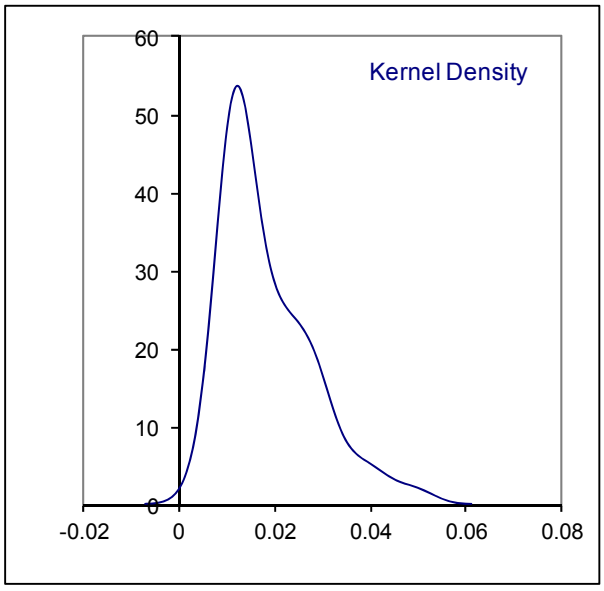
1724	D664	0.015	-0.20
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	D664	0.019	0.08
1842		-----	-----
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915	D974	0.0142	-0.26
1948		-----	-----
1951		-----	-----
2129	D664	0.00985	-0.56
7006		-----	-----

		Only ASTM D974	Only ASTM D664 *)
normality	not OK	not OK	not OK
n	67	18	48
outliers	1	0	1
mean (n)	0.0179	0.0169	0.0181
st.dev. (n)	0.00879	0.00803	0.00915
R(calc.)	0.0246	0.0225	0.0256
R(D974:12)	0.0400	0.0400	(0.1435)

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

Lab 445 first reported 0.058
Lab 541 first reported 0.33





Determination of Ash on sample #12103; result in %M/M

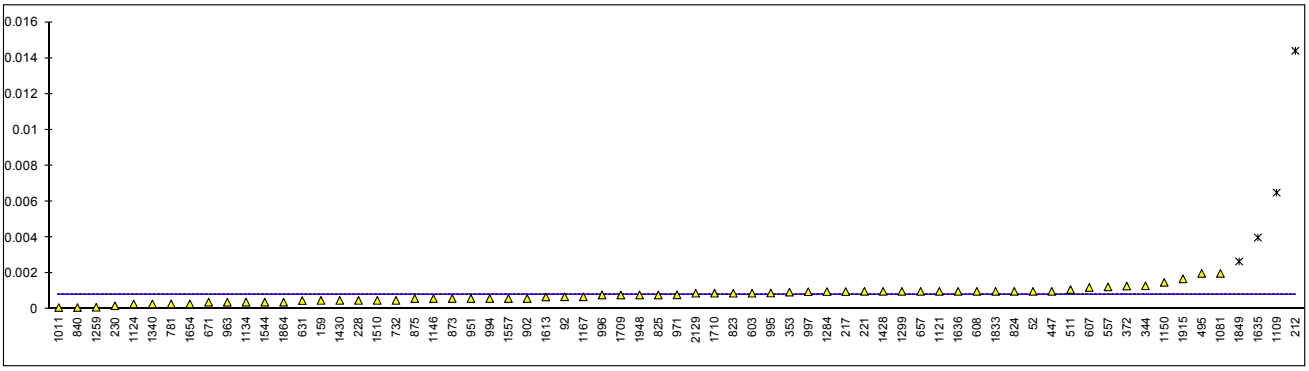
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	0.001		-----	875	D482	0.0006		-----
53		-----		-----	887		-----		-----
62	D482	<0.001		-----	902	D482	0.0006		-----
92	D482	0.0007		-----	904	D482	<0.01		-----
132	D482	<0.0010		-----	922	D482	<0.001		-----
140	D482	<0.001		-----	951	D482	0.0006		-----
150	D482	<0.001		-----	962		-----		-----
158		-----		-----	963	D482	0.0004		-----
159	D482	0.0005		-----	971	D482	0.00081		-----
169		-----		-----	994	D482	0.0006		-----
170		-----		-----	995	D482	0.00091		-----
171	D482	<0.001		-----	996	D482	0.0008		-----
175		-----		-----	997	D482	0.00098		-----
193		-----		-----	998		-----		-----
212	ISO6245	0.0144	G(0.01)	-----	1006	D482	<0.001		-----
217	D482	0.00099		-----	1011	D482	0.0001		-----
221	D482	0.001		-----	1017		-----		-----
224		-----		-----	1026	ISO6245	<0.03		-----
225	D482	<0.01		-----	1033		-----		-----
228	D482	0.0005		-----	1038		-----		-----
230	D482	0.0002		-----	1059	ISO6245	<0.001		-----
240		-----		-----	1080		-----		-----
253	D482	<0.001		-----	1081	D482	0.0020		-----
254	D482	<0.01		-----	1095		-----		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109	D482	0.0065	G(0.01)	-----
273		-----		-----	1121	IP4	0.001	C	-----
311	D482	<0.001		-----	1124	ISO6245	0.0003		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323	D482	<0.001		-----	1134	IP4	0.0004		-----
334		-----		-----	1140	D482	<0.01		-----
335		-----		-----	1146	D482	0.0006		-----
336		-----		-----	1150	ISO6245	0.0015		-----
337		-----		-----	1167	ISO6245	0.0007		-----
338		-----		-----	1182		-----		-----
343	D482	<0.001		-----	1186		-----		-----
344	D482	0.00131		-----	1194		-----		-----
349		-----		-----	1227		-----		-----
353	IP4	0.00096		-----	1244		-----		-----
370	D482	<0.001		-----	1259	ISO6245	0.000116		-----
372	D482	0.0013		-----	1284	D482	0.00099		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299	D482	0.001		-----
433		-----		-----	1340	ISO6245	0.0003		-----
445	D482	<0.001		-----	1395	D482	<0.001		-----
446		-----		-----	1399	D482	<0.01		-----
447	D482	0.001		-----	1417		-----		-----
463		-----		-----	1419		-----		-----
495	D482	0.002		-----	1427	D482	<0.001		-----
496	D482	<0.001		-----	1428	ISO6245	0.0010		-----
507	D482	<0.001		-----	1430	D482	0.0005		-----
511	D482	0.0011		-----	1431		-----		-----
541	D482	<0.001		-----	1447		-----		-----
557	D482	0.00125		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603	D482	0.0009		-----	1498		-----		-----
604		-----		-----	1510	D482	0.0005		-----
607	D482	0.00122		-----	1512		-----		-----
608	D482	0.001		-----	1544	D482	0.0004		-----
621		-----		-----	1557	ISO6245	0.0006		-----
631	D482	0.00049		-----	1560		-----		-----
657	D482	0.0010		-----	1561		-----		-----
663	D482	<0.001		-----	1613	D482	0.00069		-----
671	D482	0.0004		-----	1629		-----		-----
732	D482	0.0005		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D482	0.0003		-----	1635	D482	0.004	G(0.01)	-----
823	D482	0.0009		-----	1636	D482	0.0010		-----
824	D482	0.001		-----	1643	D482	<0.001		-----
825	D482	0.0008		-----	1654	ISO6245	0.0003		-----
840	D482	0.0001		-----	1709	D482	0.0008		-----
862	D482	<0.001		-----	1710	D482	0.0009		-----
863	ISO6245	<0.001		-----	1712	ISO6245	<0.001		-----
873	D482	0.0006		-----	1720		-----		-----
874		-----		-----	1721	D482	<0.001		-----

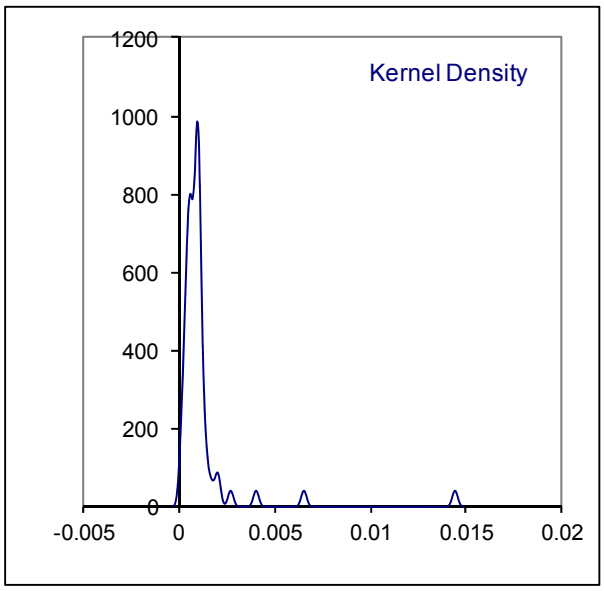
1724		-----		-----
1807	D482	<0.0010		-----
1810		-----		-----
1811		-----		-----
1833	D482	0.001		-----
1842		-----		-----
1849	ISO6245	0.00267	C,G(0.01)	-----
1864	D482	0.0004		-----
1906		-----		-----
1912		-----		-----
1915	D482	0.0017		-----
1948	D482	0.0008		-----
1951		-----		-----
2129	D482	0.0009		-----
7006		-----		-----

normality	not OK
n	63
outliers	4
mean (n)	0.00079
st.dev. (n)	0.000406
R(calc.)	0.00114
R(D482:07)	(0.00500)

Application range: 0.001 – 0.180 %M/M

Lab 1121: first reported 0.004
Lab 1849: first reported 0.0267



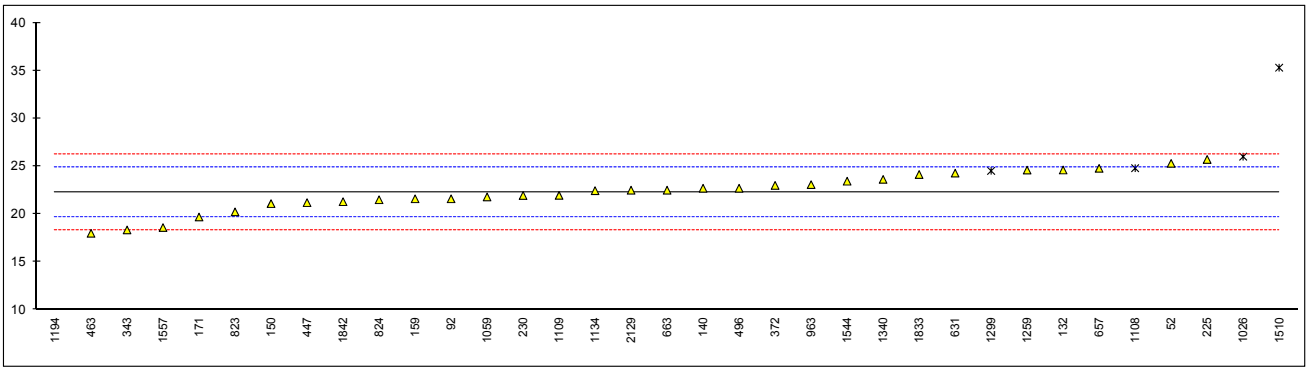


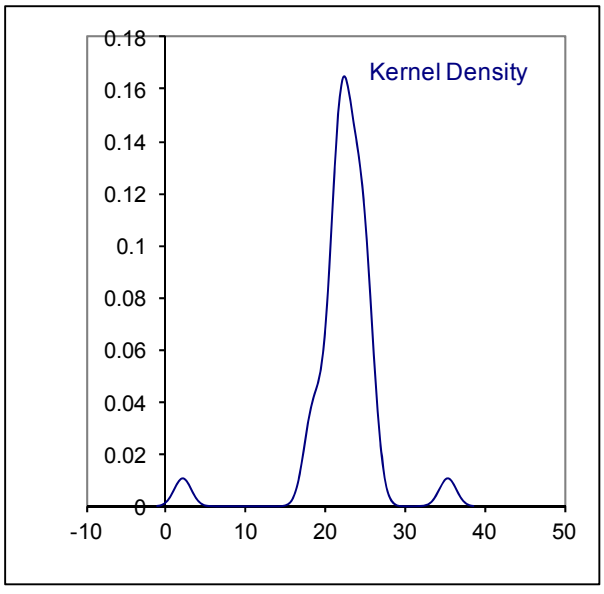
Determination of Aromatics by FIA on sample #12103; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1319	25.3		2.29	875		-----		-----
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92	D1319	21.6		-0.51	904		-----		-----
132	D1319	24.61		1.77	922		-----		-----
140	D1319	22.7		0.32	951		-----		-----
150	D1319	21.1		-0.89	962		-----		-----
158		-----		-----	963	D1319	23.08		0.61
159	D1319	21.6		-0.51	971		-----		-----
169		-----		-----	994		-----		-----
170		-----		-----	995		-----		-----
171	D1319	19.7		-1.95	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006		-----		-----
217		-----		-----	1011		-----		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026	EN12916	26.0	ex, see § 4.1	2.82
225	D1319	25.71		2.60	1033		-----		-----
228		-----		-----	1038		-----		-----
230	D1319	21.95		-0.25	1059	D1319	21.8		-0.36
240		-----		-----	1080		-----		-----
253		-----		-----	1081		-----		-----
254		-----		-----	1095		-----		-----
256		-----		-----	1108	EN12916	24.8	ex, see § 4.1	1.91
258		-----		-----	1109	D1319	21.96		-0.24
273		-----		-----	1121		-----		-----
311		-----		-----	1124		-----		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323		-----		-----	1134	D1319	22.45		0.13
334		-----		-----	1140		-----		-----
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343	D1319	18.35		-2.97	1186		-----		-----
344		-----		-----	1194	EN12916	2.2	ex, see § 4.1	-15.19
349		-----		-----	1227		-----		-----
353		-----		-----	1244		-----		-----
370		-----		-----	1259	D1319	24.6		1.76
372	D1319	23.0		0.55	1284		-----		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299	EN12916	24.52	ex, see § 4.1	1.70
433		-----		-----	1340	D1319	23.63		1.02
445		-----		-----	1395		-----		-----
446		-----		-----	1399		-----		-----
447	D1319	21.2		-0.82	1417		-----		-----
463	D1319	18.0		-3.24	1419		-----		-----
495		-----		-----	1427		-----		-----
496	D1319	22.70		0.32	1428		-----		-----
507		-----		-----	1430		-----		-----
511		-----		-----	1431		-----		-----
541		-----		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510	D1319	35.3	G(0.01)	9.85
607		-----		-----	1512		-----		-----
608		-----		-----	1544	D1319	23.44		0.88
621		-----		-----	1557	INH-1200	18.6		-2.78
631	D1319	24.283		1.52	1560		-----		-----
657	D1319	24.78		1.89	1561		-----		-----
663	D1319	22.5		0.17	1613		-----		-----
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781		-----		-----	1635		-----		-----
823	D1319	20.24		-1.54	1636		-----		-----
824	D1319	21.5		-0.59	1643		-----		-----
825		-----		-----	1654		-----		-----
840		-----		-----	1709		-----		-----
862		-----		-----	1710		-----		-----
863		-----		-----	1712		-----		-----
873		-----		-----	1720		-----		-----
874		-----		-----	1721		-----		-----

1724		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	D1319	24.14	1.41
1842	IP156	21.3	-0.74
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915		-----	-----
1948		-----	-----
1951		-----	-----
2129	D1319	22.5	0.17
7006		-----	-----

normality	OK	
n	30	
outliers	1	+4 excluded
mean (n)	22.277	
st.dev. (n)	1.9813	
R(calc.)	5.548	
R(D1319:10)	3.700	





Determination of Calculated Cetane Index ASTM D976 on sample #12103

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	53.5		-----	875		-----		-----
53		-----		-----	887	D976	53.53	E	-----
62		-----		-----	902		-----		-----
92	D976	53.676	C	-----	904	D976	53.5		-----
132	D976	53.4		-----	922	D976	52.8		-----
140	D976	53.4		-----	951	D976	53.27	C	-----
150	D976	53.2		-----	962		-----		-----
158		-----		-----	963	D976	53.5		-----
159	D976	53.5		-----	971	D976	53.3		-----
169		-----		-----	994		-----		-----
170		-----		-----	995	D976	53.0135		-----
171	D976	53.5	E	-----	996	D976	53.10		-----
175	D976	52.87		-----	997	D976	53.05		-----
193	D976	53.07		-----	998		-----		-----
212	D976	53.87		-----	1006	D976	53.3		-----
217	D976	53.09		-----	1011	D976	53.4		-----
221	D976	52.69		-----	1017		-----		-----
224	D976	53.12		-----	1026		-----		-----
225	D976	53.36		-----	1033		-----		-----
228	D976	53.1		-----	1038		-----		-----
230	D976	53.63		-----	1059	D976	53.6	E	-----
240	D976	52.87		-----	1080		-----		-----
253	D976	53.7		-----	1081		-----		-----
254		-----		-----	1095		-----		-----
256	D976	53.0		-----	1108	D976	53.5		-----
258	D976	53.08		-----	1109		-----		-----
273		-----		-----	1121	D976	53.3		-----
311	D976	53.15		-----	1124		-----		-----
312	D976	53.3		-----	1126	D976	53.1		-----
317	D976	53.4		-----	1131		-----		-----
323	D976	53.5		-----	1134	D976	53.3		-----
334		-----		-----	1140		-----		-----
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227	D976	53.1	E	-----
353		-----		-----	1244		-----		-----
370	D976	53.30		-----	1259		-----		-----
372	D976	53.4		-----	1284	D976	53.3		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299		-----		-----
433		-----		-----	1340		-----		-----
445	D976	53.5		-----	1395		-----		-----
446		-----		-----	1399		-----		-----
447	D976	53.3		-----	1417		-----		-----
463	D976	53.4		-----	1419	D976	53.5		-----
495	D976	53.45		-----	1427		-----		-----
496		-----		-----	1428		-----		-----
507	D976	53.21		-----	1430		-----		-----
511	D976	53.0		-----	1431		-----		-----
541	D976	53.1		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575	D976	52.9		-----	1483		-----		-----
603	D976	53.15		-----	1498	D976	53.5		-----
604	D976	53.23		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608	D976	54	E	-----	1544	D976	52.8		-----
621		-----		-----	1557		-----		-----
631	D976	52.84		-----	1560		-----		-----
657	D976	53.2		-----	1561		-----		-----
663	D976	52.1	G(0.05)	-----	1613	D976	53.218		-----
671		-----		-----	1629		-----		-----
732	D976	52.80		-----	1631	D976	53.7	E	-----
759	D976	53.0		-----	1634		-----		-----
781	D976	53.4		-----	1635		-----		-----
823	D976	53.2		-----	1636	D976	53.8	E	-----
824	D976	53.5		-----	1643		-----		-----
825	D976	53.5		-----	1654		-----		-----
840	D976	53.10		-----	1709	D976	53.39		-----
862	D976	53.18		-----	1710	D976	53.5		-----
863	D976	53.4		-----	1712		-----		-----
873	D976	52.9		-----	1720		-----		-----
874	D976	53.3		-----	1721		-----		-----

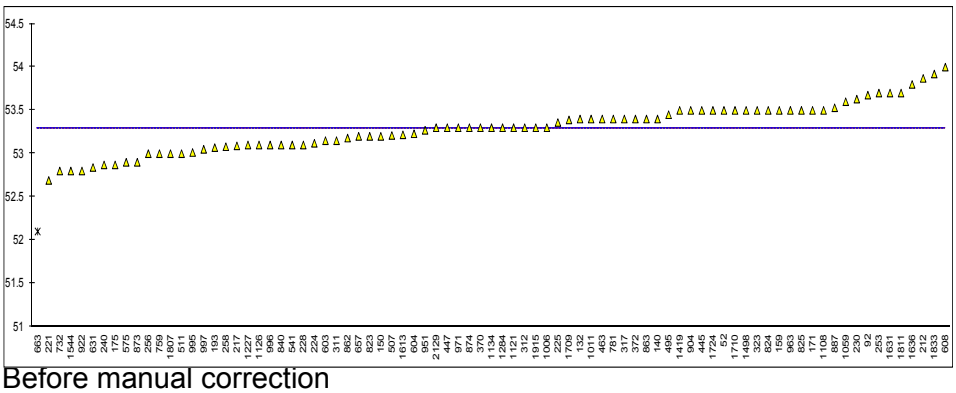
1724	D976	53.5		-----
1807	D976	53.0		-----
1810		-----		-----
1811	D976	53.7	E	-----
1833	D976	53.92		-----
1842		-----		-----
1849		-----		-----
1864		-----		-----
1906		-----		-----
1912		-----		-----
1915	D976	53.3		-----
1948		-----		-----
1951		-----		-----
2129	D976	53.3		-----
7006		-----		-----

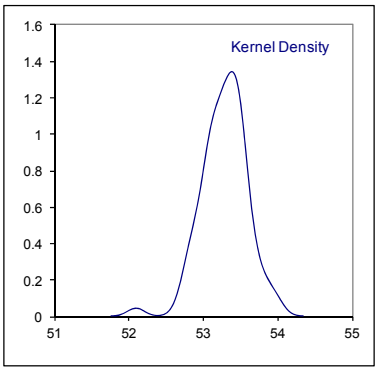
		Recalculated by iis	
normality	OK	not OK	
n	82	82	
outliers	1	1	
mean (n)	53.297	53.261	
st.dev. (n)	0.2733	0.2672	
R(calc.)	0.765	0.748	
R(D976:11)	unknown	unknown	Compare R(iis11G04) = 0.660

Recalculated values (= E)

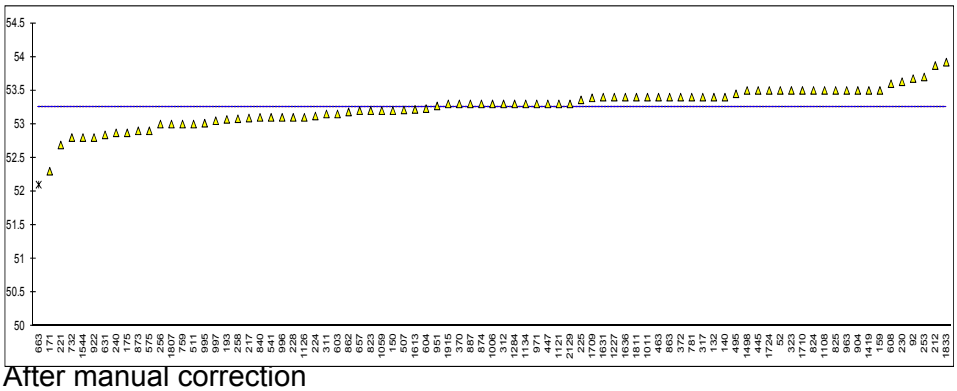
171	D976	52.3	-----
608	D976	53.6	-----
887	D976	53.3	-----
1059	D976	53.2	-----
1227	D976	53.4	-----
1631	D976	53.4	-----
1636	D976	53.4	-----
1811	D976	53.4	-----

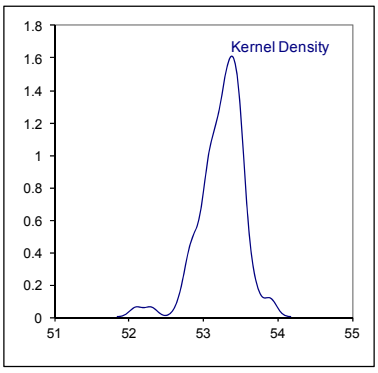
Lab 92; first reported 55.966
Lab 951; first reported 53.83





Before manual correction





After manual correction

Determination of Calculated Cetane Index D4737 on sample #12103

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	53.9		-----	875	D4737-A	53.9		-----
53		-----		-----	887	D4737-A	53.82	C	-----
62		-----		-----	902	D4737-A	53.5		-----
92	D4737	54.674		-----	904	D4737	53.9		-----
132	D4737-A	54.0		-----	922		-----		-----
140	D4737-A	54.1	E	-----	951		-----		-----
150	D4737-A	53.9		-----	962		-----		-----
158		-----		-----	963	D4737-A	54.1		-----
159	D4737-A	54.4		-----	971	D4737-A	53.6		-----
169	D4737-B	52.80		-----	994		-----		-----
170		-----		-----	995	D4737-A	53.5	C	-----
171	D4737-A	54.2	E	-----	996	D4737-A	53.40		-----
175		-----		-----	997	D4737-A	53.34	C	-----
193	D4737-A	113.08	G(0.01), E	-----	998		-----		-----
212	D4737-B	53.97		-----	1006		-----		-----
217	D4737-A	53.23		-----	1011	D4737-B	50.7	C,G(0.01), E	-----
221	D4737-A	52.9		-----	1017		-----		-----
224		-----		-----	1026	ISO4264	54.2	C	-----
225	D4737	53.93		-----	1033		-----		-----
228		-----		-----	1038	D4737-A	53.3		-----
230	D4737-B	54.30		-----	1059		-----		-----
240	D4737-A	53.03		-----	1080	D4737-A	54.0		-----
253		-----		-----	1081	ISO4264	54.3		-----
254	D4737-B	55.9	C,G(0.01), E	-----	1095		-----		-----
256		-----		-----	1108	D4737-A	54.2		-----
258		-----		-----	1109	D4737-A	54.2		-----
273	D4737	53.62		-----	1121		-----		-----
311	D4737-A	53.4		-----	1124	ISO4264	54.00		-----
312	D4737-A	53.6		-----	1126		-----		-----
317	D4737-A	54.1		-----	1131	ISO4264	54.6		-----
323	D4737-A	54.1		-----	1134	ISO4264	53.7		-----
334		-----		-----	1140	D4737-A	53.5		-----
335		-----		-----	1146		-----		-----
336	D4737-A	54.2		-----	1150	ISO4264	54.4		-----
337		-----		-----	1167	ISO4264	53.3		-----
338	ISO4264	53.8	C	-----	1182		-----		-----
343	D4737-A	53.9		-----	1186		-----		-----
344	D4737-A	53.77		-----	1194	D4737	51.1	C,G(0.01), E	-----
349		-----		-----	1227		-----		-----
353	IP380-A	53.83		-----	1244		-----		-----
370	D4737-A	53.64		-----	1259	ISO4264-A	53.74		-----
372	D4737-A	53.9		-----	1284	D4737-A	53.8		-----
402	D4737-A	54.0		-----	1297		-----		-----
431		-----		-----	1299	D4737	53.6		-----
433		-----		-----	1340	D4737-A	53.99		-----
445		-----		-----	1395	D4737-A	54.0		-----
446		-----		-----	1399		-----		-----
447	D4737-A	53.8		-----	1417	IP380	54.4	C	-----
463	D4737-A	54.0		-----	1419		-----		-----
495	D4737-B	53.15		-----	1427	D4737-A	53.7		-----
496	D4737-A	54.14		-----	1428	ISO4264	53.9	C	-----
507		-----		-----	1430	D4737-A	54.2		-----
511	D4737-A	53.3		-----	1431		-----		-----
541	D4737-A	53.0		-----	1447		-----		-----
557	D4737-A	53.95		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510	D4737-A	54.7		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	D4737-A	52.8		-----
621		-----		-----	1557	ISO4264	54.6		-----
631		-----		-----	1560		-----		-----
657	D4737-A	53.6		-----	1561		-----		-----
663	D4737	52.2	G(0.05), E	-----	1613	D4737-A	53.786		-----
671	D4737-A	53.5477		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759	D4737-A	53.5		-----	1634	ISO4264	53.95		-----
781	D4737-A	54.0		-----	1635	D4737	52.93		-----
823	D4737-A	53.5		-----	1636	D4737-A	53.99		-----
824	D4737-A	54.1		-----	1643		-----		-----
825	D4737	54.1		-----	1654	D4737-A	54.10	E	-----
840	D4737-A	53.56		-----	1709	D4737-A	53.86		-----
862	D4737-A	53.48	C	-----	1710	D4737-A	54.0		-----
863	D4737-A	53.8	C	-----	1712	D4737	54.0	C	-----
873		-----		-----	1720		-----		-----
874	D4737	52.8		-----	1721		-----		-----

1724	D4737	53.78		-----
1807	D4737	52.9		-----
1810	D4737-A	54	E	-----
1811		-----		-----
1833		-----		-----
1842		-----		-----
1849	ISO4264	53.99		-----
1864	D4737-A	54.0		-----
1906		-----		-----
1912	ISO4264	53.7		-----
1915		-----		-----
1948	ISO4264	54.06		-----
1951		-----		-----
2129	D4737-A	53.7		-----
7006		-----		-----

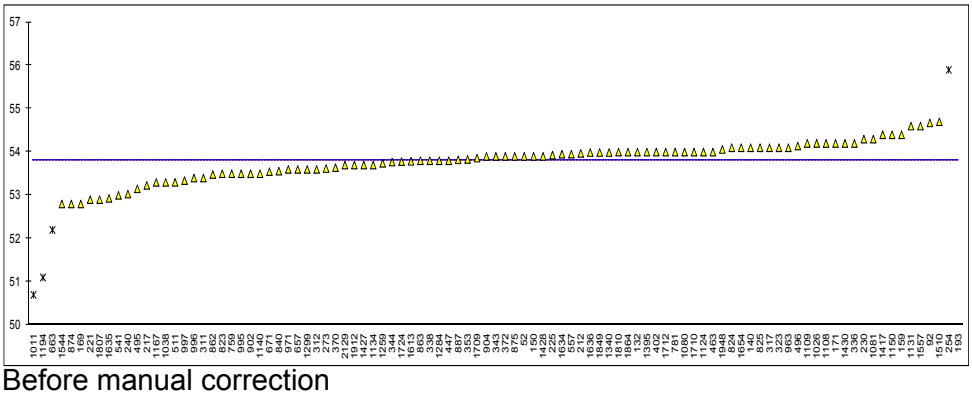
		<u>After manual correction:</u>	
	normality	not OK	not OK
	n	94	99
	outliers	5	0
	mean (n)	53.803	53.763
	st.dev. (n)	0.4212	0.4754
	R(calc.)	1.179	1.331
	R(D4737:10)	unknown	unknown Compare R(iis11G04) = 2.213

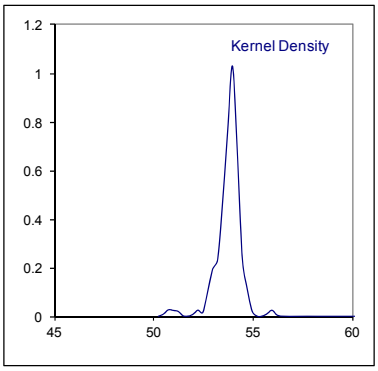
Recalculated values (= E)

140	D4737-A	53.7	-----
171	D4737-A	52.2	-----
193	D4737	53.8	-----
254	D4737-B	53.5	-----
663	D4737	52.4	-----
1011	D4737-B	53.1	-----
1194	D4737	54.7	-----
1654	D4737-A	53.8	-----
1810	D4737-A	54.3	-----

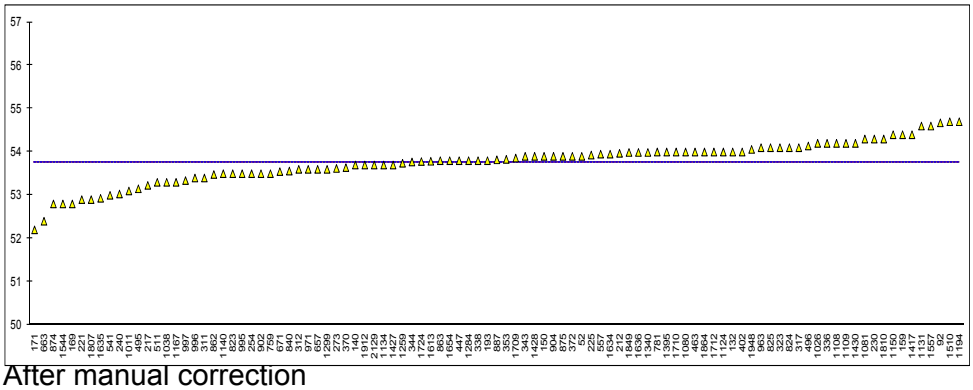
Lab 254: first reported 51.3
Lab 862: first reported 52.53
Lab 863: first reported 52.7
Lab 887: first reported 52.61
Lab 995: first reported 52.498
Lab 997: first reported 52.37
Lab 1011: first reported 51.8

