Results of Proficiency Test
Gasoil (Diesel - EN spec.)
March 2013

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies organizes proficiency tests for Gasoil - Automotive Diesel. In the annual proficiency testing program of 2012-2013, it was decided to continue the proficiency test for the analysis of Gasoil - Diesel in accordance with the latest applicable version of EN590 specification.
In this interlaboratory study, 139 laboratories from 57 different countries have participated. See appendix 3 for a list of participants in alphabetical country order. In this report the results of the 2013 EN Gasoil - Diesel proficiency test are presented and discussed.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. During the planning of the annual program for 2010/2011, it was decided to dedicate one of the two annual gasoil round robins (the autumn round) to the ASTM specification and the other (the spring round) to the EN specification.
For the EN specification round robin it was decided to use two identical samples of Gasoil, 1*1L Gasoil and 1*0.5L Gasoil, both labelled #13010. For Total Contamination, it was decided to use one bottle of 1L (80% filled), labelled #13011. 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 and ILAC-G13:2007, (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This ensures 100% confidentially of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

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

2.3 CONFIDENTIALITY STATEMENT

All data 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

The 400 litre low sulphur Gasoil (automotive diesel) was purchased from the local market. After homogenization, the material was subsequently divided over 160 amber glass bottles of 1L and 160 amber glass bottles of 500 mL with inner and outer caps and both labelled #13010. The homogeneity of the 1L and 500 mL subsamples were checked by the determination of Density in accordance with ISO12185:96 on 9 stratified randomly selected samples.

	Density @ 15 °C in kg/m^3
sample #13010-1	830.82
sample #13010-2	830.81
sample #13010-3	830.80
sample #13010-4	830.80
sample #13010-5	830.80
sample #13010-6	830.80
sample #13010-7	830.80
sample #13010-8	830.80
sample #13010-9	830.80
Sample #13010-10	830.80

table 1: homogeneity test of subsamples #13010

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 #13010)	0.02
reference test	ISO12185:96
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples #13010

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #13010 was assumed.

For Total Contamination, out of the same batch, another 105 amber glass bottles of 1L with inner and outer caps were filled up to approx 800 mL and subsequently labelled #13011.
Each sample was spiked with 1 ml of a fresh prepared and well shaken, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspension.
The addition was checked by weighing the bottles before and after addition of the spike.

Depending on the registration, two bottles of regular Gasoil (1*1 L and 1*500 mL both labelled #13010) and/or 1 bottle of Gasoil for Total Contamination (1*1 L labelled #13011) were sent to the participating laboratories on February 20, 2013.

2.5 STABILITY OF THE SAMPLES

The stability of the gasoil, packed in the amber 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 #13010: Ash Content, Cetane Index, Carbon Residue on 10% residue, Cloud Point, Cold Filter Plugging Point (CFPP), 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, Poly-Aromatics, Nitrogen, Pour Point, Sulphur content, Total Acid Number and Water. On sample #13011 was requested to determine Total Contamination only. 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.

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-scores were calculated according to:

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

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

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

4 EVALUATION

In this interlaboratory study, some problems with customs clearance were encountered during dispatch of the samples to Afghanistan, Australia, Equatorial Guinea, Iran, Mauritius, Qatar and Sudan.
For sample #13010, thirteen participants reported results after the final reporting date and seven participants did not report any test results.
For sample #13011, three participants reported results after the final reporting date and ten participants did not report any test results.

Finally, 132 participants reported 2572 numerical results in total. Observed were 75 outlying results, which is 2.9%. In proficiency studies, outlier percentages of 3%-7.5% are quite normal.

Not all original data sets proved to have a normal distribution. Anormal distributions were found for: Ash, Cetane Index, Cloud Point, CFPP, Density, FAME, Flash Point, Kinematic Viscosity, PAH, Pour Point, Sulphur and Distillation (10% rec, FBP automated, 90% and 95% rec, volume 350ºC manual). 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.

Ash: 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 ISO6245:93.

C.I. ISO4264: Eleven participants reported results according ASTM D976, a test method that leads to results that are not equivalent with ISO4264/ASTM D4737 results. Therefore, these results were excluded from the statistical evaluation. For the other results, apparently almost all participants used the same calculation method: procedure A of ISO4264:95/IP380:98/ASTM D4737.
The calculated reproducibility of the group is almost the same in comparison with the reproducibility as found in last year's round: 1.30 vs 1.23.

Fifteen participants probably made a calculation error or used deviating formulae.

Cloud Point: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of EN23015:92.

CFPP: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of EN116:97.

CR on 10% res.: This determination was problematic at this low level of carbon residue. Five test results were excluded as the reported test method (ASTM D524, Ramsbottom CR) is not equivalent with ISO10370. Also, five statistical outliers were observed. The calculated reproducibility after rejection of the suspect test results is not in agreement with ISO10370:93.
According to the appendix in ISO10370 (or ASTM D4530), the test results of ISO10370 are equivalent to the test results of ISO6615, but the precision of the micro method is better.

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

Density @15°C: This determination was problematic for a number of laboratories. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO12185:96.

FAME: This determination was problematic. Two statistical outliers were observed and the calculated reproducibility, after rejection of the statistical outliers, is not in agreement with EN14078:09.

Flash Point: This determination was not problematic. Only two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO2719:02.

Kin. visc. 40°C: This determination was problematic for a number of laboratories. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ISO3104:94.

Lubricity: This determination was very problematic. No statistical outliers were observed. Five results were excluded for statistical evaluation, as the reported test method (ASTM D6079 and D7688) uses a deviating calculation procedure and the test result therefore is not equivalent with a test result of ISO12156. The calculated reproducibility is not at all in agreement with ISO12156:04. The test results vary over a large range: 212 - 424µm.

Nitrogen: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers is in agreement with ASTM D4629:10.

Poly-aromatics: This determination may be problematic for a number of laboratories. Two statistical outliers were observed and two results were excluded as ASTM D6591 is not suitable for Gasoil containing FAME. However, the calculated reproducibility, after rejection of the statistical outliers, is in full agreement with the requirements EN12916:06. The comparison against EN12916:06 should be used with care, as EN12916 is only applicable for Gasoil with FAME upto 5%V/V. The Gasoil in this PT contained 6%V/V FAME.

Mono-aromatics: This determination may be not problematic. Only one statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is in agreement with the requirements EN12916:06. The comparison against EN12916:06 should be used with care, as EN12916 is only applicable for Gasoil with FAME upto 5%V/V. The Gasoil in this PT contained 6%V/V FAME.

Di-aromatics: This determination may be problematic. No statistical outliers were observed However, the calculated reproducibility is not in agreement with the requirements EN12916:06. The comparison against EN12916:06 should be used with care, as EN12916 is only applicable for Gasoil with FAME upto 5%V/V. The Gasoil in this PT contained 6%V/V FAME.

Tri-aromatics: This determination may be not problematic. Three statistical outliers were observed and two results were excluded as ASTM D6591 is not suitable for Gasoil containing FAME. However, the calculated reproducibility, after rejection of the statistical outliers, is in good agreement with the requirements EN12916:06. The comparison against EN12916:06 should be used with care, as EN12916 is only applicable for Gasoil with FAME upto 5%V/V. The Gasoil in this PT contained 6%V/V FAME.

Pour Point manual: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with ISO3016:94.

Pour Point automated: Several participants reported a test method that prescribes a manual mode. Therefore, these results were excluded from the statistical evaluation. This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with ASTM D5950:07.

Sulphur: This determination was problematic at this low level of 7.3 mg/kg. Five statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO20846:04.

Total Acid Number: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D974:08.

Water: This determination was not problematic. Only two statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in good agreement with the requirements of ISO12937:00.

Distillation: The automated method was not problematic. In total eleven statistical outliers were observed. All calculated reproducibilities are, after rejection of the statistical outliers, in good agreement with the requirements of ISO3405:09.
The manual method was problematic. In total eight statistical outliers were observed. All calculated reproducibilities, except for the volume at 350°C, were, after rejection of the statistical outliers, not in agreement with the requirements of ISO3405:09.

Total Contamination: This determination was very problematic at the level of 17.9 mg/kg. The samples were spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. Therefore, the minimal contamination concentration to be found was known (added amount = 10.2 mg/kg). The laboratories should be able to find at least 7.1 mg/kg [10.2 mg/kg$_{(\text{added amount})}$ – 3.1 mg/kg$_{(\text{R EN12662})}$].
Four laboratories reported lower amounts than 7.1 mg/kg and were rejected prior to data analysis. After excluding of the four laboratories, one statistical outlier was observed. The calculated reproducibility after rejection of the 5 suspect test results is not at all in agreement with the requirements of EN12662:08. The comparison against EN12662 should be used with care, as EN12662 is only applicable for Gasoil with FAME upto 5%V/V. The Gasoil in this PT contained 6%V/V FAME.
The correctness of the sample pretreatment is critical for this determination.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameters	unit	n	average	2.8 * sd	R (lit)
Ash content	%M/M	47	0.0009	0.0015	0.0050
Cetane index ISO4264		91	55.87	1.30	unknown
Cloud Point	°C	103	-4.3	2.4	4.0
Cold Filter Plugging Point	°C	95	-13.4	4.9	4.0
Carbon Residue	%M/M	53	0.017	0.025	0.016
Copper Corrosion 3hrs@50ºC		97	1	unknown	unknown
Density @ 15 °C	kg/m^3	122	830.8	0.4	0.5
FAME	%V/V	58	6.0	0.6	0.5
Flash Point PMcc	°C	121	60.5	3.6	4.3
Kinematic Viscosity @ 40 °C	mm^2/s	105	2.808	0.033	0.031
Lubricity by HFRR	µm	53	325	161	102
Nitrogen	mg/kg	25	56.1	6.9	6.4
Polyaromatics	%M/M	39	2.09	0.87	0.85
Mono-aromatics	%M/M	37	17.76	2.43	2.21
Di-aromatics	%M/M	38	1.87	0.81	0.59
Tri-aromatics	%M/M	32	0.17	0.23	0.55
Pour Point, manual	ºC	65	-12.4	3.7	6.4
Pour Point, automated	ºC	30	-11.6	4.9	6.1
Total Sulphur	mg/kg	100	7.4	2.7	1.9
Total Acid Number	mgKOH/kg	58	0.028	0.018	0.040
Water	mg/kg	98	60.4	23.7	53.5
IBP (automated)	°C	96	166.7	8.8	9.1
10% recovery (automated)	°C	95	207.4	4.8	4.6
50% recovery (automated)	°C	95	277.5	3.0	3.0
90% recovery (automated)	°C	96	335.7	3.7	5.0
95% recovery (automated)	°C	97	350.0	6.5	8.9
FBP (automated)	°C	96	360.2	5.3	7.1
Volume at 250ºC	%V/V	89	31.3	2.1	2.7
Volume at 350ºC	%V/V	92	95.0	1.6	2.7
IBP (manual)	°C	25	165.1	9.5	6.5
10% recovery (manual)	°C	25	204.7	7.8	4.8
50% recovery (manual)	°C	25	276.7	4.7	4.2
90% recovery (manual)	°C	24	335.6	4.2	3.2
95% recovery (manual)	°C	25	349.3	10.2	4.0
FBP (manual)	°C	24	359.8	6.9	3.5
Volume at 250ºC	%V/V	25	32.0	3.6	2.5
Volume at 350ºC	%V/V	24	95.3	2.2	2.5
Total Contamination #13011	mg/kg	40	17.9	9.3	5.4

table 3: summary of tests results of Gasoil #13010 and #13011

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 MARCH 2013 WITH PREVIOUS PTS.

	March 2013	*March 2012*	*March 2011*	*March 2010*
Number of reporting labs	132	116	102	72
Number of results reported	2572	2135	1950	1322
Statistical outliers	75	59	66	58
Percentage outliers	2.9%	2.8%	3.4%	4.4%

table 4: 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:

	March 2013	*March 2012*	*March 2011*	*March 2010*
Ash content	++	++	(++)	(++)
Cloud Point	++	++	++	++
Cold Filter Plugging Point	-	+	++	++
CR 10% residue	--	--	--	++
Density @ 15 °C	+	++	++	++
Distillation – automated mode	++	++	++	++
Distillation – manual mode	--	--	--	+
FAME	-	-	--	++
Flash Point PMcc	++	+	++	++
Kinematic Viscosity @ 40 °C	+/-	+	--	--
Lubricity by HFRR	--	+/-	+/-	+
Nitrogen content	-	--	--	--
Polyaromatics	+/-	--	--	--
Aromatics (mono,di,tri)	-	n.e.	n.e.	n.e.
Pour Point	++	++	++	++
Sulphur	-	-	-	++
Total Acid Number	++	++	++	++
Water content	++	++	++	++
Total Contamination #13011	--	+	+/-	--

table 5: comparison determinations against the standard
results between brackets should used with care, because the average was below the application range

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

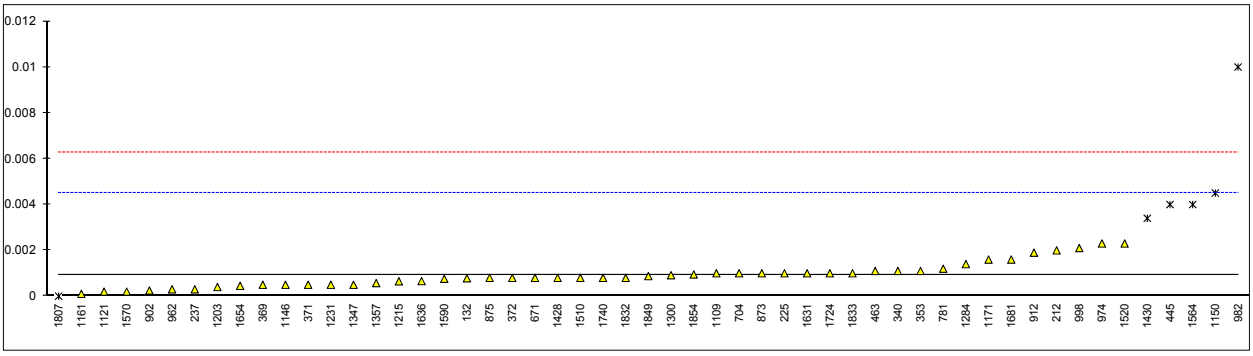
Determination of Ash on sample #13010; result in %M/M

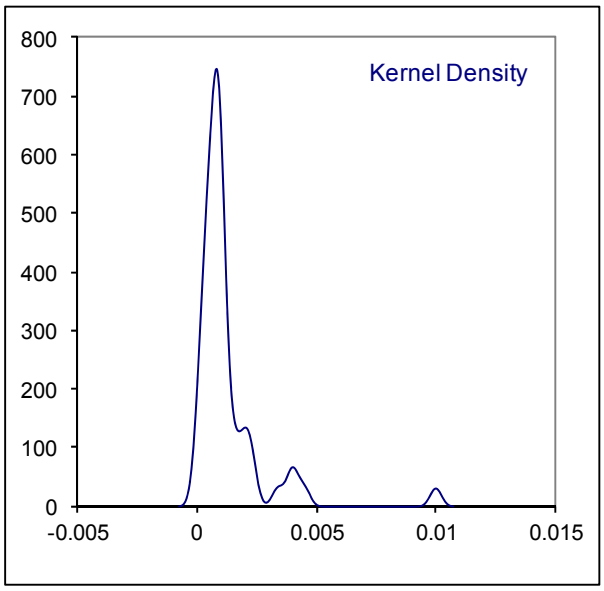
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D482	0.00078		-0.08	1161	ISO6245	0.0001		-0.46
150	ISO6245	<0.001		-----	1171	ISO6245	0.0016		0.38
212	ISO6245	0.002		0.61	1194		-----		-----
225	D482	0.001		0.05	1199		-----		-----
237	D482	0.0003		-0.35	1203	ISO6245	0.0004		-0.29
238		-----		-----	1205		-----		-----
240		-----		-----	1215	D482	0.00065		-0.15
258		-----		-----	1227		-----		-----
311	ISO6245	<0.001		-----	1231	D482	0.00050		-0.23
312		-----		-----	1259	ISO6245	<0.001		-----
317	ISO6245	<0.001		-----	1266		-----		-----
333		-----		-----	1284	D482	0.0014		0.27
334		-----		-----	1297		-----		-----
337		-----		-----	1299	D482	<0.01		-----
338		-----		-----	1300	ISO6245	0.0009145		0.00
340	ISO6245	0.0011		0.10	1316	D482	<0.0001		-----
343	ISO6245	<0.001		-----	1347	D482	0.0005		-0.23
353	ISO6245	0.0011		0.10	1348		-----		-----
357	ISO6245	<0.001		-----	1356	ISO6245	<0.005		-----
369	ISO6245	0.0005		-0.23	1357	D482	0.00057		-0.20
371	ISO6245	0.0005		-0.23	1385		-----		-----
372	ISO6245	0.0008		-0.07	1395	D482	<0.01		-----
391		-----		-----	1409	ISO6245	<0.001		-----
398		-----		-----	1412		-----		-----
399		-----		-----	1419		-----		-----
420	ISO6245	<0.001		-----	1428	ISO6245	0.0008		-0.07
430		-----		-----	1430	D482	0.0034	G(0.01)	1.39
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	IP4	0.004	G(0.01)	1.73	1484		-----		-----
447	D482	<0.001		-----	1498		-----		-----
463	D482	0.0011		0.10	1510	ISO6245	0.0008		-0.07
485		-----		-----	1520	ISO6245	0.0023		0.77
488		-----		-----	1535		-----		-----
494	ISO6245	<0.001		-----	1539	ISO6245	<0.001		-----
495	ISO6245	<0.001		-----	1546		-----		-----
541	D482	<0.001		-----	1564	D482	0.004	G(0.05)	1.73
603	D482	<0.001		-----	1569		-----		-----
604		-----		-----	1570	ISO6245	0.0002		-0.40
607	D482	<0.001		-----	1586	ISO6245	<0.001		-----
671	D482	0.0008		-0.07	1590	D482	0.00076		-0.09
704	ISO6245	0.0010		0.05	1616	D482	<0.001		-----
781	ISO6245	0.0012		0.16	1631	ISO6245	0.001		0.05
785		-----		-----	1634		-----		-----
863	ISO6245	<0.001		-----	1636	ISO6245	0.00066		-0.14
873	ISO6245	0.001		0.05	1654	ISO6245	0.00045		-0.26
874		-----		-----	1668		-----		-----
875	D482	0.0008		-0.07	1681	ISO6245	0.0016		0.38
902	D482	0.00025		-0.37	1720		-----		-----
912	ISO6245	0.0019		0.55	1724	ISO6245	0.001		0.05
962	ISO6245	0.0003		-0.35	1730		-----		-----
970		-----		-----	1740	ISO6245	0.0008		-0.07
974	D482	0.0023		0.77	1804		-----		-----
982	D482	0.01	G(0.01)	5.09	1807	ISO6245	0.000	ex	-0.51
998	D482	0.0021		0.66	1810		-----		-----
1006	D482	<0.001		-----	1811		-----		-----
1016	D482	<0.001		-----	1832	ISO6245	0.0008		-0.07
1017		-----		-----	1833	ISO6245	0.0010		0.05
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	ISO6245	<0.001		-----	1849	ISO6245	0.000877		-0.02
1081	D482	<1	U	-----	1854	ISO6245	0.00095		0.02
1095		-----		-----	1861		-----		-----
1108		-----		-----	1936		-----		-----
1109	D482	0.001		0.05	1937		-----		-----
1121	IP4	0.0002		-0.40	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	ISO6245	<0.01		-----
1146	ISO6245	0.0005		-0.23	2146		-----		-----
1150	ISO6245	0.0045	G(0.05)	2.01					

normality	not OK
n	47
outliers	5
mean (n)	0.00092
st.dev. (n)	0.000540
R(calc.)	0.00151
R(ISO6245:93)	0.00500

Application range: 0.001 – 0.180 %M/M

Lab 1807; result excluded, zero is not a real result
Lab 1081: reported test result probably in deviating unit?