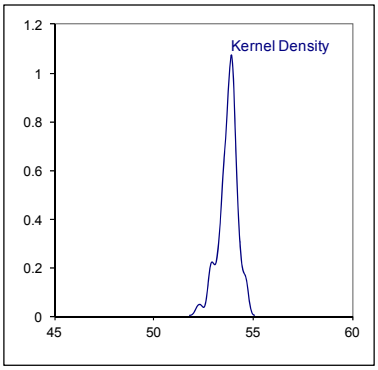
Lab 338: result was reported as CCI D976
Lab 1026: result was reported as CCI D976
Lab 1194: result was reported as CCI D976
Lab 1417: result was reported as CCI D976
Lab 1428: result was reported as CCI D976
Lab 1712: result was reported as CCI D976





Before manual correction





After manual correction

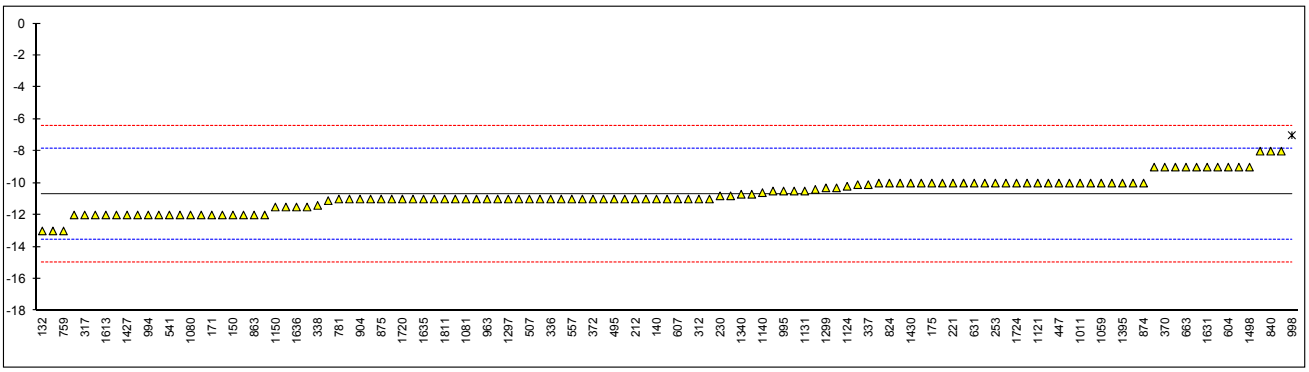
Determination of Cloud Point on sample #12103; result in °C,

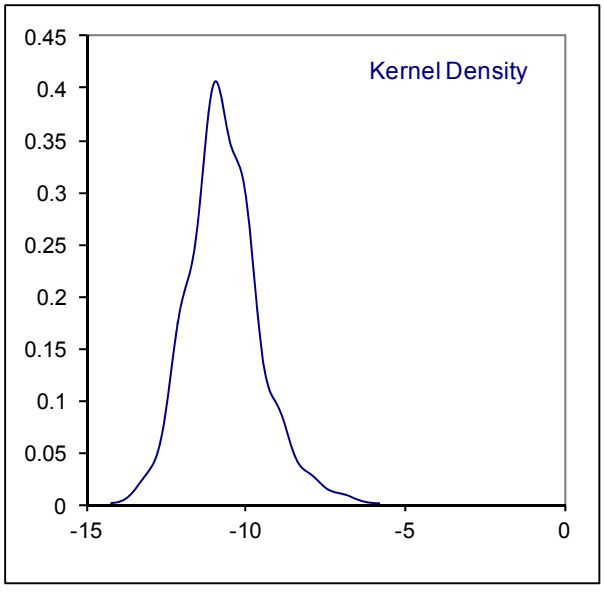
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5773	-10.3		0.28	875	D2500	-11		-0.21
53		-----		-----	887		-----		-----
62	D2500	-10		0.49	902	D2500	-12		-0.91
92	D2500	-10		0.49	904	D2500	-11		-0.21
132	D2500	-13		-1.61	922	D2500	-12.0		-0.91
140	D5773	-11		-0.21	951	D2500	-9		1.19
150	D5771	-12		-0.91	962		-----		-----
158		-----		-----	963	D2500	-11		-0.21
159	D2500	-12		-0.91	971	D2500	-8		1.89
169	D2500	-9		1.19	994	D2500	-12		-0.91
170		-----		-----	995	D2500	-10.5		0.14
171	D2500	-12		-0.91	996		-----		-----
175	D2500	-10		0.49	997	D2500	-11.0		-0.21
193		-----		-----	998	D2500	-7	G(0.05)	2.59
212	ISO3015	-11		-0.21	1006		-----		-----
217		-----		-----	1011	D2500	-10		0.49
221	D2500	-10		0.49	1017		-----		-----
224		-----		-----	1026	ISO3015	-10		0.49
225	D2500	-8		1.89	1033		-----		-----
228	D2500	-11		-0.21	1038	D5773	-11.1		-0.28
230	D2500	-10.8		-0.07	1059	D2500	-10		0.49
240	D2500	-10		0.49	1080	D2500	-12		-0.91
253	D2500	-10.0		0.49	1081	D5772	-11		-0.21
254	D2500	<-6		-----	1095		-----		-----
256		-----		-----	1108	D2500	-9.0		1.19
258		-----		-----	1109	D5773	-10.7		0.00
273		-----		-----	1121	IP219	-10		0.49
311	D2500	-10		0.49	1124	ISO3015	-10.2		0.35
312	EN23015	-11		-0.21	1126		-----		-----
317	D5771	-12		-0.91	1131	EN23015	-10.5		0.14
323	D2500	-11		-0.21	1134	IP219	-11		-0.21
334	D2500	-11		-0.21	1140	D2500	-10.6		0.07
335	D2500	-11		-0.21	1146	D2500	-10.8		-0.07
336	EN23015	-11		-0.21	1150	EN23015	-11.5		-0.56
337	D2500	-10.1		0.42	1167		-----		-----
338	EN23015	-11.4		-0.49	1182		-----		-----
343	D2500	-10		0.49	1186		-----		-----
344	D2500	-10.5		0.14	1194		-----		-----
349		-----		-----	1227	D2500	-11.5		-0.56
353	IP219	-11		-0.21	1244		-----		-----
370	D2500	-9		1.19	1259	EN23015	-10		0.49
372	D2500	-11		-0.21	1284	D5771	-10.4		0.21
402	D2500	-12.0		-0.91	1297	D5771	-11.0		-0.21
431		-----		-----	1299	D5772	-10.3		0.28
433		-----		-----	1340	D2500	-10.7		0.00
445	IP219	-11		-0.21	1395	D2500	-10		0.49
446		-----		-----	1399	D2500	-10.1		0.42
447	D2500	-10		0.49	1417	IP144	-11		-0.21
463	D2500	-11		-0.21	1419	EN23015	-10.5		0.14
495	D2500	-11		-0.21	1427	D5773	-12		-0.91
496	D2500	-11.0		-0.21	1428		-----		-----
507	D2500	-11		-0.21	1430	D5771	-10		0.49
511		-----		-----	1431		-----		-----
541	D2500	-12		-0.91	1447		-----		-----
557	D2500	-11		-0.21	1455		-----		-----
575		-----		-----	1483		-----		-----
603	D2500	-12		-0.91	1498	D2500	-9		1.19
604	D2500	-9		1.19	1510	D2500	-12		-0.91
607	D2500	-11		-0.21	1512		-----		-----
608	D2500	-10		0.49	1544	D2500	-12		-0.91
621		-----		-----	1557	ISO3015	-10		0.49
631	D2500	-10		0.49	1560		-----		-----
657	D2500	-11		-0.21	1561		-----		-----
663	D2500	-9		1.19	1613	D2500	-12		-0.91
671	D2500	-11		-0.21	1629		-----		-----
732	D2500	-9		1.19	1631	D2500	-9		1.19
759	D2500	-13		-1.61	1634		-----		-----
781	D2500	-11		-0.21	1635	D2500	-11		-0.21
823	D2500	-11		-0.21	1636	D2500	-11.5		-0.56
824	D2500	-10		0.49	1643	D2500	-9	C	1.19
825	D2500	-10		0.49	1654	D2500	-11.0		-0.21
840	D2500	-8		1.89	1709	D2500	-12		-0.91
862	D2500	-10		0.49	1710	D2500	-13		-1.61
863	ISO3015	-12		-0.91	1712	ISO3015	-10		0.49
873	D2500	-11		-0.21	1720	D2500	-11.0		-0.21
874	D2500	-10		0.49	1721	D2500	-11.5		-0.56

1724	D2500	-10	0.49
1807	D2500	-12	-0.91
1810	D2500	-11	-0.21
1811	D2500	-11	-0.21
1833	D2500	-10	0.49
1842		-----	-----
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915	D2500	-12	-0.91
1948		-----	-----
1951		-----	-----
2129	IP444	-11	-0.21
7006		-----	-----

normality	not OK
n	118
outliers	1
mean (n)	-10.70
st.dev. (n)	1.011
R(calc.)	2.83
R(D2500:11)	4.00

Lab 1643: first reported -6





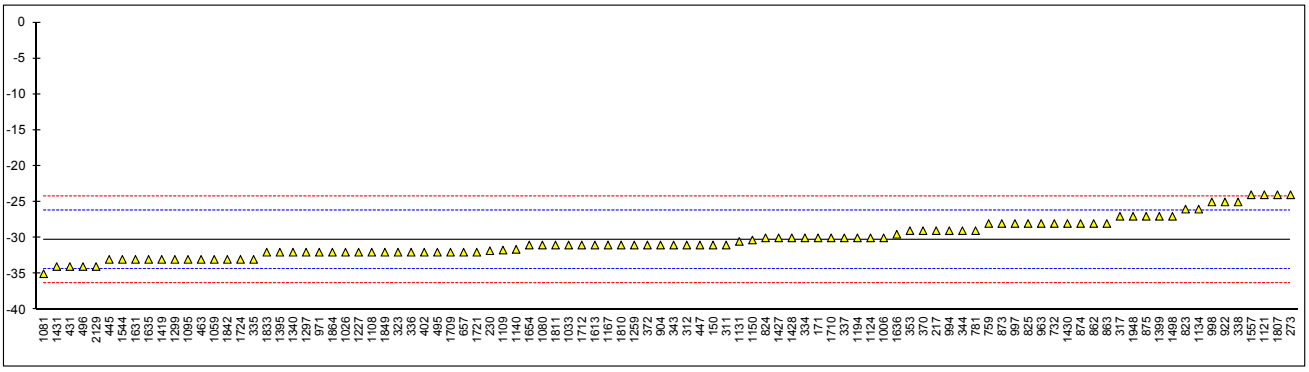
Determination of Cold Filter Plugging Point on sample #12103; result in ºC

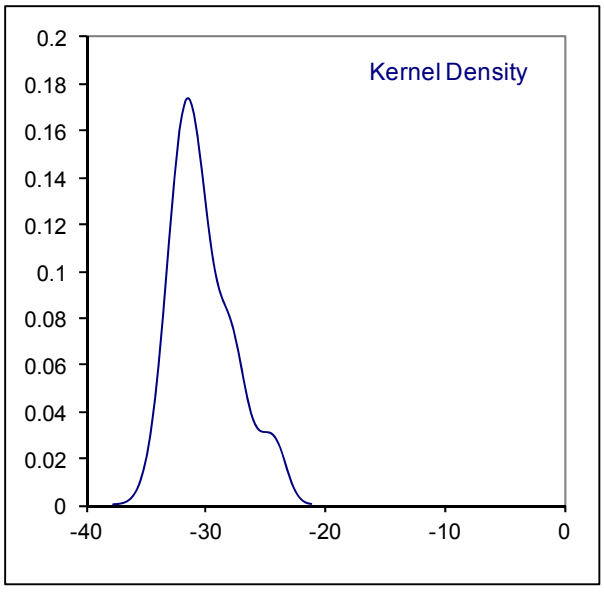
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875	IP309	-27		1.60
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904	EN116	-31		-0.37
132		-----		-----	922	D6371	-25.0		2.58
140		-----		-----	951		-----		-----
150	D6371	-31		-0.37	962		-----		-----
158		-----		-----	963	IP309	-28		1.11
159		-----		-----	971	IP309	-32		-0.86
169		-----		-----	994	D6371	-29		0.62
170		-----		-----	995		-----		-----
171	D6371	-30		0.13	996		-----		-----
175		-----		-----	997	D6371	-28.0		1.11
193		-----		-----	998	D6371	-25		2.58
212		-----		-----	1006	D6371	-30		0.13
217	D6371	-29		0.62	1011		-----		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026	EN116	-32		-0.86
225		-----		-----	1033	IP309	-31		-0.37
228		-----		-----	1038		-----		-----
230	IP309	-31.8		-0.76	1059	EN116	-33		-1.35
240		-----		-----	1080	D6371	-31		-0.37
253		-----		-----	1081	EN116	-35		-2.33
254		-----		-----	1095	D6371	-33		-1.35
256		-----		-----	1108	D6371	-32		-0.86
258		-----		-----	1109	D6371	-31.7		-0.71
273	IP309	-24		3.08	1121	IP309	-24		3.08
311	D6371	-31		-0.37	1124	EN116	-30.0		0.13
312	EN116	-31		-0.37	1126		-----		-----
317	D6371	-27		1.60	1131	EN116	-30.5		-0.12
323	D6371	-32		-0.86	1134	IP309	-26		2.09
334	D6371	-30		0.13	1140	D6371	-31.6		-0.66
335	EN116	-33		-1.35	1146		-----		-----
336	EN116	-32		-0.86	1150	EN116	-30.3		-0.02
337	EN116	-30		0.13	1167	EN116	-31		-0.37
338	EN116	-25		2.58	1182		-----		-----
343	D6371	-31		-0.37	1186		-----		-----
344	EN116	-29		0.62	1194	EN116	-30		0.13
349		-----		-----	1227	EN116	-32		-0.86
353	IP309	-29		0.62	1244		-----		-----
370	IP309	-29		0.62	1259	EN116	-31		-0.37
372	D6371	-31		-0.37	1284		-----		-----
402	EN116	-32.0		-0.86	1297	D6371	-32		-0.86
431	D6371	-34.0		-1.84	1299	IP309	-33		-1.35
433		-----		-----	1340	EN116	-32		-0.86
445	IP309	-33		-1.35	1395	IP309	-32		-0.86
446		-----		-----	1399	IP309	-27		1.60
447	IP309	-31		-0.37	1417		-----		-----
463	EN116	-33		-1.35	1419	D6371	-33		-1.35
495	D6371	-32		-0.86	1427	D6371	-30		0.13
496	D6371	-34.0		-1.84	1428	EN116	-30		0.13
507		-----		-----	1430	EN116	-28		1.11
511		-----		-----	1431	D6371	-34		-1.84
541	D6371	<-20		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498	D6371	-27		1.60
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	EN116	-33		-1.35
621		-----		-----	1557	EN116	-24		3.08
631		-----		-----	1560		-----		-----
657	D6371	-32		-0.86	1561		-----		-----
663		-----		-----	1613	D6371	-31		-0.37
671		-----		-----	1629		-----		-----
732	D6371	-28		1.11	1631	D6371	-33		-1.35
759	IP309	-28		1.11	1634		-----		-----
781	D6371	-29		0.62	1635	D6371	-33		-1.35
823	D6371	-26		2.09	1636	D6371	-29.5		0.37
824	D6371	-30		0.13	1643		-----		-----
825	D6371	-28		1.11	1654	EN116	-31.0		-0.37
840		-----		-----	1709	D6371	-32		-0.86
862	D6371	-28		1.11	1710	D6371	-30		0.13
863	INH-0248	-28		1.11	1712	EN116	-31		-0.37
873	IP309	-28		1.11	1720		-----		-----
874	D6371	-28		1.11	1721	EN116	-32	C	-0.86

1724	IP309	-33	-1.35
1807	D6371	-24	3.08
1810	D6371	-31	-0.37
1811	D6371	-31	-0.37
1833	D6371	-32	-0.86
1842	IP309	-33	-1.35
1849	EN116	-32	-0.86
1864	EN116	-32	-0.86
1906		-----	-----
1912		-----	-----
1915		-----	-----
1948	D6371	-27	1.60
1951		-----	-----
2129	IP309	-34	-1.84
7006		-----	-----

normality	not OK
n	96
outliers	0
mean (n)	-30.25
st.dev. (n)	2.567
R(calc.)	7.19
R(D6371:10)	5.69

Lab 1721: first reported -20



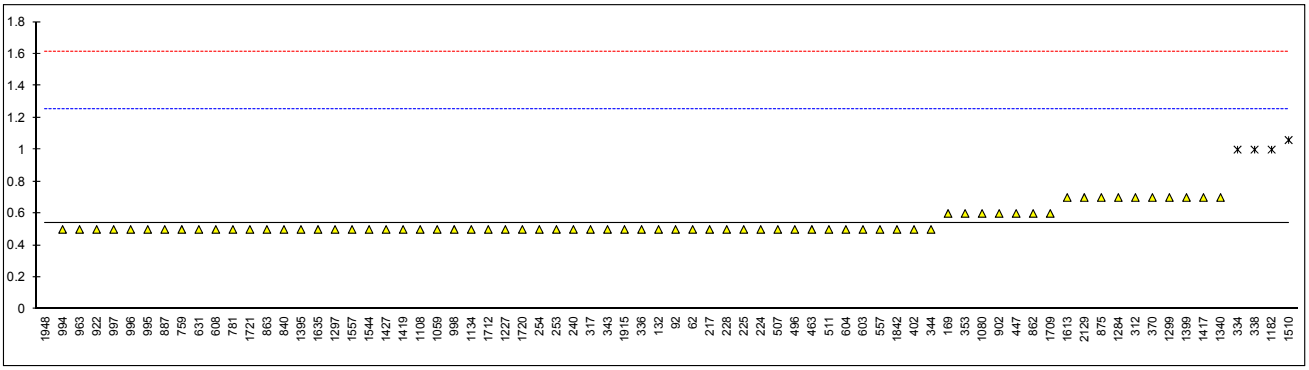


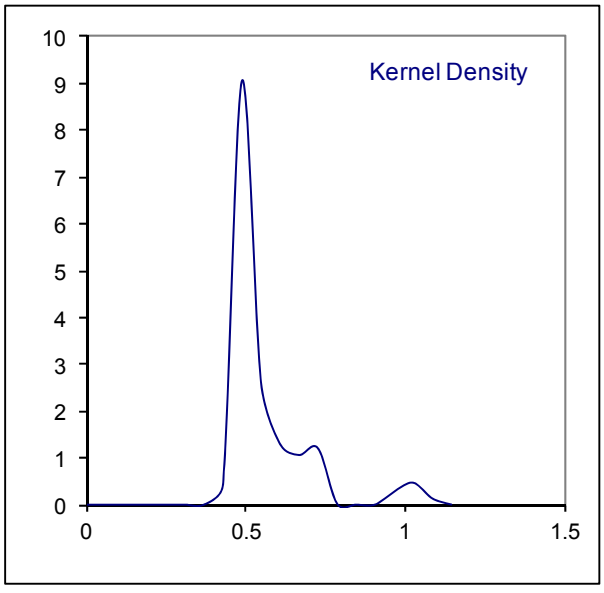
Determination of Colour ASTM on sample #12103;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1500	<1		-----	875	D6045	0.7		0.45
53		-----		-----	887	D1500	0.5		-0.11
62	D1500	0.5		-0.11	902	D1500	0.6		0.17
92	D1500	0.5		-0.11	904	D1500	<1.0		-----
132	D1500	0.5		-0.11	922	D1500	0.5		-0.11
140	D1500	<1.0		-----	951	D1500	<1.0		-----
150	D1500	<1.0		-----	962		-----		-----
158		-----		-----	963	D1500	0.5		-0.11
159	D1500	<1.0		-----	971	D1500	<0.5		-----
169	D6045	0.6		0.17	994	D1500	0.5		-0.11
170		-----		-----	995	D1500	0.5		-0.11
171	D1500	<1.0		-----	996	D1500	0.5		-0.11
175		-----		-----	997	D1500	0.5		-0.11
193		-----		-----	998	D1500	0.5		-0.11
212	D1500	<1.0		-----	1006		-----		-----
217	D1500	0.5		-0.11	1011	D1500	<0.5		-----
221	D1500	<0.5		-----	1017		-----		-----
224	D1500	0.5		-0.11	1026	D1500	<1.0		-----
225	D1500	0.5		-0.11	1033		-----		-----
228	D1500	0.5		-0.11	1038	D6045	<1.0		-----
230	D1500	<1.0		-----	1059	D1500	0.5		-0.11
240	D1500	0.5		-0.11	1080	D1500	0.6		0.17
253	D1500	0.5		-0.11	1081	D6045	<1.0		-----
254	D1500	0.5		-0.11	1095		-----		-----
256	D1500	<1.0		-----	1108	D1500	0.5		-0.11
258	D1500	<1.0		-----	1109	D1500	<1.0		-----
273	D1500	<0.5		-----	1121	D1500	<1.0		-----
311	D1500	<1.0		-----	1124		-----		-----
312	D6045	0.7		0.45	1126		-----		-----
317	D1500	0.5		-0.11	1131		-----		-----
323	D1500	<1.0		-----	1134	D1500	0.5		-0.11
334	D1500	1.0	G(0.01)	1.29	1140	D1500	<1.0		-----
335		-----		-----	1146		-----		-----
336	D1500	0.5		-0.11	1150		-----		-----
337	D1500	<1.0		-----	1167		-----		-----
338	D1500	1.0	G(0.01)	1.29	1182	D1500	1	G(0.01)	1.29
343	D1500	0.5		-0.11	1186		-----		-----
344	D1500	0.5		-0.11	1194		-----		-----
349		-----		-----	1227	D1500	0.5		-0.11
353	D6045	0.6		0.17	1244		-----		-----
370	D1500	0.7		0.45	1259	D1500	<0.5		-----
372	D1500	<1.0		-----	1284	D6045	0.7		0.45
402	D1500	0.5		-0.11	1297	D1500	0.5		-0.11
431		-----		-----	1299	D1500	0.7		0.45
433		-----		-----	1340	D1500	0.7		0.45
445	D1500	<1.0		-----	1395	D1500	0.5		-0.11
446	D1500	<1.0		-----	1399	D1500	0.7		0.45
447	D6045	0.6		0.17	1417	D6045	0.7		0.45
463	D1500	0.5		-0.11	1419	D1500	0.5		-0.11
495		-----		-----	1427	D1500	0.5		-0.11
496	D1500	0.5		-0.11	1428		-----		-----
507	D1500	0.5		-0.11	1430	D1500	<1.0		-----
511	D6560	0.5		-0.11	1431		-----		-----
541	D1500	<0.5		-----	1447		-----		-----
557	D1500	0.5		-0.11	1455		-----		-----
575	D1500	<0.5		-----	1483		-----		-----
603	D1500	0.5		-0.11	1498		-----		-----
604	D1500	0.5		-0.11	1510	D1500	1.06	G(0.01)	1.46
607		-----		-----	1512		-----		-----
608	D1500	0.5		-0.11	1544	D1500	0.5		-0.11
621		-----		-----	1557	D1500	0.5		-0.11
631	D1500	0.5		-0.11	1560		-----		-----
657	D1500	<0.5		-----	1561		-----		-----
663	D1500	<1.0		-----	1613	D1500	0.7		0.45
671	D1500	<1.0		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759	D1500	0.5		-0.11	1634		-----		-----
781	D1500	0.5		-0.11	1635	D1500	0.5		-0.11
823	D1500	<0.5		-----	1636	D1500	<1		-----
824	D1500	<1.0		-----	1643		-----		-----
825	D1500	<1.0		-----	1654		-----		-----
840	D1500	0.5		-0.11	1709	D1500	0.6		0.17
862	D1500	0.6		0.17	1710	D1500	<1.0		-----
863	INH-6540	0.5		-0.11	1712	D1500	0.5		-0.11
873	D1500	<1.0		-----	1720	D1500	0.5		-0.11
874	D1500	<1.0		-----	1721	D6045	0.5		-0.11

1724		-----		-----
1807	D1500	<1		-----
1810		-----		-----
1811		-----		-----
1833	D1500	<1.0		-----
1842	D1500	0.5		-0.11
1849		-----		-----
1864		-----		-----
1906		-----		-----
1912		-----		-----
1915	D1500	0.5		-0.11
1948	D1500	-14	G(0.01)	-40.71
1951		-----		-----
2129	D6045	0.7		0.45
7006		-----		-----

normality	not OK
n	69
outliers	5
mean (n)	0.54
st.dev. (n)	0.073
R(calc.)	0.20
R(D1500:07)	1.00



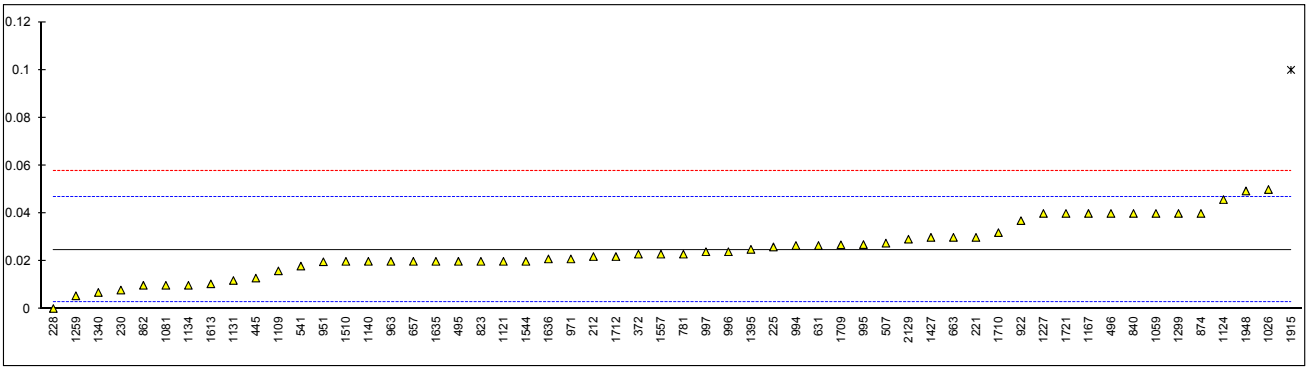


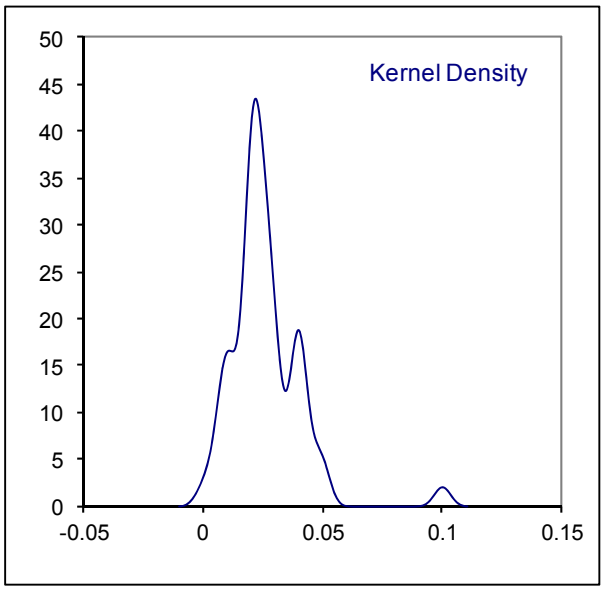
Determination of Conradson Carbon Residue on 10% residue on sample #12103; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875		-----		-----
53		-----		-----	887		-----		-----
62	D189	<0.1		-----	902		-----		-----
92		-----		-----	904		-----		-----
132		-----		-----	922	D189	0.037		1.11
140		-----		-----	951	D189	0.0198		-0.45
150		-----		-----	962		-----		-----
158		-----		-----	963	D189	0.02		-0.44
159		-----		-----	971	D189	0.021		-0.34
169		-----		-----	994	D189	0.0266		0.17
170		-----		-----	995	D189	0.027		0.20
171		-----		-----	996	D189	0.024		-0.07
175		-----		-----	997	D189	0.024		-0.07
193		-----		-----	998		-----		-----
212	ISO10370	0.022		-0.25	1006		-----		-----
217		-----		-----	1011		-----		-----
221	D189	0.03		0.48	1017		-----		-----
224		-----		-----	1026	ISO10370	0.05		2.30
225	D189	0.026		0.11	1033		-----		-----
228	D189	0.0003		-2.23	1038		-----		-----
230	D189	0.0080		-1.53	1059	D189	0.04		1.39
240		-----		-----	1080		-----		-----
253		-----		-----	1081	ISO10370	0.01		-1.35
254	D189	<0.05		-----	1095		-----		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109	D4530	0.016		-0.80
273		-----		-----	1121	IP398	0.02		-0.44
311		-----		-----	1124	ISO10370	0.0458		1.92
312		-----		-----	1126		-----		-----
317		-----		-----	1131	ISO10370	0.012		-1.16
323		-----		-----	1134	IP13	0.01		-1.35
334		-----		-----	1140	D4530	0.02		-0.44
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167	ISO13070	0.04		1.39
338		-----		-----	1182		-----		-----
343	D4530	<0.1		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227	D4530	0.04		1.39
353		-----		-----	1244		-----		-----
370		-----		-----	1259	ISO10370	0.0056		-1.75
372	D189	0.023		-0.16	1284		-----		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299	D4530	0.04		1.39
433		-----		-----	1340	ISO10370	0.007		-1.62
445	D189	0.013		-1.07	1395	D4530	0.025		0.02
446		-----		-----	1399		-----		-----
447	IP398	<0.01		-----	1417		-----		-----
463		-----		-----	1419		-----		-----
495	D189	0.020		-0.44	1427	D4530	0.03		0.48
496	D189	0.04		1.39	1428		-----		-----
507	D189	0.0276		0.26	1430		-----		-----
511		-----		-----	1431		-----		-----
541	D189	0.018		-0.62	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510	D189	0.02		-0.44
607		-----		-----	1512		-----		-----
608	D4530	<0.1		-----	1544	D4530	0.02		-0.44
621		-----		-----	1557	ISO10370	0.023		-0.16
631	D4530	0.0266		0.17	1560		-----		-----
657	D4530	0.02		-0.44	1561		-----		-----
663	D189	0.03		0.48	1613	D189	0.01058		-1.29
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D189	0.023		-0.16	1635	D189	0.02		-0.44
823	D189	0.02		-0.44	1636	D4530	0.021		-0.34
824		-----		-----	1643		-----		-----
825		-----		-----	1654		-----		-----
840	D189	0.040		1.39	1709	D4530	0.0269		0.19
862	D189	0.01		-1.35	1710	D189	0.032		0.66
863	D189	<0.1		-----	1712	ISO6615	0.022		-0.25
873		-----		-----	1720		-----		-----
874	D4530	0.04		1.39	1721	D4530	0.04		1.39

1724		-----		-----
1807	D4530	<0.10		-----
1810		-----		-----
1811		-----		-----
1833		-----		-----
1842		-----		-----
1849		-----		-----
1864		-----		-----
1906		-----		-----
1912		-----		-----
1915	D189	0.10	G(0.01)	6.86
1948	D189	0.0494		2.25
1951		-----		-----
2129	IP398	0.02925		0.41
7006		-----		-----

		Only ASTM D189	Only ASTM D4530
normality	OK	OK	OK
n	55	31	23
outliers	1	1	0
mean (n)	0.0248	0.02362194	0.02652826
st.dev. (n)	0.01138	0.01066	0.01254
R(calc.)	0.0319	0.0298	0.0351
R(D189:10e1)	0.0307	0.0302	0.1471