Determination of Cetane Index on sample #13010

lab	method	value	mark	z(targ)	remark
132	D4737	55.9		-----	
150	ISO4264	55.9		-----	
212	ISO4264	55.8		-----	
225	D4737	56.2		-----	
237		-----		-----	
238		-----		-----	
240		-----		-----	
258	D976	56.06	ex	-----	
311	ISO4264	55.5		-----	
312	ISO4264	56.2		-----	
317	ISO4264	56.2		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO4264	56.2		-----	
343	ISO4264	56.9		-----	
353	ISO4264	56.0		-----	
357	ISO4264	56.00		-----	
369	ISO4264	55.93		-----	
371	ISO4264	55.7		-----	
372	ISO4264	56.1		-----	
391	ISO4264	56.4		-----	
398	ISO4264	55.9		-----	
399	ISO4264	55.3		-----	
420	ISO4264	56.1		-----	
430		-----		-----	
431		-----		-----	
440	IP380	56.04		-----	
445	ISO4264	55.6		-----	
447	D4737	55.9	C	-----	
463	ISO4264	55.9		-----	
485	ISO4264	55.5	E	-----	Calc by iis 55.77
488	ISO4264	55.9		-----	
494	ISO4264	54.69	E	-----	Calc by iis 55.75
495	ISO4264	56.08		-----	
541	D976	55.5	ex	-----	
603		-----		-----	
604	D976	55.84	ex	-----	
607		-----		-----	
671	D4737	55.9865		-----	
704	ISO4264	56.2		-----	
781	ISO4264	55.9		-----	
785		-----		-----	
863	ISO4264	56.10		-----	
873	ISO4264	55.8	C	-----	
874	ISO4264	54.7	E	-----	Calc by iis 55.76
875	D4737	54.8	E	-----	Calc by iis 55.82
902	D4737	55.64		-----	
912	ISO4264	55.65		-----	
962	ISO4264	55.9		-----	
970	D4737	55.5		-----	
974	D976	55.5	ex	-----	
982		-----		-----	
998	D4737	54.075	E	-----	Calc by iis 55.23
1006	D976	56.1	ex	-----	
1016		-----		-----	
1017		-----		-----	
1033	IP380	55.9		-----	
1038		-----		-----	
1059	ISO4264	55.7		-----	
1081	ISO4264	56.2		-----	
1095		-----		-----	
1108	ISO4264	56.1		-----	
1109	D4737	56.2		-----	
1121	D976	54.5	ex	-----	
1126		-----		-----	
1140		-----		-----	
1146		-----		-----	
1150	ISO4264	56		-----	
1161	ISO4264	56.0		-----	
1171	ISO4264	55.65	E	-----	Calc by iis 55.27
1194	INH-4737	55.3	E	-----	Calc by iis 55.98
1199		-----		-----	
1203	ISO4264	56.4		-----	
1205		-----		-----	
1215	D976	55.92	ex	-----	
1227	ISO4264	55.80	E	-----	Calc by iis 56.22
1231	D976	55.89	ex	-----	
1259	ISO4264	55.25	E	-----	Calc by iis 55.87
1266	ISO4264	56.14		-----	
1284	D4737	56.1		-----	
1297		-----		-----	
1299	D4737	72.1	G(0.01)	-----	
1300	ISO4264	55.3426		-----	
1316	ISO4264	56.3		-----	
1347	D4737	55.297		-----	
1348	D976	56.3	ex	-----	
1356	ISO4264	57.23	E	-----	Calc by iis 56.88
1357	D4737	55.9		-----	
1385	D976	54.68	ex	-----	
1395	D4737	56.3		-----	
1409	ISO4264	56.1		-----	
1412	ISO4264	56.0	E	-----	Calc by iis 55.50
1419	ISO4264	56.3		-----	
1428	ISO4264	56.1		-----	
1430	D4737	56.2		-----	
1459	ISO4264	56.1		-----	
1483		-----		-----	
1484		-----		-----	
1498	D976	56.4	ex	-----	
1510	ISO4264	56.0		-----	
1520	ISO4264	55.01		-----	
1535		-----		-----	
1539	ISO4264	56.1		-----	
1546	ISO4264	55.64		-----	
1564	D4737	56.3		-----	
1569	ISO4264	55.74		-----	
1570	ISO4264	56.3		-----	
1586	ISO4264	55.9		-----	
1590	D4737	55.8	E	-----	Calc by iis 55.57
1616	D4737	56.0		-----	
1631		-----		-----	
1634	ISO4264	55.79		-----	
1636	ISO4264	55.88		-----	
1654	D4737	56.36	E	-----	Calc by iis 56.00
1668	ISO4264	55.9		-----	
1681	ISO4264	55.6		-----	
1720		-----		-----	
1724	ISO4264	56.44		-----	
1730		-----		-----	
1740	ISO4264	56.1		-----	
1804	ISO4264	55.7		-----	
1807	ISO4264	55.6		-----	
1810		-----		-----	
1811	ISO4264	55.8		-----	
1832		-----		-----	
1833	ISO4264	56.01		-----	
1834		-----		-----	
1842		-----		-----	
1849	ISO4264	55.72		-----	
1854	ISO4264	56.1		-----	
1861		-----		-----	
1936	ISO4264	55.8	E	-----	Calc by iis 55.56
1937	ISO4264	55.8		-----	
1938	ISO4264	55.8		-----	
2102		-----		-----	
2129	ISO4264	54.3	E	-----	Calc by iis 55.63
2146		-----		-----	

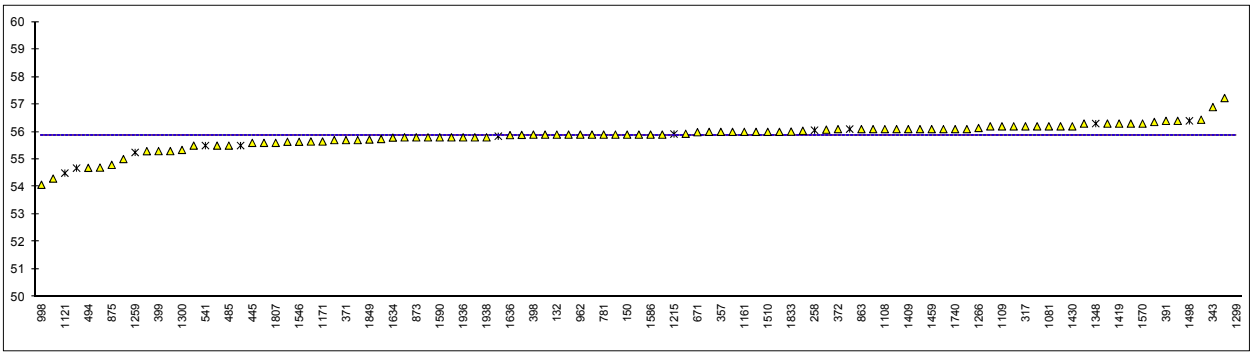
normality	not OK
n	91
outliers	1
mean (n)	55.870
st.dev. (n)	0.4633
R(calc.)	1.297
R(ISO4264:95)	n.a.

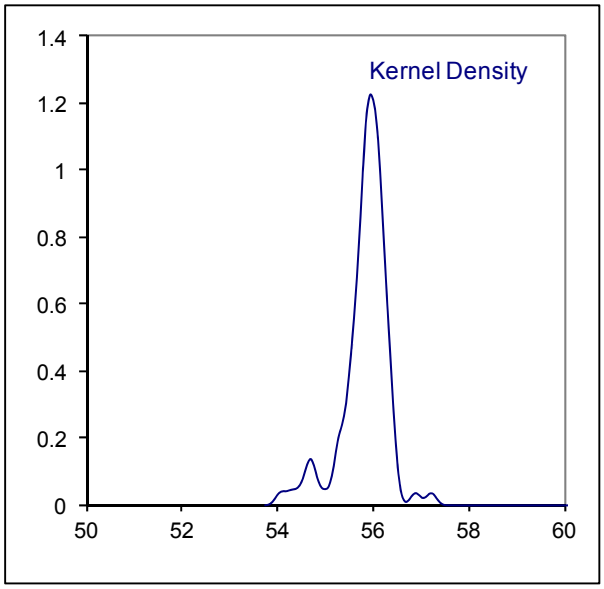
After calc by iis (using formula A, see §4.1):

OK
91
1
55.924
0.3196
0.895

Compare R(iis12G01EN) = 1.226

Lab 447: first reported 46.3
Lab 873: first reported 52.2



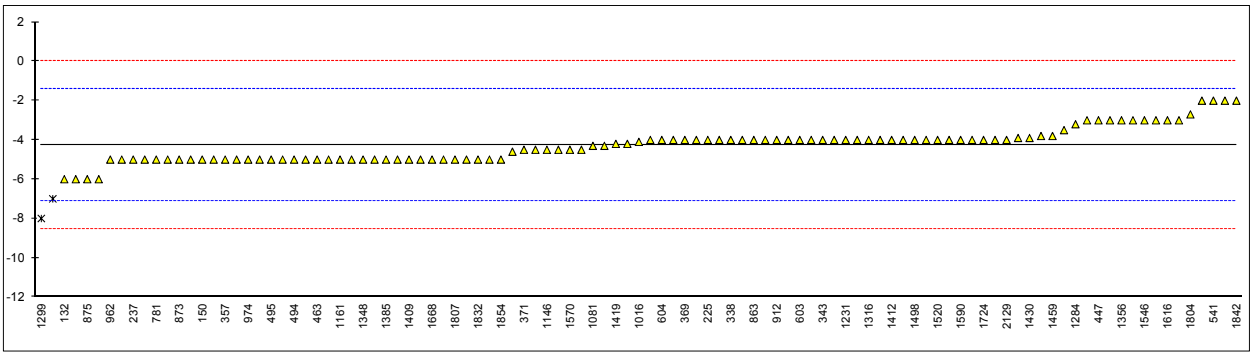


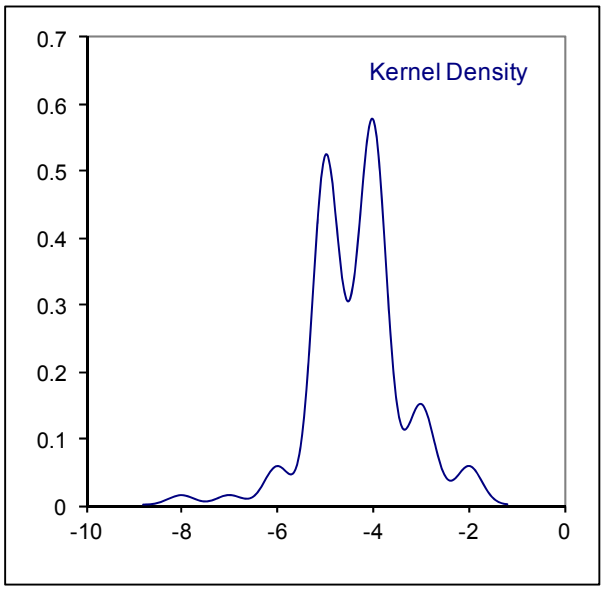
Determination of Cloud Point on sample #13010; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D2500	-6		-1.21	1161	EN23015	-5		-0.51
150	EN23015	-5		-0.51	1171	ISO3015	-4.0		0.19
212	EN23015	-7	G(0.05)	-1.91	1194		-----		-----
225	D2500	-4		0.19	1199		-----		-----
237	D2500	-5		-0.51	1203	EN23015	-2		1.59
238	D2500	-2		1.59	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	EN23015	-4.5		-0.16
311	EN23015	-4		0.19	1231	D2500	-4		0.19
312	EN23015	-5		-0.51	1259	EN23015	-4		0.19
317	D7683	-5		-0.51	1266	EN23015	-3.8		0.33
333	EN23015	-4		0.19	1284	D5771	-3.2		0.75
334		-----		-----	1297	D5771	-4.3		-0.02
337	EN23015	-4		0.19	1299	D5772	-8.0	G(0.01)	-2.61
338	EN23015	-4	C	0.19	1300	EN23015	-5.0		-0.51
340	EN23015	-4		0.19	1316	D5771	-4.0		0.19
343	EN23015	-4		0.19	1347	D2500	-4		0.19
353	EN23015	-4		0.19	1348	D2500	-5		-0.51
357	D5771	-5		-0.51	1356	ISO3015	-3		0.89
369	EN23015	-4		0.19	1357	D5771	-5.0		-0.51
371	EN23015	-4.5		-0.16	1385	D2500	-5		-0.51
372	EN23015	-5		-0.51	1395	D2500	-5		-0.51
391	EN23015	-5		-0.51	1409	EN23015	-5		-0.51
398	EN23015	-6		-1.21	1412	D2500	-4		0.19
399	EN23015	-6		-1.21	1419	D5773	-4.2		0.05
420	EN23015	-4		0.19	1428	EN23015	-4		0.19
430		-----		-----	1430	D5771	-3.9		0.26
431		-----		-----	1459	EN23015	-3.8		0.33
440	IP219	-5.0		-0.51	1483		-----		-----
445	IP219	-4		0.19	1484		-----		-----
447	D2500	-3		0.89	1498	D2500	-4		0.19
463	D2500	-5		-0.51	1510	EN23015	-4		0.19
485		-----		-----	1520	EN23015	-4		0.19
488		-----		-----	1535		-----		-----
494	EN23015	-5		-0.51	1539	ISO3015	-3		0.89
495	EN23015	-5		-0.51	1546	EN23015	-3		0.89
541	EN23015	-2	C	1.59	1564	D5772	-4.0		0.19
603	D2500	-4		0.19	1569	EN23015	-5		-0.51
604	D2500	-4		0.19	1570	EN23015	-4.5		-0.16
607	D2500	-3		0.89	1586	EN23015	-3		0.89
671	D2500	-3		0.89	1590	D2500	-4		0.19
704	ISO23015	-4.5		-0.16	1616	D2500	-3		0.89
781	EN23015	-5		-0.51	1631	EN23015	-4		0.19
785		-----		-----	1634		-----		-----
863	ISO3015	-4		0.19	1636	D2500	-4.5		-0.16
873	D2500	-5		-0.51	1654		-----		-----
874	D2500	-5		-0.51	1668	EN23015	-5.0		-0.51
875	D2500	-6		-1.21	1681		-----		-----
902	D2500	-5		-0.51	1720	D5773	-4.2		0.05
912	EN23015	-4		0.19	1724	EN23015	-4		0.19
962	EN23015	-5		-0.51	1730		-----		-----
970		-----		-----	1740	ISO3015	-5		-0.51
974	D2500	-5		-0.51	1804	EN23015	-2.7		1.10
982		-----		-----	1807	EN23015	-5		-0.51
998	D2500	-5		-0.51	1810	EN23015	-5		-0.51
1006		-----		-----	1811	EN23015	-4		0.19
1016	EN23015	-4.1		0.12	1832	EN23015	-5.0		-0.51
1017		-----		-----	1833	EN23015	-3		0.89
1033	D5772	-4.6		-0.23	1834	EN23015	-5		-0.51
1038		-----		-----	1842	IP219	-2		1.59
1059	EN23015	-4		0.19	1849		-----		-----
1081	D5772	-4.3		-0.02	1854	EN23015	-5		-0.51
1095		-----		-----	1861		-----		-----
1108	D5771	-3.9		0.26	1936		-----		-----
1109	D5773	-3.5		0.54	1937		-----		-----
1121	IP219	-5		-0.51	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN23015	-4		0.19
1146	D2500	-4.5		-0.16	2146		-----		-----
1150	EN23015	-5		-0.51					

normality	not OK
n	103
outliers	2
mean (n)	-4.267
st.dev. (n)	0.8487
R(calc.)	2.376
R(EN23015:92)	4.000

Lab 338: first reported -9
Lab 541: first reported 2



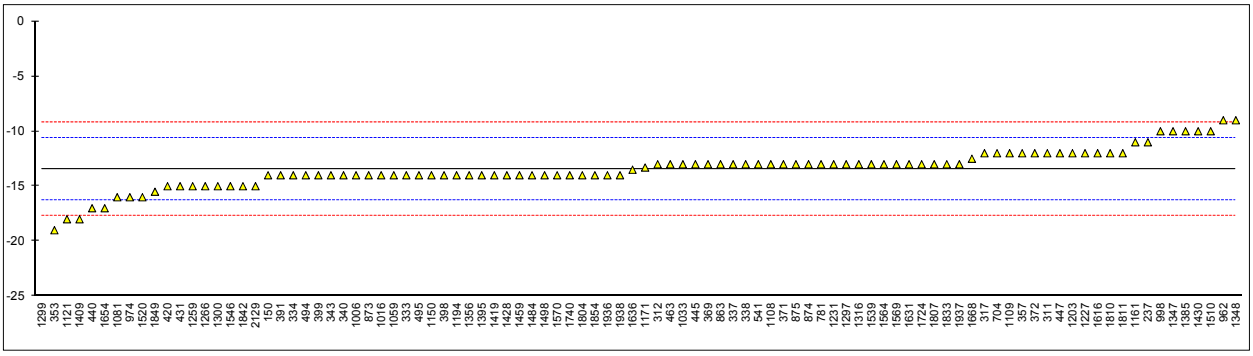


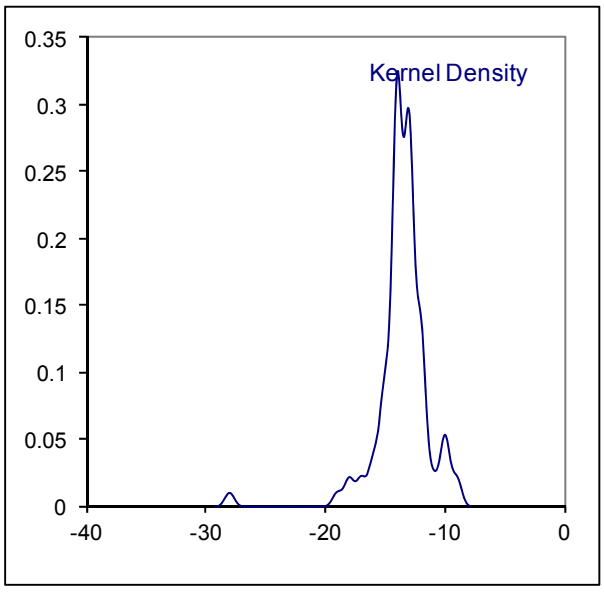
Determination of Cold Filter Plugging Point on sample #13010; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161	EN116	-11		1.73
150	EN116	-14.0		-0.40	1171	EN116	-13.3		0.10
212		-----		-----	1194	EN116	-14		-0.40
225		-----		-----	1199		-----		-----
237	D6371	-11		1.73	1203	EN116	-12		1.02
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	EN116	-12		1.02
311	EN116	-12		1.02	1231	D6371	-13		0.31
312	EN116	-13		0.31	1259	EN116	-15		-1.10
317	EN116	-12		1.02	1266	EN116	-15		-1.10
333	EN116	-14		-0.40	1284		-----		-----
334	EN116	-14		-0.40	1297	D6371	-13		0.31
337	EN116	-13		0.31	1299	EN116	-28	G(0.01)	-10.30
338	EN116	-13		0.31	1300	EN116	-15.0		-1.10
340	EN116	-14		-0.40	1316	EN116	-13.0	C	0.31
343	EN116	-14		-0.40	1347	IP309	-10		2.43
353	EN116	-19		-3.93	1348	IP309	-9		3.14
357	EN116	-12		1.02	1356	EN116	-14		-0.40
369	EN116	-13		0.31	1357		-----		-----
371	EN116	-13		0.31	1385	IP309	-10		2.43
372	EN116	-12		1.02	1395	EN116	-14		-0.40
391	EN116	-14		-0.40	1409	EN116	-18		-3.22
398	EN116	-14		-0.40	1412		-----		-----
399	EN116	-14		-0.40	1419	EN116	-14		-0.40
420	EN116	-15		-1.10	1428	EN116	-14		-0.40
430		-----		-----	1430	EN116	-10		2.43
431	D6371	-15		-1.10	1459	EN116	-14		-0.40
440	IP309	-17.0		-2.52	1483		-----		-----
445	IP309	-13		0.31	1484	EN116	-14		-0.40
447	IP309	-12		1.02	1498	D6371	-14		-0.40
463	EN116	-13		0.31	1510	EN116	-10		2.43
485		-----		-----	1520	EN116	-16		-1.81
488		-----		-----	1535		-----		-----
494	EN116	-14		-0.40	1539	EN116	-13		0.31
495	EN116	-14		-0.40	1546	EN116	-15		-1.10
541	EN116	-13		0.31	1564	EN116	-13		0.31
603		-----		-----	1569	EN116	-13		0.31
604		-----		-----	1570	EN116	-14		-0.40
607		-----		-----	1586		-----		-----
671		-----		-----	1590		-----		-----
704	EN116	-12		1.02	1616	IP309	-12		1.02
781	EN116	-13		0.31	1631	EN116	-13		0.31
785		-----		-----	1634		-----		-----
863	IP309	-13		0.31	1636	EN116	-13.5		-0.04
873	IP309	-14		-0.40	1654	EN116	-17		-2.52
874	EN116	-13		0.31	1668	EN116	-12.5		0.66
875	IP309	-13		0.31	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	EN116	-13		0.31
962	EN116	-9		3.14	1730		-----		-----
970		-----		-----	1740	EN116	-14		-0.40
974	IP309	-16		-1.81	1804	EN116	-14		-0.40
982		-----		-----	1807	EN116	-13		0.31
998	D6371	-10		2.43	1810	EN116	-12		1.02
1006	D6371	-14		-0.40	1811	EN116	-12		1.02
1016	EN116	-14		-0.40	1832		-----		-----
1017		-----		-----	1833	EN116	-13		0.31
1033	IP309	-13		0.31	1834		-----		-----
1038		-----		-----	1842	IP309	-15		-1.10
1059	EN116	-14		-0.40	1849	EN116	-15.5		-1.46
1081	EN116	-16		-1.81	1854	EN116	-14		-0.40
1095		-----		-----	1861		-----		-----
1108	EN116	-13		0.31	1936	EN116	-14		-0.40
1109	IP309	-12.0		1.02	1937	EN116	-13		0.31
1121	IP309	-18		-3.22	1938	EN116	-14		-0.40
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN116	-15		-1.10
1146		-----		-----	2146		-----		-----
1150	EN116	-14		-0.40					

normality	not OK
n	95
outliers	1
mean (n)	-13.440
st.dev. (n)	1.7608
R(calc.)	4.930
R(EN116:97)	3.959

Lab 1316: first reported -9.0



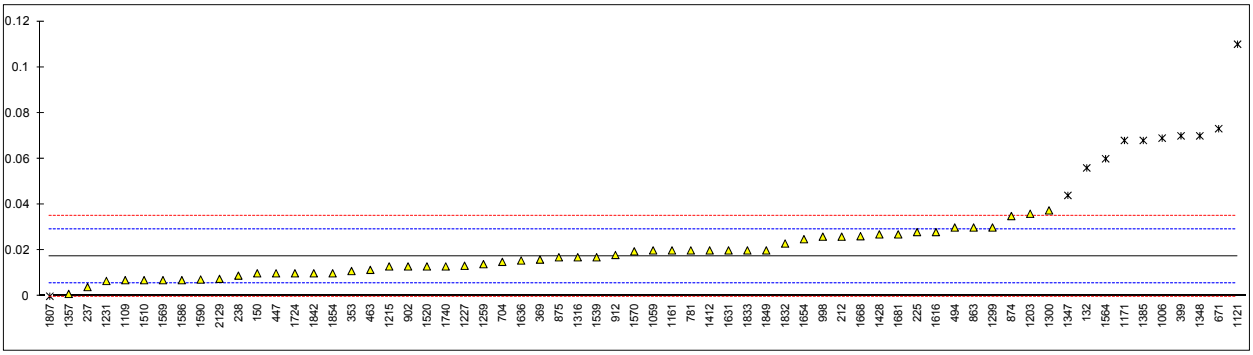


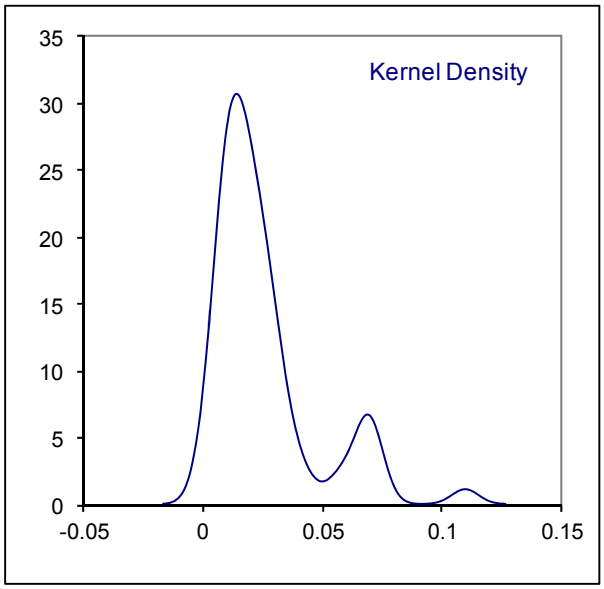
Determination of Carbon Residue on 10% residue on sample #13010; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D524	0.056	ex	6.54	1161	ISO10370	0.02		0.43
150	ISO10370	0.010		-1.27	1171	ISO6615	0.068	G(0.01)	8.58
212	ISO10370	0.026		1.45	1194		-----		-----
225	D189	0.028		1.79	1199		-----		-----
237	D189	0.004		-2.28	1203	ISO10370	0.036		3.15
238	D189	0.009	C	-1.44	1205		-----		-----
240		-----		-----	1215	D4530	0.013		-0.76
258		-----		-----	1227	ISO10370	0.0133		-0.71
311	ISO10370	<0.1		-----	1231	D4530	0.00666		-1.83
312		-----		-----	1259	ISO10370	0.014		-0.59
317		-----		-----	1266		-----		-----
333		-----		-----	1284		-----		-----
334		-----		-----	1297		-----		-----
337		-----		-----	1299	D4530	0.03		2.13
338		-----		-----	1300	ISO10370	0.03747		3.40
340	ISO10370	<0.1		-----	1316	D189	0.017	C	-0.08
343	ISO10370	<0.1		-----	1347	D524	0.044	ex	4.51
353	IP13	0.011		-1.10	1348	D524	0.07	ex	8.92
357		-----		-----	1356	ISO10370	<0.01		-----
369	ISO10370	0.016		-0.25	1357	D4530	0.001		-2.79
371		-----		-----	1385	D524	0.068	ex	8.58
372	ISO10370	<0.10		-----	1395		-----		-----
391		-----		-----	1409	ISO10370	<0.01		-----
398		-----		-----	1412	D189	0.020		0.43
399	ISO10370	0.07	G(0.01)	8.92	1419		-----		-----
420		-----		-----	1428	ISO10370	0.027		1.62
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	IP398	<0.01		-----	1484		-----		-----
447	IP398	0.010		-1.27	1498		-----		-----
463	ISO10370	0.0115		-1.01	1510	ISO10370	0.007		-1.77
485		-----		-----	1520	ISO10370	0.013		-0.76
488		-----		-----	1535		-----		-----
494	ISO10370	0.03		2.13	1539	ISO10370	0.017		-0.08
495	ISO10370	<0.01		-----	1546		-----		-----
541	D189	<0.01		-----	1564	D4530	0.06	G(0.01)	7.22
603		-----		-----	1569	ISO10370	0.007		-1.77
604		-----		-----	1570	ISO10370	0.0196		0.36
607		-----		-----	1586	ISO10370	0.007		-1.77
671	D4530	0.07312	G(0.05)	9.45	1590	D4530	0.0073		-1.72
704	ISO10370	0.015		-0.42	1616	D4530	0.028		1.79
781	ISO10370	0.020		0.43	1631	ISO10370	0.02		0.43
785		-----		-----	1634		-----		-----
863	ISO10370	0.03		2.13	1636	ISO10370	0.0156		-0.31
873	ISO10370	<0.10		-----	1654	ISO10370	0.0249		1.26
874	D4530	0.035		2.98	1668	ISO10370	0.0262		1.48
875	D4530	0.017		-0.08	1681	ISO6615	0.027		1.62
902	D4530	0.013		-0.76	1720		-----		-----
912	ISO10370	0.018		0.09	1724	ISO10370	0.01		-1.27
962		-----		-----	1730		-----		-----
970		-----		-----	1740	ISO10370	0.013		-0.76
974		-----		-----	1804		-----		-----
982		-----		-----	1807	ISO10370	0.0	ex	-2.96
998	D189	0.026		1.45	1810		-----		-----
1006	D524	0.069	ex	8.75	1811		-----		-----
1016	ISO10370	<0.10		-----	1832	ISO6615	0.0230		0.94
1017		-----		-----	1833	ISO10370	0.02		0.43
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842	D4530	0.01		-1.27
1059	ISO10370	0.02		0.43	1849	ISO10370	0.020		0.43
1081	ISO10370	<0.1		-----	1854	ISO10370	0.010		-1.27
1095		-----		-----	1861		-----		-----
1108		-----		-----	1936		-----		-----
1109	D4530	0.007		-1.77	1937		-----		-----
1121	IP398	0.11	G(0.01)	15.71	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	ISO10370	0.0076		-1.67
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	OK
n	53
outliers	5
mean (n)	0.01746
st.dev. (n)	0.008816
R(calc.)	0.02468
R(ISO10370:93)	0.01649

Test results of labs 132, 1006, 1347, 1348 and 1385 were excluded, as reported Ramsbottom test result may be biased from the Conradson result.
Lab 1807 test result was exluded, as zero is not a real result.
Lab 238; first reported 0.061
Lab 1300: first reported 0.065





Determination of Copper Corrosion (3 hrs @ 50°C) on sample #13010;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D130	1A		-----	1161	ISO2160	1A		-----
150	ISO2160	1A		-----	1171	ISO2160	1A		-----
212	D130	1A		-----	1194		-----		-----
225	D130	1A		-----	1199		-----		-----
237	D130	1A		-----	1203	ISO2160	1		-----
238	D130	1A		-----	1205		-----		-----
240		-----		-----	1215	D130	1A		-----
258	D130	1A		-----	1227	ISO2160	1A		-----
311	ISO2160	1A		-----	1231	D130	1A		-----
312		-----		-----	1259	ISO2160	1A		-----
317	ISO2160	1A		-----	1266	ISO2160	1A		-----
333		-----		-----	1284		-----		-----
334		-----		-----	1297	D130	1A		-----
337	ISO2160	1		-----	1299	D130	1A		-----
338		-----		-----	1300	ISO2160	1		-----
340	ISO2160	1A		-----	1316	D130	1A		-----
343	ISO2160	1A		-----	1347	D130	1A		-----
353	ISO2160	1A		-----	1348	D130	1A		-----
357	ISO2160	1A		-----	1356		-----		-----
369	ISO2160	1A		-----	1357	D130	1A		-----
371	ISO2160	1A		-----	1385	D130	1A		-----
372	ISO2160	1A		-----	1395	D130	1A		-----
391	ISO2160	1A		-----	1409	ISO2160	1A		-----
398	ISO2160	1B		-----	1412	D130	1A		-----
399	ISO2160	1A		-----	1419		-----		-----
420	ISO2160	1A		-----	1428	ISO2160	1		-----
430		-----		-----	1430	ISO2160	1A		-----
431		-----		-----	1459		-----		-----
440	IP154	1A		-----	1483		-----		-----
445	IP154	1A		-----	1484		-----		-----
447	D130	1A		-----	1498		-----		-----
463	D130	1A		-----	1510	ISO2160	1A		-----
485		-----		-----	1520	ISO2160	1A		-----
488		-----		-----	1535		-----		-----
494	ISO2160	1A		-----	1539	ISO2160	1A		-----
495	ISO2160	1		-----	1546	ISO2160	1A		-----
541	D130	1		-----	1564	D130	1A		-----
603	D130	1A		-----	1569	ISO2160	1		-----
604		-----		-----	1570	ISO2160	1A		-----
607		-----		-----	1586	ISO2160	1B		-----
671	D130	1A		-----	1590	D130	1A		-----
704	ISO2160	1A		-----	1616	D130	1A		-----
781	ISO2160	1A		-----	1631	ISO2160	1		-----
785		-----		-----	1634	ISO2160	1A		-----
863	D130	1A		-----	1636	ISO2160	1A		-----
873	D130	1A		-----	1654	ISO2160	1A		-----
874	D130	1A		-----	1668	ISO2160	1A		-----
875	D130	1A		-----	1681	ISO2160	1A		-----
902		-----		-----	1720		-----		-----
912	ISO2160	1A		-----	1724	ISO2160	1A		-----
962	ISO2160	1A		-----	1730		-----		-----
970	D130	1A		-----	1740	ISO2160	1A		-----
974	D130	1A		-----	1804		-----		-----
982		-----		-----	1807	ISO2160	1A		-----
998	D130	1		-----	1810		-----		-----
1006	D130	1A		-----	1811	ISO2160	1		-----
1016	ISO2160	1A		-----	1832	ISO2160	1A		-----
1017		-----		-----	1833	ISO2160	1A		-----
1033	IP154	1B		-----	1834		-----		-----
1038		-----		-----	1842	IP154	1A		-----
1059	ISO2160	1A		-----	1849	ISO2160	1A		-----
1081	D130	1A		-----	1854	ISO2160	1A		-----
1095		-----		-----	1861		-----		-----
1108	ISO2160	1		-----	1936		-----		-----
1109	D130	1A		-----	1937		-----		-----
1121	IP154	1A		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	ISO2160	1A		-----
1146		-----		-----	2146		-----		-----
1150	ISO2160	1A		-----					

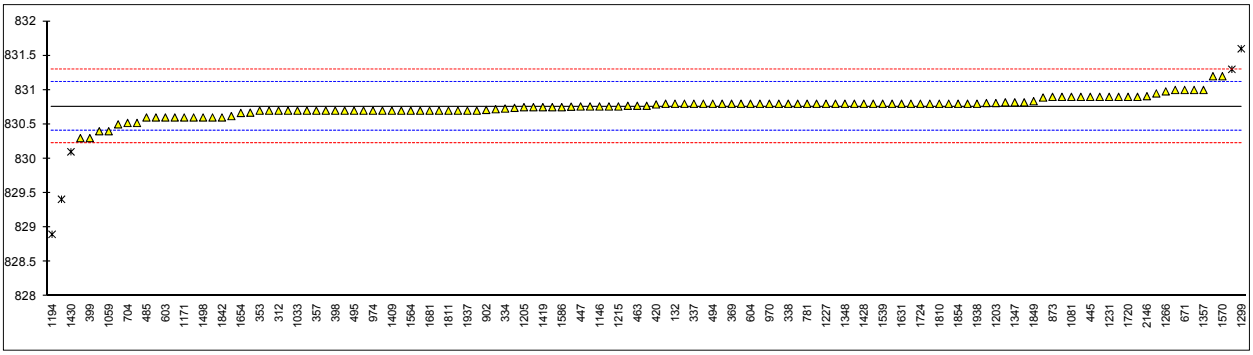
normality	n.a.
n	97
outliers	0
mean (n)	1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(ISO10370:93)	n.a.