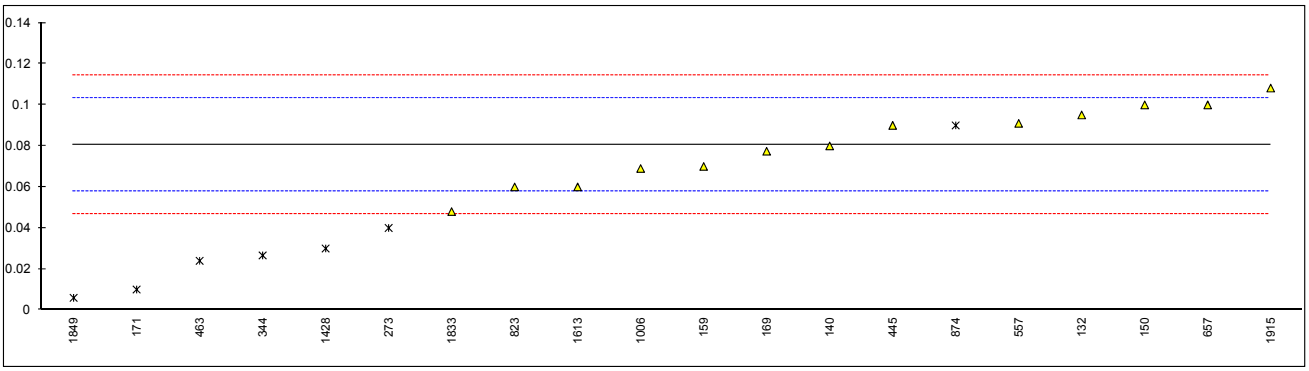
Determination of Ramsbottom Carbon Residue on 10% residue on sample #12103; result in %M/M

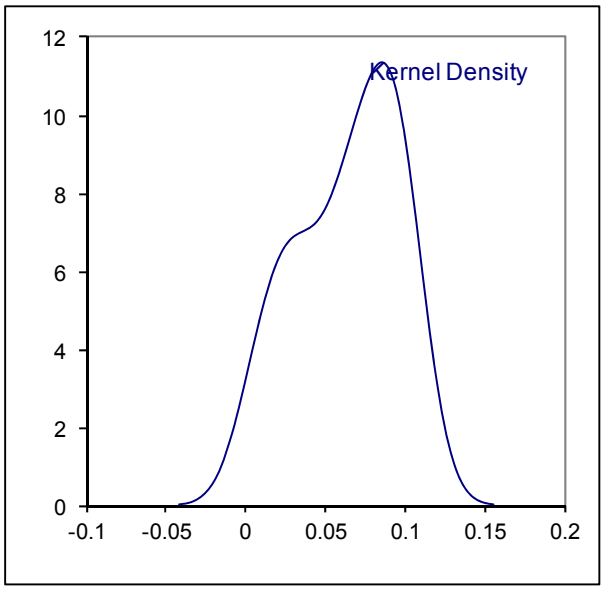
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875		-----		-----
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904		-----		-----
132	D524	0.0951		1.25	922		-----		-----
140	D524	0.08		-0.06	951		-----		-----
150	D524	0.10		1.67	962		-----		-----
158		-----		-----	963		-----		-----
159	D524	0.07		-0.92	971		-----		-----
169	D524	0.0774		-0.28	994		-----		-----
170		-----		-----	995		-----		-----
171	D524	0.01	G(0.05)	-6.10	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006	D524	0.069		-1.01
217		-----		-----	1011	D524	<0.04		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026		-----		-----
225		-----		-----	1033		-----		-----
228		-----		-----	1038		-----		-----
230		-----		-----	1059		-----		-----
240		-----		-----	1080		-----		-----
253		-----		-----	1081		-----		-----
254		-----		-----	1095		-----		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109		-----		-----
273	D4530	0.04	ex	-3.51	1121		-----		-----
311		-----		-----	1124		-----		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323		-----		-----	1134		-----		-----
334		-----		-----	1140		-----		-----
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343		-----		-----	1186		-----		-----
344	D4530	0.02662	ex	-4.66	1194		-----		-----
349		-----		-----	1227		-----		-----
353		-----		-----	1244		-----		-----
370		-----		-----	1259		-----		-----
372		-----		-----	1284		-----		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299		-----		-----
433		-----		-----	1340		-----		-----
445	D524	0.09		0.81	1395		-----		-----
446		-----		-----	1399		-----		-----
447		-----		-----	1417		-----		-----
463	ISO10370	0.024	ex	-4.89	1419		-----		-----
495		-----		-----	1427		-----		-----
496		-----		-----	1428	ISO10370	0.030	ex	-4.37
507		-----		-----	1430		-----		-----
511		-----		-----	1431		-----		-----
541		-----		-----	1447		-----		-----
557	D524	0.091		0.89	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544		-----		-----
621		-----		-----	1557		-----		-----
631		-----		-----	1560		-----		-----
657	D524	0.10		1.67	1561		-----		-----
663		-----		-----	1613	D524	0.06		-1.78
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781		-----		-----	1635		-----		-----
823	D524	0.06		-1.78	1636		-----		-----
824		-----		-----	1643		-----		-----
825		-----		-----	1654		-----		-----
840		-----		-----	1709		-----		-----
862		-----		-----	1710		-----		-----
863		-----		-----	1712		-----		-----
873		-----		-----	1720		-----		-----
874	Calc. D4530	0.09	ex	0.81	1721		-----		-----

1724		-----		-----
1807		-----		-----
1810		-----		-----
1811		-----		-----
1833	D524	0.048		-2.82
1842		-----		-----
1849	ISO10370	0.00596	ex	-6.45
1864		-----		-----
1906		-----		-----
1912		-----		-----
1915	D524	0.1082		2.38
1948		-----		-----
1951		-----		-----
2129		-----		-----
7006		-----		-----

normality	OK
n	13
outliers	1
mean (n)	0.0807
st.dev. (n)	0.01846
R(calc.)	0.0517
R(D524:10)	0.0324

Lab 273: result was excluded, the used testmethod is not equivalent with ASTM D524
Lab 344: result was excluded, the used testmethod is not equivalent with ASTM D524
Lab 463: result was excluded, the used testmethod is not equivalent with ASTM D524
Lab 874: result was excluded, the used testmethod is not equivalent with ASTM D524
Lab 1428: result was excluded, the used testmethod is not equivalent with ASTM D524
Lab 1849: result was excluded, the used testmethod is not equivalent with ASTM D524





Determination of Copper Corrosion (3 hrs @ 50°C) on sample #12103;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1A		-----	875	D130	<1A		-----
53		-----		-----	887	D130	1A		-----
62	D130	1A		-----	902		-----		-----
92	D130	1A		-----	904	D130	1A		-----
132	D130	1A		-----	922	D130	1A		-----
140	D130	1A		-----	951	D130	1		-----
150	D130	1A		-----	962		-----		-----
158		-----		-----	963	D130	1A		-----
159	D130	1A		-----	971	D130	1A		-----
169	D130	1A		-----	994	D130	1A		-----
170		-----		-----	995		-----		-----
171	D130	1A		-----	996	D130	1A		-----
175	D130	1A		-----	997		-----		-----
193	D130	1A		-----	998	D130	1A		-----
212	D130	1A		-----	1006	D130	1A		-----
217	D130	1A		-----	1011	D130	1A		-----
221	D130	1A		-----	1017		-----		-----
224		-----		-----	1026		-----		-----
225	D130	1A		-----	1033	IP154	1B		-----
228		-----		-----	1038	D130	1A		-----
230	D130	1A		-----	1059	D130	1A		-----
240	D130	1		-----	1080	D130	1A		-----
253	D130	1A		-----	1081	D130	1A		-----
254	D130	1A		-----	1095	D130	1A		-----
256		-----		-----	1108	D130	1A		-----
258	D130	1A		-----	1109	D130	1A		-----
273	D130	1A		-----	1121	IP154	1A		-----
311	D130	1A		-----	1124	ISO2160	1A		-----
312	D130	1A		-----	1126		-----		-----
317		-----		-----	1131	ISO2160	1A		-----
323	D130	1A		-----	1134	D130	1A		-----
334		-----		-----	1140	D130	1A		-----
335	D130	1		-----	1146		-----		-----
336	D130	1		-----	1150	ISO2160	1A		-----
337		-----		-----	1167	ISO2160	1A		-----
338		-----		-----	1182	D130	1A		-----
343	D130	1A		-----	1186	D130	1A		-----
344	D130	1A		-----	1194		-----		-----
349		-----		-----	1227	D130	1A		-----
353	D130	1A		-----	1244		-----		-----
370	D130	1A		-----	1259	ISO2160	1A		-----
372	D130	1A		-----	1284	D130	1A		-----
402	D130	1A		-----	1297		-----		-----
431		-----		-----	1299	D130	1A		-----
433		-----		-----	1340	D130	1A		-----
445	D130	1A		-----	1395	D130	1A		-----
446		-----		-----	1399	D130	1A		-----
447	D130	1A		-----	1417		-----		-----
463	D130	1A		-----	1419		-----		-----
495	D130	1		-----	1427	D130	1A		-----
496	D130	1A		-----	1428	ISO2160	1A		-----
507	D130	1A		-----	1430	D130	1A		-----
511	D130	1A		-----	1431	D130	1A		-----
541	D130	1A		-----	1447		-----		-----
557	D130	1A		-----	1455		-----		-----
575	D130	1A		-----	1483		-----		-----
603	D130	1A		-----	1498		-----		-----
604		-----		-----	1510	D130	1A		-----
607		-----		-----	1512		-----		-----
608	D130	1A		-----	1544	D130	1A		-----
621		-----		-----	1557	ISO2160	1A		-----
631	D130	1A		-----	1560		-----		-----
657	D130	1A		-----	1561		-----		-----
663	D130	1A		-----	1613	D130	1A		-----
671	D130	1A		-----	1629		-----		-----
732		-----		-----	1631	D130	1A		-----
759		-----		-----	1634	D130	1A		-----
781	D130	1A		-----	1635	D130	1A		-----
823	D130	1A		-----	1636	D130	1A		-----
824	D130	1A		-----	1643		-----		-----
825	D130	1		-----	1654	ISO2160	1A		-----
840	D130	1A		-----	1709	D130	1A		-----
862	D130	1A		-----	1710	D130	1A		-----
863	D130	1A		-----	1712	ISO2160	1A		-----
873	D130	1A		-----	1720		-----		-----
874	D130	1A		-----	1721	D130	1A		-----

1724	D130	1A	-----
1807	D130	1A	-----
1810		-----	-----
1811	D130	1	-----
1833	D130	1A	-----
1842	IP154	1A	-----
1849	ISO2160	1A	-----
1864	D130	1A	-----
1906		-----	-----
1912		-----	-----
1915	D130	1A	-----
1948	D130	1A	-----
1951		-----	-----
2129	D130	1A	-----
7006		-----	-----

normality	unknown
n	120
outliers	n.a.
mean (n)	1 (1A)
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D130:10)	n.a.

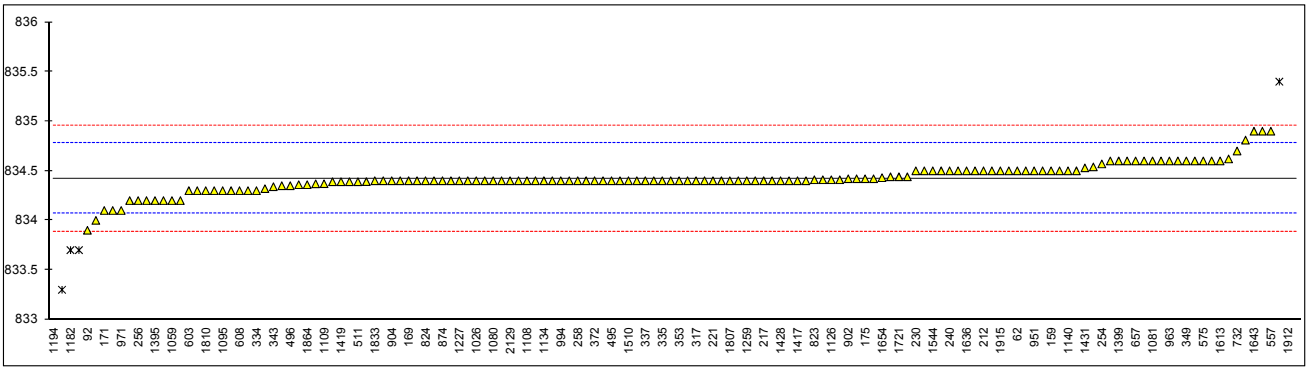
Determination of Density @15 °C on sample #12103; result in kg/m^3

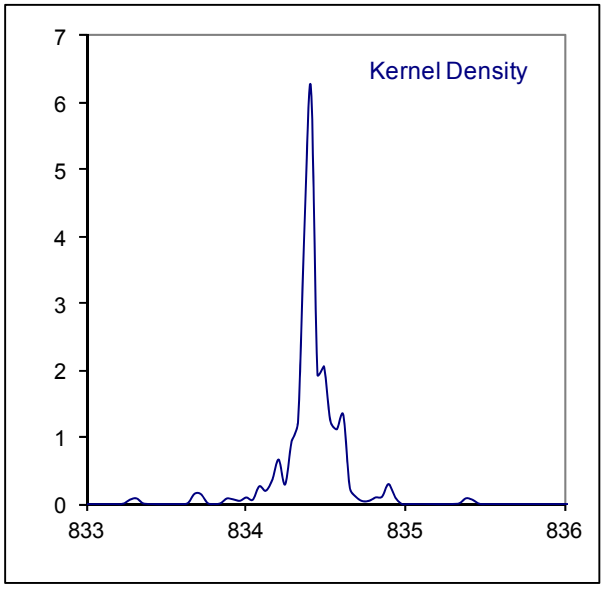
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	834.4		-0.13	875	D4052	834.5		0.41
53	D4052	834.4		-0.13	887	D4052	834.42		-0.02
62	D4052	834.5		0.41	902	D4052	834.42		-0.02
92	D4052	833.9		-2.82	904	D4052	834.4		-0.13
132	D4052	834.39		-0.18	922	D4052	834.9		2.56
140	D4052	834.5		0.41	951	D1298	834.5	C	0.41
150	D4052	834.4		-0.13	962		-----		-----
158		-----		-----	963	D4052	834.6		0.95
159	D4052	834.5		0.41	971	D4052	834.1	C	-1.74
169	D4052	834.4		-0.13	994	D4052	834.4		-0.13
170		-----		-----	995	D4052	834.4		-0.13
171	D4052	834.1		-1.74	996	D4052	834.4		-0.13
175	D4052	834.42		-0.02	997	D4052	834.6		0.95
193	D4052	834.4	C	-0.13	998	D1298	834.4		-0.13
212	D4052	834.5		0.41	1006	D4052	834.5		0.41
217	D4052	834.4		-0.13	1011	D4052	834.2		-1.20
221	D4052	834.4		-0.13	1017		-----		-----
224		-----		-----	1026	D4052	834.4		-0.13
225	D4052	834.3		-0.67	1033	IP365	834.4		-0.13
228	D4052	834.4		-0.13	1038	D4052	834.2		-1.20
230	D1298	834.5		0.41	1059	D4052	834.2		-1.20
240	D4052	834.5		0.41	1080	D4052	834.4		-0.13
253	D4052	834.4		-0.13	1081	ISO12185	834.6		0.95
254	D4052	834.57		0.79	1095	D4052	834.3		-0.67
256	D4052	834.2		-1.20	1108	D4052	834.4		-0.13
258	D1298	834.4		-0.13	1109	D4052	834.37		-0.29
273	D4052	834.4		-0.13	1121	IP365	834.5		0.41
311	D4052	834.5		0.41	1124	ISO12185	834.369		-0.29
312	D4052	834.5		0.41	1126	ISO12185	834.41		-0.07
317	D4052	834.4		-0.13	1131	ISO12185	834.4		-0.13
323	D4052	834.1		-1.74	1134	IP365	834.4		-0.13
334	D4052	834.3		-0.67	1140	D4052	834.5	C	0.41
335	D4052	834.4		-0.13	1146	D4052	834.44		0.09
336	D4052	834.4		-0.13	1150	ISO12185	834.2		-1.20
337	D4052	834.4		-0.13	1167	ISO12185	834.4		-0.13
338	ISO12185	834.4		-0.13	1182	ISO12185	833.7	G(0.01)	-3.90
343	D4052	834.34		-0.45	1186	D1298	833.3	G(0.01)	-6.05
344	D4052	834.6		0.95	1194	ISO12185	828.2	G(0.01)	-33.51
349	D4052	834.6		0.95	1227	D4052	834.4		-0.13
353	IP365	834.4		-0.13	1244		-----		-----
370	D4052	834.3		-0.67	1259	ISO12185	834.4		-0.13
372	D4052	834.4		-0.13	1284	D4052	834.4		-0.13
402	D4052	834.5		0.41	1297	D4052	834.3		-0.67
431	D4052	834.35		-0.40	1299	D4052	834.4		-0.13
433	ISO12185	834.4		-0.13	1340	D4052	834.32		-0.56
445	D4052	834.6		0.95	1395	D4052	834.2		-1.20
446		-----		-----	1399	D4052	834.6		0.95
447	D4052	834.4		-0.13	1417	IP365	834.4		-0.13
463	D4052	834.36		-0.34	1419	ISO12185	834.39		-0.18
495	D4052	834.4		-0.13	1427	D4052	834.41		-0.07
496	D4052	834.35		-0.40	1428	ISO12185	834.4		-0.13
507	D4052	835.4	G(0.01)	5.26	1430	D4052	833.7	G(0.01)	-3.90
511	D4052	834.39		-0.18	1431	D4052	834.53		0.57
541	D4052	834.6		0.95	1447		-----		-----
557	D4052	834.9		2.56	1455		-----		-----
575	D1298	834.6		0.95	1483		-----		-----
603	D4052	834.3		-0.67	1498	D1298	834.6		0.95
604	D4052	834.54		0.63	1510	D4052	834.4		-0.13
607	D1298	834.4		-0.13	1512		-----		-----
608	D4052	834.3		-0.67	1544	D4052	834.5		0.41
621		-----		-----	1557	ISO3675	834.0		-2.28
631	D4052	834.6		0.95	1560		-----		-----
657	D4052	834.6		0.95	1561		-----		-----
663	D4052	838.39	G(0.01)	21.36	1613	D4052	834.6		0.95
671	D4052	834.6		0.95	1629		-----		-----
732	D4052	834.7		1.49	1631	ISO3675	834.4		-0.13
759	D4052	834.42		-0.02	1634	D4052	834.391		-0.18
781	D4052	834.4		-0.13	1635	D4052	834.2		-1.20
823	D4052	834.41		-0.07	1636	D4052	834.5		0.41
824	D4052	834.4		-0.13	1643	D4052	834.9		2.56
825	D4052	834.4		-0.13	1654	ISO12185	834.431		0.04
840	D4052	834.39		-0.18	1709	D4052	834.4		-0.13
862	D4052	834.41		-0.07	1710	D4052	834.4		-0.13
863	ISO12185	834.62		1.06	1712	D4052	834.4		-0.13
873	D4052	834.5		0.41	1720	D4052	834.5		0.41
874	D4052	834.4		-0.13	1721	D4052	834.44		0.09

1724	D4052	834.44		0.09
1807	D4052	834.4		-0.13
1810	D4052	834.3		-0.67
1811	D4052	834.3		-0.67
1833	D4052	834.4		-0.13
1842		-----		-----
1849	ISO12185	834.81		2.08
1864	D4052	834.36		-0.34
1906		-----		-----
1912	in house	836.1	G(0.01)	9.03
1915	D4052	834.5	C	0.41
1948	D4052	834.5		0.41
1951		-----		-----
2129	D4052	834.4		-0.13
7006		-----		-----

normality	not OK
n	141
outliers	7
mean (n)	834.42
st.dev. (n)	0.143
R(calc.)	0.40
R(D4052:11)	0.52

Lab 193: reported 0.8344 (unit error)
Lab 951: first reported 832.9
Lab 971: reported 0.8341 (unit error)
Lab 1140: reported 0.8345 (unit error)
Lab 1915: reported 0.8345 (unit error)



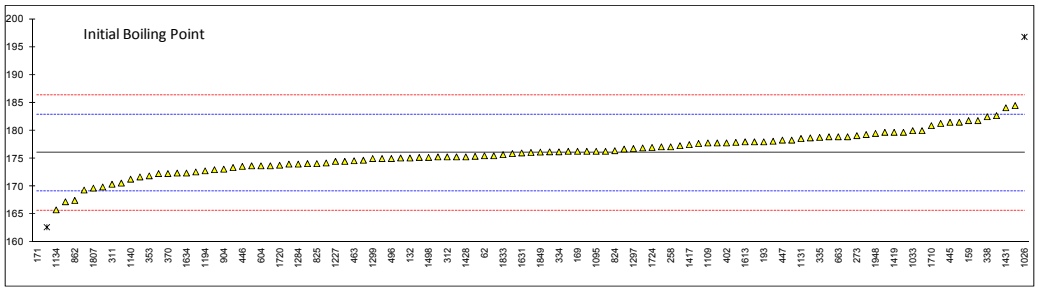


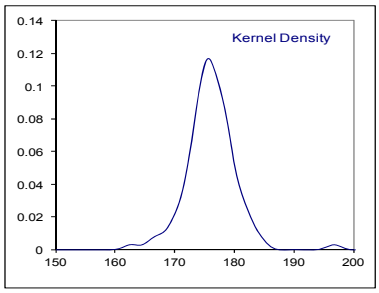
Determination of Distillation (automated) on sample #12103; result in °C

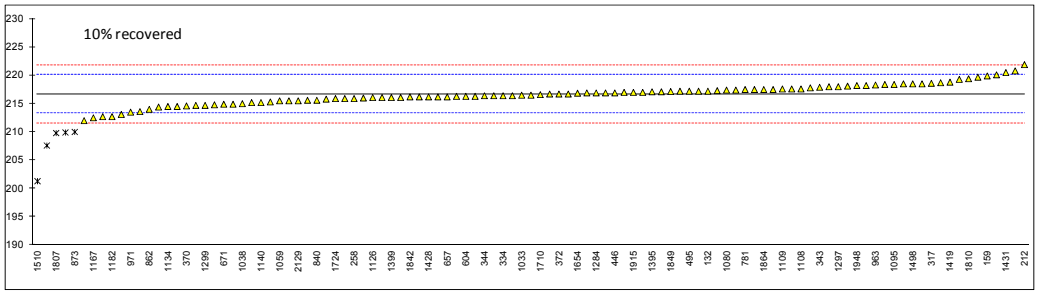
lab	method	IBP	mark	10% rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52	D86-A	176.2		215.8		271.7		326.5		344.8		351.9	
53		-----		-----		-----		-----		-----		-----	
62	D86-A	175.5		216.1		271.2		329.1		343.8		352.9	
92	D86-A	179.3		220.1		272.5		325.2		340.5		353.1	
132	D86-A	175.1		217.2		271.4		324.6		339.4		350.4	
140	D86-A	174.2		212.7		272.3		324.9		340.7		350.3	
150	D86-A	179.7		217.4		271.0		323.3		338.4		346.8	
158		-----		-----		-----		-----		-----		-----	
159	D86-A	181.8		219.9		272.7		326.2		342.2		350.0	
169	D86-A	176.3		215.2		270.4		325.8		344.0		352.5	
170		-----		-----		-----		-----		-----		-----	
171	D86-A	125.2	G(0.01)	207.6	G(0.01)	265.9	G(0.05)	321.2		338.4		345.4	
175	D86-A	171.7		213.1		269.4		324.8		342.6		347.8	
193	D86-A	178.0		217.5		270.4		322.5		337.8		349.4	
212	D86-A	184.5		221.9		273.8		326.6		342.9		357.5	
217		-----		-----		-----		-----		-----		-----	
221		-----		-----		-----		-----		-----		-----	
224		-----		-----		-----		-----		-----		-----	
225		-----		-----		-----		-----		-----		-----	
228		-----		-----		-----		-----		-----		-----	
230	D86-A	175.2		218.5		272.6		326.7		343.2		354.9	
240		-----		-----		-----		-----		-----		-----	
253		-----		-----		-----		-----		-----		-----	
254		-----		-----		-----		-----		-----		-----	
256		-----		-----		-----		-----		-----		-----	
258	D86-A	177.1		215.9		269.8		322.2		335.3		346.1	
273	D86-A	179.1		215.9		269.8		323.5		338.8		350.2	
311	D86-A	170.4		213.6		270.3		326.1		343.3		354.3	
312	D86-A	175.3	fr 164.3	214.4		271.0		324.2		340.3		345.0	
317	D86-A	173.7		218.6		271.3		325.7		343.2		352.6	
323	D86-A	173.4		216.4		271.5		326.7		344.6		351.6	
334	D86-A	176.2		216.4		269.9		322.6		337.6		351.3	
335	D86-A	178.8		214.8		271.2		326.1		344.8		352.3	
336	D86-A	182.7		218.0		272.1	fr 235.3	326.6	fr 272.1	344.6	fr 326.6	353.6	
337	D86-A	177.3		212.0		269.7		323.2		337.3		352.2	
338	ISO3405-A	182.5		215.6		271.1		325.3		340.3		352.5	
343	D86-A	173.0		217.9		270.3		324.8		341.2		350.3	
344	D86-A	175.9		216.4		271.3		322.5		340.6		351.8	
349		-----		-----		-----		-----		-----		-----	
353	IP123-A	171.9		214.7		271.7		326.3		342.5		354.6	
370	D86-A	172.3		214.6		270.7		323.8		340.5		352.3	
372	D86-A	174.5		216.7		271.2		324.5		340.5		352.0	
402	D86-A	177.8		217.2		271.7		324.1		340.2		352.3	
431		-----		216.2		269.6		325.2		344.0		-----	
433		-----		-----		-----		-----		-----		-----	
445	D86-	181.5		218.1		272.2		324.4		339.7		352.0	
446	D86-A	173.6		216.9		271.0		324.4		339.5		350.8	
447	D86-	178.3		216.9		270.8		324.5		339.9		352.6	
463	D86-A	174.6		216.9		271.3		326.1		342.7		354.0	
495	D86-A	178.7		217.2		271.6		325.5		342.1		353.2	
496	D86-A	175.0		217.8		271.7		327.3		344.4		353.1	
507		-----		-----		-----		-----		-----		-----	
511		-----		-----		-----		-----		-----		-----	
541		-----		-----		-----		-----		-----		-----	
557	D86	177.8		219.3		271.8		321.7		339.8		349.2	
575		-----		-----		-----		-----		-----		-----	
603		-----		-----		-----		-----		-----		-----	
604	D86-A	173.7		216.3		270.7		325.1		342.2		351.0	
607		-----		-----		-----		-----		-----		-----	
608		-----		-----		-----		-----		-----		-----	
621		-----		-----		-----		-----		-----		-----	
631		-----		-----		-----		-----		-----		-----	
657	D86-A	170.6		216.2		270.6		323.0		338.5		351.3	
663	D86-A	178.9		218.4		271.6		324.7		341.3		352.7	
671	D86-A	169.9		214.9		270.6		325.3		342.1		350.9	
732		-----		-----		-----		-----		-----		-----	
759		-----		-----		-----		-----		-----		-----	
781	D86-A	176.3		217.5		271.5		325.2		342.2		351.6	
823	D86-A	172.6		214.9		270.2		323.2		337.7		351.1	
824	D86-A	176.4		217.6		272.0		325.1		341.7		352.7	
825	D86-A	174.1		217.0		271.9		326.4		343.4		352.8	
840	D86-A	169.36		215.60		269.91		323.96		340.40		351.96	
862	D86-A	167.5		214.0		270.3		323.8		340.2		350.9	
863		-----		-----		-----		-----		-----		-----	
873	D86-A	174.0		210.0	G(0.05)	269.0		325.0		343.5		353.0	
874		-----		-----		-----		-----		-----		-----	
875		-----		-----		-----		-----		-----		-----	
887		-----		-----		-----		-----		-----		-----	

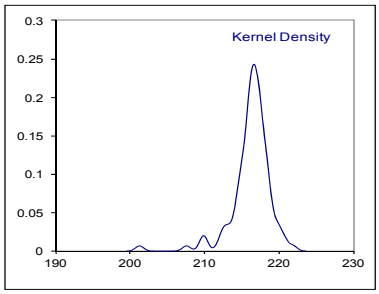
902		-----		-----		-----		-----		-----	
904	D86-A	173.1		216.0		271.6		325.1		341.0	352.7
922		-----		-----		-----		-----		-----	
951		-----		-----		-----		-----		-----	
962		-----		-----		-----		-----		-----	
963	D86-A	176.1		218.3		272.2		325.2		342.2	351.0
971	D86-A	172.4		213.5		270.5		325.3		340.8	353.1
994		-----		-----		-----		-----		-----	
995		-----		-----		-----		-----		-----	
996		-----		-----		-----		-----		-----	
997		-----		-----		-----		-----		-----	
998		-----		-----		-----		-----		-----	
1006	D86-A	178.9		216.7		271.1		326.8		341.4	352.6
1011	D86-A	175.1		216.7		271.0		325.0		340.5	353.3
1017		-----		-----		-----		-----		-----	
1026	ISO3405-A	196.8	G(0.01)	218.7		271.8		325.9		342.8	354.1
1033	D86-A	180.0		216.5		271.9		326.3		342.2	354.9
1038	D86-A	177.1		215.0		268.7		320.9		336.8	346.7
1059	D86-A	173.7		215.5		269.9		322.6		338.1	350.6
1080	D86-A	181.3		217.4		271.2		325.3		342.1	352.7
1081	D86-A	177.9		218.2		272.9		326.8		343.9	351.8
1095	D86-A	176.3		218.4		272.0		325.3		342.0	352.4
1108	D86-A	178.3		217.6		272.0		327.3		345.4	353.9
1109	D86-A	177.8		217.6		272.3		326.4		343.7	350.9
1121		-----		-----		-----		-----		-----	
1124	ISO3405-A	175.5		216.5		272.0		325.5		344.5	351.0
1126	in house-A	174.7		216.1		269.8		324.9		341.8	356.4
1131	ISO3405-A	178.6		220.8		272.7		326.6		343.7	351.5
1134	D86-A	165.8		214.5		270.9		325.2		341.8	354.5
1140	D86-A	171.3		215.2		269.9		323.8		340.1	351.5
1146		-----		-----		-----		-----		-----	
1150	ISO3405-A	181.51		219.67		272.88		326.98		344.22	353.15
1167	IOS3405-A	167.25		212.5		269.95		324.35		341.0	350.3
1182	D86-A	174.1		212.7		271.6		327.7		346.3	352.9
1186		-----		-----		-----		-----		-----	
1194	INH-86-A	172.8		209.9	DG(0.05)	271.1		323.9		340.6	348.3
1227	D86-A	174.5		215.5	fr 211.3	271.4	fr 269.4	328.0	fr 323.6	347.5	fr 338.9	351.9
1244		-----		-----		-----		-----		-----	
1259		-----		-----		-----		-----		-----	
1284	D86-A	174.0		216.9		271.0		322.4		337.1	351.9
1297	D86-A	176.8		218.0		272.5		327.0		343.5	353.8
1299	D86-A	175.0		214.7		270.4		325.0		341.4	352.7
1340	D86-A	179.7		217.1		271.3		324.6		341.0	354.5
1395	D86-A	176.3		217.1		271.2		323.4		337.6	351.8
1399	D86-A	175.3		216.1		270.4		326.4		338.9	356.5
1417	IP123-A	177.5		218.5		273.0		327.5		-----	352.0
1419	D86-A	179.7		218.8		272.0		324.5		340.4	351.1
1427	D86-A	175.3		216.4		270.6		323.6		339.0	352.1
1428	ISO3405-A	175.3		216.2		271.3		324.4		341.1	352.1
1430	D86-A	175.4		217.5		270.7		325.3		343.1	350.4
1431	D86-A	184.1		220.5		273.5		326.4		343.2	358.8
1447		-----		-----		-----		-----		-----	
1455		-----		-----		-----		-----		-----	
1483		-----		-----		-----		-----		-----	
1498	D86-A	175.2		218.5		272.4		323.4		340.9	344.0
1510	D86-A	176.3		201.3	G(0.01)	282.2	G(0.01)	334.8	G(0.01)	346.3	356.0
1512		-----		-----		-----		-----		-----	
1544		-----		-----		-----		-----		-----	
1557		-----		-----		-----		-----		-----	
1560		-----		-----		-----		-----		-----	
1561		-----		-----		-----		-----		-----	
1613	D86-A	178.0		217.3		270.8		324.3		339.0	355.1
1629		-----		-----		-----		-----		-----	
1631	D86-A	176.0		216.3		271.3		323		342	352.3
1634	D86-A	172.4		217.0		271.3		325.1		339.1	348.9
1635		-----		-----		-----		-----		-----	
1636	D86-A	176.7		217.2		271.7		325.4		341.5	351.5
1643		-----		-----		-----		-----		-----	
1654	ISO3405-A	177.7		216.85		270.45		324.35		341.4	352.75
1709	D86-A	176.9		216.1		271.3		324.4		338.9	349.4
1710	D86-A	180.9		216.6		271.7		326.5		343.8	352.1
1712	D86-A	175.0		216.2		271.9		326.8		346.3	353.2
1720	D86-A	173.8		215.3		272.4		327.9		341.5	351.5
1721		-----		-----		-----		-----		-----	
1724	D86-A	177.0		215.9		271.0		325.2		342.4	352.1
1807	D86-	169.7		209.8	DG(0.05)	269.3		321.4		336.3	359.3
1810	D86-A	181.8		219.4		271.9		324.0		338.2	352.6
1811	D86-A	178.1		214.5		270.9		323.5		338.4	351.2
1833	D86-A	175.7		216.3		271.5		325.4		342.0	353.8
1842	D86-A	172.3		216.2		270.3		323.7		340.1	352.2