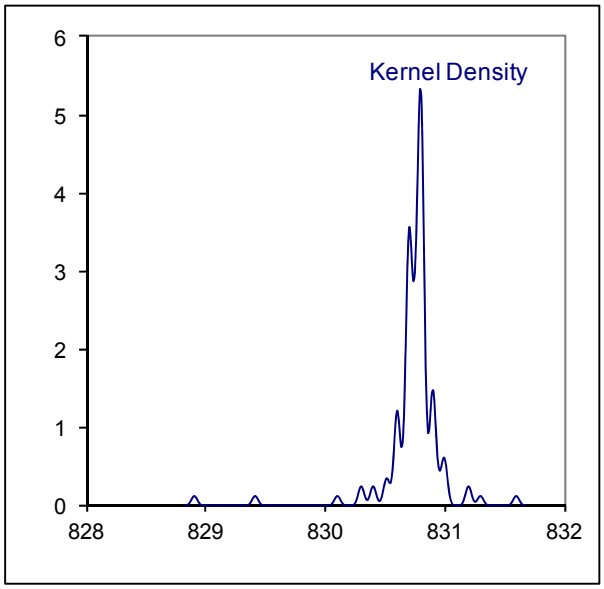
Determination of Density @15 °C on sample #13010; result in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D4052	830.8		0.23	1161	ISO12185	830.95		1.07
150	ISO12185	831.0		1.35	1171	D4052	830.6	C	-0.89
212	ISO12185	830.8		0.23	1194	INH-12185	828.9	G(0.01)	-10.41
225	D4052	830.7		-0.33	1199		-----		-----
237	D4052	830.7		-0.33	1203	ISO12185	830.81		0.29
238	D1298	831.2		2.47	1205	ISO12185	830.75		-0.05
240		-----		-----	1215	D4052	830.76		0.01
258	D1298	830.3		-2.57	1227	ISO12185	830.8		0.23
311	ISO12185	830.8		0.23	1231	D4052	830.9		0.79
312	ISO12185	830.7		-0.33	1259	ISO12185	831.0		1.35
317	D4052	830.7		-0.33	1266	ISO3675	830.98		1.24
333	ISO12185	830.4		-2.01	1284	D4052	830.82		0.34
334	D4052	830.73		-0.16	1297	D4052	830.8		0.23
337	ISO12185	830.8		0.23	1299	D4052	831.6	G(0.01)	4.71
338	ISO12185	830.8		0.23	1300	ISO12185	830.72		-0.22
340	ISO12185	830.81		0.29	1316	D4052	830.75		-0.05
343	ISO12185	830.8		0.23	1347	D4052	830.82		0.34
353	ISO12185	830.7		-0.33	1348	D4052	830.8		0.23
357	ISO12185	830.7		-0.33	1356	ISO12185	831.3	C,G(0.05)	3.03
369	ISO12185	830.8		0.23	1357	D4052	831.0		1.35
371	ISO12185	830.7	C	-0.33	1385	D4052	830.8		0.23
372	ISO12185	830.8		0.23	1395	D4052	830.6		-0.89
391	ISO12185	830.8		0.23	1409	ISO12185	830.7		-0.33
398	ISO12185	830.7		-0.33	1412	D4052	830.7		-0.33
399	ISO12185	830.3		-2.57	1419	ISO12185	830.75		-0.05
420	ISO12185	830.79		0.17	1428	ISO12185	830.8		0.23
430		-----		-----	1430	D4052	830.1	G(0.01)	-3.69
431	D4052	829.41	G(0.01)	-7.55	1459	ISO12185	830.75		-0.05
440	D4052	830.7		-0.33	1483		-----		-----
445	IP365	830.9		0.79	1484	ISO3675	830.5		-1.45
447	D4052	830.76		0.01	1498	D1298	830.6		-0.89
463	ISO12185	830.77		0.06	1510	ISO12185	830.8		0.23
485	ISO12185	830.6		-0.89	1520	ISO12185	830.74		-0.11
488	ISO12185	830.7		-0.33	1535	ISO3675	830.77		0.06
494	ISO12185	830.8		0.23	1539	ISO12185	830.8		0.23
495	ISO12185	830.7		-0.33	1546	ISO12185	830.9		0.79
541	ISO12185	830.7		-0.33	1564	D4052	830.7		-0.33
603	D4052	830.6		-0.89	1569	ISO12185	830.67		-0.50
604	D4052	830.80		0.23	1570	ISO12185	831.2		2.47
607	D1298	830.8		0.23	1586	ISO12185	830.75		-0.05
671	D4052	831.0		1.35	1590	D4052	830.62		-0.78
704	ISO12185	830.52		-1.34	1616	D4052	830.8		0.23
781	ISO12185	830.8		0.23	1631	ISO12185	830.8		0.23
785		-----		-----	1634	ISO12185	830.757		-0.01
863	ISO12185	830.89		0.73	1636	ISO12185	830.8		0.23
873	D4052	830.9		0.79	1654	ISO12185	830.666		-0.52
874	D4052	830.9		0.79	1668	ISO12185	830.7		-0.33
875	D4052	830.8		0.23	1681	ISO12185	830.70		-0.33
902	D4052	830.71		-0.27	1720	D4052	830.9		0.79
912	ISO12185	830.8		0.23	1724	ISO12185	830.80		0.23
962	ISO12185	830.9		0.79	1730	ISO12185	830.6		-0.89
970	D4052	830.8		0.23	1740	ISO3675	830.7		-0.33
974	D4052	830.7		-0.33	1804	ISO12185	830.9		0.79
982	D4052	830.76		0.01	1807	ISO12185	830.8		0.23
998	D4052	830.6		-0.89	1810	ISO12185	830.8		0.23
1006	D4052	830.8		0.23	1811	ISO12185	830.7		-0.33
1016		-----		-----	1832	ISO12185	830.7		-0.33
1017		-----		-----	1833	ISO12185	830.8		0.23
1033	IP365	830.7		-0.33	1834	ISO12185	830.82		0.34
1038		-----		-----	1842	IP365	830.6		-0.89
1059	ISO12185	830.4		-2.01	1849	ISO12185	830.837		0.44
1081	ISO12185	830.9		0.79	1854	ISO12185	830.8		0.23
1095		-----		-----	1861		-----		-----
1108	ISO12185	830.76		0.01	1936	ISO12185	830.8		0.23
1109	D4052	830.52		-1.34	1937	ISO12185	830.7		-0.33
1121	IP365	830.9		0.79	1938	ISO12185	830.8		0.23
1126	ISO12185	830.77		0.06	2102		-----		-----
1140		-----		-----	2129	D4052	830.7		-0.33
1146	ISO12185	830.76		0.01	2146	ISO12185	830.91		0.85
1150	ISO12185	830.6		-0.89					

normality	not OK
n	122
outliers	5
mean (n)	830.76
st.dev. (n)	0.136
R(calc.)	0.38
R(ISO12185:96)	0.50

Lab 371: first reported 0.8307
Lab 1171: first reported 830.0
Lab 1356: first reported 831.7
Lab 1570: first reported 0.8312



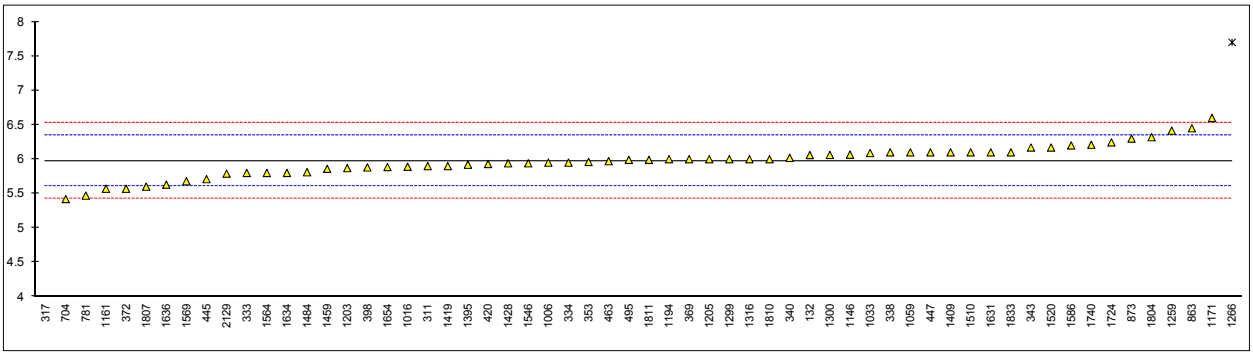


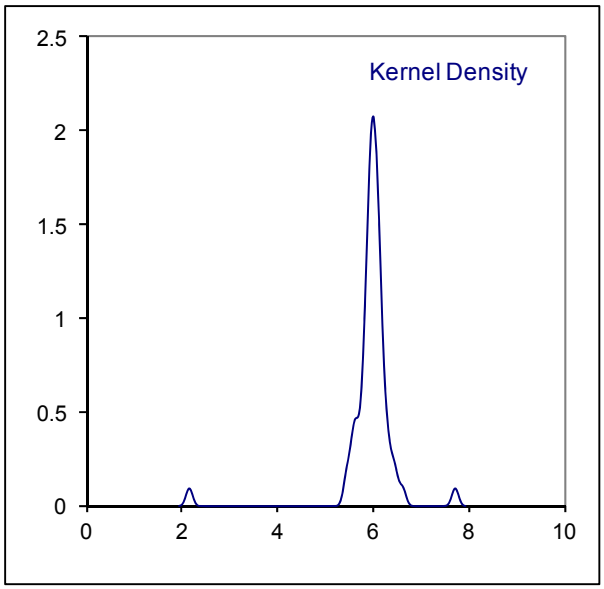
Determination of FAME Content on sample #13010; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D7371	6.06		0.47	1161	EN14078	5.57	C	-2.19
150		-----		-----	1171	EN14078	6.6	C	3.41
212		-----		-----	1194	INH-14078	6.0		0.14
225		-----		-----	1199		-----		-----
237		-----		-----	1203	EN14078	5.87		-0.56
238		-----		-----	1205	EN14078	6.0		0.14
240		-----		-----	1215		-----		-----
258		-----		-----	1227		-----		-----
311	EN14078	5.9		-0.40	1231		-----		-----
312		-----		-----	1259	EN14078	6.4156		2.40
317	EN14078	2.14	G(0.01)	-20.84	1266	EN14078	7.7	G(0.01)	9.39
333	EN14078	5.8		-0.94	1284		-----		-----
334	EN14078	5.95		-0.13	1297		-----		-----
337		-----		-----	1299	EN14078	6.0		0.14
338	EN14078	6.1	C	0.69	1300	EN14078	6.062		0.48
340	EN14078	6.02		0.25	1316	EN14078	6.0		0.14
343	EN14078	6.17		1.07	1347		-----		-----
353	EN14078	5.960		-0.07	1348		-----		-----
357		-----		-----	1356		-----		-----
369	EN14078	6.0		0.14	1357		-----		-----
371		-----		-----	1385		-----		-----
372	EN14078	5.57		-2.19	1395	EN14078	5.92		-0.29
391		-----		-----	1409	EN14078	6.1		0.69
398	EN14078	5.88		-0.51	1412		-----		-----
399		-----		-----	1419	EN14078	5.9		-0.40
420	EN14078	5.93		-0.24	1428	EN14078	5.94		-0.18
430		-----		-----	1430		-----		-----
431		-----		-----	1459	EN14078	5.86		-0.62
440		-----		-----	1483		-----		-----
445	EN14078	5.71		-1.43	1484	EN14078	5.81		-0.89
447	EN14078	6.1		0.69	1498		-----		-----
463	EN14078	5.971		-0.01	1510	EN14078	6.1		0.69
485		-----		-----	1520	EN14078	6.17		1.07
488		-----		-----	1535		-----		-----
494		-----		-----	1539		-----		-----
495	EN14078	5.99		0.09	1546	EN14078	5.94		-0.18
541		-----		-----	1564	EN14078	5.8		-0.94
603		-----		-----	1569	EN14078	5.68		-1.59
604		-----		-----	1570		-----		-----
607		-----		-----	1586	EN14078	6.2		1.23
671		-----		-----	1590		-----		-----
704	EN14078	5.42		-3.01	1616		-----		-----
781	EN14078	5.47		-2.74	1631	EN14078	6.1		0.69
785		-----		-----	1634	EN14078	5.8		-0.94
863	EN14078	6.45		2.59	1636	EN14078	5.63		-1.87
873	EN14078	6.30		1.78	1654	EN14078	5.8856		-0.48
874		-----		-----	1668		-----		-----
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	EN14078	6.2446		1.47
962		-----		-----	1730		-----		-----
970		-----		-----	1740	EN14078	6.21		1.29
974		-----		-----	1804	EN14078	6.32		1.88
982		-----		-----	1807	EN14078	5.6		-2.03
998		-----		-----	1810	EN14078	6.0		0.14
1006	EN14078	5.95		-0.13	1811	EN14078	5.99		0.09
1016	EN14078	5.89		-0.45	1832		-----		-----
1017		-----		-----	1833	EN14078	6.1		0.69
1033	EN14078	6.09		0.63	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	EN14078	6.1		0.69	1849		-----		-----
1081		-----		-----	1854		-----		-----
1095		-----		-----	1861		-----		-----
1108		-----		-----	1936		-----		-----
1109		-----		-----	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN14078	5.79		-1.00
1146	EN14078	6.0654		0.50	2146		-----		-----
1150		-----		-----					

normality	not OK	
n	58	
outliers	2	
mean (n)	5.973	
st.dev. (n)	0.2283	
R(calc.)	0.639	
R(EN14078:09)	0.515	(range B)

Lab 338 : first reported 0.643
Lab 1161: first reported 0.14
Lab 1171: first reported 7.28



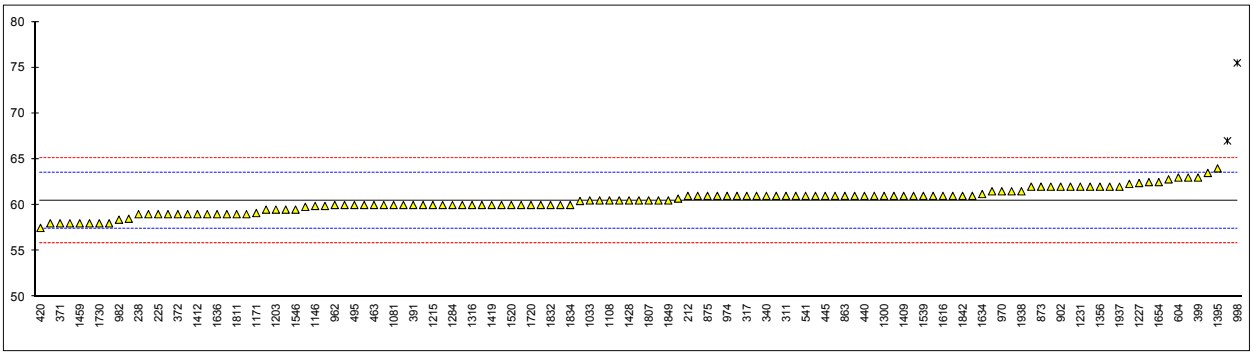


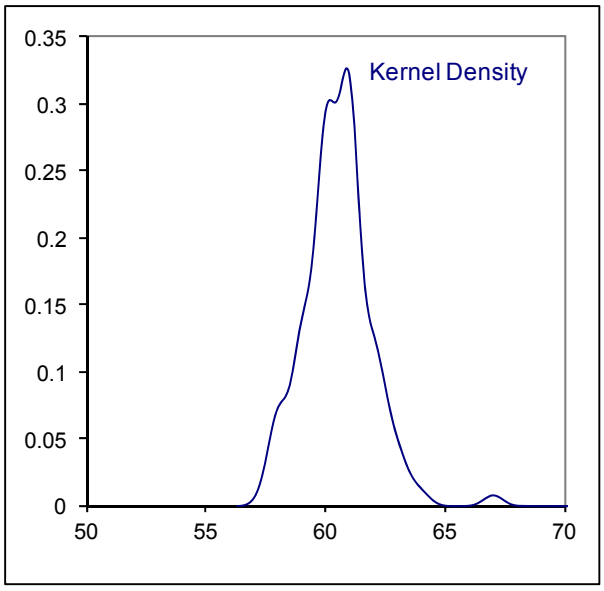
Determination of Flash Point PMcc on sample #13010; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D93	61.0		0.35	1161	ISO2719	62		1.00
150	D93	61.0		0.35	1171	ISO2719	59.12		-0.88
212	ISO2719	61		0.35	1194		-----		-----
225	D93	59.0		-0.96	1199		-----		-----
237	D93	59.0		-0.96	1203	ISO2719	59.5		-0.63
238	D93	59.0		-0.96	1205	D93	59.5		-0.63
240		-----		-----	1215	D93	60.0		-0.31
258	D93	58.0		-1.61	1227	ISO2719	62.4		1.26
311	ISO2719	61.0		0.35	1231	D93	62.0		1.00
312	ISO2719	61		0.35	1259	ISO2719	62.5		1.32
317	ISO2719	61.0		0.35	1266	ISO2719	60.0		-0.31
333	ISO2719	61.0		0.35	1284	D93	60.0		-0.31
334	D93	60.0		-0.31	1297	D93	62.0		1.00
337	ISO2719	61		0.35	1299	D93	60.0		-0.31
338	ISO2719	63.5		1.98	1300	ISO2719	61.0		0.35
340	ISO2719	61.0		0.35	1316	D93	60		-0.31
343	ISO2719	61.0		0.35	1347	D93	61.0		0.35
353	ISO2719	59.90		-0.37	1348	D93	60		-0.31
357	ISO2719	62.0		1.00	1356	ISO2719	62		1.00
369	ISO2719	59.5		-0.63	1357	D93	59.0		-0.96
371	ISO2719	58.0		-1.61	1385	D93	58		-1.61
372	ISO2719	59.0		-0.96	1395	D93	64.0	C	2.30
391	ISO2719	60.0		-0.31	1409	ISO2719	61.0	C	0.35
398	ISO2719	62.3		1.19	1412	D93	59.0		-0.96
399	ISO2719	63.0		1.65	1419	ISO2719	60.0		-0.31
420	ISO2719	57.5		-1.94	1428	ISO2719	60.5		0.02
430		-----		-----	1430	D93	61.0		0.35
431	ISO2719	60		-0.31	1459	ISO2719	58.0		-1.61
440	IP34	61.0		0.35	1483		-----		-----
445	IP34	61.0		0.35	1484	ISO2719	60.0		-0.31
447	D93	60.5		0.02	1498	D93	61.5		0.67
463	ISO2719	60.0		-0.31	1510	ISO2719	58		-1.61
485	ISO2719	61.0		0.35	1520	ISO2719	60.0		-0.31
488		-----		-----	1535	ISO2719	60.442		-0.02
494	ISO2719	61.0		0.35	1539	ISO2719	61.0		0.35
495	ISO2719	60.0		-0.31	1546	ISO2719	59.5		-0.63
541	ISO2719	61.0		0.35	1564	D93	62.0		1.00
603	D93	62.0		1.00	1569	ISO2719	60.7		0.15
604	D93	63.0		1.65	1570	ISO2719	59.0		-0.96
607	D93	63.0		1.65	1586	ISO2719	61.0		0.35
671	D93	59.0		-0.96	1590	D93	62.8		1.52
704	ISO2719	60.0		-0.31	1616	D93	61.0		0.35
781	ISO2719	61.0		0.35	1631	ISO2719	60		-0.31
785		-----		-----	1634	ISO2719	61.2		0.48
863	ISO2719	61.0		0.35	1636	ISO2719	59.0		-0.96
873	D93	62.0		1.00	1654	ISO2719	62.5		1.32
874	D93	61.0		0.35	1668	ISO2719	59.8		-0.44
875	D93	61.0		0.35	1681	ISO2719	61.0		0.35
902	D93	62.0		1.00	1720	D93	60.0		-0.31
912	ISO2719	67	G(0.01)	4.26	1724	ISO2719	60		-0.31
962	ISO2719	60.0		-0.31	1730	ISO2719	58.0		-1.61
970	D93A	61.5		0.67	1740	ISO2719	59.0		-0.96
974	D93	61.0		0.35	1804	ISO2719	60.5		0.02
982	D93	58.4		-1.35	1807	ISO2719	60.5		0.02
998	D93	75.5	G(0.01)	9.80	1810	ISO2719	60.5		0.02
1006	D93	60.5		0.02	1811	ISO2719	59.0		-0.96
1016		-----		-----	1832	ISO2719	60.0		-0.31
1017		-----		-----	1833	ISO2719	60		-0.31
1033	IP34	60.5		0.02	1834	ISO2719	60		-0.31
1038		-----		-----	1842	IP34	61.0		0.35
1059	ISO2719	61.5		0.67	1849	ISO2719	60.5		0.02
1081	D93	60.0		-0.31	1854	ISO2719	58		-1.61
1095		-----		-----	1861		-----		-----
1108	ISO2719	60.5	C	0.02	1936	ISO2719	61		0.35
1109	D93	60.0		-0.31	1937	ISO2719	62		1.00
1121	IP34	60.0		-0.31	1938	ISO2719	61.5		0.67
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	ISO2719	59.0		-0.96
1146	ISO2719	59.9		-0.37	2146		-----		-----
1150	ISO2719	58.5		-1.29					

normality	not OK
n	121
outliers	2
mean (n)	60.471
st.dev. (n)	1.2783
R(calc.)	3.579
R(ISO2719:02)	4.293

Lab 1108: first reported 56.0
Lab 1395: first reported 74.0
Lab 1409: first reported 57.0



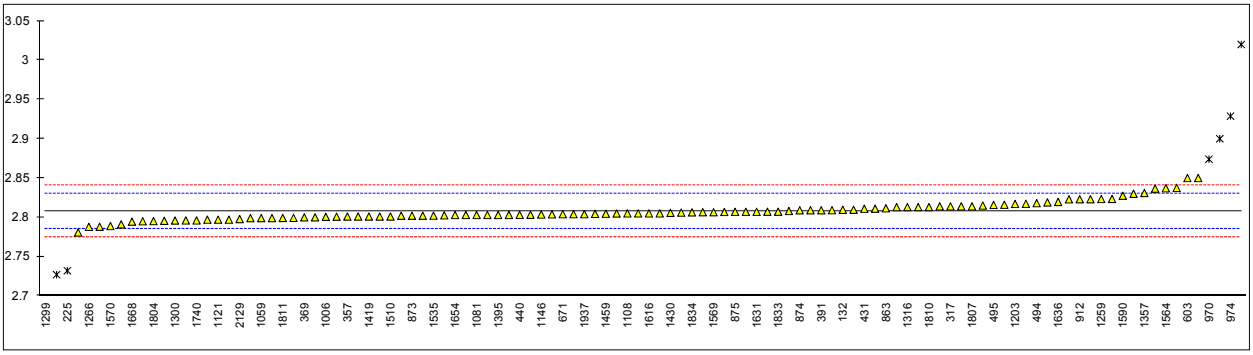


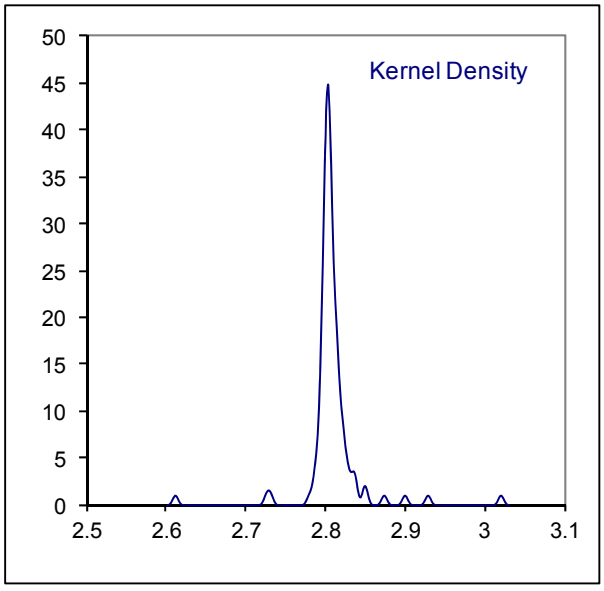
Determination of Kinematic Viscosity @ 40°C on sample #13010; result in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D445	2.8096		0.17	1161	ISO3104	2.809		0.11
150	D445	2.801		-0.61	1171	ISO3104	2.7807		-2.43
212	ISO3104	2.9	G(0.01)	8.27	1194		-----		-----
225	D445	2.732	G(0.01)	-6.79	1199		-----		-----
237	D445	2.811	C	0.29	1203	ISO3104	2.817		0.83
238		-----		-----	1205		-----		-----
240		-----		-----	1215	D445	2.807		-0.07
258	D445	2.8365		2.58	1227	ISO3104	2.7993		-0.76
311	ISO3104	2.799		-0.78	1231	D445	2.804		-0.34
312	ISO3104	2.802		-0.52	1259	ISO3104	2.8233		1.39
317	ISO3104	2.814		0.56	1266	ISO3104	2.7879		-1.78
333	ISO3104	2.808		0.02	1284	D445	2.8049		-0.26
334		-----		-----	1297	D7042	2.8008		-0.62
337	ISO3104	2.803		-0.43	1299	D445	2.613	G(0.01)	-17.46
338		-----		-----	1300	D7042	2.7959	C	-1.06
340	ISO3104	2.8172		0.85	1316	D445	2.813		0.47
343	ISO3104	2.819		1.01	1347	D445	2.823		1.37
353	ISO3104	2.8038		-0.35	1348	D445	2.83		2.00
357	ISO3104	2.801		-0.61	1356	ISO3104	2.814		0.56
369	ISO3104	2.800		-0.70	1357	D445	2.831		2.08
371	ISO3104	2.797		-0.96	1385	D445	2.727	G(0.05)	-7.24
372	ISO3104	2.796		-1.05	1395	D445	2.803		-0.43
391	ISO3104	2.809		0.11	1409	ISO3104	2.805		-0.25
398	ISO3104	2.8071		-0.06	1412		-----		-----
399	ISO3104	2.815		0.65	1419	ISO3104	2.801		-0.61
420	ISO3104	2.7955		-1.10	1428	ISO3104	2.801		-0.61
430		-----		-----	1430	D445	2.8057		-0.18
431	ISO3104	2.8109		0.28	1459	D7042	2.8046		-0.28
440	D445	2.8032		-0.41	1483		-----		-----
445	IP71	2.816		0.74	1484		-----		-----
447	D445	2.8060		-0.16	1498	D445	2.799		-0.78
463	ISO3104	2.8091		0.12	1510	ISO3104	2.801		-0.61
485		-----		-----	1520	ISO3104	2.8234		1.40
488		-----		-----	1535	ISO3104	2.8021		-0.51
494	ISO3104	2.818		0.92	1539	ISO3104	2.8033		-0.40
495	ISO3104	2.8158		0.72	1546	ISO3104	2.8130		0.47
541	D445	2.791	C	-1.50	1564	D445	2.837		2.62
603	D445	2.850		3.79	1569	ISO3104	2.8065		-0.11
604		-----		-----	1570	ISO3104	2.78890		-1.69
607		-----		-----	1586	ISO3104	2.802		-0.52
671	D445	2.804		-0.34	1590	D445	2.8275		1.77
704	ISO3104	2.8025		-0.47	1616	D445	2.805		-0.25
781	ISO3104	2.8065		-0.11	1631	ISO3104	2.8070		-0.07
785		-----		-----	1634		-----		-----
863	ISO3104	2.8115		0.34	1636	ISO3104	2.8196		1.06
873	ISO3104	2.802		-0.52	1654	ISO3104	2.80295		-0.43
874	D445	2.809		0.11	1668	ISO3104	2.7945		-1.19
875	D445	2.807		-0.07	1681	ISO3104	2.8229	C	1.36
902	D445	2.8096		0.17	1720		-----		-----
912	ISO3104	2.823		1.37	1724	ISO3104	2.8068		-0.09
962	ISO3104	2.788		-1.77	1730		-----		-----
970	D445	2.874	G(0.01)	5.94	1740	ISO3104	2.796		-1.05
974	D445	2.9288	G(0.01)	10.86	1804	ISO3104	2.7952		-1.13
982	D445	3.02	G(0.01)	19.03	1807	ISO3104	2.814		0.56
998	D445	2.8		-0.70	1810	ISO3104	2.813		0.47
1006	D445	2.8006		-0.64	1811	ISO3104	2.7992		-0.77
1016		-----		-----	1832	ISO3104	2.8044	C	-0.30
1017		-----		-----	1833	ISO3104	2.8071		-0.06
1033	IP71	2.803		-0.43	1834	ISO3104	2.8063		-0.13
1038		-----		-----	1842	IP71	2.797		-0.96
1059	ISO3104	2.799		-0.78	1849	ISO3104	2.803		-0.43
1081	D445	2.803		-0.43	1854	ISO3104	2.795		-1.14
1095		-----		-----	1861		-----		-----
1108	ISO3104	2.805		-0.25	1936	ISO3104	2.805		-0.25
1109	D445	2.8140		0.56	1937	ISO3104	2.804		-0.34
1121	IP71	2.797		-0.96	1938	ISO3104	2.8129		0.46
1126		-----		-----	2102	in house	2.85		3.79
1140		-----		-----	2129	ISO3104	2.7978		-0.89
1146	ISO3104	2.8036		-0.37	2146		-----		-----
1150	ISO3104	2.8374		2.66					

normality	not OK
n	105
outliers	7
mean (n)	2.8078
st.dev. (n)	0.01191
R(calc.)	0.0333
R(ISO3104:94)	0.0312

Lab 237: first reported 2.8843
Lab 541: first reported 5.291
Lab 1300: first reported 2.7186
Lab 1681: first reported 5.4330
Lab 1832: first reported 2.7454



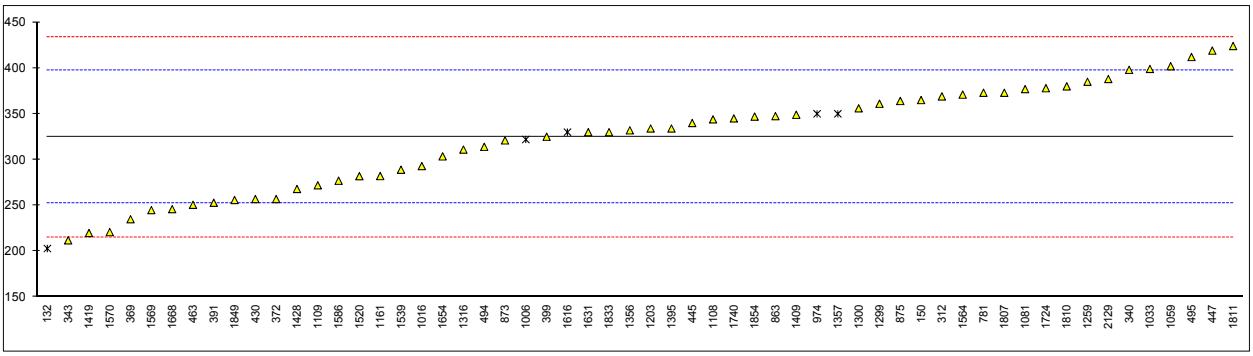


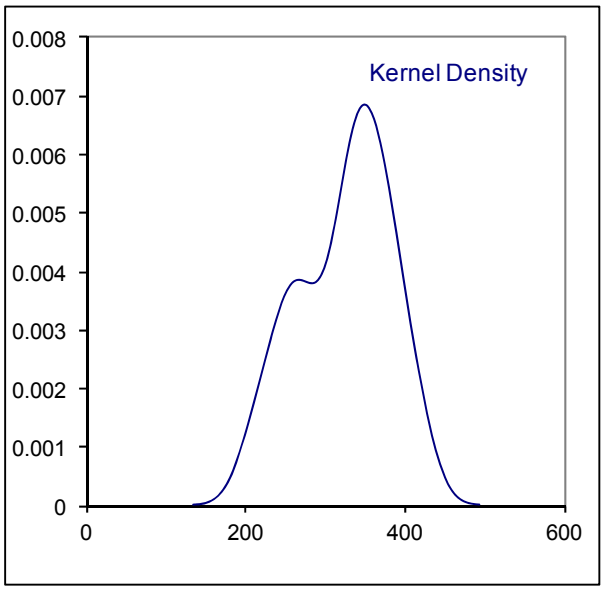
Determination of Lubricity by HFRR on sample #13010; result in µm

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D7688	203	ex	-3.34	1161	ISO12156	282.1		-1.17
150	ISO12156	365		1.10	1171		-----		-----
212		-----		-----	1194		-----		-----
225		-----		-----	1199		-----		-----
237		-----		-----	1203	ISO12156	334		0.25
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227		-----		-----
311		-----		-----	1231		-----		-----
312	ISO12156	369		1.21	1259	ISO12156	385		1.65
317		-----		-----	1266		-----		-----
333		-----		-----	1284		-----		-----
334		-----		-----	1297		-----		-----
337		-----		-----	1299	ISO12156	361		0.99
338		-----		-----	1300	ISO12156	356		0.86
340	ISO12156	398		2.01	1316	ISO12156	311		-0.38
343	ISO12156	212		-3.10	1347		-----		-----
353		-----		-----	1348		-----		-----
357		-----		-----	1356	ISO12156	332		0.20
369	ISO12156	235		-2.47	1357	D6079	350	ex	0.69
371		-----		-----	1385		-----		-----
372	ISO12156	257		-1.86	1395	INH-96	334		0.25
391	ISO12156	253		-1.97	1409	ISO12156	349		0.66
398		-----		-----	1412		-----		-----
399	ISO12156	325		0.00	1419	ISO12156	220		-2.88
420		-----		-----	1428	ISO12156	268		-1.56
430	ISO12156	257		-1.86	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	ISO12156	340		0.42	1484		-----		-----
447	IP450	419		2.58	1498		-----		-----
463	ISO12156	250.7		-2.04	1510		-----		-----
485		-----		-----	1520	ISO12156	282.0		-1.18
488		-----		-----	1535		-----		-----
494	ISO12156	314		-0.30	1539	ISO12156	289		-0.98
495	ISO12156	412		2.39	1546		-----		-----
541		-----		-----	1564	ISO12156	371		1.27
603		-----		-----	1569	ISO12156	245		-2.19
604		-----		-----	1570	ISO12156	221		-2.85
607		-----		-----	1586	ISO12156	277		-1.31
671		-----		-----	1590		-----		-----
704		-----		-----	1616	D6079	330	ex	0.14
781	ISO12156	373		1.32	1631	ISO12156	330		0.14
785		-----		-----	1634		-----		-----
863	ISO12156	347.5		0.62	1636		-----		-----
873	ISO12156	321		-0.11	1654	ISO12156	303.6		-0.58
874		-----		-----	1668	ISO12156	246		-2.16
875	ISO12156	364		1.07	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	ISO12156	378		1.46
962		-----		-----	1730		-----		-----
970		-----		-----	1740	ISO12156	345		0.55
974	D6079	350	ex	0.69	1804		-----		-----
982		-----		-----	1807	ISO12156	373		1.32
998		-----		-----	1810	ISO12156	380		1.51
1006	D6078	322	ex	-0.08	1811	ISO12156	424		2.72
1016	ISO12156	293		-0.87	1832		-----		-----
1017		-----		-----	1833	ISO12156	330		0.14
1033	IP450	399		2.04	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	ISO12156	402		2.12	1849	ISO12156	256		-1.89
1081	ISO12156	377		1.43	1854	ISO12156	347		0.61
1095		-----		-----	1861		-----		-----
1108	ISO12156	344		0.53	1936		-----		-----
1109	IP450	272		-1.45	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	ISO12156	388		1.73
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	OK
n	53
outliers	0
mean (n)	324.85
st.dev. (n)	57.366
R(calc.)	160.62
R(ISO12156:04)	102.00

ex = result excluded, calculation procedure of test method is different then ISO12156