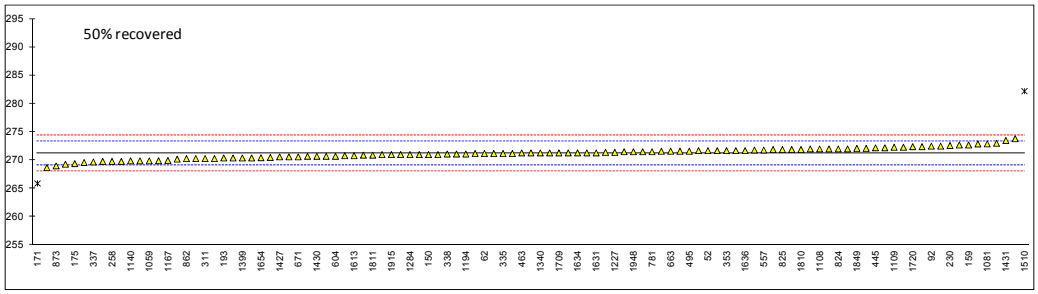
1849	D86-A	176.15		217.15		272.10	325.0	340.40		354.05	
1864	D86-A	178.9		217.5		271.3	323.6	338.5		352.8	
1906		-----		-----		-----	-----	-----		-----	
1912		-----		-----		-----	-----	-----		-----	
1915	D86	180		217		271	320	328	G(0.01)	337	G(0.01)
1948	D86-A	179.5		218.2		271.5	325.5	341.9		352.9	
1951		-----		-----		-----	-----	-----		-----	
2129	D86-A	178.0		215.5		270.7	323.4	337.8		352.2	
7006	D86	162.7	G(0.05)	-----		-----	-----	-----		351.7	
	normality	OK		OK		OK	OK	OK		not OK	
	n	104		102		105	106	105		106	
	outliers	3		5		2	1	1		1	
	mean (n)	176.03		216.65		271.22	324.90	341.30		352.02	
	st.dev. (n)	3.503		1.796		0.960	1.633	2.409		2.442	
	R(calc.)	9.81		5.03		2.67	4.57	6.75		6.84	
	R(D86:11b)	9.68		4.77		2.97	4.87	8.52		7.10	

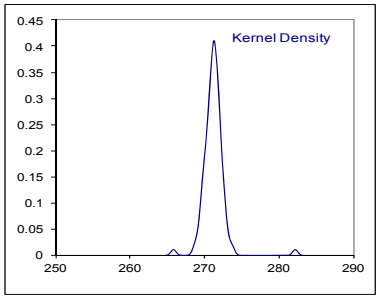


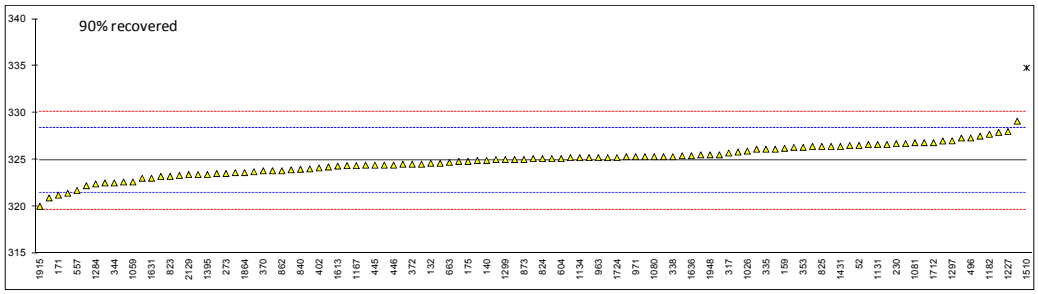


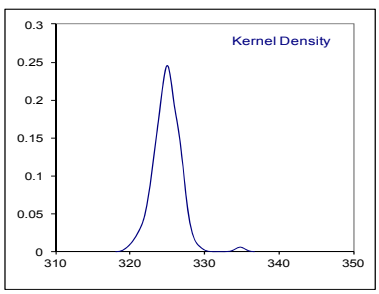


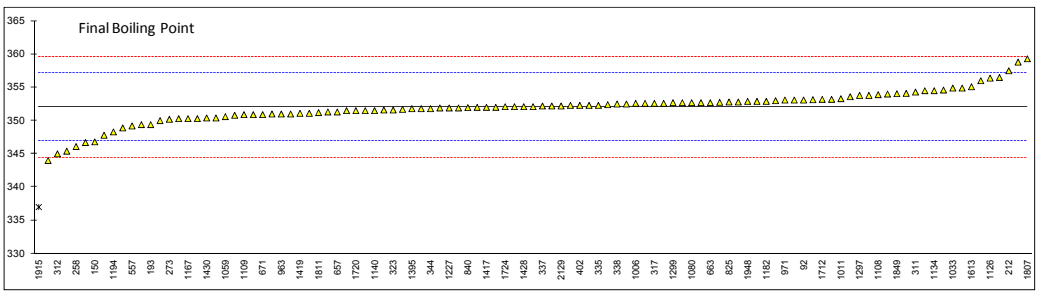


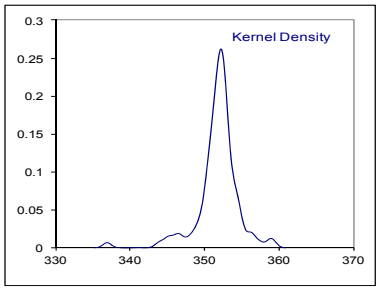












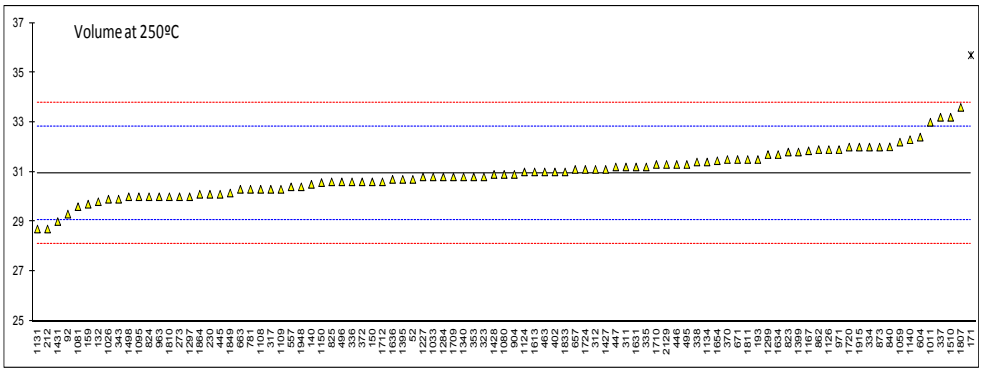
Determination of Distillation (automated) on sample #12103; result in %V/V

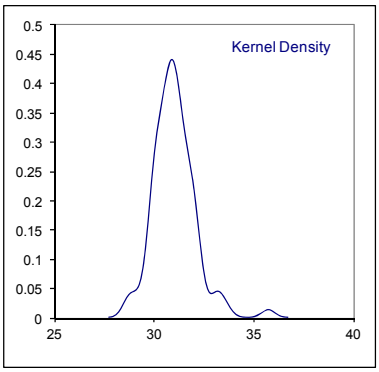
lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark	z(targ)
52	D86-A	30.7		-0.25	96.0		-0.82	1.6		-----
53		-----		-----	-----		-----	-----		-----
62	D86-A	-----		-----	-----		-----	1.7		-----
92	D86-A	29.3		-1.73	96.9		0.13	1.8		-----
132	D86-A	29.8		-1.20	97.1		0.34	1.6		-----
140	D86-A	30.5		-0.46	97.0		0.23	1.1		-----
150	D86-A	30.6		-0.36	-----		-----	1.9		-----
158		-----		-----	-----		-----	-----		-----
159	D86-A	29.7		-1.31	96.7		-0.08	2.0		-----
169	D86-A	-----		-----	-----		-----	1.4		-----
170		-----		-----	-----		-----	-----		-----
171	D86-A	35.7	G(0.01)	5.01	97.9		1.18	1.1		-----
175	D86-A	-----		-----	-----		-----	1.8		-----
193	D86-A	31.5		0.59	-----		-----	1.3		-----
212	D86-A	28.7		-2.36	96.5		-0.29	1.5		-----
217		-----		-----	-----		-----	-----		-----
221		-----		-----	-----		-----	-----		-----
224		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
228		-----		-----	-----		-----	-----		-----
230	D86-A	30.1		-0.88	96.7		-0.08	1.5		-----
240		-----		-----	-----		-----	-----		-----
253		-----		-----	-----		-----	-----		-----
254		-----		-----	-----		-----	-----		-----
256		-----		-----	-----		-----	-----		-----
258	D86-A	-----		-----	-----		-----	1.3		-----
273	D86-A	30		-0.99	-----		-----	2.8		-----
311	D86-A	31.2		0.27	96.3		-0.51	1.5		-----
312	D86-A	31.1		0.17	98.0		1.28	2.6		-----
317	D86-A	30.3		-0.67	96.3		-0.51	1.1		-----
323	D86-A	30.8		-0.15	96.0		-0.82	1.5		-----
334	D86-A	32.0		1.12	97.4		0.65	0.7		-----
335	D86-A	31.2		0.27	95.9		-0.93	0.8		-----
336	D86-A	30.6		-0.36	96.0		-0.82	1.0		-----
337	D86-A	33.2		2.38	97.5		0.76	1.3		-----
338	ISO3405-A	31.4		0.48	96.9		0.13	2.0		-----
343	D86-A	29.9		-1.10	97.3		0.55	2.0		-----
344	D86-A	-----		-----	-----		-----	1.2		-----
349		-----		-----	-----		-----	-----		-----
353	IP123-A	30.8		-0.15	96.4		-0.40	1.2		-----
370	D86-A	31.5		0.59	96.5		-0.29	1.0		-----
372	D86-A	30.6		-0.36	97.6		0.86	1.7		-----
402	D86-A	31.0		0.06	98.0		1.28	1.7		-----
431		-----		-----	-----		-----	-----		-----
433		-----		-----	-----		-----	-----		-----
445	D86-	30.1		-0.88	97.3		0.55	1.0		-----
446	D86-A	31.3		0.38	97.1		0.34	1.1		-----
447	D86-	31.2		0.27	97.2		0.44	1.0		-----
463	D86-A	31.0		0.06	96.4		-0.40	1.9		-----
495	D86-A	31.3		0.38	96.7		-0.08	1.4		-----
496	D86-A	30.6		-0.36	96.1		-0.72	1.6		-----
507		-----		-----	-----		-----	-----		-----
511		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557	D86	30.4		-0.57	-----		-----	1.4		-----
575		-----		-----	-----		-----	-----		-----
603		-----		-----	-----		-----	-----		-----
604	D86-A	32.4		1.54	96.4		-0.40	1.4		-----
607		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
621		-----		-----	-----		-----	-----		-----
631		-----		-----	-----		-----	-----		-----
657	D86-A	31.1		0.17	97.3		0.55	0.9		-----
663	D86-A	30.3		-0.67	96.9		0.13	1.8		-----
671	D86-A	31.5		0.59	97		0.23	2.0		-----
732		-----		-----	-----		-----	-----		-----
759		-----		-----	-----		-----	-----		-----
781	D86-A	30.3		-0.67	96.5		-0.29	1.5		-----
823	D86-A	31.8		0.90	96.9		0.13	1.2		-----
824	D86-A	30.0		-0.99	96.7		-0.08	1.4		-----
825	D86-A	30.6		-0.36	96.1		-0.72	1.7		-----
840	D86-A	32.01		1.13	96.81		0.03	1.65		-----
862	D86-A	31.9		1.01	97.1		0.34	1.3		-----
863		-----		-----	-----		-----	-----		-----
873	D86-A	32.0		1.12	96.5		-0.29	1.5		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
887		-----		-----	-----		-----	-----		-----

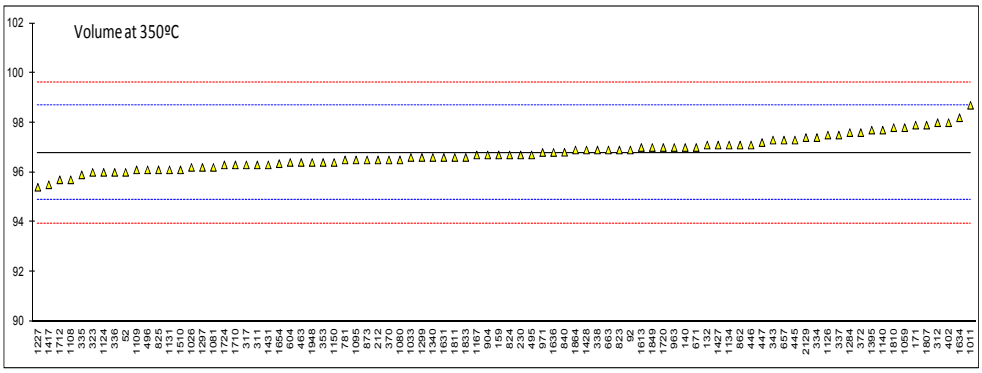
902		-----		-----	-----		-----	-----	-----
904	D86-A	30.9		-0.04	96.7		-0.08	1.0	-----
922		-----		-----	-----		-----	-----	-----
951		-----		-----	-----		-----	-----	-----
962		-----		-----	-----		-----	-----	-----
963	D86-A	30.0		-0.99	97.0		0.23	1.4	-----
971	D86-A	31.9		1.01	96.8		0.02	1.5	-----
994		-----		-----	-----		-----	-----	-----
995		-----		-----	-----		-----	-----	-----
996		-----		-----	-----		-----	-----	-----
997		-----		-----	-----		-----	-----	-----
998		-----		-----	-----		-----	-----	-----
1006	D86-A	-----		-----	-----		-----	1.5	-----
1011	D86-A	33.0		2.17	98.7		2.02	1.3	-----
1017		-----		-----	-----		-----	-----	-----
1026	ISO3405-A	29.9		-1.10	96.2		-0.61	1.4	-----
1033	D86-A	30.8		-0.15	96.6		-0.19	2.0	-----
1038	D86-A	-----		-----	-----		-----	1.4	-----
1059	D86-A	32.2		1.33	97.8		1.07	1.8	-----
1080	D86-A	30.9		-0.04	96.5		-0.29	1.3	-----
1081	D86-A	29.6		-1.41	96.2		-0.61	1.5	-----
1095	D86-A	30.0	G(0.05)	-0.99	96.5		-0.29	0.0	-----
1108	D86-A	30.3		-0.67	95.7		-1.14	1.2	-----
1109	D86-A	30.3		-0.67	96.1		-0.72	1.6	-----
1121		-----		-----	-----		-----	-----	-----
1124	ISO3405-A	31.0		0.06	96.0		-0.82	1.8	-----
1126		31.9		1.01	97.5		0.76	-----	-----
1131	ISO3405-A	28.7		-2.36	96.1		-0.72	1.7	-----
1134	D86-A	31.4		0.48	97.1		0.34	1.0	-----
1140	D86-A	32.3		1.43	97.7		0.97	1.3	-----
1146		-----		-----	-----		-----	-----	-----
1150	ISO3405-A	30.57		-0.39	96.40		-0.40	1.2	-----
1167	IOS3405-A	31.85		0.96	96.7		-0.08	1.4	-----
1182	D86-A	-----		-----	-----		-----	1.1	-----
1186		-----		-----	-----		-----	-----	-----
1194	INH-86-A	-----		-----	-----		-----	1.7	-----
1227	D86-A	30.8	fr 32.5	-0.15	95.4	fr 97.1	-1.45	1.0	-----
1244		-----		-----	-----		-----	-----	-----
1259		-----		-----	-----		-----	-----	-----
1284	D86-A	30.8		-0.15	97.6		0.86	1.4	-----
1297	D86-A	30.0		-0.99	96.2		-0.61	1.4	-----
1299	D86-A	31.7		0.80	96.6		-0.19	1.4	-----
1340	D86-A	30.8		-0.15	96.6		-0.19	1.4	-----
1395	D86-A	30.7	G(0.05)	-0.25	97.7		0.97	0.1	-----
1399	D86-A	31.8		0.90	-----		-----	1.0	-----
1417		-----		-----	95.5		-1.35	-----	-----
1419		-----		-----	-----		-----	-----	-----
1427	D86-A	31.1		0.17	97.1		0.34	1.4	-----
1428	ISO3405-A	30.9		-0.04	96.9		0.13	1.6	-----
1430	D86-A	-----		-----	-----		-----	1.4	-----
1431	D86-A	29.0		-2.04	96.3		-0.51	1.9	-----
1447		-----		-----	-----		-----	-----	-----
1455		-----		-----	-----		-----	-----	-----
1483		-----		-----	-----		-----	-----	-----
1498	D86-A	30		-0.99	-----		-----	1.5	-----
1510	D86-A	33.2		2.38	96.1		-0.72	1.4	-----
1512		-----		-----	-----		-----	-----	-----
1544		-----		-----	-----		-----	-----	-----
1557		-----		-----	-----		-----	-----	-----
1560		-----		-----	-----		-----	-----	-----
1561		-----		-----	-----		-----	-----	-----
1613	D86	31		0.06	97		0.23	1.4	-----
1629		-----		-----	-----		-----	-----	-----
1631	D86-A	31.2		0.27	96.6		-0.19	1.7	-----
1634	D86-A	31.7		0.80	98.2		1.49	1.6	-----
1635		-----		-----	-----		-----	-----	-----
1636	D86	30.7		-0.25	96.8		0.02	1.4	-----
1643		-----		-----	-----		-----	-----	-----
1654	ISO3405-A	31.45		0.54	96.35		-0.45	1.45	-----
1709	D86-A	30.8		-0.15	-----		-----	1.8	-----
1710	D86-A	31.3		0.38	96.3		-0.51	1.7	-----
1712		30.6		-0.36	95.7		-1.14	-----	-----
1720	D86-A	32		1.12	97		0.23	1.4	-----
1721		-----		-----	-----		-----	-----	-----
1724	D86-A	31.1		0.17	96.3		-0.51	1.8	-----
1807	D86-	33.6		2.80	97.9		1.18	1.0	-----
1810	D86-A	30.0		-0.99	97.8		1.07	1.0	-----
1811	D86-A	31.5		0.59	96.6		-0.19	1	-----
1833	D86-A	31.0		0.06	96.6		-0.19	1.7	-----
1842	D86-A	-----		-----	-----	-----	-----	1.3	-----

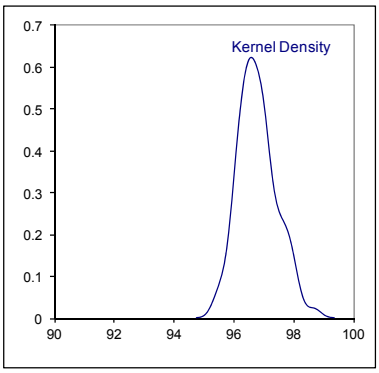
1849	D86-A	30.15	-0.83	97.00	-----	0.23	1.25	-----
1864	D86-A	30.1	-0.88	96.9	-----	0.13	1.4	-----
1906		-----	-----	-----	-----	-----	-----	-----
1912		-----	-----	-----	-----	-----	-----	-----
1915	D86	32	1.12	-----	-----	-----	1.0	-----
1948	D86-A	30.4	-0.57	96.4	-----	-0.40	1.4	-----
1951		-----	-----	-----	-----	-----	-----	-----
2129	D86-A	31.3	0.38	97.4	-----	0.65	0.1	-----
7006		-----	-----	-----	-----	-----	-----	-----

normality	OK	OK
n	92	86
outliers	1	0
mean (n)	30.94	96.78
st.dev. (n)	0.926	0.643
R(calc.)	2.59	1.80
R(D86:11b)	2.66	2.66







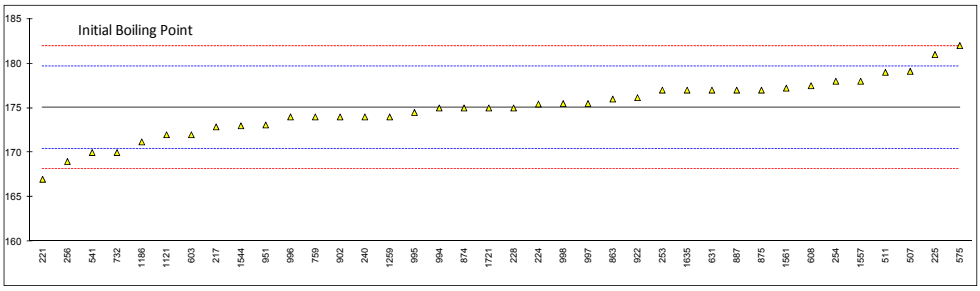


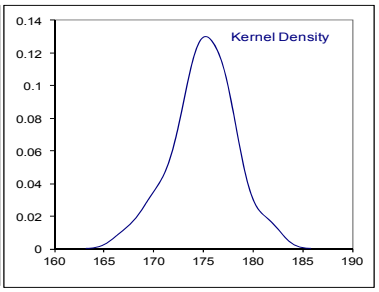
Determination of Distillation (manual) on sample #12103; result in °C

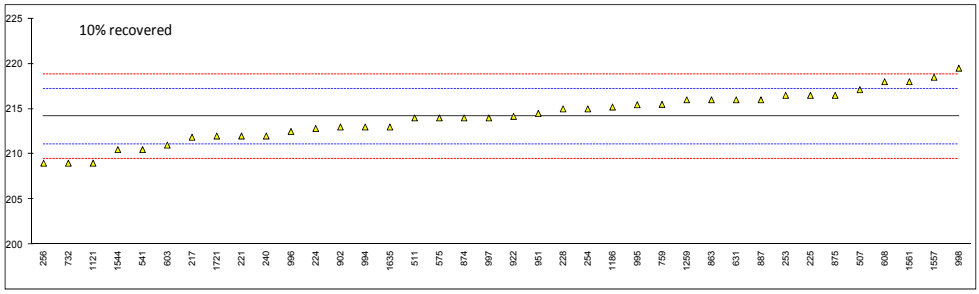
lab	method	IBP	mark	10%rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
52		-----		-----		-----		-----		-----		-----	
53		-----		-----		-----		-----		-----		-----	
62		-----		-----		-----		-----		-----		-----	
92		-----		-----		-----		-----		-----		-----	
132		-----		-----		-----		-----		-----		-----	
140		-----		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----		-----	
158		-----		-----		-----		-----		-----		-----	
159		-----		-----		-----		-----		-----		-----	
169		-----		-----		-----		-----		-----		-----	
170		-----		-----		-----		-----		-----		-----	
171		-----		-----		-----		-----		-----		-----	
175		-----		-----		-----		-----		-----		-----	
193		-----		-----		-----		-----		-----		-----	
212		-----		-----		-----		-----		-----		-----	
217	D86-M	172.88		211.87		269.85		324.85		341.85		350.63	
221	D86-M	167.0		212.0		268.0		324.0		339.0		351.0	
224	D86-M	175.44		212.84		269.65		325.85		343.25		351.45	
225	D86-M	181.0		216.5		271.0		328.5		347.0		354.0	
228	D86-M	175.0		215.0		270.0		328.0		345.0		350.0	
230		-----		-----		-----		-----		-----		-----	
240	D86-M	174.0		212.0		269.0		324.0		343.0		350.0	
253	D86-M	177.0		216.5		273.0		326.0		340.0		353.0	
254	D86-M	178.0		215.0		270.0		325.0		-----		351.0	
256	D86-M	169		209		270		323		336		348	
258		-----		-----		-----		-----		-----		-----	
273		-----		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----		-----	
317		-----		-----		-----		-----		-----		-----	
323		-----		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----		-----	
335		-----		-----		-----		-----		-----		-----	
336		-----		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----		-----	
338		-----		-----		-----		-----		-----		-----	
343		-----		-----		-----		-----		-----		-----	
344		-----		-----		-----		-----		-----		-----	
349		-----		-----		-----		-----		-----		-----	
353		-----		-----		-----		-----		-----		-----	
370		-----		-----		-----		-----		-----		-----	
372		-----		-----		-----		-----		-----		-----	
402		-----		-----		-----		-----		-----		-----	
431		-----		-----		-----		-----		-----		-----	
433		-----		-----		-----		-----		-----		-----	
445		-----		-----		-----		-----		-----		-----	
446		-----		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----		-----	
496		-----		-----		-----		-----		-----		-----	
507	D86-M	179.11		217.12		272.13		328.14		344.15		359.15	DG(0.05)
511	D86-M	179.0		214.0		269.5		323.0		340.0		350.5	
541	D86-M	170.0		210.5		270.0		324.0		-----		352.0	
557		-----		-----		-----		-----		-----		-----	
575	D86-M	182	fr 164	214		269		321		335		348	
603	D86-M	172.0		211.0		270.0		325.0		343.0		353.0	
604		-----		-----		-----		-----		-----		-----	
607		-----		-----		-----		-----		-----		-----	
608	D86-M	177.5		218.0		272.0		326.5		342.5		353.5	
621		-----		-----		-----		-----		-----		-----	
631	D86-M	177		216		269		323		339		351	
657		-----		-----		-----		-----		-----		-----	
663		-----		-----		-----		-----		-----		-----	
671		-----		-----		-----		-----		-----		-----	
732	INH-2177-M	170.0		209.0		269.0		325.0		341.0		355.0	
759	D86-M	174.0		215.5		269.5		324.5		342.0		350.5	
781		-----		-----		-----		-----		-----		-----	
823		-----		-----		-----		-----		-----		-----	
824		-----		-----		-----		-----		-----		-----	
825		-----		-----		-----		-----		-----		-----	
840		-----		-----		-----		-----		-----		-----	
862		-----		-----		-----		-----		-----		-----	
863	INH-6536-M	176.0		216.0	fr 202.5	271.5		326.0		343.5		354.0	
873		-----		-----		-----		-----		-----		-----	
874	D86-M	175.0		214.0		271.0		326.0		344.0		352.0	
875	D86-M	177.0		216.5		271.5		325.0		341.0		350.0	
887	D86-M	177.0		216.0		271.0		327.0		346.0		355.0	

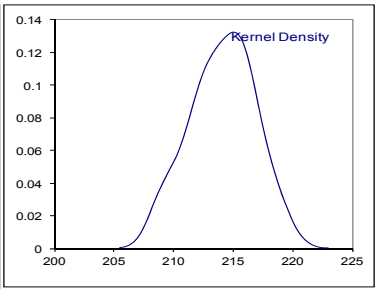
902	D86-M	174	213	271	325		341		355			
904		-----	-----	-----	-----		-----		-----			
922	D86-M	176.16	214.17	269.19	324.21		341.22		349.23			
951	D86-M	173.09	214.50	270.89	326.77		342.74		353.72			
962		-----	-----	-----	-----		-----		-----			
963		-----	-----	-----	-----		-----		-----			
971		-----	-----	-----	-----		-----		-----			
994	D86-M	175.0	213.0	270.0	325.0		339.0		352.0			
995	D86-M	174.5	215.46	269.4	323.2		340.3		351.5			
996	D86-M	174.0	212.5	270.5	325.0		340.0		353.0			
997	D86-M	175.5	214.0	270.0	323.0		340.0		352.0			
998	D86-M	175.5	219.5	273.0	326.5		343.0		353.5	fr	253.5	
1006		-----	-----	-----	-----		-----		-----			
1011		-----	-----	-----	-----		-----		-----			
1017		-----	-----	-----	-----		-----		-----			
1026		-----	-----	-----	-----		-----		-----			
1033		-----	-----	-----	-----		-----		-----			
1038		-----	-----	-----	-----		-----		-----			
1059		-----	-----	-----	-----		-----		-----			
1080		-----	-----	-----	-----		-----		-----			
1081		-----	-----	-----	-----		-----		-----			
1095		-----	-----	-----	-----		-----		-----			
1108		-----	-----	-----	-----		-----		-----			
1109		-----	-----	-----	-----		-----		-----			
1121	IP123-M	172	209	271	326		343		352			
1124		-----	-----	-----	-----		-----		-----			
1126		-----	-----	-----	-----		-----		-----			
1131		-----	-----	-----	-----		-----		-----			
1134		-----	-----	-----	-----		-----		-----			
1140		-----	-----	-----	-----		-----		-----			
1146		-----	-----	-----	-----		-----		-----			
1150		-----	-----	-----	-----		-----		-----			
1167		-----	-----	-----	-----		-----		-----			
1182		-----	-----	-----	-----		-----		-----			
1186	D86-M	171.2	215.2	270.2	325.2		343.2		355.2			
1194		-----	-----	-----	-----		-----		-----			
1227		-----	-----	-----	-----		-----		-----			
1244		-----	-----	-----	-----		-----		-----			
1259	ISO3405-M	174.0	216.0	271.0	321.0		334.0		352.0			
1284		-----	-----	-----	-----		-----		-----			
1297		-----	-----	-----	-----		-----		-----			
1299		-----	-----	-----	-----		-----		-----			
1340		-----	-----	-----	-----		-----		-----			
1395		-----	-----	-----	-----		-----		-----			
1399		-----	-----	-----	-----		-----		-----			
1417		-----	-----	-----	-----		-----		-----			
1419		-----	-----	-----	-----		-----		-----			
1427		-----	-----	-----	-----		-----		-----			
1428		-----	-----	-----	-----		-----		-----			
1430		-----	-----	-----	-----		-----		-----			
1431		-----	-----	-----	-----		-----		-----			
1447		-----	-----	-----	-----		-----		-----			
1455		-----	-----	-----	-----		-----		-----			
1483		-----	-----	-----	-----		-----		-----			
1498		-----	-----	-----	-----		-----		-----			
1510		-----	-----	-----	-----		-----		-----			
1512		-----	-----	-----	-----		-----		-----			
1544	D86-M	173.0	210.5	268.5	323.0		338.5		349.5			
1557	ISO3405-M	178.0	218.5	273.0	328.0		344.0		358.0	DG(0.05)		
1560		-----	-----	-----	-----		-----		-----			
1561	D86-M	177.221	218.003	271.228	328.426		343.524		352.579			
1613		-----	-----	-----	-----		-----		-----			
1629		-----	-----	-----	-----		-----		-----			
1631		-----	-----	-----	-----		-----		-----			
1634		-----	-----	-----	-----		-----		-----			
1635	D86-M	177.0	213.0	268.0	317.0	G(0.01)	329.0	G(0.05)	350.0			
1636		-----	-----	-----	-----		-----		-----			
1643		-----	-----	-----	-----		-----		-----			
1654		-----	-----	-----	-----		-----		-----			
1709		-----	-----	-----	-----		-----		-----			
1710		-----	-----	-----	-----		-----		-----			
1712		-----	-----	-----	-----		-----		-----			
1720		-----	-----	-----	-----		-----		-----			
1721	D86-M	175.0	212.0	269.0	323.0		340.0		350.0			
1724		-----	-----	-----	-----		-----		-----			
1807		-----	-----	-----	-----		-----		-----			
1810		-----	-----	-----	-----		-----		-----			
1811		-----	-----	-----	-----		-----		-----			
1833		-----	-----	-----	-----		-----		-----			
1842		-----	-----	-----	-----		-----		-----			