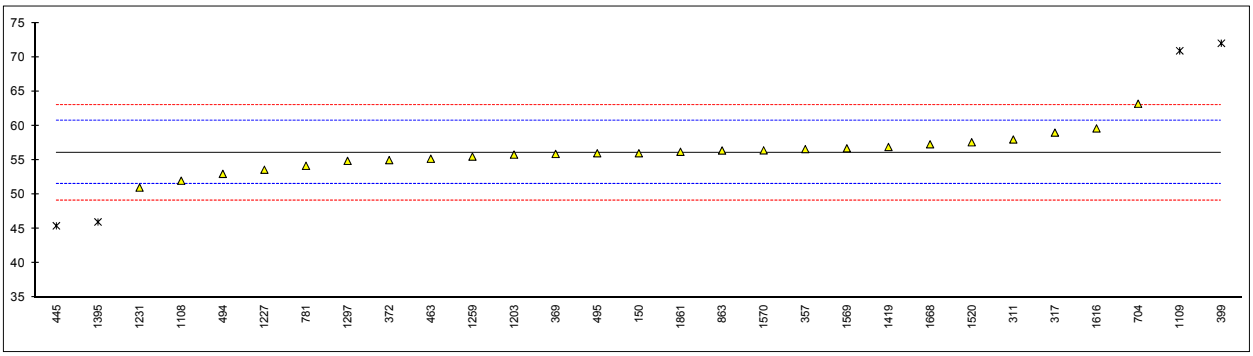


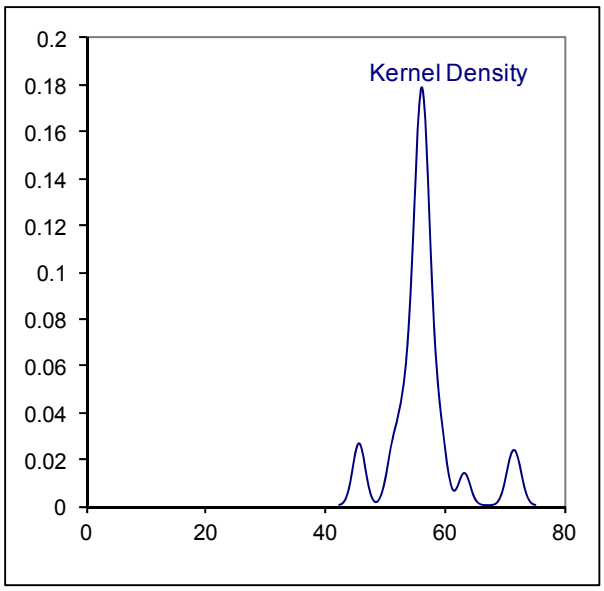
Determination of Total Nitrogen on sample #13010; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161		-----		-----
150	D4629	56		-0.04	1171		-----		-----
212		-----		-----	1194		-----		-----
225		-----		-----	1199		-----		-----
237		-----		-----	1203	D4629	55.8		-0.12
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	D4629	53.6		-1.08
311	D4629	58		0.83	1231	D4629	51		-2.21
312		-----		-----	1259	D4629	55.513		-0.25
317	D4629	59		1.27	1266		-----		-----
333		-----		-----	1284		-----		-----
334		-----		-----	1297	D4629	54.89		-0.52
337		-----		-----	1299		-----		-----
338		-----		-----	1300		-----		-----
340		-----		-----	1316		-----		-----
343		-----		-----	1347		-----		-----
353		-----		-----	1348		-----		-----
357	D4629	56.6		0.23	1356		-----		-----
369	D3228Mod.	55.9	C	-0.08	1357		-----		-----
371		-----		-----	1385		-----		-----
372	D4629	55		-0.47	1395	D4629	46	C,DG(0.01)	-4.39
391		-----		-----	1409		-----		-----
398		-----		-----	1412		-----		-----
399	D4629	72	DG(0.01)	6.92	1419	D4629	56.91		0.36
420		-----		-----	1428		-----		-----
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	D4629	45.44	DG(0.01)	-4.63	1484		-----		-----
447		-----		-----	1498		-----		-----
463	D4629	55.2		-0.38	1510		-----		-----
485		-----		-----	1520	D4629	57.6		0.66
488		-----		-----	1535		-----		-----
494	D4629	53.0		-1.34	1539		-----		-----
495	D4629	56		-0.04	1546		-----		-----
541		-----		-----	1564		-----		-----
603		-----		-----	1569	D4629	56.72		0.28
604		-----		-----	1570	D4629	56.42		0.15
607		-----		-----	1586		-----		-----
671		-----		-----	1590		-----		-----
704	D4629	63.2		3.10	1616	D4629	59.61		1.53
781	D4629	54.175		-0.83	1631		-----		-----
785		-----		-----	1634		-----		-----
863	D4629	56.4		0.14	1636		-----		-----
873		-----		-----	1654		-----		-----
874		-----		-----	1668	D4629	57.3	C	0.53
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724		-----		-----
962		-----		-----	1730		-----		-----
970		-----		-----	1740		-----		-----
974		-----		-----	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810		-----		-----
1006		-----		-----	1811		-----		-----
1016		-----		-----	1832		-----		-----
1017		-----		-----	1833		-----		-----
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059		-----		-----	1849		-----		-----
1081		-----		-----	1854		-----		-----
1095		-----		-----	1861	D4629	56.2122		0.06
1108	D4629	52.0		-1.78	1936		-----		-----
1109	D4629	70.9	DG(0.01)	6.45	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129		-----		-----
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	OK
n	25
outliers	4
mean (n)	56.082
st.dev. (n)	2.4689
R(calc.)	6.913
R(D4629:10)	6.436

Lab 369: first reported 65.9
Lab 1395: first reported 38
Lab 1668: first reported 64.02



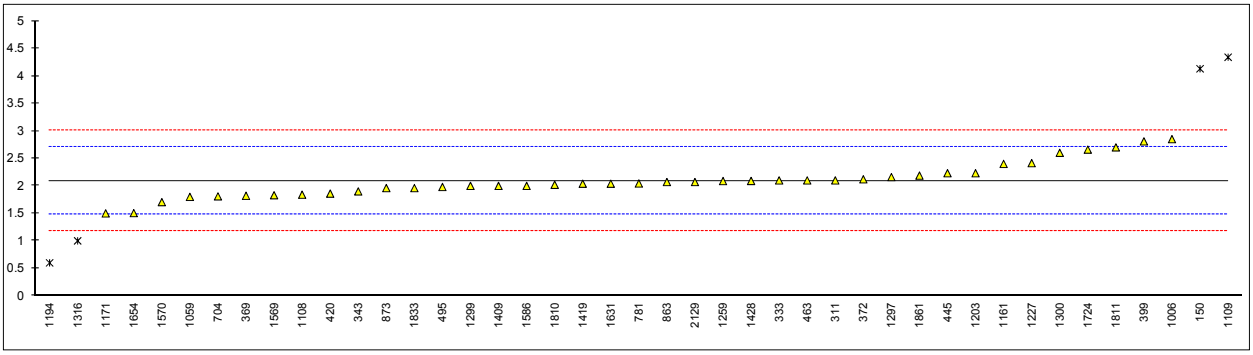


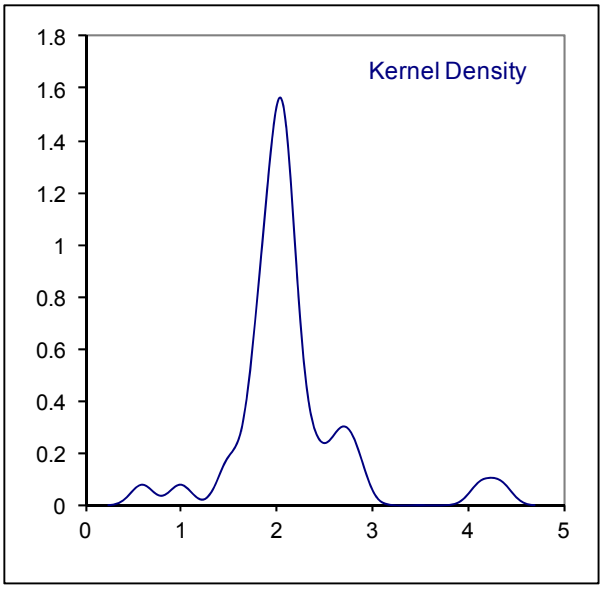
Determination of Poly-Aromatic Hydrocarbons on sample #13010; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161	EN12916	2.4		1.01
150	D6591	4.13	ex	6.70	1171	D1319Mod.	1.5		-1.95
212		-----		-----	1194	INH-12916	0.6	G(0.01)	-4.90
225		-----		-----	1199		-----		-----
237		-----		-----	1203	EN12916	2.23		0.45
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	EN12916	2.4137		1.06
311	EN12916	2.1		0.03	1231		-----		-----
312		-----		-----	1259	EN12916	2.088		-0.01
317		-----		-----	1266		-----		-----
333	EN12916	2.1		0.03	1284		-----		-----
334		-----		-----	1297	EN12916	2.16		0.22
337		-----		-----	1299	EN12916	2.0		-0.30
338		-----		-----	1300	EN12916	2.6017	C	1.67
340		-----		-----	1316	IP391Mod.	1.0	G(0.05)	-3.59
343	EN12916	1.9		-0.63	1347		-----		-----
353		-----		-----	1348		-----		-----
357		-----		-----	1356		-----		-----
369	EN12916	1.82		-0.89	1357		-----		-----
371		-----		-----	1385		-----		-----
372	EN12916	2.12		0.09	1395		-----		-----
391		-----		-----	1409	EN12916	2.0		-0.30
398		-----		-----	1412		-----		-----
399	EN12916	2.809		2.36	1419	EN12916	2.04		-0.17
420	EN12916	1.86		-0.76	1428	EN12916	2.09		-0.01
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	IP391	2.23		0.45	1484		-----		-----
447		-----		-----	1498		-----		-----
463	EN12916	2.1		0.03	1510		-----		-----
485		-----		-----	1520		-----		-----
488		-----		-----	1535		-----		-----
494		-----		-----	1539		-----		-----
495	EN12916	1.98		-0.37	1546		-----		-----
541		-----		-----	1564		-----		-----
603		-----		-----	1569	EN12916	1.83		-0.86
604		-----		-----	1570	EN12916	1.705	C	-1.27
607		-----		-----	1586	EN12916	2.0		-0.30
671		-----		-----	1590		-----		-----
704	EN12916	1.81		-0.93	1616		-----		-----
781	EN12916	2.044		-0.16	1631	EN12916	2.04		-0.17
785		-----		-----	1634		-----		-----
863	EN12916	2.07		-0.07	1636		-----		-----
873	EN12916	1.96		-0.43	1654	EN12916	1.50529		-1.93
874		-----		-----	1668		-----		-----
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	EN12916	2.66		1.87
962		-----		-----	1730		-----		-----
970		-----		-----	1740		-----		-----
974		-----		-----	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810	EN12916	2.02	C	-0.24
1006	EN12916	2.85		2.49	1811	EN12916	2.70	C	2.00
1016		-----		-----	1832		-----		-----
1017		-----		-----	1833	EN12916	1.96		-0.43
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	EN12916	1.8		-0.96	1849		-----		-----
1081		-----		-----	1854		-----		-----
1095		-----		-----	1861	EN12916	2.187		0.31
1108	EN12916	1.84		-0.83	1936		-----		-----
1109	D6591	4.34	ex	7.39	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN12916	2.07		-0.07
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	not OK
n	39
outliers	2
mean (n)	2.092
st.dev. (n)	0.3114
R(calc.)	0.872
R(EN12916:06)	0.852

ex = result excluded as ASTM D6591 is not suitable, Test method uses backflush in which FAME interferes
Lab 1300: first reported 3.0035
Lab 1570: first reported 3.33
Lab 1810: first reported 3.46
Lab 1811: first reported 3.20



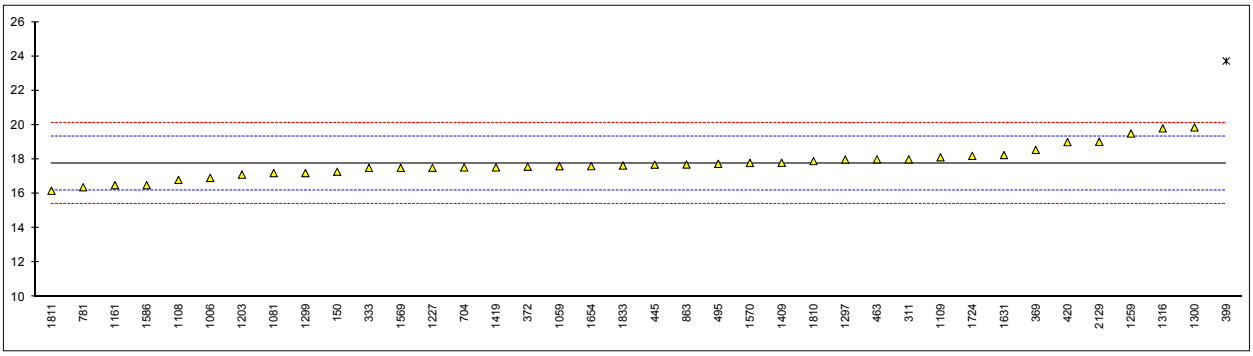


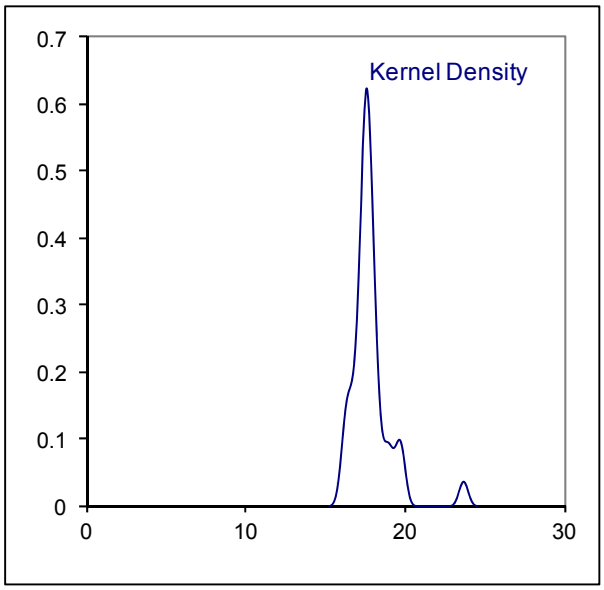
Determination of Mono-Aromatic Hydrocarbons on sample #13010; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161	EN12916	16.50	C	-1.59
150	D6591	17.28		-0.60	1171		-----		-----
212		-----		-----	1194		-----		-----
225		-----		-----	1199		-----		-----
237		-----		-----	1203	EN12916	17.11		-0.82
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	EN12916	17.5067		-0.31
311	EN12916	18.0		0.31	1231		-----		-----
312		-----		-----	1259	EN12916	19.504		2.21
317		-----		-----	1266		-----		-----
333	EN12916	17.5		-0.32	1284		-----		-----
334		-----		-----	1297	EN12916	17.99		0.30
337		-----		-----	1299	EN12916	17.2		-0.70
338		-----		-----	1300	EN12916	19.8552	C	2.66
340		-----		-----	1316	IP391Mod.	19.8		2.59
343		-----		-----	1347		-----		-----
353		-----		-----	1348		-----		-----
357		-----		-----	1356		-----		-----
369	EN12916	18.55		1.01	1357		-----		-----
371		-----		-----	1385		-----		-----
372	EN12916	17.57		-0.23	1395		-----		-----
391		-----		-----	1409	EN12916	17.8		0.06
398		-----		-----	1412		-----		-----
399	EN12916	23.723	G(0.01)	7.55	1419	EN12916	17.53		-0.29
420	EN12916	19.0		1.57	1428		-----		-----
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	IP391	17.69		-0.08	1484		-----		-----
447		-----		-----	1498		-----		-----
463	EN12916	18.0		0.31	1510		-----		-----
485		-----		-----	1520		-----		-----
488		-----		-----	1535		-----		-----
494		-----		-----	1539		-----		-----
495	EN12916	17.74		-0.02	1546		-----		-----
541		-----		-----	1564		-----		-----
603		-----		-----	1569	EN12916	17.50		-0.32
604		-----		-----	1570	EN12916	17.79		0.04
607		-----		-----	1586	EN12916	16.5		-1.59
671		-----		-----	1590		-----		-----
704	EN12916	17.53		-0.29	1616		-----		-----
781	EN12916	16.38		-1.74	1631	EN12916	18.25		0.63
785		-----		-----	1634		-----		-----
863	EN12916	17.70		-0.07	1636		-----		-----
873		-----		-----	1654	EN12916	17.60399		-0.19
874		-----		-----	1668		-----		-----
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	EN12916	18.20		0.56
962		-----		-----	1730		-----		-----
970		-----		-----	1740		-----		-----
974		-----		-----	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810	EN12916	17.90		0.18
1006	EN12916	16.92		-1.06	1811	EN12916	16.17		-2.01
1016		-----		-----	1832		-----		-----
1017		-----		-----	1833	EN12916	17.64		-0.15
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	EN12916	17.6		-0.20	1849		-----		-----
1081	EN12916	17.2		-0.70	1854		-----		-----
1095		-----		-----	1861		-----		-----
1108	EN12916	16.8		-1.21	1936		-----		-----
1109	D6591	18.12		0.46	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN12916	19.02		1.60
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	OK
n	37
outliers	1
mean (n)	17.755
st.dev. (n)	0.8664
R(calc.)	2.426
R(EN12916:06)	2.213

Lab 1161: first reported 19.5
Lab 1300: first reported 19.8552



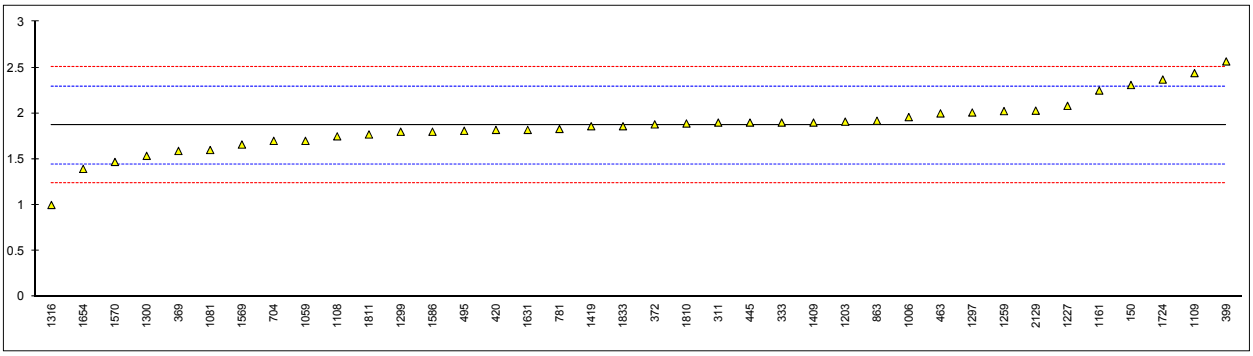


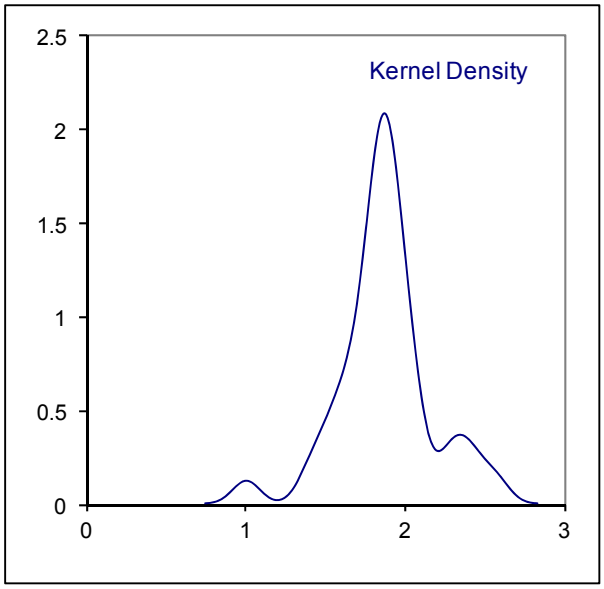
Determination of Di-Aromatic Hydrocarbons on sample #13010; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161	EN12916	2.25		1.80
150	D6591	2.31		2.09	1171		-----		-----
212		-----		-----	1194		-----		-----
225		-----		-----	1199		-----		-----
237		-----		-----	1203	EN12916	1.91		0.19
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	EN12916	2.0825		1.01
311	EN12916	1.9		0.15	1231		-----		-----
312		-----		-----	1259	EN12916	2.025		0.74
317		-----		-----	1266		-----		-----
333	EN12916	1.9		0.15	1284		-----		-----
334		-----		-----	1297	EN12916	2.01		0.67
337		-----		-----	1299	EN12916	1.8		-0.33
338		-----		-----	1300	EN12916	1.5366		-1.57
340		-----		-----	1316	IP391Mod.	1.0		-4.11
343		-----		-----	1347		-----		-----
353		-----		-----	1348		-----		-----
357		-----		-----	1356		-----		-----
369	EN12916	1.59		-1.32	1357		-----		-----
371		-----		-----	1385		-----		-----
372	EN12916	1.88		0.05	1395		-----		-----
391		-----		-----	1409	EN12916	1.9		0.15
398		-----		-----	1412		-----		-----
399	EN12916	2.568		3.31	1419	EN12916	1.86		-0.04
420	EN12916	1.82		-0.23	1428		-----		-----
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	IP391	1.90		0.15	1484		-----		-----
447		-----		-----	1498		-----		-----
463	EN12916	2.0		0.62	1510		-----		-----
485		-----		-----	1520		-----		-----
488		-----		-----	1535		-----		-----
494		-----		-----	1539		-----		-----
495	EN12916	1.81		-0.28	1546		-----		-----
541		-----		-----	1564		-----		-----
603		-----		-----	1569	EN12916	1.66		-0.99
604		-----		-----	1570	EN12916	1.47	C	-1.89
607		-----		-----	1586	EN12916	1.8		-0.33
671		-----		-----	1590		-----		-----
704	EN12916	1.70		-0.80	1616		-----		-----
781	EN12916	1.83		-0.18	1631	EN12916	1.82		-0.23
785		-----		-----	1634		-----		-----
863	EN12916	1.92		0.24	1636		-----		-----
873		-----		-----	1654	EN12916	1.39405		-2.25
874		-----		-----	1668		-----		-----
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	EN12916	2.37		2.37
962		-----		-----	1730		-----		-----
970		-----		-----	1740		-----		-----
974		-----		-----	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810	EN12916	1.89	C	0.10
1006	EN12916	1.96		0.43	1811	EN12916	1.77		-0.47
1016		-----		-----	1832		-----		-----
1017		-----		-----	1833	EN12916	1.86		-0.04
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	EN12916	1.7		-0.80	1849		-----		-----
1081	EN12916	1.6		-1.27	1854		-----		-----
1095		-----		-----	1861		-----		-----
1108	EN12916	1.75		-0.56	1936		-----		-----
1109	D6591	2.44		2.70	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN12916	2.03		0.76
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	OK
n	38
outliers	0
mean (n)	1.869
st.dev. (n)	0.2895
R(calc.)	0.810
R(EN12916:06)	0.591

Lab 1570: first reported 3.095
Lab 1810: first reported 1.94



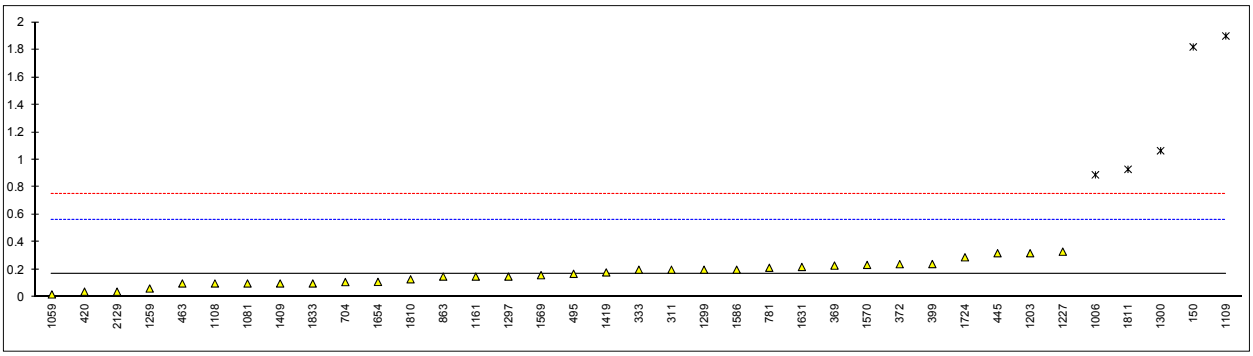


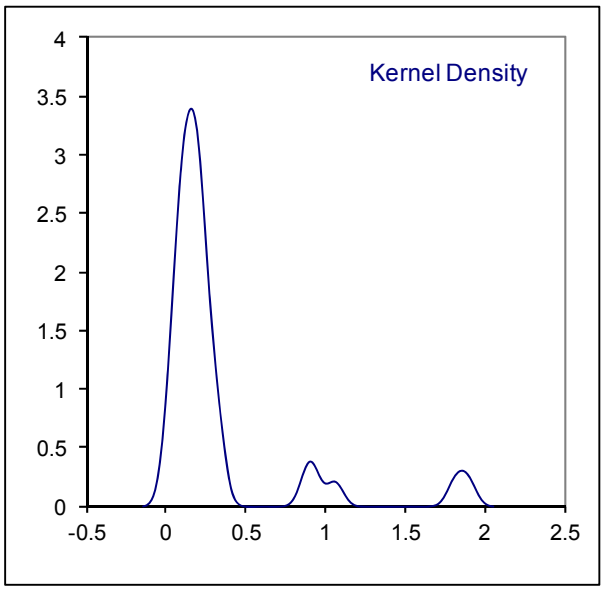
Determination of Tri-Aromatic Hydrocarbons on sample #13010; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161	EN12916	0.15		-0.10
150	D6591	1.82	ex	8.47	1171		-----		-----
212		-----		-----	1194		-----		-----
225		-----		-----	1199		-----		-----
237		-----		-----	1203	EN12916	0.32		0.77
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	EN12916	0.3312		0.83
311	EN12916	0.2		0.16	1231		-----		-----
312		-----		-----	1259	EN12916	0.063		-0.54
317		-----		-----	1266		-----		-----
333	EN12916	0.2		0.16	1284		-----		-----
334		-----		-----	1297	EN12916	0.15		-0.10
337		-----		-----	1299	EN12916	0.2		0.16
338		-----		-----	1300	EN12916	1.0651	C,G(0.01)	4.60
340		-----		-----	1316	IP391Mod.	<0.1		-----
343		-----		-----	1347		-----		-----
353		-----		-----	1348		-----		-----
357		-----		-----	1356		-----		-----
369	EN12916	0.23		0.31	1357		-----		-----
371		-----		-----	1385		-----		-----
372	EN12916	0.24		0.36	1395		-----		-----
391		-----		-----	1409	EN12916	0.1		-0.36
398		-----		-----	1412		-----		-----
399	EN12916	0.241		0.37	1419	EN12916	0.18		0.06
420	EN12916	0.04		-0.66	1428		-----		-----
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	IP391	0.32		0.77	1484		-----		-----
447		-----		-----	1498		-----		-----
463	EN12916	0.1		-0.36	1510		-----		-----
485		-----		-----	1520		-----		-----
488		-----		-----	1535		-----		-----
494		-----		-----	1539		-----		-----
495	EN12916	0.17		0.00	1546		-----		-----
541		-----		-----	1564		-----		-----
603		-----		-----	1569	EN12916	0.16		-0.05
604		-----		-----	1570	EN12916	0.235		0.34
607		-----		-----	1586	EN12916	0.2		0.16
671		-----		-----	1590		-----		-----
704	EN12916	0.11		-0.30	1616		-----		-----
781	EN12916	0.214		0.23	1631	EN12916	0.22		0.26
785		-----		-----	1634		-----		-----
863	EN12916	0.15		-0.10	1636		-----		-----
873		-----		-----	1654	EN12916	0.111239		-0.30
874		-----		-----	1668		-----		-----
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724	EN12916	0.29		0.62
962		-----		-----	1730		-----		-----
970		-----		-----	1740		-----		-----
974		-----		-----	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810	EN12916	0.13	C	-0.20
1006	EN12916	0.89	G(0.01)	3.70	1811	EN12916	0.93	C,G(0.01)	3.90
1016		-----		-----	1832		-----		-----
1017		-----		-----	1833	EN12916	0.1		-0.36
1033		-----		-----	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	EN12916	0.02		-0.77	1849		-----		-----
1081	EN12916	0.1		-0.36	1854		-----		-----
1095		-----		-----	1861		-----		-----
1108	EN12916	0.10		-0.36	1936		-----		-----
1109	D6591	1.90	ex	8.88	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	EN12916	0.04		-0.66
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	OK
n	32
outliers	3
mean (n)	0.169
st.dev. (n)	0.0830
R(calc.)	0.232
R(EN12916:06)	0.546

ex = result excluded as ASTM D6591 is not suitable, Test method uses backflush in which FAME interferes
Lab 1300: first reported 1.0651
Lab 1810: first reported 1.51
Lab 1811: first reported 1.43



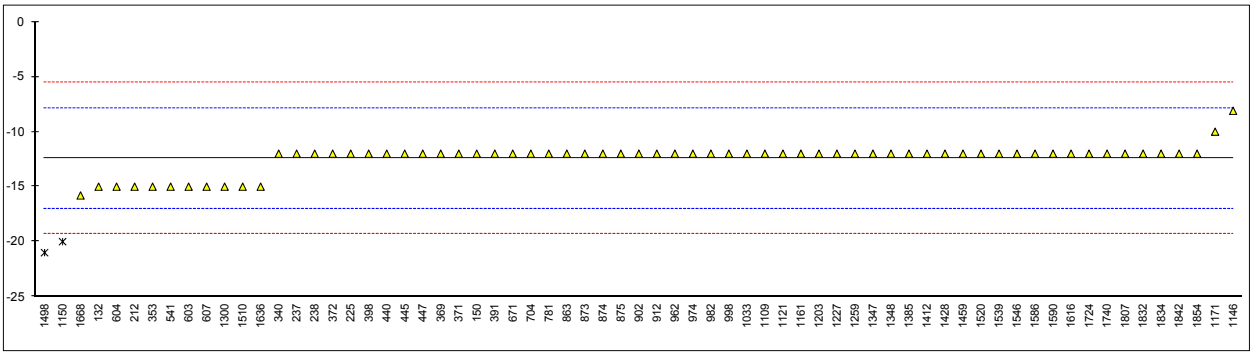


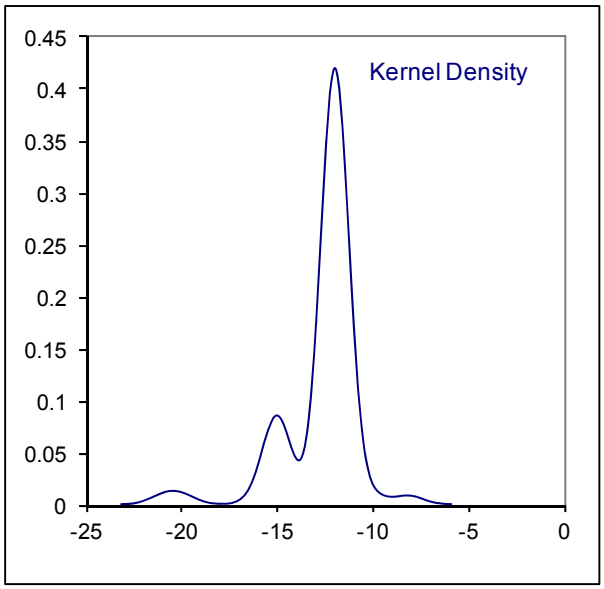
Determination of Pour Point, Manual on sample #13010; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D97	-15		-1.12	1161	ISO3016	-12		0.19
150	ISO3016	-12		0.19	1171	ISO3016	-10.0		1.06
212	ISO3016	-15		-1.12	1194		-----		-----
225	D97	-12		0.19	1199		-----		-----
237	D97	-12	C	0.19	1203	ISO3016	-12		0.19
238	D97	-12		0.19	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	ISO3016	-12		0.19
311		-----		-----	1231		-----		-----
312		-----		-----	1259	ISO3016	-12		0.19
317		-----		-----	1266		-----		-----
333		-----		-----	1284		-----		-----
334		-----		-----	1297		-----		-----
337		-----		-----	1299		-----		-----
338		-----		-----	1300	ISO3016	-15.0		-1.12
340	ISO3016	-12		0.19	1316		-----		-----
343		-----		-----	1347	D97	-12		0.19
353	ISO3016	-15		-1.12	1348	D97	-12		0.19
357		-----		-----	1356	ISO3016	<-20		-----
369	ISO3016	-12		0.19	1357		-----		-----
371	ISO3016	-12		0.19	1385	D97	-12		0.19
372	ISO3016	-12		0.19	1395		-----		-----
391	ISO3016	-12		0.19	1409		-----		-----
398	ISO3016	-12		0.19	1412	D97	-12	C	0.19
399		-----		-----	1419		-----		-----
420		-----		-----	1428	ISO3016	-12	C	0.19
430		-----		-----	1430		-----		-----
431		-----		-----	1459	D97	-12		0.19
440	IP15	-12.0		0.19	1483		-----		-----
445	IP15	-12		0.19	1484		-----		-----
447	D97	-12		0.19	1498	D97	-21	G(0.01)	-3.73
463		-----		-----	1510	ISO3016	-15		-1.12
485		-----		-----	1520	ISO3016	-12		0.19
488		-----		-----	1535		-----		-----
494		-----		-----	1539	ISO3016	-12		0.19
495		-----		-----	1546	ISO3016	-12		0.19
541	D97	-15		-1.12	1564		-----		-----
603	D97	-15		-1.12	1569		-----		-----
604	D97	-15		-1.12	1570		-----		-----
607	D97	-15		-1.12	1586	ISO3016	-12		0.19
671	D97	-12		0.19	1590	D97	-12		0.19
704	ISO3016	-12		0.19	1616	D97	-12		0.19
781	ISO3016	-12		0.19	1631		-----		-----
785		-----		-----	1634		-----		-----
863	ISO3016	-12		0.19	1636	ISO3016	-15		-1.12
873	D97	-12		0.19	1654		-----		-----
874	D97	-12		0.19	1668	ISO3016	-15.8		-1.47
875	D97	-12		0.19	1681		-----		-----
902	D97	-12		0.19	1720		-----		-----
912	ISO3016	-12		0.19	1724	ISO3016	-12		0.19
962	ISO3016	-12		0.19	1730		-----		-----
970		-----		-----	1740	ISO3016	-12		0.19
974	D97	-12		0.19	1804		-----		-----
982	D97	-12		0.19	1807	D97	-12		0.19
998	D97	-12		0.19	1810		-----		-----
1006		-----		-----	1811		-----		-----
1016		-----		-----	1832	ISO3016	-12.0		0.19
1017		-----		-----	1833		-----		-----
1033	IP15	-12		0.19	1834	ISO3016	-12		0.19
1038		-----		-----	1842	D97	-12		0.19
1059		-----		-----	1849		-----		-----
1081		-----		-----	1854	ISO3016	-12		0.19
1095		-----		-----	1861		-----		-----
1108		-----		-----	1936		-----		-----
1109	D97	-12		0.19	1937		-----		-----
1121	IP15	-12		0.19	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129		-----		-----
1146	ISO3016	-8.1		1.89	2146		-----		-----
1150	ISO3016	-20	G(0.01)	-3.30					

normality	not OK
n	65
outliers	2
mean (n)	-12.429
st.dev. (n)	1.3210
R(calc.)	3.699
R(ISO3016:94)	6.430

Lab 237: first reported -18
Lab 1412: first reported -9
Lab 1428: first reported -9