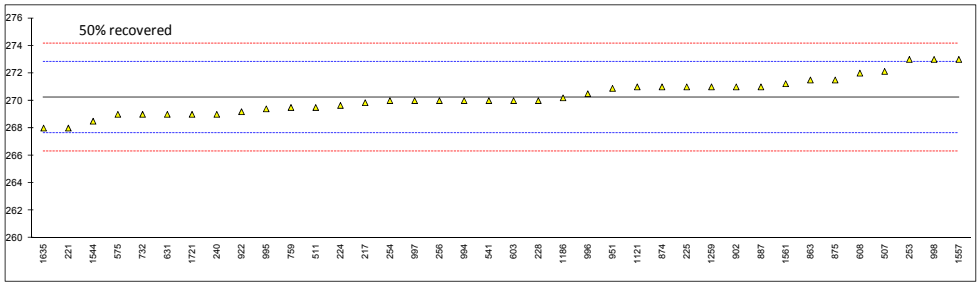
1849	-----	-----	-----	-----	-----	-----
1864	-----	-----	-----	-----	-----	-----
1906	-----	-----	-----	-----	-----	-----
1912	-----	-----	-----	-----	346	-----
1915	-----	-----	-----	-----	-----	-----
1948	-----	-----	-----	-----	-----	-----
1951	-----	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----	-----
7006	-----	-----	-----	-----	-----	-----
normality	OK	OK	not OK	OK	OK	OK
n	38	38	38	37	36	36
outliers	0	0	0	1	1	2
mean (n)	175.00	214.12	270.30	325.04	341.55	351.80
st.dev. (n)	3.162	2.682	1.295	1.910	2.920	1.931
R(calc.)	8.85	7.51	3.63	5.35	8.18	5.41
R(D86:11b)	6.44	4.34	3.64	3.91	5.36	3.96

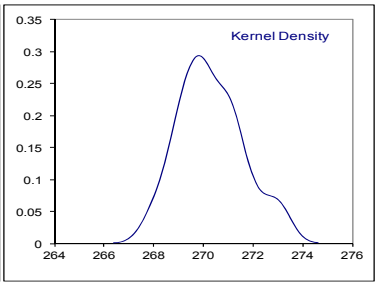


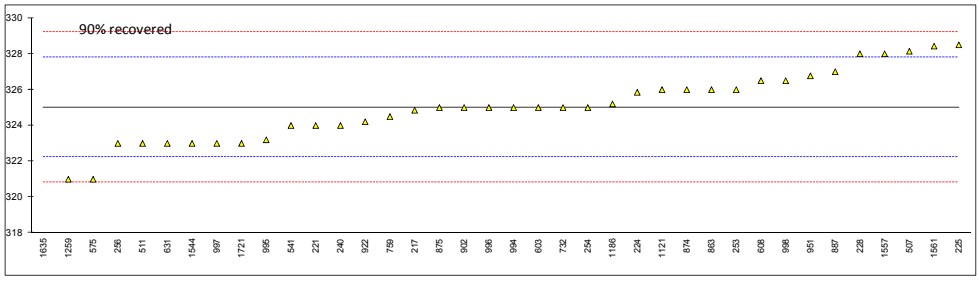


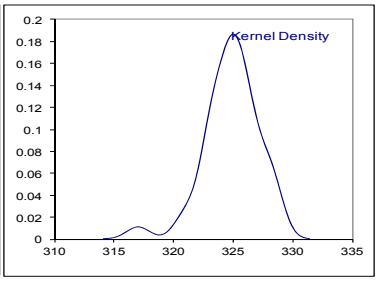


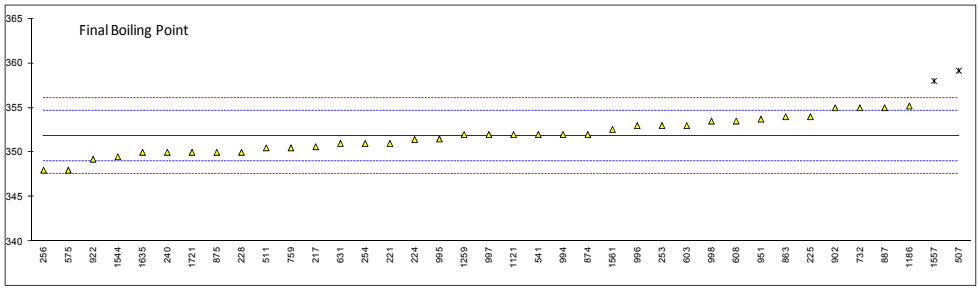


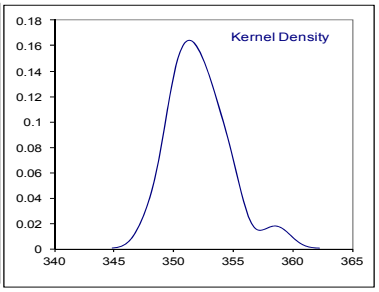












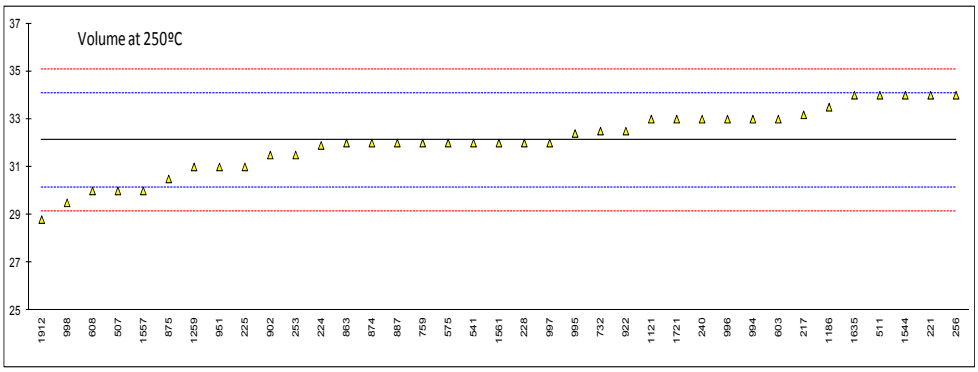
Determination of Distillation (Manual) on sample #12103; result in %V/V

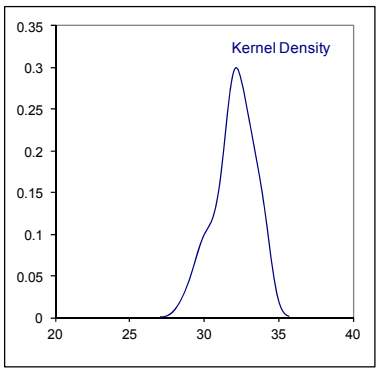
lab	method	Vol. 250°C	mark	z(targ)	Vol. 350°C	mark	z(targ)	%residue	mark	z(targ)
52		-----		-----	-----		-----	-----	-----	-----
53		-----		-----	-----		-----	-----	-----	-----
62		-----		-----	-----		-----	-----	-----	-----
92		-----		-----	-----		-----	-----	-----	-----
132		-----		-----	-----		-----	-----	-----	-----
140		-----		-----	-----		-----	-----	-----	-----
150		-----		-----	-----		-----	-----	-----	-----
158		-----		-----	-----		-----	-----	-----	-----
159		-----		-----	-----		-----	-----	-----	-----
169		-----		-----	-----		-----	-----	-----	-----
170		-----		-----	-----		-----	-----	-----	-----
171		-----		-----	-----		-----	-----	-----	-----
175		-----		-----	-----		-----	-----	-----	-----
193		-----		-----	-----		-----	-----	-----	-----
212		-----		-----	-----		-----	-----	-----	-----
217	D86-M	33.18		1.12	98.0		1.56	1.4	-----	-----
221	D86-M	34.0		1.95	97.0		0.27	2.0	-----	-----
224	D86-M	31.90		-0.18	96.30		-0.64	1.7	-----	-----
225	D86-M	31.0		-1.09	96.0		-1.03	1.6	-----	-----
228	D86-M	32.0		-0.08	96.0		-1.03	1.5	-----	-----
230		-----		-----	-----		-----	-----	-----	-----
240	D86-M	33.0		0.94	97.0		0.27	1.7	-----	-----
253	D86-M	31.5		-0.58	97.0		0.27	1.2	-----	-----
254		-----		-----	-----		-----	-----	-----	-----
256	D86-M	34.0		1.95	>98		-----	1.5	-----	-----
258		-----		-----	-----		-----	-----	-----	-----
273		-----		-----	-----		-----	-----	-----	-----
311		-----		-----	-----		-----	-----	-----	-----
312		-----		-----	-----		-----	-----	-----	-----
317		-----		-----	-----		-----	-----	-----	-----
323		-----		-----	-----		-----	-----	-----	-----
334		-----		-----	-----		-----	-----	-----	-----
335		-----		-----	-----		-----	-----	-----	-----
336		-----		-----	-----		-----	-----	-----	-----
337		-----		-----	-----		-----	-----	-----	-----
338		-----		-----	-----		-----	-----	-----	-----
343		-----		-----	-----		-----	-----	-----	-----
344		-----		-----	-----		-----	-----	-----	-----
349		-----		-----	-----		-----	-----	-----	-----
353		-----		-----	-----		-----	-----	-----	-----
370		-----		-----	-----		-----	-----	-----	-----
372		-----		-----	-----		-----	-----	-----	-----
402		-----		-----	-----		-----	-----	-----	-----
431		-----		-----	-----		-----	-----	-----	-----
433		-----		-----	-----		-----	-----	-----	-----
445		-----		-----	-----		-----	-----	-----	-----
446		-----		-----	-----		-----	-----	-----	-----
447		-----		-----	-----		-----	-----	-----	-----
463		-----		-----	-----		-----	-----	-----	-----
495		-----		-----	-----		-----	-----	-----	-----
496		-----		-----	-----		-----	-----	-----	-----
507	D86-M	30		-2.10	97		0.27	1	-----	-----
511	D86-M	34.0		1.95	97.0		0.27	1.0	-----	-----
541	D86-M	32.0		-0.08	98		1.56	1	-----	-----
557		-----		-----	-----		-----	-----	-----	-----
575	D86-M	32		-0.08	-----		-----	1.7	-----	-----
603	D86-M	33.0		0.94	96.0		-1.03	1.6	-----	-----
604		-----		-----	-----		-----	-----	-----	-----
607		-----		-----	-----		-----	-----	-----	-----
608	D86-M	30.0		-2.10	96.5		-0.38	1.4	-----	-----
621		-----		-----	-----		-----	-----	-----	-----
631	D86-M	-----		-----	-----		-----	1.5	-----	-----
657		-----		-----	-----		-----	-----	-----	-----
663		-----		-----	-----		-----	-----	-----	-----
671		-----		-----	-----		-----	-----	-----	-----
732	INH-2177-M	32.5		0.43	97.0		0.27	1.0	-----	-----
759	D86-M	32.0		-0.08	97.0		0.27	1.4	-----	-----
781		-----		-----	-----		-----	-----	-----	-----
823		-----		-----	-----		-----	-----	-----	-----
824		-----		-----	-----		-----	-----	-----	-----
825		-----		-----	-----		-----	-----	-----	-----
840		-----		-----	-----		-----	-----	-----	-----
862		-----		-----	-----		-----	-----	-----	-----
863	INH-6536-M	32.0		-0.08	96.8		0.01	1.8	-----	-----
873		-----		-----	-----		-----	-----	-----	-----
874	D86-M	32.0		-0.08	96.0		-1.03	2.0	-----	-----
875	D86-M	30.5		-1.59	97.0		0.27	1.5	-----	-----
887	D86-M	32		-0.08	96		-1.03	1.5	-----	-----

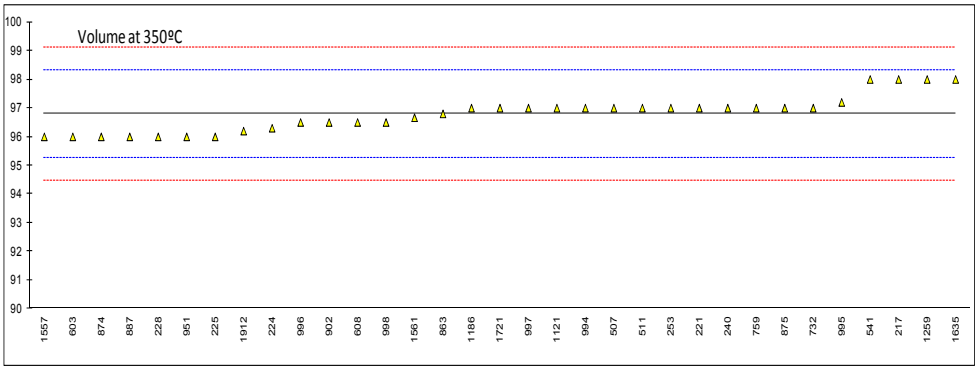
902	D86-M	31.5	-0.58	96.5	-0.38	1.6	-----	-----
904		-----	-----	-----	-----	-----	-----	-----
922	D86-M	32.5	0.43	-----	-----	1.7	-----	-----
951	D86-M	31	-1.09	96	-1.03	1.5	-----	-----
962		-----	-----	-----	-----	-----	-----	-----
963		-----	-----	-----	-----	-----	-----	-----
971		-----	-----	-----	-----	-----	-----	-----
994	D86-M	33.0	0.94	97.0	0.27	1.2	-----	-----
995	D86-M	32.4	0.33	97.2	0.53	1.5	-----	-----
996	D86-M	33.0	0.94	96.5	-0.38	1.5	-----	-----
997	D86-M	32.0	-0.08	97.0	0.27	1.5	-----	-----
998	D86-M	29.5	-2.61	96.5	-0.38	1.6	-----	-----
1006		-----	-----	-----	-----	-----	-----	-----
1011		-----	-----	-----	-----	-----	-----	-----
1017		-----	-----	-----	-----	-----	-----	-----
1026		-----	-----	-----	-----	-----	-----	-----
1033		-----	-----	-----	-----	-----	-----	-----
1038		-----	-----	-----	-----	-----	-----	-----
1059		-----	-----	-----	-----	-----	-----	-----
1080		-----	-----	-----	-----	-----	-----	-----
1081		-----	-----	-----	-----	-----	-----	-----
1095		-----	-----	-----	-----	-----	-----	-----
1108		-----	-----	-----	-----	-----	-----	-----
1109		-----	-----	-----	-----	-----	-----	-----
1121	IP123-M	33	0.94	97	0.27	1.8	-----	-----
1124		-----	-----	-----	-----	-----	-----	-----
1126		-----	-----	-----	-----	-----	-----	-----
1131		-----	-----	-----	-----	-----	-----	-----
1134		-----	-----	-----	-----	-----	-----	-----
1140		-----	-----	-----	-----	-----	-----	-----
1146		-----	-----	-----	-----	-----	-----	-----
1150		-----	-----	-----	-----	-----	-----	-----
1167		-----	-----	-----	-----	-----	-----	-----
1182		-----	-----	-----	-----	-----	-----	-----
1186	D86-M	33.5	1.44	97.0	0.27	1.1	-----	-----
1194		-----	-----	-----	-----	-----	-----	-----
1227		-----	-----	-----	-----	-----	-----	-----
1244		-----	-----	-----	-----	-----	-----	-----
1259	ISO3405-M	31.0	-1.09	98.0	1.56	1.4	-----	-----
1284		-----	-----	-----	-----	-----	-----	-----
1297		-----	-----	-----	-----	-----	-----	-----
1299		-----	-----	-----	-----	-----	-----	-----
1340		-----	-----	-----	-----	-----	-----	-----
1395		-----	-----	-----	-----	-----	-----	-----
1399		-----	-----	-----	-----	-----	-----	-----
1417		-----	-----	-----	-----	-----	-----	-----
1419		-----	-----	-----	-----	-----	-----	-----
1427		-----	-----	-----	-----	-----	-----	-----
1428		-----	-----	-----	-----	-----	-----	-----
1430		-----	-----	-----	-----	-----	-----	-----
1431		-----	-----	-----	-----	-----	-----	-----
1447		-----	-----	-----	-----	-----	-----	-----
1455		-----	-----	-----	-----	-----	-----	-----
1483		-----	-----	-----	-----	-----	-----	-----
1498		-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----
1512		-----	-----	-----	-----	-----	-----	-----
1544	D86-M	34.0	1.95	-----	-----	1.3	-----	-----
1557	ISO3405-M	30	-2.10	96	-1.03	1.0	-----	-----
1560		-----	-----	-----	-----	-----	-----	-----
1561	D86-M	32.000	-0.08	96.666	-0.16	1.850	-----	-----
1613		-----	-----	-----	-----	-----	-----	-----
1629		-----	-----	-----	-----	-----	-----	-----
1631		-----	-----	-----	-----	-----	-----	-----
1634		-----	-----	-----	-----	-----	-----	-----
1635		34.0	1.95	98.0	1.56	-----	-----	-----
1636		-----	-----	-----	-----	-----	-----	-----
1643		-----	-----	-----	-----	-----	-----	-----
1654		-----	-----	-----	-----	-----	-----	-----
1709		-----	-----	-----	-----	-----	-----	-----
1710		-----	-----	-----	-----	-----	-----	-----
1712		-----	-----	-----	-----	-----	-----	-----
1720		-----	-----	-----	-----	-----	-----	-----
1721	D86-M	33.0	0.94	97.0	0.27	1.0	-----	-----
1724		-----	-----	-----	-----	-----	-----	-----
1807		-----	-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----	-----
1811		-----	-----	-----	-----	-----	-----	-----
1833		-----	-----	-----	-----	-----	-----	-----
1842		-----	-----	-----	-----	-----	-----	-----

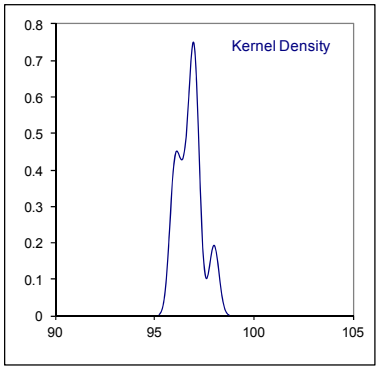
1849	-----	-----	-----	-----	-----	-----	-----
1864	-----	-----	-----	-----	-----	-----	-----
1906	-----	-----	-----	-----	-----	-----	-----
1912	28.8	-3.31	96.2	-0.77	-----	-----	-----
1915	-----	-----	-----	-----	-----	-----	-----
1948	-----	-----	-----	-----	-----	-----	-----
1951	-----	-----	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----	-----	-----
7006	-----	-----	-----	-----	-----	-----	-----

normality	not OK	not OK
n	37	33
outliers	0	0
mean (n)	32.08	96.79
st.dev. (n)	1.337	0.610
R(calc.)	3.74	1.71
R(D86:11b)	2.77	2.17









Determination of FAME Content on sample #12103; result in %V/V

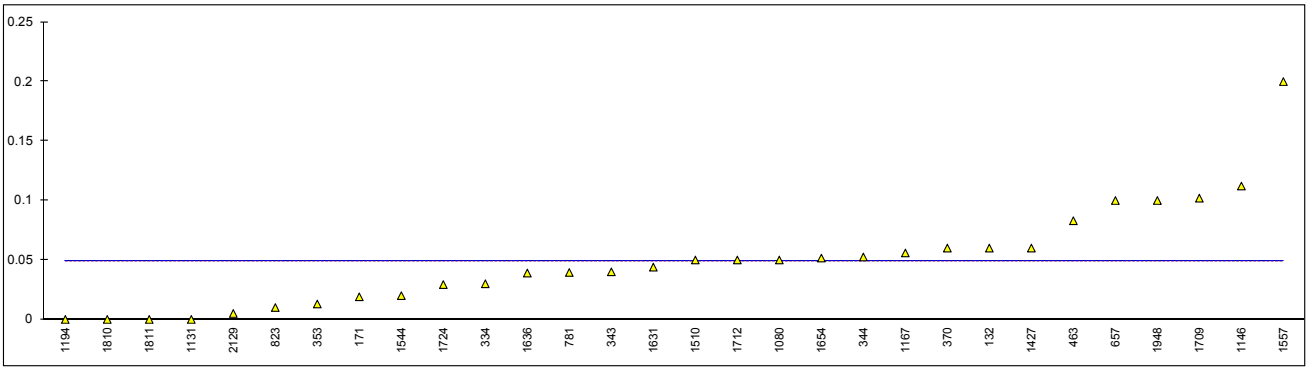
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875		-----		-----
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904		-----		-----
132	D7371	0.06		-----	922		-----		-----
140		-----		-----	951		-----		-----
150		-----		-----	962		-----		-----
158		-----		-----	963	D7371	<1.00		-----
159		-----		-----	971		-----		-----
169		-----		-----	994		-----		-----
170		-----		-----	995		-----		-----
171	D7371	0.019		-----	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006	EN14078	n.d.		-----
217		-----		-----	1011	EN14078	<0.05		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026		-----		-----
225		-----		-----	1033	D7371	<0.01		-----
228		-----		-----	1038		-----		-----
230		-----		-----	1059	EN14078	<0.05		-----
240		-----		-----	1080	EN14078	0.05		-----
253		-----		-----	1081		-----		-----
254		-----		-----	1095		-----		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109		-----		-----
273		-----		-----	1121		-----		-----
311		-----		-----	1124	EN14078	<0.05		-----
312	EN14078	<0.05		-----	1126		-----		-----
317		-----		-----	1131	EN14078	0.00		-----
323		-----		-----	1134	EN14078	<0.05		-----
334	EN14078	0.03		-----	1140	D7371	<0.1		-----
335		-----		-----	1146	D7371	0.11214		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167	EN14078	0.0559		-----
338	EN14078	<0.05		-----	1182		-----		-----
343	EN14078	0.04		-----	1186		-----		-----
344	EN14078	0.0525		-----	1194	EN14078	0		-----
349		-----		-----	1227		-----		-----
353	EN14078	0.013		-----	1244		-----		-----
370	EN14078	0.06		-----	1259	EN14078	<0.05		-----
372	D7371	<1.00		-----	1284		-----		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299	EN14078	<0.05		-----
433		-----		-----	1340		-----		-----
445	EN14078	<0.05		-----	1395		-----		-----
446		-----		-----	1399		-----		-----
447	EN14078	<0.05		-----	1417		-----		-----
463	EN14078	0.083	C	-----	1419		-----		-----
495	D7371	<0.05		-----	1427	EN14078	0.06		-----
496	EN14078	<0.1		-----	1428	EN14078	<0.05		-----
507		-----		-----	1430		-----		-----
511		-----		-----	1431		-----		-----
541		-----		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510	EN14078	0.05		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	EN14078	0.02		-----
621		-----		-----	1557	EN14078	0.2	C	-----
631		-----		-----	1560		-----		-----
657	EN14078	0.1		-----	1561		-----		-----
663		-----		-----	1613		-----		-----
671		-----		-----	1629		-----		-----
732		-----		-----	1631	EN14078	0.044		-----
759		-----		-----	1634		-----		-----
781	EN14078	0.0395		-----	1635	D7371	<0.05		-----
823	EN14078	0.01		-----	1636	EN14078	0.039		-----
824		-----		-----	1643		-----		-----
825		-----		-----	1654	EN14078	0.0516		-----
840		-----		-----	1709	EN14078	0.102		-----
862	D7371	<0.10		-----	1710	EN14078	<0.05		-----
863		-----		-----	1712	EN14078	0.05		-----
873	EN14078	<0.1		-----	1720		-----		-----
874		-----		-----	1721	EN14078	<0.5		-----

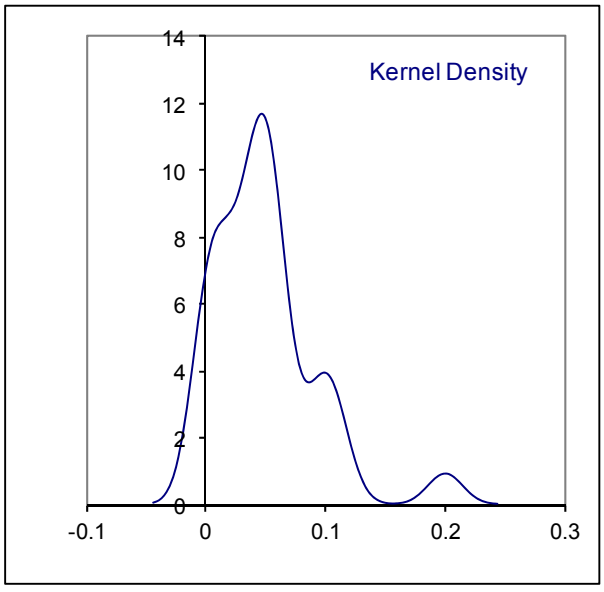
1724	EN14078	0.0293	-----
1807		-----	-----
1810	D7371	0	-----
1811	D7371	0	-----
1833	EN14078	<0.05	-----
1842		-----	-----
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912	ISO14078	<0.1	-----
1915		-----	-----
1948	D7371	0.10	-----
1951		-----	-----
2129	ISO14078	0.005	-----
7006		-----	-----

normality	not OK
n	30
outliers	0
mean (n)	0.049
st.dev. (n)	0.0430
R(calc.)	0.120
R(D7371:12)	(0.713)

Application range 1 – 20%V/V
Compare R(EN14078:09) = 0.026

Lab 463: first reported 0.165
Lab 1557: first reported 0.3



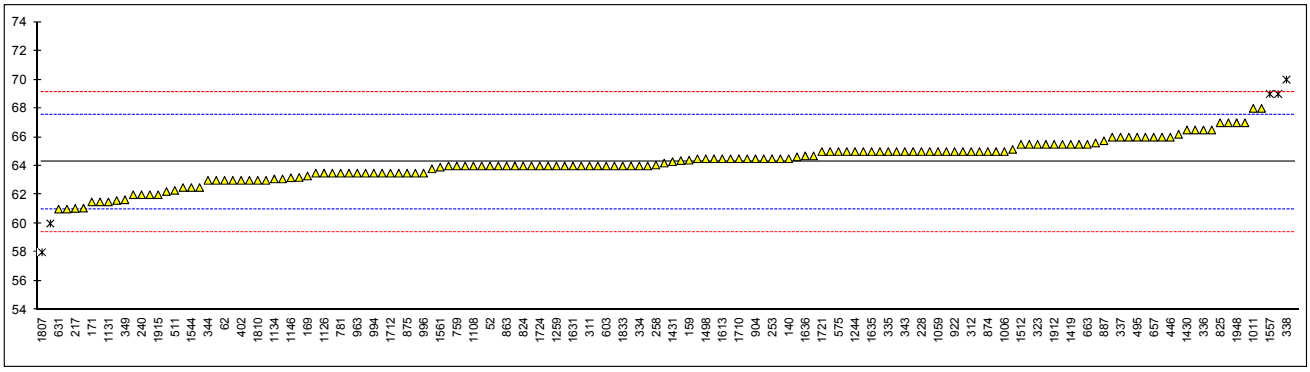


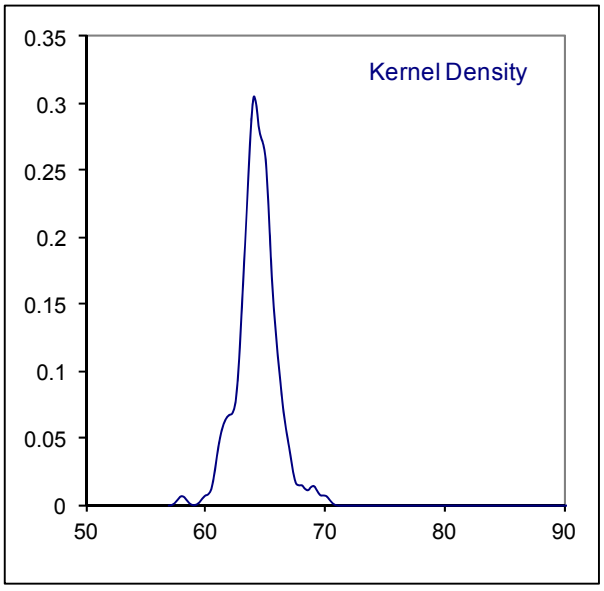
Determination of Flash Point PMcc, on sample #12103; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	64.0		-0.16	875	D93-A	63.5		-0.47
53	D93-A	64.0		-0.16	887	D93-A	65.75		0.91
62	D93	63.0		-0.78	902	D93-A	64.5		0.14
92	D93-B	63.0		-0.78	904	D93-A	64.5		0.14
132	D93-A	64.0		-0.16	922	D93-A	65.0		0.45
140	D93-A	64.5		0.14	951	D93-A	64.37		0.06
150	D93-A	63.5		-0.47	962		-----		-----
158		-----		-----	963	D93-A	63.5		-0.47
159	D93-A	64.4		0.08	971	D93-A	66.0		1.06
169	D93-A	63.3		-0.59	994	D93-A	63.5		-0.47
170		-----		-----	995	D93-A	62.0		-1.39
171	D93-A	61.5		-1.70	996	D93-A	63.5		-0.47
175	D93-A	63.8		-0.29	997	D93-A	62.0		-1.39
193	D93-A	62.222		-1.26	998	D93	64.5		0.14
212	ISO2719-A	64.0		-0.16	1006	D93	65		0.45
217	D93-A	61.05		-1.97	1011	D93-A	68.0		2.29
221	D93-A	65.0		0.45	1017		-----		-----
224	D93-A	69.0	DG(0.01)	2.90	1026		-----		-----
225	D93-A	61.0		-2.01	1033	IP34	65.0		0.45
228	D93-A	65.0		0.45	1038	D93-A	65.0		0.45
230	D93-A	60.0	G(0.05)	-2.62	1059	ISO2719-A	65.0		0.45
240	D93-A	62.0		-1.39	1080	D93-C	62.5		-1.08
253	D93-A	64.5		0.14	1081	D93	64.0		-0.16
254	D93-A	63.5		-0.47	1095	D93-A	66.0		1.06
256	D93-A	65.0		0.45	1108	D93-A	64.0		-0.16
258	D93-A	64.066		-0.12	1109	D93-A	63.5		-0.47
273	D93-A	63		-0.78	1121	IP34-A	63		-0.78
311	D93-A	64.0		-0.16	1124	ISO3679	64.63		0.22
312	D93-A	65.0		0.45	1126	D93-A	63.5		-0.47
317	D93-A	65.0		0.45	1131	ISO2719-A	61.5		-1.70
323	D93-A	65.5		0.76	1134	IP34-A	63.1		-0.72
334	D93-A	64.0		-0.16	1140	D93-A	64.0		-0.16
335	D93-A	65		0.45	1146	D93-A	63.18		-0.67
336	D93-A	66.5		1.37	1150	ISO3405-B	64.0		-0.16
337	D93-A	66.0		1.06	1167	ISO2719-A	64.0		-0.16
338	ISO2719-A	70.0	G(0.01)	3.52	1182	D93-A	64		-0.16
343	D93-A	65		0.45	1186		-----		-----
344	D93-A	63.0		-0.78	1194		-----		-----
349	D93-A	61.65		-1.61	1227	D93-A	66.0		1.06
353	IP34	65.150		0.54	1244	D93	65.0		0.45
370	D93-A	65.6		0.82	1259	ISO2719-A	64.0		-0.16
372	D93-A	64.0		-0.16	1284	D93-A	64.0		-0.16
402	D93-A	63.0		-0.78	1297	D93-A	66		1.06
431	ISO2719	64.5		0.14	1299	D93	65.5		0.76
433	D7094	65.0		0.45	1340	D93-A	66.5		1.37
445	D93-A	66.5		1.37	1395	D93-A	67.0		1.68
446	D93-A	66.0		1.06	1399	D93-A	65		0.45
447	D93-A	120.5	G(0.01)	34.51	1417	IP34	63.0		-0.78
463	D93-A	68.0		2.29	1419	ISO2719	65.5		0.76
495	D93-A	66.0		1.06	1427	D93-A	65.0		0.45
496	D93-A	63.1		-0.72	1428	ISO2719-A	65.5		0.76
507	D93-A	63.5		-0.47	1430	D93	66.5		1.37
511	D93-A	62.3		-1.21	1431	D93-A	64.3		0.02
541	D93	61.5		-1.70	1447		-----		-----
557	D93-A	64.0		-0.16	1455		-----		-----
575	D93	65		0.45	1483		-----		-----
603	D93-A	64.0		-0.16	1498	D93-A	64.5		0.14
604	D93-A	64.0		-0.16	1510	D93-A	65.0		0.45
607	D93-A	65.0		0.45	1512	D93-A	65.5		0.76
608	D93-A	63.5		-0.47	1544	D93-A	62.5		-1.08
621		-----		-----	1557	ISO2719-A	69.0	DG(0.01)	2.90
631	D93-A	61.0		-2.01	1560	ISO2719	65.5		0.76
657	D93-A	66.0		1.06	1561	D93-A	63.913		-0.22
663	D93-A	65.5		0.76	1613	D93-A	64.5		0.14
671	D93-A	61.066		-1.96	1629	D93-A	61.6		-1.64
732	D93-A	62.5		-1.08	1631	ISO2719-A	64		-0.16
759	D93-A	64.0		-0.16	1634	D93-A	64.2		-0.04
781	D93-A	63.5		-0.47	1635	D93-A	65		0.45
823	D93-A	64.0		-0.16	1636	D93-A	64.7		0.27
824	D93-A	64.0		-0.16	1643	D93-A	66.2		1.19
825	D93-A	67.0		1.68	1654	ISO2719-A	65.5		0.76
840	D93-A	63.2		-0.66	1709	D93-A	67		1.68
862	D93-A	64.7		0.27	1710	D93-A	64.5		0.14
863	ISO2719-A	64.0		-0.16	1712	D93-A	63.5		-0.47
873	D93-A	65.0		0.45	1720	D93-B	64.5		0.14
874	D93-A	65.0		0.45	1721	D93-A	65.0		0.45

1724	D93-A	64		-0.16
1807	D93-A	58.0	G(0.01)	-3.85
1810	D93-A	63.0		-0.78
1811	D93-A	63.5		-0.47
1833	D93	64		-0.16
1842		-----		-----
1849	ISO2719-A	64.50		0.14
1864	D93-A	63.5		-0.47
1906		-----		-----
1912	ISO2719-A	65.5		0.76
1915	D93	62		-1.39
1948	D93	67.0		1.68
1951		-----		-----
2129	D93-A	64.5		0.14
7006		-----		-----

normality	not OK
n	146
outliers	6
mean (n)	64.267
st.dev. (n)	1.3983
R(calc.)	3.915
R(D93:11)	4.563





Determination of Kinematic Viscosity @ 40°C, on sample #12103; result in mm^2/s

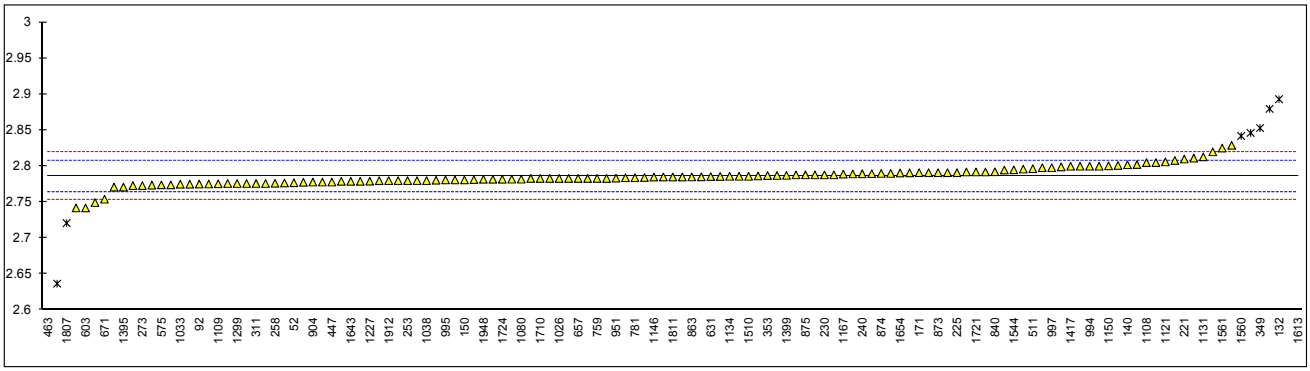
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.777		-0.82	875	D445	2.788		0.17
53		-----		-----	887	D445	2.773	C	-1.18
62	D445	2.788		0.17	902	D445	2.7737		-1.12
92	D445	2.7752		-0.98	904	D445	2.778		-0.73
132	D445	2.8931	G(0.01)	9.65	922	D445	2.6368	C,G(0.01)	-13.46
140	D445	2.802		1.44	951	D445	2.7834		-0.24
150	D445	2.781		-0.46	962		-----		-----
158		-----		-----	963	D445	2.788		0.17
159	D445	2.785		-0.10	971	D445	3.007	G(0.01)	19.92
169	D445	2.780		-0.55	994	D445	2.800		1.26
170		-----		-----	995	D445	2.781		-0.46
171	D445	2.791		0.44	996	D445	2.791		0.44
175	D445	2.776		-0.91	997	D445	2.798		1.08
193	D445	2.7896663		0.32	998		-----		-----
212	ISO3104	2.801		1.35	1006	D445	2.7799		-0.56
217	D445	2.7818		-0.39	1011	D445	2.776		-0.91
221	D445	2.810		2.16	1017		-----		-----
224		-----		-----	1026	ISO3104	2.783		-0.28
225	D445	2.791		0.44	1033	IP71	2.775		-1.00
228	D445	2.799		1.17	1038	D445	2.780		-0.55
230	D445	2.788		0.17	1059	ISO3104	2.775		-1.00
240	D445	2.7895		0.31	1080	D445	2.782		-0.37
253	D445	2.780		-0.55	1081	D445	2.783		-0.28
254	D445	2.774		-1.09	1095		-----		-----
256		-----		-----	1108	D445	2.805		1.71
258	D445	2.77627		-0.88	1109	D445	2.7756		-0.94
273	D445	2.773		-1.18	1121	IP71	2.806		1.80
311	D445	2.776		-0.91	1124	ISO3104	2.7805		-0.50
312	D445	2.796		0.90	1126		-----		-----
317		-----		-----	1131	ISO3104	2.813		2.43
323	D445	2.782		-0.37	1134	IP71	2.786		-0.01
334		-----		-----	1140	D445	2.790		0.35
335		-----		-----	1146	D445	2.7849		-0.11
336		-----		-----	1150	ISO3104	2.8005	C	1.30
337	D445	2.805		1.71	1167	ISO3104	2.789		0.26
338		-----		-----	1182	D445	2.8463	C,G(0.01)	5.43
343	D445	2.8797	C,G(0.01)	8.44	1186		-----		-----
344		-----		-----	1194		-----		-----
349	D445	2.853	C,G(0.01)	6.04	1227	D445	2.7792		-0.62
353	IP71	2.7870		0.08	1244		-----		-----
370	D445	2.8079	C	1.97	1259	ISO3104	2.7979		1.07
372	D445	2.783		-0.28	1284	D445	2.7843		-0.16
402		-----		-----	1297	D7042	2.7753		-0.97
431	ISO3104	2.7893	C	0.29	1299	D445	2.776		-0.91
433		-----		-----	1340	D445	2.7495		-3.30
445	D445	2.781		-0.46	1395	D445	2.771		-1.36
446		-----		-----	1399	D445	2.7873		0.11
447	D445	2.778		-0.73	1417	D445	2.80		1.26
463	D445	2.8002	C	1.27	1419	D445	2.783		-0.28
495	D445	2.783		-0.28	1427	D445	2.7865		0.04
496	D445	2.7860		-0.01	1428	ISO3104	2.784		-0.19
507	D445	2.8113		2.27	1430	D445	2.742		-3.98
511	D445	2.7966		0.95	1431	D7042	2.779		-0.64
541	D445	2.771		-1.36	1447		-----		-----
557	D445	2.780		-0.55	1455		-----		-----
575	D445	2.774		-1.09	1483		-----		-----
603	D445	2.742	C	-3.98	1498	D445	2.7780		-0.73
604		-----		-----	1510	D445	2.786		-0.01
607		-----		-----	1512		-----		-----
608	D445	2.779		-0.64	1544	D445	2.7950		0.80
621		-----		-----	1557	ISO3104	2.8290	C	3.87
631	D445	2.7856		-0.04	1560	ISO3104	2.842	G(0.01)	5.04
657	D445	2.783		-0.28	1561	D445	2.8252		3.53
663	D445	2.7777		-0.76	1613	D445	3.0821	G(0.05)	26.70
671	D445	2.7542		-2.87	1629		-----		-----
732	D445	2.800		1.26	1631	D445	2.7908		0.43
759	D445	2.783		-0.28	1634		-----		-----
781	D445	2.784		-0.19	1635	D445	2.8023		1.46
823	D445	2.7857		-0.03	1636	D445	2.7852		-0.08
824	D445	2.800		1.26	1643	D445	2.779		-0.64
825	D445	2.791		0.44	1654	ISO3104	2.7906		0.41
840	D445	2.7923		0.56	1709	D445	2.785		-0.10
862	D445	2.7767		-0.85	1710	D445	2.783		-0.28
863	ISO3104	2.7851		-0.09	1712	D445	2.792		0.53
873	D445	2.791		0.44	1720	D445	2.792		0.53
874	D445	2.790		0.35	1721	D445	2.792		0.53

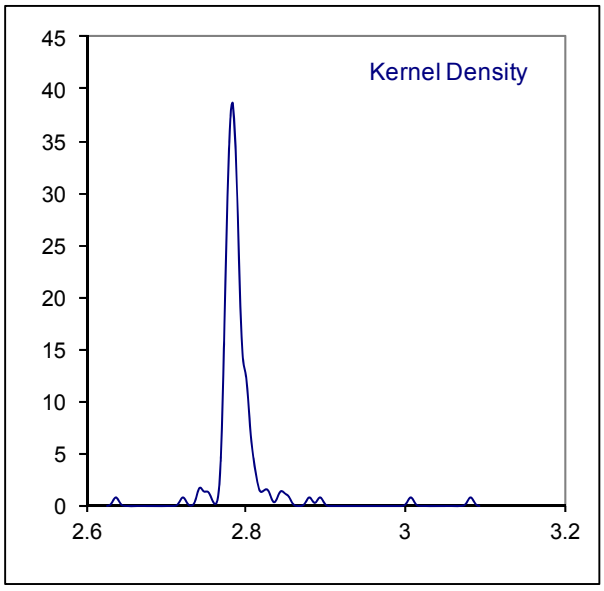
1724	D445	2.7819		-0.38
1807	D445	2.721	G(0.05)	-5.87
1810	D445	2.783		-0.28
1811	D445	2.785		-0.10
1833	D445	2.788		0.17
1842	IP71	2.776		-0.91
1849	ISO3104	2.7947		0.78
1864	D445	2.7871		0.09
1906		-----		-----
1912	ISO3104	2.780		-0.55
1915	D7042	2.820		3.06
1948	D445	2.7818		-0.39
1951		-----		-----
2129	D445	2.78134		-0.43
7006		-----		-----

normality	not OK
n	124
outliers	9
mean (n)	2.7861
st.dev. (n)	0.01308
R(calc.)	0.0366
R(D445:12)	0.0310

Lab 343: first reported 2.8318
Lab 349: first reported 2.877
Lab 370: first reported 2.8279
Lab 431: first reported 2.9895
Lab 463: first reported 2.329
Lab 603: first reported 2.842
Lab 887: first reported 2.745
Lab 922: first reported 2.8368

Lab 1150: first reporterd 2.8259
Lab 1182: first reported 2.8463
Lab 1557: first reported 2.5290



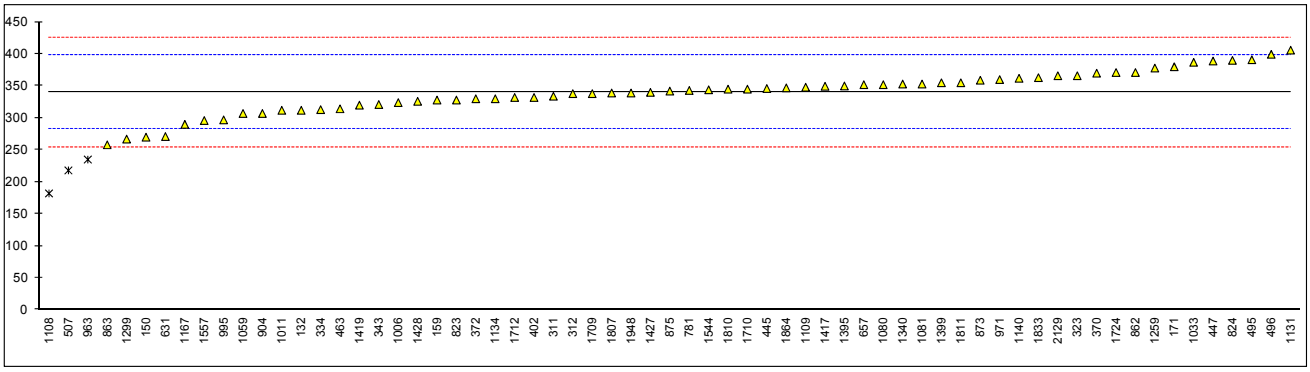


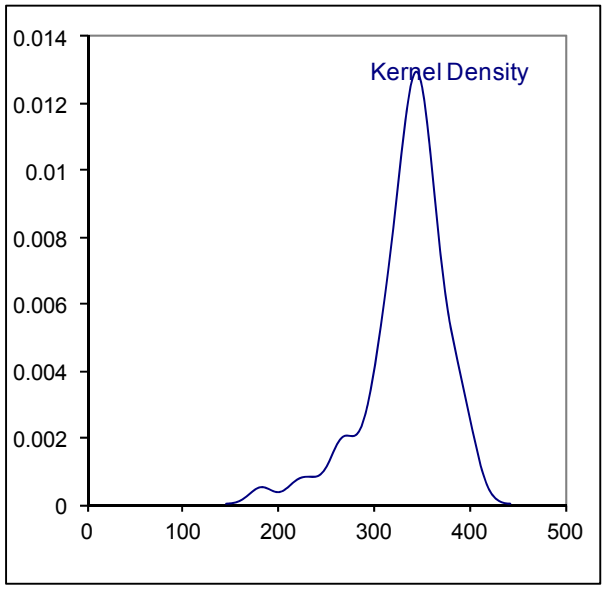
Determination of Lubricity by HFRR on sample #12103; result in µm

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875	D6079	342		0.06
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904	ISO12156	307		-1.17
132	D7688	312		-0.99	922		-----		-----
140		-----		-----	951		-----		-----
150	D6079	270		-2.46	962		-----		-----
158		-----		-----	963	D6079	235	DG(0.05)	-3.69
159	D6079	328		-0.43	971	D6079	360		0.69
169		-----		-----	994		-----		-----
170		-----		-----	995	D6079	297		-1.52
171	D6079	380		1.39	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006	D6079	324		-0.57
217		-----		-----	1011	ISO12156	312		-0.99
221		-----		-----	1017		-----		-----
224		-----		-----	1026		-----		-----
225		-----		-----	1033	IP450	387		1.63
228		-----		-----	1038		-----		-----
230		-----		-----	1059	ISO12156	307		-1.17
240		-----		-----	1080	D6079	352		0.41
253		-----		-----	1081	ISO12156	353		0.44
254		-----		-----	1095		-----		-----
256		-----		-----	1108	D6079	182	G(0.01)	-5.54
258		-----		-----	1109	IP450	348		0.27
273		-----		-----	1121		-----		-----
311	ISO12156	334		-0.22	1124		-----		-----
312	ISO12156	338		-0.08	1126		-----		-----
317		-----		-----	1131	ISO12156	406		2.30
323	D6079	366		0.90	1134	IP450	330		-0.36
334	ISO12156	313		-0.96	1140	D6079	362		0.76
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167	ISO12156	290		-1.76
338		-----		-----	1182		-----		-----
343	ISO12156	321		-0.68	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227		-----		-----
353		-----		-----	1244		-----		-----
370	D6079	370		1.04	1259	ISO12156	378		1.32
372	D6079	330		-0.36	1284		-----		-----
402	D6079	332		-0.29	1297		-----		-----
431		-----		-----	1299	D6079	267		-2.57
433		-----		-----	1340	ISO12156	353		0.44
445	D6079	346		0.20	1395	INH-96	350		0.34
446		-----		-----	1399	INH-06	355		0.51
447	IP450	389		1.70	1417	INH-96	349.5		0.32
463	ISO12156	314.3		-0.91	1419	ISO12156	320		-0.71
495	D6079	391		1.77	1427	D6079	340.0		-0.01
496	D6079	399.5		2.07	1428	ISO12156	326		-0.50
507	D6079	218	DG(0.05)	-4.28	1430		-----		-----
511		-----		-----	1431		-----		-----
541		-----		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	ISO12156	344		0.13
621		-----		-----	1557	ISO12156	296		-1.55
631	D7688	271		-2.43	1560		-----		-----
657	D6079	352		0.41	1561		-----		-----
663		-----		-----	1613		-----		-----
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D6079	343		0.09	1635		-----		-----
823	D6079	328		-0.43	1636		-----		-----
824	D6079	390		1.74	1643		-----		-----
825		-----		-----	1654		-----		-----
840		-----		-----	1709	D6079	338		-0.08
862	D6079	371		1.07	1710	D6079	345		0.16
863	ISO12156	258		-2.88	1712	ISO12156	332		-0.29
873	D6079	359		0.65	1720		-----		-----
874		-----		-----	1721		-----		-----

1724	IP450	371	1.07
1807	D6079	339	-0.05
1810	D6079	345	0.16
1811	D6079	355	0.51
1833	D6079	363	0.79
1842		-----	-----
1849		-----	-----
1864	ISO12156	347	0.23
1906		-----	-----
1912		-----	-----
1915		-----	-----
1948	D6079	339	-0.05
1951		-----	-----
2129	IP450	366	0.90
7006		-----	-----

		Only ASTM D6079	Only D7688/ISO12156/IP450
normality	OK	OK	OK
n	62	31	28
outliers	3	3	0
mean (n)	340.3	345.9	333.0
st.dev. (n)	32.16	29.93	35.15
R(calc.)	90.1	83.8	98.4
R(D6079:11)	80.0	80.0	102.0



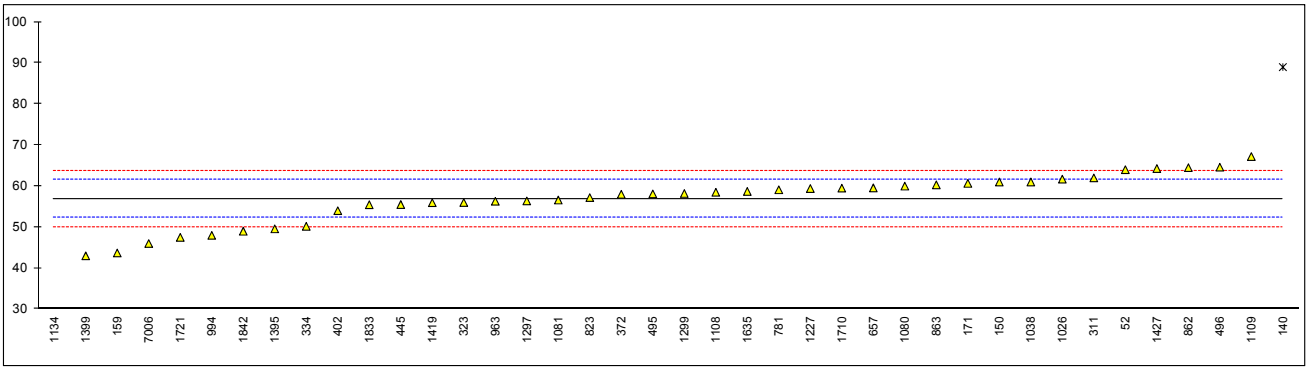


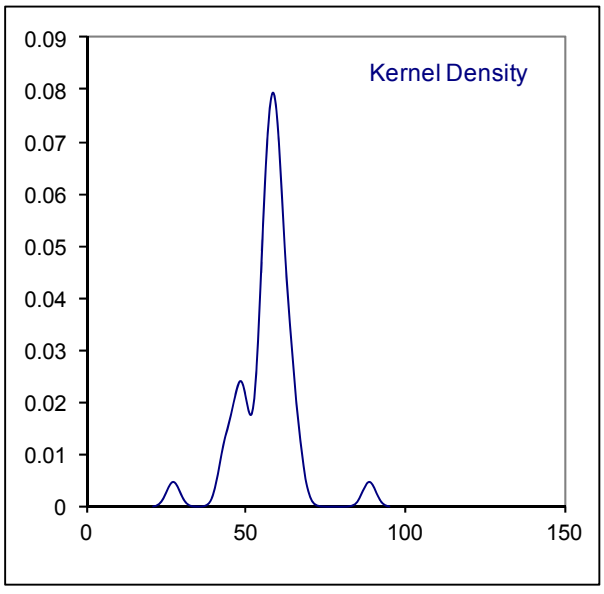
Determination of Nitrogen on sample #12103; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	64		3.08	875		-----		-----
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904		-----		-----
132		-----		-----	922		-----		-----
140	D4629	89	G(0.01)	13.88	951		-----		-----
150	D4629	61		1.79	962		-----		-----
158		-----		-----	963	D4629	56.3		-0.24
159	D4629	43.7		-5.68	971		-----		-----
169		-----		-----	994	D4629	48.0		-3.83
170		-----		-----	995		-----		-----
171	D4629	60.66		1.64	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006		-----		-----
217		-----		-----	1011		-----		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026	D4629	61.7		2.09
225		-----		-----	1033		-----		-----
228		-----		-----	1038	D4629	61		1.79
230		-----		-----	1059		-----		-----
240		-----		-----	1080	D4629	60		1.36
253		-----		-----	1081	D4629	56.6		-0.11
254		-----		-----	1095		-----		-----
256		-----		-----	1108	D4629	58.5		0.71
258		-----		-----	1109	D4629	67.2		4.47
273		-----		-----	1121		-----		-----
311	D4629	62		2.22	1124		-----		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323	D4629	56		-0.37	1134	D4629	27.18	G(0.05)	-12.82
334	D4629	50.2		-2.88	1140		-----		-----
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227	D4629	59.4		1.10
353		-----		-----	1244		-----		-----
370		-----		-----	1259		-----		-----
372	D4629	58		0.49	1284		-----		-----
402	D4629	54		-1.24	1297	D4629	56.38		-0.21
431		-----		-----	1299	D4629	58.2		0.58
433		-----		-----	1340		-----		-----
445	D4629	55.5		-0.59	1395	D4629	49.58		-3.14
446		-----		-----	1399	D4629	43		-5.99
447		-----		-----	1417		-----		-----
463		-----		-----	1419	D4629	55.96		-0.39
495	D4629	58.1		0.54	1427	D4629	64.28		3.21
496	D4629	64.61		3.35	1428		-----		-----
507		-----		-----	1430		-----		-----
511		-----		-----	1431		-----		-----
541		-----		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544		-----		-----
621		-----		-----	1557		-----		-----
631		-----		-----	1560		-----		-----
657	D4629	59.56		1.17	1561		-----		-----
663		-----		-----	1613		-----		-----
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D4629	59.1		0.97	1635	D4629	58.7		0.79
823	D4629	57.2		0.15	1636		-----		-----
824		-----		-----	1643		-----		-----
825		-----		-----	1654		-----		-----
840		-----		-----	1709		-----		-----
862	D4629	64.5		3.30	1710	D4629	59.5		1.14
863	D4629	60.3		1.49	1712		-----		-----
873		-----		-----	1720		-----		-----
874		-----		-----	1721	D4629	47.5		-4.04

1724		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	D4629	55.46	-0.60
1842	in house	49	-3.40
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915		-----	-----
1948		-----	-----
1951		-----	-----
2129		-----	-----
7006	D4629	46	-4.69

normality	not OK
n	38
outliers	2
mean (n)	56.86
st.dev. (n)	5.952
R(calc.)	16.67
R(D4629:12)	6.48



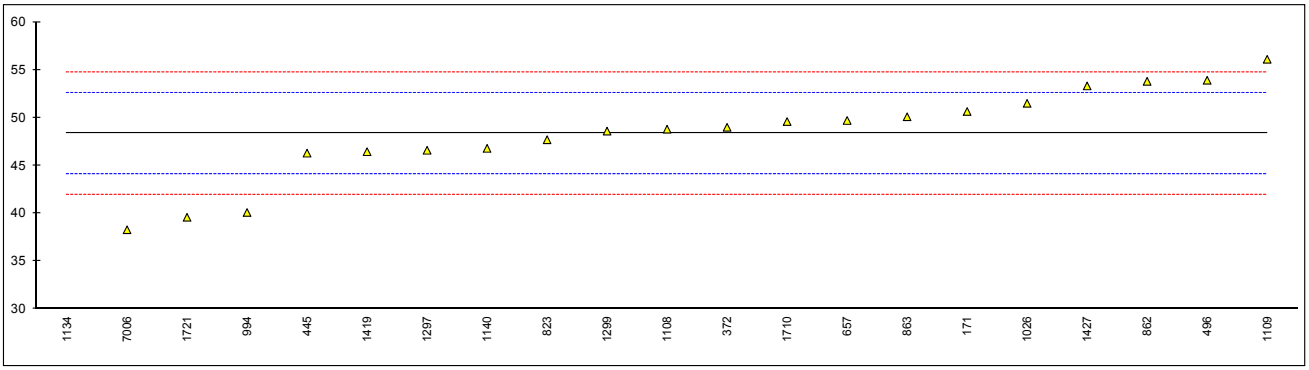


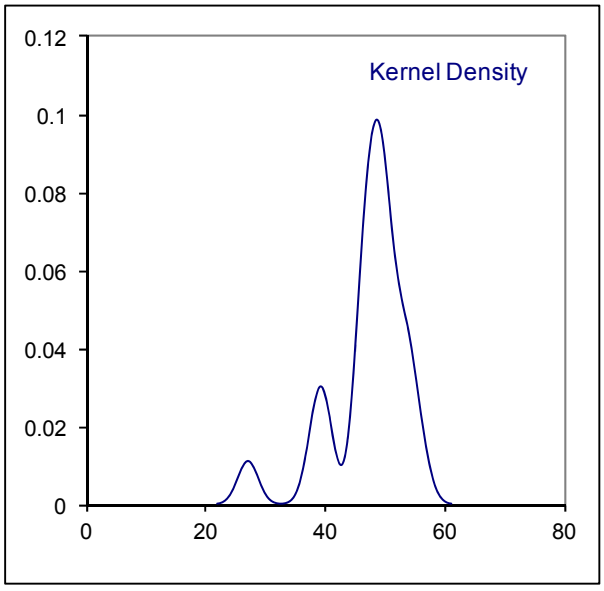
Determination of Nitrogen on sample #12103; result in mg/l

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875		-----		-----
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904		-----		-----
132		-----		-----	922		-----		-----
140		-----		-----	951		-----		-----
150		-----		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971		-----		-----
169		-----		-----	994	D4629	40.1		-3.87
170		-----		-----	995		-----		-----
171	D4629	50.65		1.08	996		-----		-----
175		-----		-----	997		-----		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006		-----		-----
217		-----		-----	1011		-----		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026	D4629	51.5		1.48
225		-----		-----	1033		-----		-----
228		-----		-----	1038		-----		-----
230		-----		-----	1059		-----		-----
240		-----		-----	1080		-----		-----
253		-----		-----	1081		-----		-----
254		-----		-----	1095		-----		-----
256		-----		-----	1108	D4629	48.8		0.21
258		-----		-----	1109	D4629	56.1		3.64
273		-----		-----	1121		-----		-----
311		-----		-----	1124		-----		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323		-----		-----	1134	D4629	27.18	G(0.01)	-9.94
334		-----		-----	1140	D4629	46.8		-0.73
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227		-----		-----
353		-----		-----	1244		-----		-----
370		-----		-----	1259		-----		-----
372	D4629	49		0.31	1284		-----		-----
402		-----		-----	1297	D4629	46.6		-0.82
431		-----		-----	1299	D4629	48.6		0.12
433		-----		-----	1340		-----		-----
445	D4629	46.3		-0.96	1395		-----		-----
446		-----		-----	1399		-----		-----
447		-----		-----	1417		-----		-----
463		-----		-----	1419	D4629	46.45		-0.89
495		-----		-----	1427	D4629	53.32		2.34
496	D4629	53.91		2.61	1428		-----		-----
507		-----		-----	1430		-----		-----
511		-----		-----	1431		-----		-----
541		-----		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544		-----		-----
621		-----		-----	1557		-----		-----
631		-----		-----	1560		-----		-----
657	D4629	49.71		0.64	1561		-----		-----
663		-----		-----	1613		-----		-----
671		-----		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781		-----		-----	1635		-----		-----
823	D4629	47.7		-0.30	1636		-----		-----
824		-----		-----	1643		-----		-----
825		-----		-----	1654		-----		-----
840		-----		-----	1709		-----		-----
862	D4629	53.8		2.56	1710	D4629	49.6		0.59
863	D4629	50.1		0.82	1712		-----		-----
873		-----		-----	1720		-----		-----
874		-----		-----	1721	D4629	39.6		-4.11

1724		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833		-----	-----
1842		-----	-----
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915		-----	-----
1948		-----	-----
1951		-----	-----
2129		-----	-----
7006	D4629	38.3	-4.72

normality	OK
n	20
outliers	1
mean (n)	48.35
st.dev. (n)	4.741
R(calc.)	13.28
R(D4629:12)	5.96



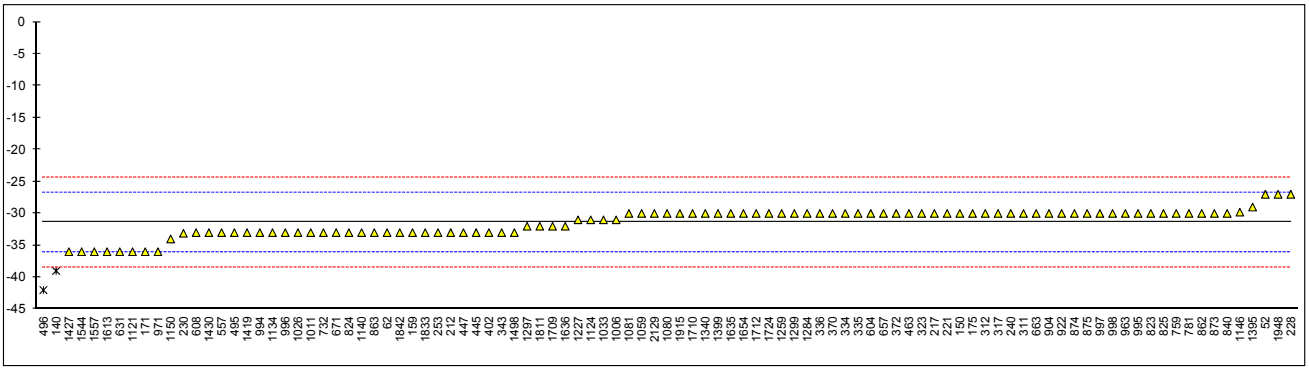


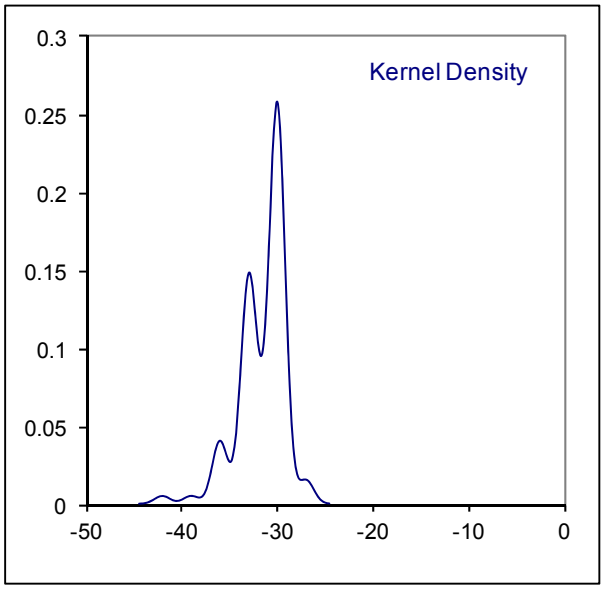
Determination of Pour Point on sample #12103; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5949	-27.0		1.86	875	D97	-30		0.59
53		-----		-----	887		-----		-----
62	D97	-33		-0.68	902		-----		-----
92	D97	<-30		-----	904	D97	-30		0.59
132	D97	<-24		-----	922	D97	-30.0		0.59
140	D5949	-39.0	G(0.05)	-3.23	951	D97	<-24		-----
150	D5950	-30		0.59	962		-----		-----
158		-----		-----	963	D97	-30		0.59
159	D97	-33.0		-0.68	971	D97	-36		-1.96
169	D97	<-30		-----	994	D97	-33		-0.68
170		-----		-----	995	D97	-30		0.59
171	D97	-36		-1.96	996	D97	-33		-0.68
175	D97	-30		0.59	997	D97	-30.0		0.59
193		-----		-----	998	D97	-30		0.59
212	ISO3016	-33		-0.68	1006	D97	-31		0.17
217	D97	-30		0.59	1011	D97	-33		-0.68
221	D97	-30		0.59	1017		-----		-----
224		-----		-----	1026	D97	-33		-0.68
225		-----		-----	1033	IP15	-31		0.17
228	D97	-27		1.86	1038		-----		-----
230	D97	-33.1		-0.73	1059	D97	-30		0.59
240	D97	-30		0.59	1080	D5950	-30		0.59
253	D97	-33.0		-0.68	1081	D5950	-30		0.59
254	D97	<-6		-----	1095		-----		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109		-----		-----
273	D97	<-24		-----	1121	IP15	-36		-1.96
311	D97	-30		0.59	1124	ISO3016	-31		0.17
312	D5950	-30		0.59	1126		-----		-----
317	D6749	-30		0.59	1131		-----		-----
323	D97	-30		0.59	1134	IP15	-33		-0.68
334	D97	-30		0.59	1140	D97	-33		-0.68
335	D97	-30		0.59	1146	D97	-29.8		0.67
336	INH-60105	-30		0.59	1150	ISO3016	-34.0		-1.11
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343	D97	-33		-0.68	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227	D97	-31		0.17
353		-----		-----	1244		-----		-----
370	D97	-30		0.59	1259	ISO3016	-30		0.59
372	D97	-30		0.59	1284	D97	-30.0		0.59
402	D97	-33.0		-0.68	1297	D5950	-32		-0.26
431		-----		-----	1299	D97	-30		0.59
433		-----		-----	1340	D97	-30		0.59
445	D97	-33		-0.68	1395	D97	-29		1.01
446		-----		-----	1399	D97	-30		0.59
447	D97	-33		-0.68	1417		-----		-----
463	D97	-30		0.59	1419	D97	-33		-0.68
495	D97	-33		-0.68	1427	D97	-36		-1.96
496	D97	-42.0	G(0.01)	-4.50	1428		-----		-----
507	D97	>-30		-----	1430	D5950	-33		-0.68
511		-----		-----	1431		-----		-----
541	D97	<-24		-----	1447		-----		-----
557	D97	-33		-0.68	1455		-----		-----
575		-----		-----	1483		-----		-----
603	D97	<-42	False negative?	<-4.50	1498	D97	-33		-0.68
604	D97	-30		0.59	1510		-----		-----
607	D97	<-30		-----	1512		-----		-----
608	D97	-33		-0.68	1544	D97	-36		-1.96
621		-----		-----	1557	ISO3016	-36		-1.96
631	D97	-36		-1.96	1560		-----		-----
657	D97	-30		0.59	1561		-----		-----
663	D97	-30		0.59	1613	D97	-36		-1.96
671	D97	-33		-0.68	1629		-----		-----
732	D97	-33		-0.68	1631		-----		-----
759	D97	-30		0.59	1634		-----		-----
781	D97	-30		0.59	1635	D97	-30		0.59
823	D97	-30		0.59	1636	D6749	-32		-0.26
824	D97	-33		-0.68	1643		-----		-----
825	D97	-30		0.59	1654	ISO3016	-30.0		0.59
840	D97	-30		0.59	1709	D97	-32		-0.26
862	D97	-30		0.59	1710	D97	-30		0.59
863	ISO3016	-33		-0.68	1712	D97	-30		0.59
873	D97	-30		0.59	1720		-----		-----
874	D97	-30		0.59	1721		-----		-----

1724	D97	-30	0.59
1807		-----	-----
1810		-----	-----
1811	D97	-32	-0.26
1833	D97	-33	-0.68
1842	D97	-33	-0.68
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915	D97	-30	0.59
1948	D97	-27	1.86
1951		-----	-----
2129	D97	-30	0.59
7006		-----	-----

normality	not OK
n	97
outliers	2
mean (n)	-31.39
st.dev. (n)	2.062
R(calc.)	5.77
R(D97:11)	6.60





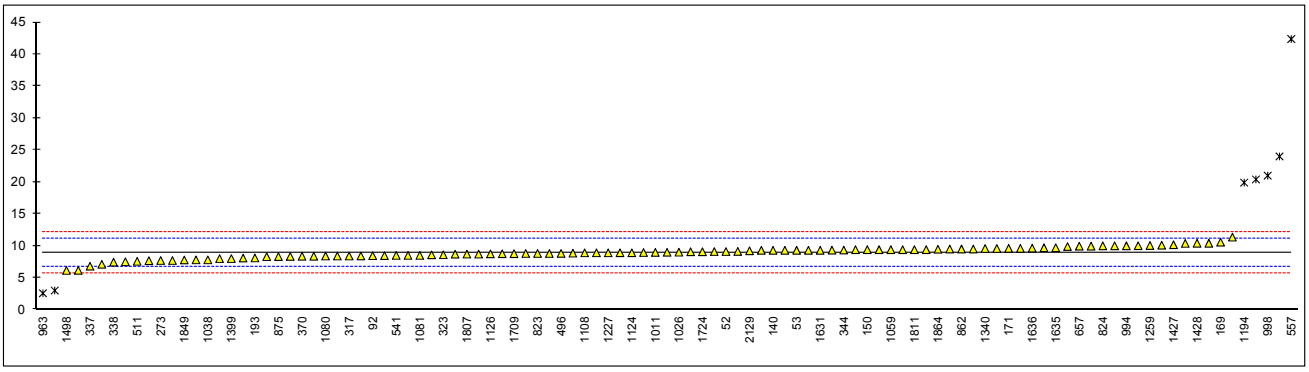
Determination of Sulphur Content on sample #12103; result in mg/kg

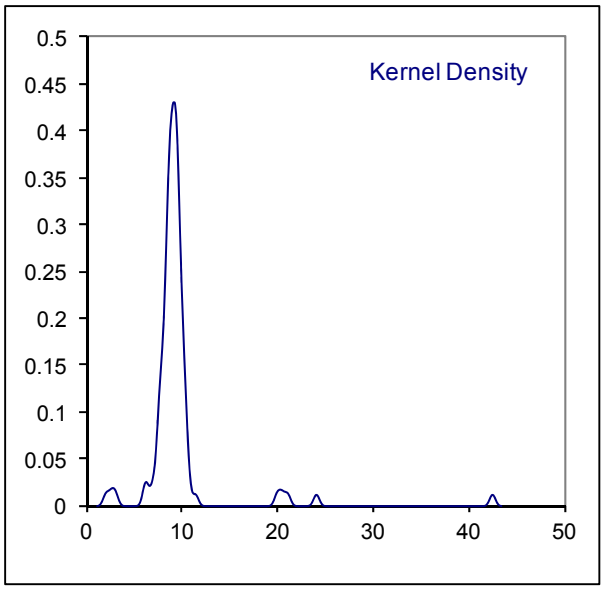
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	9.1		0.16	875	D5453	8.32		-0.57
53	D5453	9.3		0.35	887		-----		-----
62	D5453	8.33		-0.56	902		-----		-----
92	D5453	8.45		-0.45	904	D5453	8.0		-0.87
132	D5453	8.99		0.06	922	D5453	6.15		-2.60
140	D5453	9.3		0.35	951	IP336	<300		-----
150	D5453	9.4		0.44	962		-----		-----
158		-----		-----	963	D4045	2.565	G(0.01)	-5.95
159	D5453	9.4		0.44	971		-----		-----
169	D5453	10.56		1.53	994	D5453	10		1.00
170		-----		-----	995	D5453	8.76		-0.16
171	D5453	9.6		0.63	996	D5453	8.91		-0.01
175		-----		-----	997		-----		-----
193	D5453	8.10		-0.77	998	D4294	21	G(0.01)	11.29
212	D4294	<20		-----	1006	D5453	9.4		0.44
217	D5453	10.4		1.38	1011	ISO20846	8.97		0.04
221		-----		-----	1017		-----		-----
224		-----		-----	1026	ISO20884	9		0.07
225		-----		-----	1033		-----		-----
228		-----		-----	1038	D2622	7.8		-1.05
230		-----		-----	1059	ISO20846	9.4		0.44
240		-----		-----	1080	D5453	8.4		-0.49
253		-----		-----	1081	ISO20846	8.5		-0.40
254	D4294	<20		-----	1095	D5453	10		1.00
256		-----		-----	1108	D5453	8.9		-0.02
258		-----		-----	1109	D7039	9.3		0.35
273	D5453	7.7		-1.15	1121	IP336	<10		-----
311	D5453	8.8		-0.12	1124	ISO20846	8.91		-0.01
312	D5453	8.85		-0.07	1126	ISO20846	8.73		-0.18
317	D5453	8.4		-0.49	1131	ISO20846	7.8		-1.05
323	D5453	8.6		-0.30	1134	IP490	8.59		-0.31
334	D5453	8.9		-0.02	1140	D5453	8.4		-0.49
335	D5453	7.1		-1.71	1146	D5453	<10	C	-----
336	ISO20846	8.8		-0.12	1150		-----		-----
337	D5453	6.8		-1.99	1167	ISO20846	8.37		-0.52
338	ISO20846	7.44		-1.39	1182	ISO20846	11.36		2.28
343	ISO20846	7.67		-1.17	1186	D5453	10.38		1.36
344	D5453	9.333		0.38	1194	INH-7720	19.9	G(0.01)	10.26
349		-----		-----	1227	D5453	8.9		-0.02
353	IP531	<7		-----	1244		-----		-----
370	D5453	8.37		-0.52	1259	ISO20846	10.05		1.05
372	D5453	9.5		0.54	1284		-----		-----
402	D5453	9.3		0.35	1297	D5453	9.32		0.37
431		-----		-----	1299	ISO20846	9.3		0.35
433		-----		-----	1340	ISO20846	9.58		0.61
445	D5453	8.46		-0.44	1395	D5453	10.1		1.10
446		-----		-----	1399	D5453	8		-0.87
447	D5453	7.5		-1.33	1417	in house	24	G(0.01)	14.10
463		-----		-----	1419	ISO20846	9.95		0.96
495	D5453	9.4		0.44	1427	D5453	10.17		1.16
496	D5453	8.81		-0.11	1428	ISO20846	10.4		1.38
507		-----		-----	1430		-----		-----
511	D5453	7.57		-1.27	1431	D7220	9.4		0.44
541	D5453	8.5		-0.40	1447		-----		-----
557	D4294	42.4	G(0.01)	31.31	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498	D5453	6.145		-2.60
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	D5453	8.08		-0.79
621		-----		-----	1557	ISO20846	9.89		0.90
631		-----		-----	1560		-----		-----
657	D5453	9.94		0.95	1561		-----		-----
663	D5453	7.7		-1.15	1613	D4294	3.0	G(0.01)	-5.54
671	D5453	8.69		-0.22	1629		-----		-----
732		-----		-----	1631	D5453	9.3		0.35
759		-----		-----	1634		-----		-----
781	D5453	8.95		0.02	1635	D5453	9.7		0.72
823	D5453	8.80		-0.12	1636	D5453	9.64		0.67
824	D5453	10		1.00	1643		-----		-----
825	D5453	8.3		-0.59	1654	ISO20846	10.0175		1.02
840	D4294	<16.0		-----	1709	D5453	8.77		-0.15
862	D5453	9.5		0.54	1710	D5453	9.1		0.16
863	D5453	9.7		0.72	1712	D5453	9.6		0.63
873	D4294	<150		-----	1720	D5453	9.07		0.13
874	D2622	8.7		-0.21	1721	ISO20846	8.5		-0.40

1724	D5453	9.07		0.13
1807	D5453	8.7		-0.21
1810	D5453	9.5		0.54
1811	D5453	9.4		0.44
1833	D5453	9.58		0.61
1842		-----		-----
1849	ISO20846	7.78		-1.07
1864	D5453	9.46		0.50
1906		-----		-----
1912		-----		-----
1915	D4294	20.4	G(0.01)	10.73
1948	D5453	9.12		0.18
1951		-----		-----
2129	D5453	9.22		0.28
7006	D5453	8.41		-0.48

normality	OK
n	100
outliers	8
mean (n)	8.926
st.dev. (n)	0.8983
R(calc.)	2.515
R(D5453:11)	2.994

Lab 1146: first reported 0.002



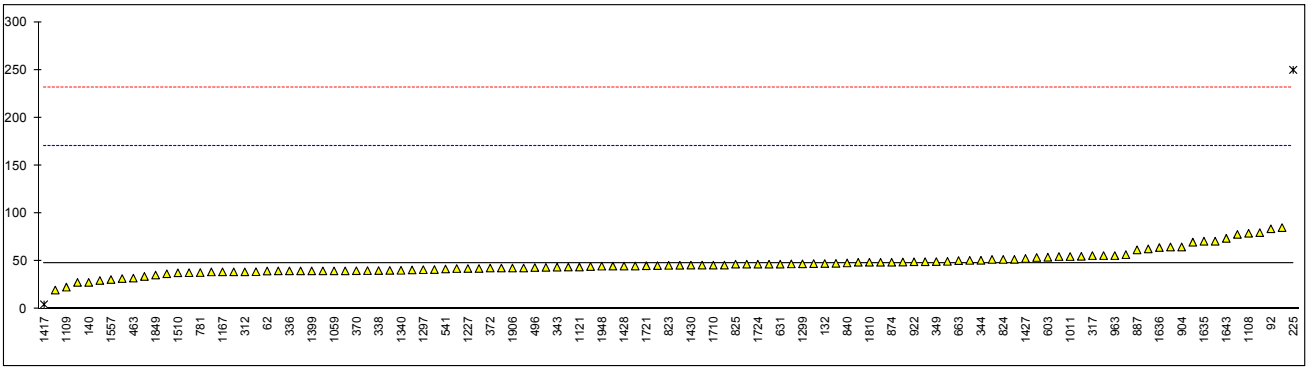


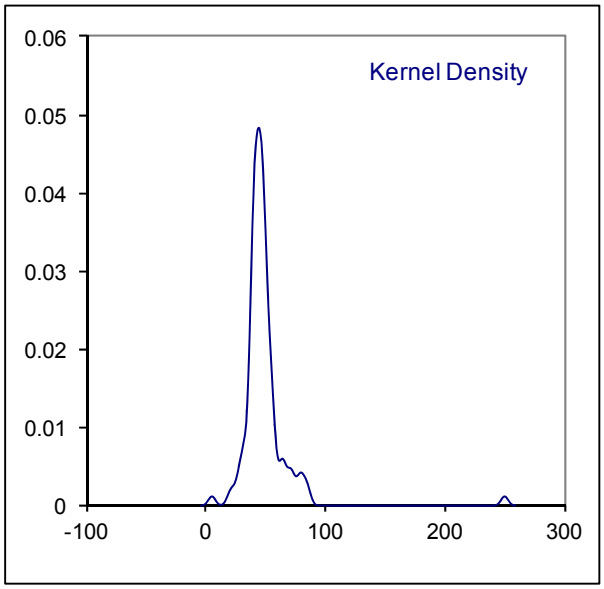
Determination of Water Content on sample #12103; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304	40		-0.12	875	D6304	39.13		-0.14
53		-----		-----	887	D6304	62		0.24
62	D6304	39.9		-0.12	902	D6304	52.03		0.07
92	E203	84.0		0.60	904	D6304	65.0		0.29
132	D6304	47.7		0.00	922	D6304	49.5		0.03
140	D6304	28		-0.32	951		-----		-----
150	D6304	49		0.02	962		-----		-----
158		-----		-----	963	D6304	56		0.14
159	E1064	70		0.37	971	D6304	40		-0.12
169		-----		-----	994	D6304	63		0.25
170		-----		-----	995	D6304	47.9		0.01
171	D6304	71		0.38	996		-----		-----
175		-----		-----	997	D6304	47.3		0.00
193		-----		-----	998		-----		-----
212	ISO3733	<500		-----	1006	D6304	45.5		-0.03
217	D6304	45.9		-0.03	1011	ISO12937	55		0.12
221		-----		-----	1017		-----		-----
224		-----		-----	1026	D6304	51.0		0.06
225	D95	250	G(0.01)	3.31	1033	IP438	78.12		0.50
228		-----		-----	1038		-----		-----
230	D95	<500		-----	1059	ISO12937	40		-0.12
240		-----		-----	1080	D6304	50		0.04
253	D6304	55.0		0.12	1081	D6304	45		-0.04
254	D6304	32		-0.25	1095		-----		-----
256		-----		-----	1108	D6304	79.3		0.52
258		-----		-----	1109	D6304	23.06		-0.40
273	D6304	46		-0.03	1121	IP438	44		-0.06
311	D6304	39		-0.14	1124	ISO12937	42.47		-0.08
312	ISO12937	39		-0.14	1126		-----		-----
317	D6304	56		0.14	1131	ISO12937	41.4		-0.10
323	D6304	30		-0.29	1134	IP438	49.62		0.03
334	D6304	40		-0.12	1140	D6304	47		-0.01
335	ISO12937	40.3		-0.12	1146	D6304	28		-0.32
336	ISO12937	40		-0.12	1150		-----		-----
337	ISO12937	40		-0.12	1167	ISO12937	39.0		-0.14
338	ISO12937	40.36		-0.12	1182		-----		-----
343	ISO12937	43.9		-0.06	1186		-----		-----
344	ISO12937	51.1		0.06	1194	D6304	34.25		-0.22
349	D6304	49.72		0.04	1227	D6304	42.5		-0.08
353	IP439	56		0.14	1244		-----		-----
370	ISO12937	40.2		-0.12	1259		-----		-----
372	D6304	43		-0.07	1284		-----		-----
402	ISO12937	45.1		-0.04	1297	D6304	41.3		-0.10
431		-----		-----	1299	EN12937	47.4		0.00
433		-----		-----	1340	ISO12937	40.63		-0.11
445	D6304	38.1		-0.15	1395	ISO12937	44.6		-0.05
446	D6304	49		0.02	1399	IP438	40		-0.12
447	IP438	65		0.29	1417	D6304	5	G(0.05)	-0.70
463	D6304	32.5		-0.25	1419	ISO12937	43		-0.07
495	D6304	54		0.11	1427	ISO12937	53		0.09
496	D6304	43.5		-0.07	1428	ISO12937	45		-0.04
507		-----		-----	1430	D6304	46		-0.03
511		-----		-----	1431	D6304	41		-0.11
541	D6304	42		-0.09	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603	D6304	54.3		0.11	1498		-----		-----
604		-----		-----	1510	D6304	38		-0.16
607	D95	<50		-----	1512		-----		-----
608		-----		-----	1544	ISO12937	38.95		-0.14
621		-----		-----	1557	EN12937	31.0		-0.27
631	D6304	47.065		-0.01	1560		-----		-----
657	D6304	42.5		-0.08	1561		-----		-----
663	D6304	50.8		0.05	1613		-----		-----
671		-----		-----	1629		-----		-----
732		-----		-----	1631	D6304	46		-0.03
759		-----		-----	1634		-----		-----
781	D6304	38.27		-0.15	1635	D6304	71		0.38
823	D6304	45.8		-0.03	1636	D6304	64.4		0.28
824	D6304	52		0.07	1643	D1744	74		0.43
825	D6304	47		-0.01	1654	ISO12937	43.70		-0.06
840	D6304	48.3		0.01	1709	D6304	43		-0.07
862	D6304	47.6		0.00	1710	D6304	46		-0.03
863	D6304	20		-0.45	1712	ISO12937	37		-0.17
873	D6304	57		0.15	1720		-----		-----
874	D6304	49		0.02	1721	ISO12937	45.4		-0.03

1724	D6304	47	-0.01
1807	ISO12937	47	-0.01
1810	D6304	49	0.02
1811	D6304	44	-0.06
1833	D6304	49.27	0.03
1842		-----	-----
1849	ISO6245	35.7	-0.19
1864	D6304	85.2	0.62
1906	D6304	43	-0.07
1912	D6304	52	0.07
1915	D1553	40.482	-0.12
1948	D6304	44.9567	-0.04
1951		-----	-----
2129	IP439	80	0.53
7006	D6304	55.230	0.13

normality	not OK
n	111
outliers	2
mean (n)	47.53
st.dev. (n)	11.866
R(calc.)	33.22
R(D6304:07)	171.35





Determination of Water and sediment (D2709) on sample #12103; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	0		-----	875		-----		-----
53		-----		-----	887		-----		-----
62	D2709	<0.005		-----	902		-----		-----
92	D2709	0		-----	904		-----		-----
132	D2709	0		-----	922		-----		-----
140		-----		-----	951		-----		-----
150		-----		-----	962		-----		-----
158		-----		-----	963	D2709	0.005		-----
159	D2709	0		-----	971	D2709	0		-----
169		-----		-----	994	D2709	<0.05		-----
170		-----		-----	995		-----		-----
171	D2709	0		-----	996		-----		-----
175		-----		-----	997	D2709	0.00		-----
193		-----		-----	998		-----		-----
212		-----		-----	1006		-----		-----
217		-----		-----	1011		-----		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026		-----		-----
225		-----		-----	1033		-----		-----
228		-----		-----	1038	D2709	0.000		-----
230		-----		-----	1059		-----		-----
240		-----		-----	1080		-----		-----
253		-----		-----	1081		-----		-----
254		-----		-----	1095	D2709	0.000		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109	D2709	0		-----
273		-----		-----	1121	D2709	0		-----
311		-----		-----	1124		-----		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323		-----		-----	1134		-----		-----
334		-----		-----	1140		-----		-----
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343	D2709	<0.005		-----	1186		-----		-----
344	D2709	<0.05		-----	1194		-----		-----
349		-----		-----	1227		-----		-----
353		-----		-----	1244		-----		-----
370		-----		-----	1259		-----		-----
372		-----		-----	1284		-----		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299		-----		-----
433		-----		-----	1340		-----		-----
445	D2709	0		-----	1395		-----		-----
446		-----		-----	1399		-----		-----
447		-----		-----	1417		-----		-----
463	D2709	<0.005		-----	1419		-----		-----
495		-----		-----	1427	D2709	0.000		-----
496		-----		-----	1428		-----		-----
507	D2709	0		-----	1430		-----		-----
511	D2709	<0.005		-----	1431		-----		-----
541	D2709	<0.05		-----	1447		-----		-----
557		-----		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498	D2709	0.0		-----
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	D2709	0.005		-----
621		-----		-----	1557		-----		-----
631	D2709	0		-----	1560		-----		-----
657	D2709	<0.005		-----	1561		-----		-----
663		-----		-----	1613		-----		-----
671	D2709	<0.01		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D2709	0.005		-----	1635		-----		-----
823	D2709	0.0		-----	1636		-----		-----
824	D2709	0		-----	1643		-----		-----
825	D2709	0.005		-----	1654		-----		-----
840	D2709	<0.005		-----	1709		-----		-----
862	D2709	<0.005		-----	1710		-----		-----
863	D2709	0.005		-----	1712		-----		-----
873		-----		-----	1720		-----		-----
874		-----		-----	1721		-----		-----

1724	-----	-----
1807	-----	-----
1810	-----	-----
1811	-----	-----
1833	-----	-----
1842	-----	-----
1849	-----	-----
1864	-----	-----
1906	-----	-----
1912	-----	-----
1915	-----	-----
1948	-----	-----
1951	-----	-----
2129	-----	-----
7006	-----	-----

normality	n.a.
n	23
outliers	0
mean (n)	<0.005
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D2709:11e1)	n.a.

Determination of Water and sediment (D1796) on sample #12103; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	875		-----		-----
53		-----		-----	887		-----		-----
62		-----		-----	902		-----		-----
92		-----		-----	904		-----		-----
132	D1796	0.00		-----	922		-----		-----
140	D1796	<0.025		-----	951		-----		-----
150	D1796	0.00		-----	962		-----		-----
158		-----		-----	963		-----		-----
159		-----		-----	971		-----		-----
169	D1796	0.000		-----	994	D1796	<0.05		-----
170		-----		-----	995		-----		-----
171		-----		-----	996		-----		-----
175		-----		-----	997		-----		-----
193	D1796	0.0		-----	998		-----		-----
212		-----		-----	1006	D1796	n.d.		-----
217	D1796	0.00		-----	1011	D1796	<0.005		-----
221		-----		-----	1017		-----		-----
224		-----		-----	1026		-----		-----
225		-----		-----	1033		-----		-----
228		-----		-----	1038		-----		-----
230		-----		-----	1059	ISO3734	<0.05		-----
240		-----		-----	1080		-----		-----
253		-----		-----	1081		-----		-----
254		-----		-----	1095	D1796	0		-----
256		-----		-----	1108		-----		-----
258		-----		-----	1109	D1796	0.00		-----
273		-----		-----	1121		-----		-----
311	D1796	0.00		-----	1124		-----		-----
312		-----		-----	1126		-----		-----
317		-----		-----	1131		-----		-----
323		-----		-----	1134		-----		-----
334		-----		-----	1140		-----		-----
335		-----		-----	1146		-----		-----
336		-----		-----	1150		-----		-----
337		-----		-----	1167		-----		-----
338		-----		-----	1182		-----		-----
343		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1227		-----		-----
353		-----		-----	1244		-----		-----
370		-----		-----	1259	ISO3734	0.00		-----
372		-----		-----	1284		-----		-----
402		-----		-----	1297		-----		-----
431		-----		-----	1299	D1796	0.005		-----
433		-----		-----	1340		-----		-----
445		-----		-----	1395		-----		-----
446		-----		-----	1399		-----		-----
447		-----		-----	1417		-----		-----
463	D1796	0		-----	1419		-----		-----
495		-----		-----	1427	D1796	0.00		-----
496		-----		-----	1428		-----		-----
507	D1796	0		-----	1430		-----		-----
511	D1796	<0.05		-----	1431		-----		-----
541	D1796	<0.1		-----	1447		-----		-----
557	D1796	0.00		-----	1455		-----		-----
575		-----		-----	1483		-----		-----
603		-----		-----	1498		-----		-----
604		-----		-----	1510		-----		-----
607		-----		-----	1512		-----		-----
608		-----		-----	1544	D1796	0.00		-----
621		-----		-----	1557	ISO3734	0.000		-----
631		-----		-----	1560		-----		-----
657	D1796	<0.05		-----	1561		-----		-----
663		-----		-----	1613	D1796	0.0		-----
671	D1796	<0.025		-----	1629		-----		-----
732		-----		-----	1631		-----		-----
759		-----		-----	1634		-----		-----
781	D1796	0.00		-----	1635	D1796	<0.05		-----
823	D1796	0.0		-----	1636		-----		-----
824	D1796	0.00		-----	1643		-----		-----
825		-----		-----	1654	D1796	0.00		-----
840	D1796	0.00		-----	1709		-----		-----
862	D1796	0.00		-----	1710		-----		-----
863		-----		-----	1712		-----		-----
873		-----		-----	1720		-----		-----
874		-----		-----	1721		-----		-----

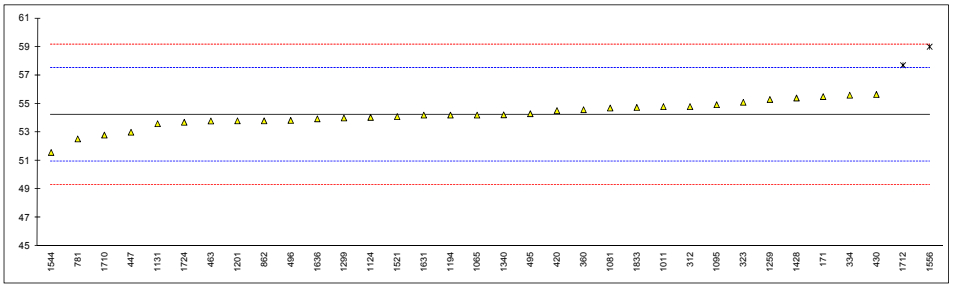
1724		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	D1796	0	-----
1842		-----	-----
1849		-----	-----
1864		-----	-----
1906		-----	-----
1912		-----	-----
1915	D1796	<0.025	-----
1948		-----	-----
1951		-----	-----
2129		-----	-----
7006		-----	-----

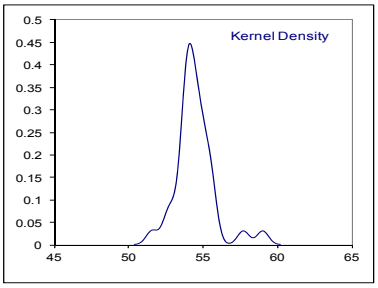
normality	n.a.
n	24
outliers	<0.005
mean (n)	n.a.
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D1796:11)	n.a.

Determination of Cetane Number (ASTM D613) of sample #12104

lab	method	value	mark	filtered	z(targ)	remarks
171	D613	55.5		No	0.78	
225		-----		-----	-----	
311		-----		-----	-----	
312	D613	54.8		-----	0.35	
323	D613	55.1		No	0.53	
334	D613	55.6		Yes	0.84	
338		-----		-----	-----	
360	D613	54.58		No	0.22	
420	D613	54.52		No	0.18	
430	D613	55.65		Yes	0.87	
444		-----		-----	-----	
445		-----		-----	-----	
447	D613	53.0		No	-0.75	
463	D613	53.79		No	-0.27	
495	D613	54.30		Yes	0.04	
496	D613	53.83		No	-0.24	
657		-----		-----	-----	
781	D613	52.53		No	-1.04	
862	D613	53.8		-----	-0.26	
962		-----		-----	-----	
1011	D613	54.8		No	0.35	
1026		-----		-----	-----	
1065	D613	54.2		Yes	-0.02	
1080		-----		-----	-----	
1081	D613	54.7		-----	0.29	
1095	D613	54.93		No	0.43	
1124	D613	54.04		No	-0.11	
1131	D613	53.6		No	-0.38	
1134		-----		Yes	-----	
1167		-----		-----	-----	
1194	D613	54.2		No	-0.02	
1201	D613	53.8		-----	-0.26	
1259	D613	55.30		No	0.66	
1299	D613	54.0		No	-0.14	
1340	D613	54.22		Yes	0.00	
1395		-----		-----	-----	
1419		-----		-----	-----	
1428	D613	55.4		No	0.72	
1447		-----		-----	-----	
1455		-----		-----	-----	
1457		-----		-----	-----	
1521	ISO5165	54.1		No	-0.08	
1544	D613	51.58		No	-1.62	
1556	D613	59.0	G(0.01)	No	2.92	
1613		-----		-----	-----	
1631	D613	54.2		-----	-0.02	
1636	D613	53.94		Yes	-0.18	
1710	D613	52.8		No	-0.87	
1712	ISO5165	57.7	G(0.05)	-----	2.12	
1724	D613	53.7		-----	-0.32	
1807		-----		-----	-----	
1833	D613	54.74		No	0.31	
1864		-----		-----	-----	

normality	OK
n	32
outliers	2
mean (n)	54.227
st.dev. (n)	0.9100
R(calc.)	2.548
R(D613:10a)	4.578

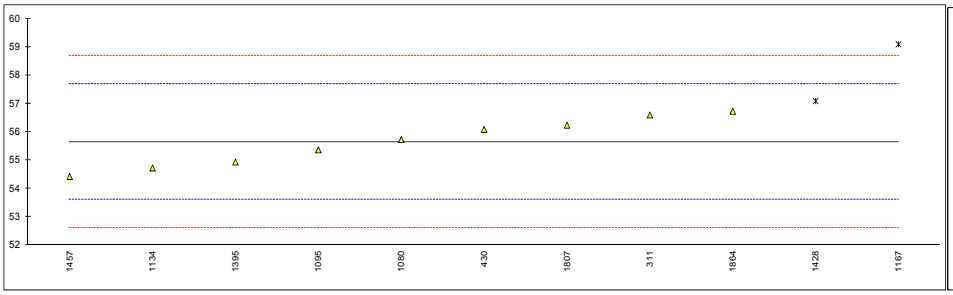


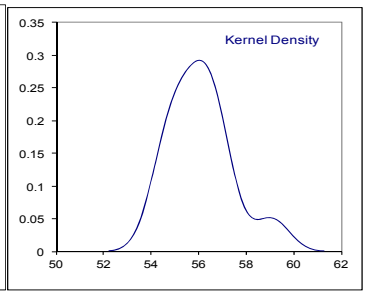


Determination of Derived Cetane Number (D6890) of sample #12104

lab	method	value	mark	z(targ)	Ignition delay	Air Temp.	Remarks
171		-----		-----	-----	-----	
225		-----		-----	-----	-----	
311	D6890	56.6		0.94	-----	-----	
312		-----		-----	-----	-----	
323		-----		-----	-----	-----	
334		-----		-----	-----	-----	
338		-----		-----	-----	-----	
360		-----		-----	-----	-----	
420		-----		-----	-----	-----	
430	D6890	56.09		0.43	3.614	530	
444		-----		-----	-----	-----	
445		-----		-----	-----	-----	
447		-----		-----	-----	-----	
463		-----		-----	-----	-----	
495		-----		-----	-----	-----	
496		-----		-----	-----	-----	
657		-----		-----	-----	-----	
781		-----		-----	-----	-----	
862		-----		-----	-----	-----	
962		-----		-----	-----	-----	
1011		-----		-----	-----	-----	
1026		-----		-----	-----	-----	
1065		-----		-----	-----	-----	
1080	D6890	55.73		0.08	3.639	586.7	
1081		-----		-----	-----	-----	
1095	D6890	55.37		-0.28	3.666	547.8	
1124		-----		-----	-----	-----	
1131		-----		-----	-----	-----	
1134	D6890	54.73		-0.91	3.712	555.7	
1167	ISO5165	59.09	G(0.05)	3.40	3.4187	26.6	
1194		-----		-----	-----	-----	
1201		-----		-----	-----	-----	
1259		-----		-----	-----	-----	
1299		-----		-----	-----	-----	
1340		-----		-----	-----	-----	
1395	D6890	54.94		-0.70	3.670	551.5	
1419		-----		-----	-----	-----	
1428	D7668	57.09	ex	1.42	2.7072	-----	Method not equivalent
1447		-----		-----	-----	-----	
1455		-----		-----	-----	-----	
1457	D6890	54.43		-1.21	3.735	548.1	
1521		-----		-----	-----	-----	
1544		-----		-----	-----	-----	
1556		-----		-----	-----	-----	
1613		-----		-----	-----	-----	
1631		-----		-----	-----	-----	
1636		-----		-----	-----	-----	
1710		-----		-----	-----	-----	
1712		-----		-----	-----	-----	
1724		-----		-----	-----	-----	
1807	D6890	56.24		0.58	3.604	-----	
1833		-----		-----	-----	-----	
1864	D6890	56.73		1.07	2.8436	-----	

normality	OK
n	9
outliers	1
mean (n)	55.65
st.dev. (n)	0.832
R(calc.)	2.33
R(D6890:11)	2.84

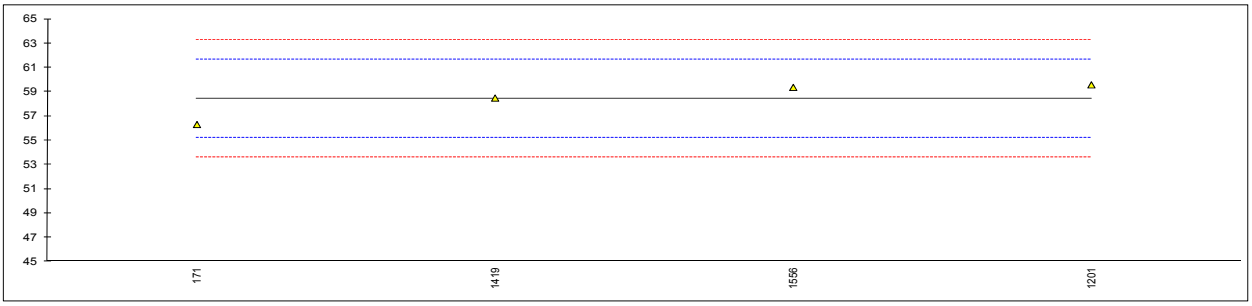




Determination of Derived Cetane Number (D7170) of sample #12104

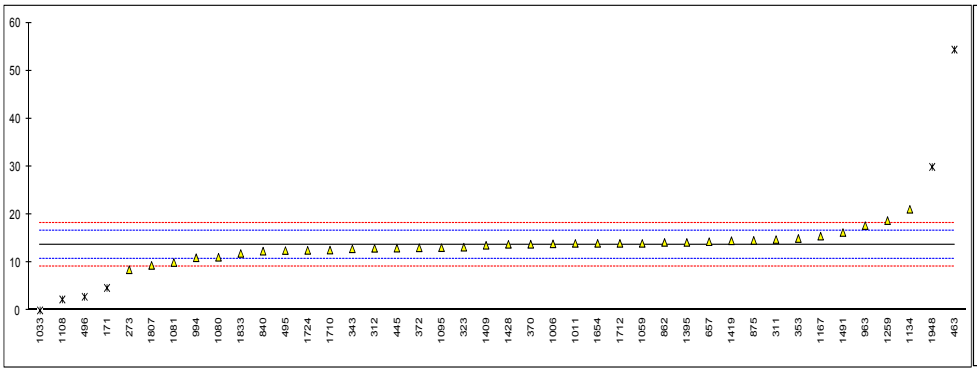
lab	method	value	mark	z(targ)	Ignition delay	Air Temp.	Remarks
171	D7120	56.31		-1.32	3.04	558.0	
225		-----		-----	-----	-----	
311		-----		-----	-----	-----	
312		-----		-----	-----	-----	
323		-----		-----	-----	-----	
334		-----		-----	-----	-----	
338		-----		-----	-----	-----	
360		-----		-----	-----	-----	
420		-----		-----	-----	-----	
430		-----		-----	-----	-----	
444		-----		-----	-----	-----	
445		-----		-----	-----	-----	
447		-----		-----	-----	-----	
463		-----		-----	-----	-----	
495		-----		-----	-----	-----	
496		-----		-----	-----	-----	
657		-----		-----	-----	-----	
781		-----		-----	-----	-----	
862		-----		-----	-----	-----	
962		-----		-----	-----	-----	
1011		-----		-----	-----	-----	
1026		-----		-----	-----	-----	
1065		-----		-----	-----	-----	
1080		-----		-----	-----	-----	
1081		-----		-----	-----	-----	
1095		-----		-----	-----	-----	
1124		-----		-----	-----	-----	
1131		-----		-----	-----	-----	
1134		-----		-----	-----	-----	
1167		-----		-----	-----	-----	
1194		-----		-----	-----	-----	
1201	D7170	59.58		0.71	2.87	556.4	
1259		-----		-----	-----	-----	
1299		-----		-----	-----	-----	
1340		-----		-----	-----	-----	
1395		-----		-----	-----	-----	
1419	D7170	58.49		0.03	2.98	575	
1428		-----		-----	-----	-----	
1447		-----		-----	-----	-----	
1455		-----		-----	-----	-----	
1457		-----		-----	-----	-----	
1521		-----		-----	-----	-----	
1544		-----		-----	-----	-----	
1556	D7170	59.37		0.58	2.88	545.4	
1613		-----		-----	-----	-----	
1631		-----		-----	-----	-----	
1636		-----		-----	-----	-----	
1710		-----		-----	-----	-----	
1712		-----		-----	-----	-----	
1724		-----		-----	-----	-----	
1807		-----		-----	-----	-----	
1833		-----		-----	-----	-----	
1864		-----		-----	-----	-----	

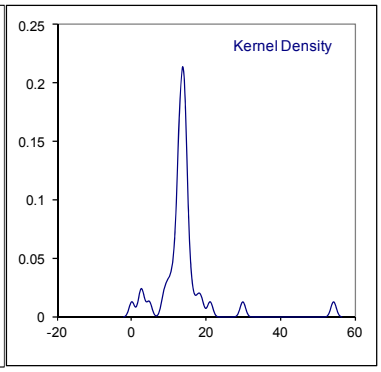
normality	OK
n	4
outliers	0
mean (n)	58.44
st.dev. (n)	1.495
R(calc.)	4.19
R(D7170:11)	4.52



Determination of Total Contamination on sample #12105; result in mg/kg

lab	method	value	mark	z(targ)	remarks
171	D6217	4.7	ex	-6.01	See §4.1
273	IP440	8.5		-3.47	
311	D6217	14.8	C	0.76	First reported 6.3
312	EN12662	12.96		-0.48	
323	D6217	13.2		-0.32	
335		-----		-----	
343	EN12662	12.86		-0.54	
353	IP440	15.007		0.89	
370	EN12662	13.81	C	0.09	First reported 6.81
372	D6217	13.08		-0.40	
445	IP440	13.0		-0.45	
447		-----		-----	
463	EN12662	54.38	G(0.01)	27.28	
495	D6217	12.5		-0.79	
496	EN12662	2.850	C,ex	-7.25	First reported 6.90, see §4.1
657	D6217	14.35		0.45	
840	D6217	12.37		-0.87	
862	D6217	14.191		0.35	
875	IP440	14.61		0.63	
904		-----		-----	
963	D6217	17.7		2.70	
971		-----		-----	
994	IP440	11.0	C	-1.79	First reported 19.0
1006	EN12662	13.9		0.15	
1011	EN12662	13.99		0.21	
1017		-----		-----	
1026		-----		-----	
1033	IP440	0.012	ex	-9.15	Unit error? See §4.1
1059	EN12662	14.0		0.22	
1080	EN12662	11.1		-1.72	
1081	EN12662	10.0		-2.46	
1095	EN12662	13.1		-0.38	
1108	D6217	2.3	ex	-7.62	See §4.1
1134	EN12662	21.1		4.98	
1167	EN12662	15.5		1.22	
1259	EN12662	18.7509		3.40	
1395	EN12662	14.2		0.35	
1409	EN12662	13.6		-0.05	
1419	EN12662	14.55		0.59	
1428	ISO12205	13.8		0.09	
1447		-----		-----	
1455		-----		-----	
1491	EN12662	16.26		1.73	
1631		-----		-----	
1654	EN12662	14.0		0.22	
1710	D6217	12.6		-0.72	
1712	EN12662	14.0		0.22	
1724	IP440	12.54		-0.76	
1807	EN12662	9.4		-2.86	
1833	IP440	11.9		-1.19	
1948	D6217	29.92	C,G(0.01)	10.89	First reported 7.43
	normality	not OK			
	n	36			
	outliers	2	Spike:		
	mean (n)	13.67	9.9		<138% recovered
	st.dev. (n)	2.372			
	R(calc.)	6.64			
	R(D6217:11)	4.18			Compare R(EN12662:08) = 4.10

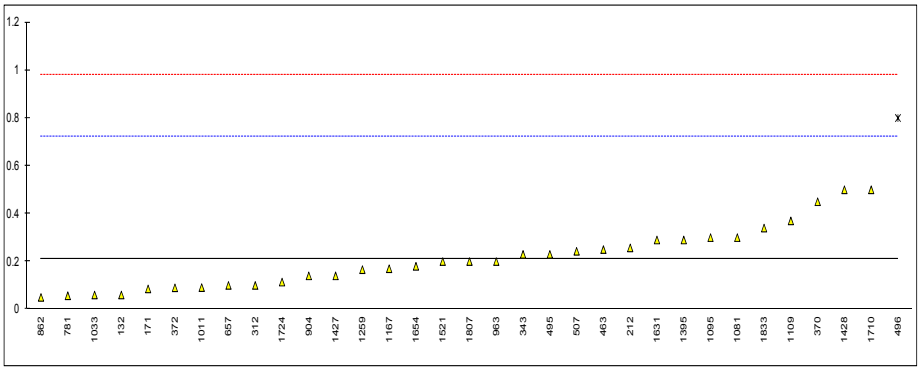


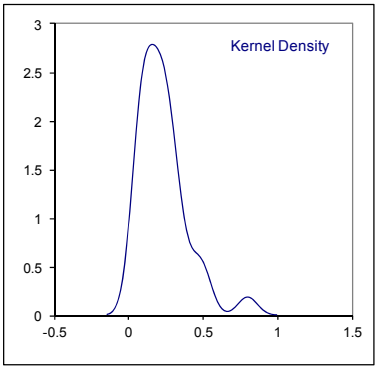


Determination of Oxidation Stability on sample #12105; result in mg/100mg

lab	method	value	mark	z(targ)	Remarks
132	D2274	0.06		-0.59	
171	D2274	0.0856		-0.49	
212	ISO12205	0.257	C	0.18	Reported 2.57 (g/m3 ??)
311	D2274	<0.1		-----	
312	D2274	0.1		-0.43	
323		-----		-----	
335		-----		-----	
343	D2274	0.23	C	0.07	First reported 2.3
370	D2274	0.45		0.93	
372	D2274	0.09		-0.47	
445	D2274	<0.1		-----	
447		-----		-----	
463	ISO12205	0.25	C	0.15	Reported 2.5 (g/m3 ??)
495	D2274	0.23	C	0.07	Reported 2.3 (g/m3 ??)
496	D2274	0.80	G(0.01)	2.30	
507	D2274	0.2428	C	0.12	Reported 2.428 (g/m3 ??)
657	D2274	0.1		-0.43	
781	D2274	0.057		-0.60	
862	D2274	0.05		-0.63	
904	D2274	0.14		-0.28	
963	D2274	0.20		-0.04	
974		-----		-----	
1011	ISO12205	0.091		-0.47	
1017		-----		-----	
1026	EN15751	-----	ex	-----	Reported 65.1 hrs
1033	D2274	0.06		-0.59	
1059	D2274	<0.1		-----	
1080		-----		-----	
1081	D2274	0.3	C	0.35	First reported 3.0
1095	D2274	0.3	C	0.35	Reported 3.0 (g/m3 ??)
1108		-----		-----	
1109	D2274	0.37		0.62	
1134		-----		-----	
1167	ISO12205	0.17	C	-0.16	Reported 1.7 (g/m3 ??)
1259	ISO12205	0.166	C	-0.18	Reported 1.66 (g/m3 ??)
1395	D2274	0.29		0.31	
1419	ISO12205	<0.1		-----	
1427	D2274	0.14		-0.28	
1428	EN12662	0.5	C	1.13	First reported 3
1447		-----		-----	
1455		-----		-----	
1521	ISO12205	0.2		-0.04	
1631	D2274	0.290		0.31	
1654	ISO12205	0.18		-0.12	
1710	D2274	0.5		1.13	
1724	D2274	0.114		-0.38	
1807	ISO12205	0.2	C	-0.04	Reported 2.0 (g/m3 ??)
1833	D2274	0.34		0.50	

normality	OK
n	32
outliers	1
mean (n)	0.211
st.dev. (n)	0.1256
R(calc.)	0.352
R(D2274:10)	0.718





APPENDIX 2 Z-scores Distillation

	Automated						Manual					
lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP	IBP	10%rec	50%rec	90%rec	95%rec	FBP
52	0.05	-0.50	0.45	0.92	1.15	-0.05	-----	-----	-----	-----	-----	-----
53	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
62	-0.15	-0.32	-0.02	2.42	0.82	0.35	-----	-----	-----	-----	-----	-----
92	0.95	2.03	1.21	0.17	-0.26	0.43	-----	-----	-----	-----	-----	-----
132	-0.27	0.32	0.17	-0.17	-0.63	-0.64	-----	-----	-----	-----	-----	-----
140	-0.53	-2.32	1.02	0.00	-0.20	-0.68	-----	-----	-----	-----	-----	-----
150	1.06	0.44	-0.21	-0.92	-0.96	-2.06	-----	-----	-----	-----	-----	-----
158	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
159	1.67	1.91	1.39	0.75	0.29	-0.80	-----	-----	-----	-----	-----	-----
169	0.08	-0.85	-0.77	0.52	0.89	0.19	-----	-----	-----	-----	-----	-----
170	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
171	-14.70	-5.32	-5.02	-2.12	-0.96	-2.61	-----	-----	-----	-----	-----	-----
175	-1.25	-2.09	-1.72	-0.05	0.43	-1.66	-----	-----	-----	-----	-----	-----
193	0.57	0.50	-0.77	-1.38	-1.15	-1.03	-----	-----	-----	-----	-----	-----
212	2.45	3.08	2.43	0.98	0.52	2.16	-----	-----	-----	-----	-----	-----
217	-----	-----	-----	-----	-----	-----	-0.92	-1.46	-0.35	-0.14	0.16	-0.83
221	-----	-----	-----	-----	-----	-----	-3.48	-1.37	-1.77	-0.75	-1.33	-0.57
224	-----	-----	-----	-----	-----	-----	0.19	-0.83	-0.50	0.58	0.89	-0.25
225	-----	-----	-----	-----	-----	-----	2.61	1.54	0.54	2.48	2.85	1.55
228	-----	-----	-----	-----	-----	-----	0.00	0.57	-0.23	2.12	1.80	-1.27
230	-0.24	1.09	1.30	1.04	0.62	1.14	-----	-----	-----	-----	-----	-----
240	-----	-----	-----	-----	-----	-----	-0.44	-1.37	-1.00	-0.75	0.76	-1.27
253	-----	-----	-----	-----	-----	-----	0.87	1.54	2.07	0.69	-0.81	0.85
254	-----	-----	-----	-----	-----	-----	1.30	0.57	-0.23	-0.03	-----	-0.57
256	-----	-----	-----	-----	-----	-----	-2.61	-3.31	-0.23	-1.47	-2.90	-2.69
258	0.31	-0.44	-1.34	-1.55	-1.97	-2.33	-----	-----	-----	-----	-----	-----
273	0.89	-0.44	-1.34	-0.80	-0.82	-0.72	-----	-----	-----	-----	-----	-----
311	-1.63	-1.79	-0.87	0.69	0.66	0.90	-----	-----	-----	-----	-----	-----
312	-0.21	-1.32	-0.21	-0.40	-0.33	-2.77	-----	-----	-----	-----	-----	-----
317	-0.67	1.14	0.07	0.46	0.62	0.23	-----	-----	-----	-----	-----	-----
323	-0.76	-0.15	0.26	1.04	1.08	-0.17	-----	-----	-----	-----	-----	-----
334	0.05	-0.15	-1.25	-1.32	-1.22	-0.28	-----	-----	-----	-----	-----	-----
335	0.80	-1.09	-0.02	0.69	1.15	0.11	-----	-----	-----	-----	-----	-----
336	1.93	0.79	0.83	0.98	1.08	0.62	-----	-----	-----	-----	-----	-----
337	0.37	-2.73	-1.43	-0.97	-1.32	0.07	-----	-----	-----	-----	-----	-----
338	1.87	-0.62	-0.11	0.23	-0.33	0.19	-----	-----	-----	-----	-----	-----
343	-0.88	0.73	-0.87	-0.05	-0.03	-0.68	-----	-----	-----	-----	-----	-----
344	-0.04	-0.15	0.07	-1.38	-0.23	-0.09	-----	-----	-----	-----	-----	-----
349	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
353	-1.19	-1.15	0.45	0.81	0.39	1.02	-----	-----	-----	-----	-----	-----
370	-1.08	-1.21	-0.49	-0.63	-0.26	0.11	-----	-----	-----	-----	-----	-----
372	-0.44	0.03	-0.02	-0.23	-0.26	-0.01	-----	-----	-----	-----	-----	-----
402	0.51	0.32	0.45	-0.46	-0.36	0.11	-----	-----	-----	-----	-----	-----
431	-----	-0.27	-1.53	0.17	0.89	-----	-----	-----	-----	-----	-----	-----
433	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
445	1.58	0.85	0.92	-0.28	-0.53	-0.01	-----	-----	-----	-----	-----	-----
446	-0.70	0.15	-0.21	-0.28	-0.59	-0.48	-----	-----	-----	-----	-----	-----
447	0.66	0.15	-0.40	-0.23	-0.46	0.23	-----	-----	-----	-----	-----	-----
463	-0.41	0.15	0.07	0.69	0.46	0.78	-----	-----	-----	-----	-----	-----
495	0.77	0.32	0.36	0.35	0.26	0.47	-----	-----	-----	-----	-----	-----
496	-0.30	0.67	0.45	1.38	1.02	0.43	-----	-----	-----	-----	-----	-----
507	-----	-----	-----	-----	-----	-----	1.79	1.94	1.40	2.22	1.36	5.20
511	-----	-----	-----	-----	-----	-----	1.74	-0.08	-0.62	-1.47	-0.81	-0.92
541	-----	-----	-----	-----	-----	-----	-2.18	-2.34	-0.23	-0.75	-----	0.14
557	0.51	1.56	0.55	-1.84	-0.49	-1.11	-----	-----	-----	-----	-----	-----
575	-----	-----	-----	-----	-----	-----	3.04	-0.08	-1.00	-2.90	-3.42	-2.69
603	-----	-----	-----	-----	-----	-----	-1.31	-2.02	-0.23	-0.03	0.76	0.85
604	-0.67	-0.21	-0.49	0.12	0.29	-0.40	-----	-----	-----	-----	-----	-----
607	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
608	-----	-----	-----	-----	-----	-----	1.09	2.50	1.30	1.04	0.50	1.20
621	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
631	-----	-----	-----	-----	-----	-----	0.87	1.21	-1.00	-1.47	-1.33	-0.57
657	-1.57	-0.27	-0.59	-1.09	-0.92	-0.28	-----	-----	-----	-----	-----	-----
663	0.83	1.03	0.36	-0.11	0.00	0.27	-----	-----	-----	-----	-----	-----
671	-1.77	-1.03	-0.59	0.23	0.26	-0.44	-----	-----	-----	-----	-----	-----
732	-----	-----	-----	-----	-----	-----	-2.18	-3.31	-1.00	-0.03	-0.29	2.26
759	-----	-----	-----	-----	-----	-----	-0.44	0.89	-0.62	-0.39	0.24	-0.92
781	0.08	0.50	0.26	0.17	0.29	-0.17	-----	-----	-----	-----	-----	-----
823	-0.99	-1.03	-0.96	-0.97	-1.19	-0.36	-----	-----	-----	-----	-----	-----
824	0.11	0.56	0.73	0.12	0.13	0.27	-----	-----	-----	-----	-----	-----
825	-0.56	0.20	0.64	0.86	0.69	0.31	-----	-----	-----	-----	-----	-----
840	-1.93	-0.62	-1.24	-0.54	-0.30	-0.02	-----	-----	-----	-----	-----	-----
862	-2.47	-1.56	-0.87	-0.63	-0.36	-0.44	-----	-----	-----	-----	-----	-----
863	-----	-----	-----	-----	-----	-----	0.43	1.21	0.92	0.69	1.02	1.55
873	-0.59	-3.91	-2.09	0.06	0.72	0.39	-----	-----	-----	-----	-----	-----
874	-----	-----	-----	-----	-----	-----	0.00	-0.08	0.54	0.69	1.28	0.14
875	-----	-----	-----	-----	-----	-----	0.87	1.54	0.92	-0.03	-0.29	-1.27

887	-----	-----	-----	-----	-----	-----	0.87	1.21	0.54	1.40	2.33	2.26
902	-----	-----	-----	-----	-----	-----	-0.44	-0.73	0.54	-0.03	-0.29	2.26
904	-0.85	-0.38	0.36	0.12	-0.10	0.27	-----	-----	-----	-----	-----	-----
922	-----	-----	-----	-----	-----	-----	0.50	0.03	-0.86	-0.60	-0.17	-1.82
951	-----	-----	-----	-----	-----	-----	-0.83	0.24	0.45	1.24	0.62	1.36
962	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
963	0.02	0.97	0.92	0.17	0.29	-0.40	-----	-----	-----	-----	-----	-----
971	-1.05	-1.85	-0.68	0.23	-0.17	0.43	-----	-----	-----	-----	-----	-----
994	-----	-----	-----	-----	-----	-----	0.00	-0.73	-0.23	-0.03	-1.33	0.14
995	-----	-----	-----	-----	-----	-----	-0.22	0.86	-0.69	-1.32	-0.65	-0.21
996	-----	-----	-----	-----	-----	-----	-0.44	-1.05	0.15	-0.03	-0.81	0.85
997	-----	-----	-----	-----	-----	-----	0.22	-0.08	-0.23	-1.47	-0.81	0.14
998	-----	-----	-----	-----	-----	-----	0.22	3.47	2.07	1.04	0.76	1.20
1006	0.83	0.03	-0.11	1.09	0.03	0.23	-----	-----	-----	-----	-----	-----
1011	-0.27	0.03	-0.21	0.06	-0.26	0.50	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1026	6.01	1.20	0.55	0.58	0.49	0.82	-----	-----	-----	-----	-----	-----
1033	1.15	-0.09	0.64	0.81	0.29	1.14	-----	-----	-----	-----	-----	-----
1038	0.31	-0.97	-2.38	-2.30	-1.48	-2.10	-----	-----	-----	-----	-----	-----
1059	-0.67	-0.68	-1.25	-1.32	-1.05	-0.56	-----	-----	-----	-----	-----	-----
1080	1.53	0.44	-0.02	0.23	0.26	0.27	-----	-----	-----	-----	-----	-----
1081	0.54	0.91	1.58	1.09	0.85	-0.09	-----	-----	-----	-----	-----	-----
1095	0.08	1.03	0.73	0.23	0.23	0.15	-----	-----	-----	-----	-----	-----
1108	0.66	0.56	0.73	1.38	1.35	0.74	-----	-----	-----	-----	-----	-----
1109	0.51	0.56	1.02	0.86	0.79	-0.44	-----	-----	-----	-----	-----	-----
1121	-----	-----	-----	-----	-----	-----	-1.31	-3.31	0.54	0.69	0.76	0.14
1124	-0.15	-0.09	0.73	0.35	1.05	-0.40	-----	-----	-----	-----	-----	-----
1126	-0.38	-0.32	-1.34	0.00	0.16	1.73	-----	-----	-----	-----	-----	-----
1131	0.74	2.44	1.39	0.98	0.79	-0.21	-----	-----	-----	-----	-----	-----
1134	-2.96	-1.26	-0.30	0.17	0.16	0.98	-----	-----	-----	-----	-----	-----
1140	-1.37	-0.85	-1.25	-0.63	-0.40	-0.21	-----	-----	-----	-----	-----	-----
1146	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1150	1.59	1.77	1.56	1.20	0.96	0.45	-----	-----	-----	-----	-----	-----
1167	-2.54	-2.44	-1.20	-0.31	-0.10	-0.68	-----	-----	-----	-----	-----	-----
1182	-0.56	-2.32	0.36	1.61	1.64	0.35	-----	-----	-----	-----	-----	-----
1186	-----	-----	-----	-----	-----	-----	-1.65	0.70	-0.08	0.11	0.86	2.40
1194	-0.93	-3.97	-0.11	-0.57	-0.23	-1.47	-----	-----	-----	-----	-----	-----
1227	-0.44	-0.68	0.17	1.78	2.04	-0.05	-----	-----	-----	-----	-----	-----
1244	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1259	-----	-----	-----	-----	-----	-----	-0.44	1.21	0.54	-2.90	-3.94	0.14
1284	-0.59	0.15	-0.21	-1.43	-1.38	-0.05	-----	-----	-----	-----	-----	-----
1297	0.22	0.79	1.21	1.21	0.72	0.70	-----	-----	-----	-----	-----	-----
1299	-0.30	-1.15	-0.77	0.06	0.03	0.27	-----	-----	-----	-----	-----	-----
1340	1.06	0.26	0.07	-0.17	-0.10	0.98	-----	-----	-----	-----	-----	-----
1395	0.08	0.26	-0.02	-0.86	-1.22	-0.09	-----	-----	-----	-----	-----	-----
1399	-0.21	-0.32	-0.77	0.86	-0.79	1.77	-----	-----	-----	-----	-----	-----
1417	0.43	1.09	1.68	1.50	-----	-0.01	-----	-----	-----	-----	-----	-----
1419	1.06	1.26	0.73	-0.23	-0.30	-0.36	-----	-----	-----	-----	-----	-----
1427	-0.21	-0.15	-0.59	-0.74	-0.76	0.03	-----	-----	-----	-----	-----	-----
1428	-0.21	-0.27	0.07	-0.28	-0.07	0.03	-----	-----	-----	-----	-----	-----
1430	-0.18	0.50	-0.49	0.23	0.59	-0.64	-----	-----	-----	-----	-----	-----
1431	2.33	2.26	2.15	0.86	0.62	2.67	-----	-----	-----	-----	-----	-----
1447	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1455	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1483	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1498	-0.24	1.09	1.11	-0.86	-0.13	-3.16	-----	-----	-----	-----	-----	-----
1510	0.08	-9.02	10.35	5.69	1.64	1.57	-----	-----	-----	-----	-----	-----
1512	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1544	-----	-----	-----	-----	-----	-----	-0.87	-2.34	-1.39	-1.47	-1.59	-1.63
1557	-----	-----	-----	-----	-----	-----	1.30	2.83	2.07	2.12	1.28	4.38
1560	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1561	-----	-----	-----	-----	-----	-----	0.96	2.51	0.71	2.42	1.03	0.55
1613	0.57	0.38	-0.40	-0.34	-0.76	1.21	-----	-----	-----	-----	-----	-----
1629	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1631	-0.01	-0.21	0.07	-1.09	0.23	0.11	-----	-----	-----	-----	-----	-----
1634	-1.05	0.20	0.07	0.12	-0.73	-1.23	-----	-----	-----	-----	-----	-----
1635	-----	-----	-----	-----	-----	-----	0.87	-0.73	-1.77	-5.77	-6.56	-1.27
1636	0.19	0.32	0.45	0.29	0.06	-0.21	-----	-----	-----	-----	-----	-----
1643	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1654	0.48	0.12	-0.73	-0.31	0.03	0.29	-----	-----	-----	-----	-----	-----
1709	0.25	-0.32	0.07	-0.28	-0.79	-1.03	-----	-----	-----	-----	-----	-----
1710	1.41	-0.03	0.45	0.92	0.82	0.03	-----	-----	-----	-----	-----	-----
1712	-0.30	-0.27	0.64	1.09	1.64	0.47	-----	-----	-----	-----	-----	-----
1720	-0.64	-0.79	1.11	1.73	0.06	-0.21	-----	-----	-----	-----	-----	-----
1721	-----	-----	-----	-----	-----	-----	0.00	-1.37	-1.00	-1.47	-0.81	-1.27
1724	0.28	-0.44	-0.21	0.17	0.36	0.03	-----	-----	-----	-----	-----	-----
1807	-1.83	-4.03	-1.81	-2.01	-1.65	2.87	-----	-----	-----	-----	-----	-----
1810	1.67	1.61	0.64	-0.51	-1.02	0.23	-----	-----	-----	-----	-----	-----
1811	0.60	-1.26	-0.30	-0.80	-0.96	-0.32	-----	-----	-----	-----	-----	-----
1833	-0.09	-0.21	0.26	0.29	0.23	0.70	-----	-----	-----	-----	-----	-----

1842	-1.08	-0.27	-0.87	-0.69	-0.40	0.07	-----	-----	-----	-----	-----	-----
1849	0.04	0.29	0.83	0.06	-0.30	0.80	-----	-----	-----	-----	-----	-----
1864	0.83	0.50	0.07	-0.74	-0.92	0.31	-----	-----	-----	-----	-----	-----
1906	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1912	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.33	-----
1915	1.15	0.20	-0.21	-2.81	-4.37	-5.92	-----	-----	-----	-----	-----	-----
1948	1.00	0.91	0.26	0.35	0.20	0.35	-----	-----	-----	-----	-----	-----
1951	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2129	0.57	-0.68	-0.49	-0.86	-1.15	0.07	-----	-----	-----	-----	-----	-----
7006	-3.85	-----	-----	-----	-----	-0.13	-----	-----	-----	-----	-----	-----

APPENDIX 3
Participants per country

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

APPENDIX 4

Abbreviations:

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

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