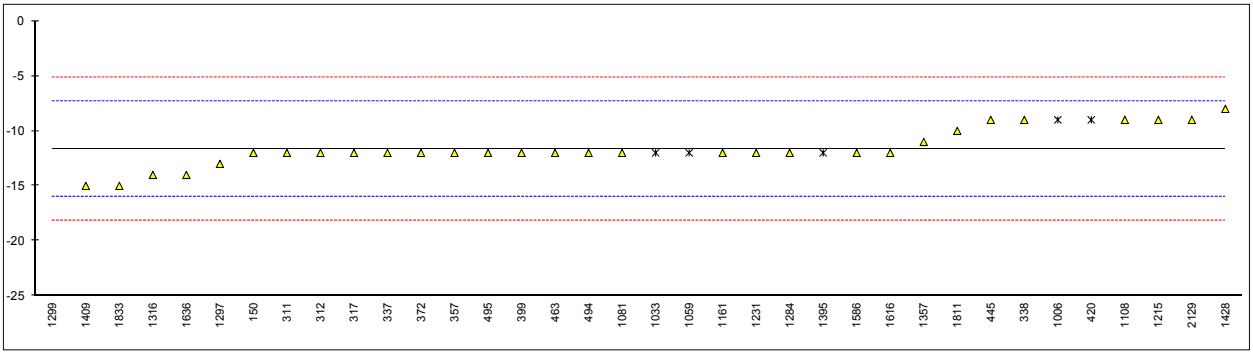


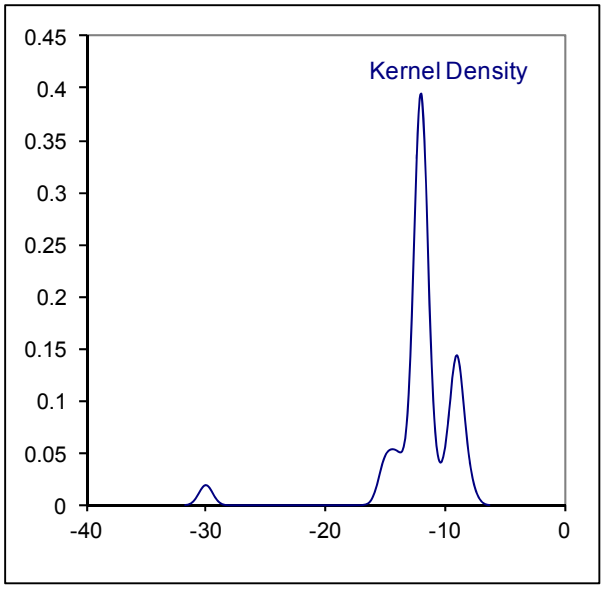
Determination of Pour Point, Automated on sample #13010; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132		-----		-----	1161	D6749	-12		-0.17
150	D5950	-12		-0.17	1171		-----		-----
212		-----		-----	1194		-----		-----
225		-----		-----	1199		-----		-----
237		-----		-----	1203		-----		-----
238		-----		-----	1205		-----		-----
240		-----		-----	1215	D5950	-9		1.21
258		-----		-----	1227		-----		-----
311	D5950	-12		-0.17	1231	D5950	-12		-0.17
312	D5950	-12		-0.17	1259		-----		-----
317	D6749	-12		-0.17	1266		-----		-----
333		-----		-----	1284	D5950	-12.0		-0.17
334		-----		-----	1297	D5950	-13		-0.63
337	D5950	-12		-0.17	1299	D97	-30	ex	-8.43
338	D5950	-9		1.21	1300		-----		-----
340		-----		-----	1316	D5950	-14.0		-1.09
343		-----		-----	1347		-----		-----
353		-----		-----	1348		-----		-----
357	D5950	-12		-0.17	1356		-----		-----
369		-----		-----	1357	D6749	-11.0	C	0.29
371		-----		-----	1385		-----		-----
372	D5950	-12		-0.17	1395	D97	-12	ex	-0.17
391		-----		-----	1409	D5950	-15		-1.55
398		-----		-----	1412		-----		-----
399	D5949	-12		-0.17	1419		-----		-----
420	ISO3016	-9	ex	1.21	1428	D5950	-8		1.67
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	D5950	-9		1.21	1484		-----		-----
447		-----		-----	1498		-----		-----
463	D6892	-12		-0.17	1510		-----		-----
485		-----		-----	1520		-----		-----
488		-----		-----	1535		-----		-----
494	D6892	-12		-0.17	1539		-----		-----
495	D6892	-12		-0.17	1546		-----		-----
541		-----		-----	1564		-----		-----
603		-----		-----	1569		-----		-----
604		-----		-----	1570		-----		-----
607		-----		-----	1586	D5950	-12		-0.17
671		-----		-----	1590		-----		-----
704		-----		-----	1616	D6749	-12		-0.17
781		-----		-----	1631		-----		-----
785		-----		-----	1634		-----		-----
863		-----		-----	1636	D6749	-14		-1.09
873		-----		-----	1654		-----		-----
874		-----		-----	1668		-----		-----
875		-----		-----	1681		-----		-----
902		-----		-----	1720		-----		-----
912		-----		-----	1724		-----		-----
962		-----		-----	1730		-----		-----
970		-----		-----	1740		-----		-----
974		-----		-----	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810		-----		-----
1006	D97	-9	ex	1.21	1811	D5950	-10		0.75
1016		-----		-----	1832		-----		-----
1017		-----		-----	1833	D5950	-15		-1.55
1033	IP15	-12	ex	-0.17	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	ISO3016	-12	ex	-0.17	1849		-----		-----
1081	D5950	-12		-0.17	1854		-----		-----
1095		-----		-----	1861		-----		-----
1108	D5950	-9		1.21	1936		-----		-----
1109		-----		-----	1937		-----		-----
1121		-----		-----	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	D5950	-9		1.21
1146		-----		-----	2146		-----		-----
1150		-----		-----					

normality	not OK
n	30
outliers	0
mean (n)	-11.633
st.dev. (n)	1.7515
R(calc.)	4.904
R(D5950:07)	6.100

ex = result is excluded as reported test method is a manual method
Lab 1357: first reported -18



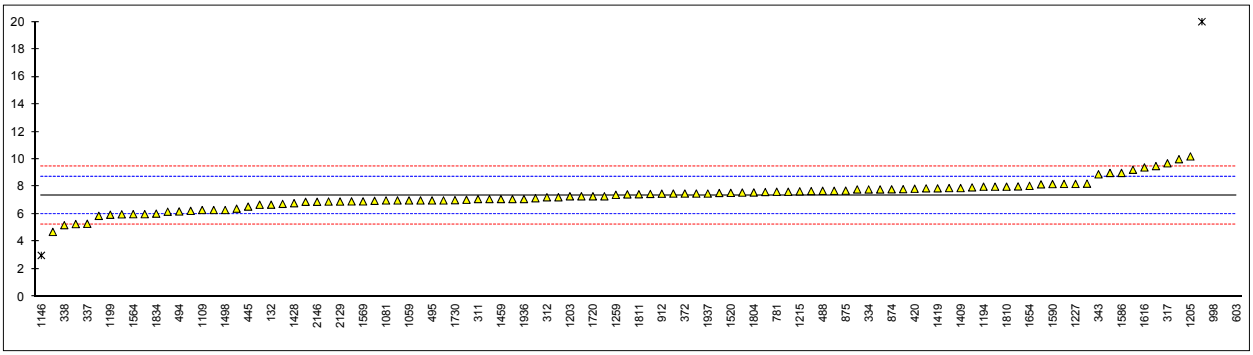


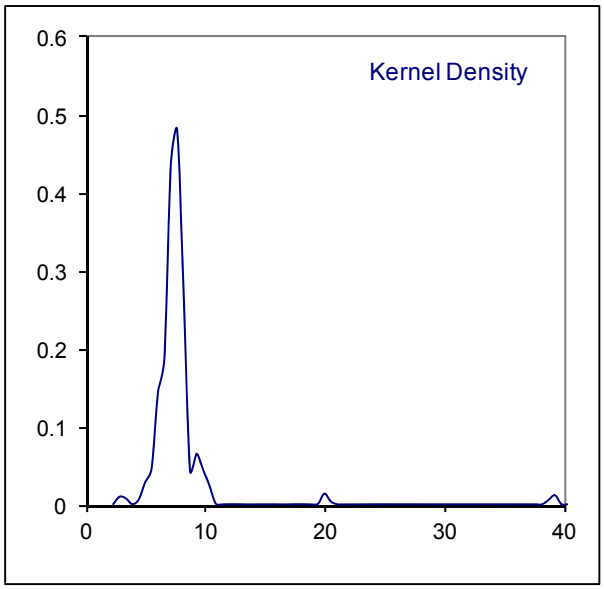
Determination of Sulphur Content on sample #13010; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D5453	6.69		-0.96	1161	ISO20846	9.23		2.70
150	ISO20846	7.0		-0.52	1171	ISO20846	6.93		-0.62
212	ISO8754	<10	C	-----	1194	INH-7220	8.0		0.92
225		-----		-----	1199	ISO20884	5.96		-2.01
237	D4294	9.0		2.36	1203	ISO20846	7.3		-0.08
238	D4294	20	C,G(0.01)	18.21	1205	ISO20884	10.2		4.09
240		-----		-----	1215	D5453	7.66		0.43
258	D5453	8.20		1.21	1227	ISO20846	8.2		1.21
311	ISO20846	7.1		-0.37	1231	D5453	5.28		-2.99
312	ISO20846	7.23		-0.18	1259	ISO20846	7.41		0.07
317	ISO20846	9.7		3.37	1266	ISO20846	7.68		0.46
333		-----		-----	1284	D5453	6.75		-0.88
334	ISO20846	7.8		0.64	1297	D5453	8.02		0.95
337	ISO20846	5.3		-2.96	1299	ISO20884	6.9		-0.66
338	ISO20846	5.20		-3.11	1300	ISO20846	6.242		-1.61
340	ISO20846	7.54		0.26	1316	ISO13032	6.3		-1.52
343	ISO20846	8.9		2.22	1347		-----		-----
353	IP531	4.71		-3.81	1348	D4294	<100		-----
357	ISO20846	8.22		1.24	1356	D8754	<100		-----
369	ISO20884	7.1		-0.37	1357	D5453	6.18		-1.70
371	ISO20846	7.47		0.16	1385	D4294	58	G(0.01)	72.94
372	ISO20846	7.5		0.20	1395		-----		-----
391	ISO20846	7.8		0.64	1409	ISO20846	7.9		0.78
398	ISO20846	7.16		-0.29	1412		-----		-----
399	ISO20846	7		-0.52	1419	ISO20846	7.88		0.75
420	ISO20846	7.85		0.71	1428	ISO20846	6.8		-0.80
430		-----		-----	1430	in house	7		-0.52
431		-----		-----	1459	ISO20884	7.1		-0.37
440	D5453	7.23		-0.18	1483		-----		-----
445	D5453	6.55		-1.16	1484		-----		-----
447		-----		-----	1498	D5453	6.3		-1.52
463	ISO20846	7.3		-0.08	1510		-----		-----
485		-----		-----	1520	ISO20846	7.55		0.28
488	ISO20846	7.7		0.49	1535		-----		-----
494	ISO20846	6.2		-1.67	1539	ISO20846	7.8		0.64
495	ISO20846	7.0		-0.52	1546	ISO20846	8.17		1.17
541	ISO20846	10		3.80	1564	ISO20846	6		-1.96
603	D4294	138	G(0.01)	188.16	1569	ISO20846	6.93		-0.62
604		-----		-----	1570	ISO20846	5.99		-1.97
607		-----		-----	1586	ISO20846	9	C	2.36
671	D5453	7.82		0.67	1590	D5453	8.19		1.20
704	ISO20846	7.95		0.85	1616	D5453	9.40		2.94
781	ISO20846	7.63		0.39	1631	ISO20846	7.05		-0.44
785		-----		-----	1634		-----		-----
863	D5453	7.88		0.75	1636	ISO20846	6.97		-0.56
873		-----		-----	1654	ISO20846	8.06		1.01
874	ISO20846	7.81		0.65	1668	ISO20846	6.689		-0.96
875	D5453	7.71		0.51	1681	D7220	6.4		-1.38
902		-----		-----	1720	D5453	7.3		-0.08
912	D5453	7.49		0.19	1724	ISO20846	7.63		0.39
962		-----		-----	1730	ISO20884	7.02		-0.49
970	D5453	8		0.92	1740	ISO20846	7.7		0.49
974		-----		-----	1804	ISO20846	7.58		0.32
982		-----		-----	1807	ISO20846	9.5		3.08
998	D4294	39	G(0.01)	45.57	1810	ISO20846	8.0		0.92
1006	D5453	7.9		0.78	1811	ISO20846	7.45		0.13
1016	ISO20846	7.61		0.36	1832	ISO20846	7.44		0.12
1017		-----		-----	1833	ISO20846	6.92		-0.63
1033		-----		-----	1834	ISO20846	6.04		-1.90
1038		-----		-----	1842	in house	6		-1.96
1059	ISO20846	7.0		-0.52	1849	ISO20846	7.10		-0.37
1081	ISO20846	7.0		-0.52	1854	ISO20846	7.5		0.20
1095		-----		-----	1861	D5453	7.5740		0.31
1108	ISO20846	7.5		0.20	1936	ISO20846	7.1		-0.37
1109	D2622	6.3		-1.52	1937	ISO20846	7.5		0.20
1121	IP336	<10		-----	1938	ISO20846	7.3		-0.08
1126	ISO20846	5.88		-2.13	2102		-----		-----
1140		-----		-----	2129	ISO20846	6.92		-0.63
1146	ISO20846	3	C,G(0.01)	-6.28	2146	ISO8754	6.9		-0.66
1150		-----		-----					

normality	not OK
n	100
outliers	5
mean (n)	7.358
st.dev. (n)	0.9790
R(calc.)	2.741
R(ISO20846:04)	1.944

Lab 212: reported <0.0010 (probably unit error)
Lab 238: first reported 0.002 (probably unit error)
Lab 1146: first reported 0.003 (probably unit error)



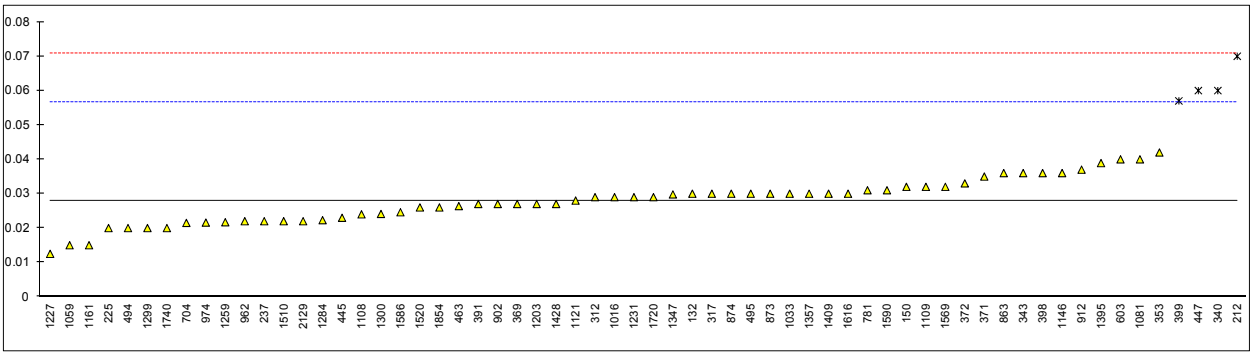


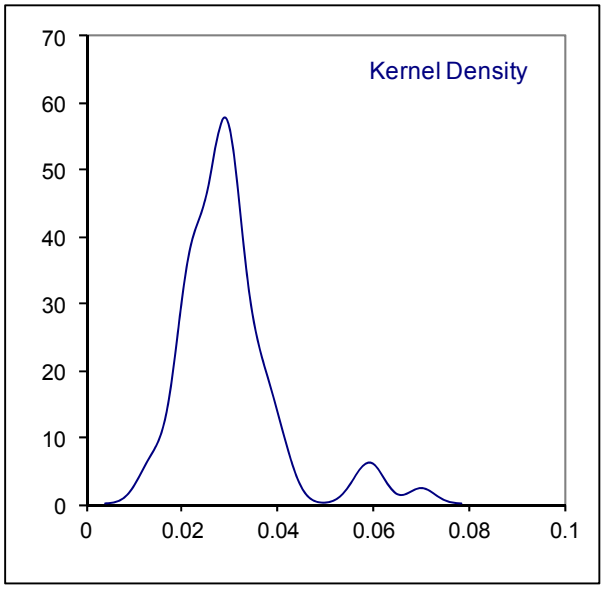
Determination of Total Acid Number (TAN) on sample #13010; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D974	0.03		0.15	1161	D664	0.015		-0.90
150	D974	0.032		0.29	1171		-----		-----
212	D664	0.07	G(0.01)	2.95	1194		-----		-----
225	D974	0.02		-0.55	1199		-----		-----
237	D974	0.022		-0.41	1203	D974	0.027		-0.06
238		-----		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	D974	0.0125		-1.08
311	D974	<0.05		-----	1231	D974	0.029		0.08
312	D974	0.029		0.08	1259	D974	0.0217		-0.43
317	D974	0.03		0.15	1266		-----		-----
333		-----		-----	1284	D664	0.0223		-0.39
334		-----		-----	1297		-----		-----
337		-----		-----	1299	D974	0.02		-0.55
338		-----		-----	1300	D974	0.02411		-0.27
340	D974	0.06	G(0.05)	2.25	1316		-----		-----
343	D974	0.036		0.57	1347	D974	0.0298		0.13
353	IP177	0.042	C	0.99	1348		-----		-----
357	D664	<0.1		-----	1356	D664	<0.05		-----
369	D974	0.027		-0.06	1357	D974	0.03		0.15
371	D974	0.035		0.50	1385		-----		-----
372	D974	0.033		0.36	1395	D664	0.0389		0.77
391	D974	0.027		-0.06	1409	D974	0.03		0.15
398	D974	0.036		0.57	1412		-----		-----
399	D974	0.057	G(0.01)	2.04	1419		-----		-----
420		-----		-----	1428	D664	0.027		-0.06
430		-----		-----	1430		-----		-----
431		-----		-----	1459		-----		-----
440		-----		-----	1483		-----		-----
445	D974	0.023		-0.34	1484		-----		-----
447	D664	0.06	G(0.01)	2.25	1498		-----		-----
463	D974	0.0264		-0.11	1510	D974	0.022		-0.41
485		-----		-----	1520	D974	0.026		-0.13
488		-----		-----	1535		-----		-----
494	D664	0.02		-0.55	1539		-----		-----
495	D664	0.03		0.15	1546		-----		-----
541	D664	<0.1		-----	1564		-----		-----
603	D664	0.04		0.85	1569	D664	0.032		0.29
604		-----		-----	1570		-----		-----
607		-----		-----	1586	D974	0.02460		-0.23
671		-----		-----	1590	D664	0.031		0.22
704	D974	0.0215		-0.45	1616	D974	0.030		0.15
781	D974	0.031		0.22	1631		-----		-----
785		-----		-----	1634		-----		-----
863	D974	0.036		0.57	1636		-----		-----
873	D974	0.03		0.15	1654		-----		-----
874	D974	0.03		0.15	1668		-----		-----
875		-----		-----	1681		-----		-----
902	D664	0.027		-0.06	1720	D974	0.029		0.08
912	D974	0.037		0.64	1724		-----		-----
962	D974	0.022		-0.41	1730		-----		-----
970		-----		-----	1740	D664	0.02		-0.55
974	D974	0.0216		-0.44	1804		-----		-----
982		-----		-----	1807		-----		-----
998		-----		-----	1810		-----		-----
1006		-----		-----	1811		-----		-----
1016	ISO6618	0.029		0.08	1832		-----		-----
1017		-----		-----	1833		-----		-----
1033	D664	0.03		0.15	1834		-----		-----
1038		-----		-----	1842		-----		-----
1059	ISO6619	0.015	C	-0.90	1849		-----		-----
1081	D664	0.04		0.85	1854	D974	0.026		-0.13
1095		-----		-----	1861		-----		-----
1108	D664	0.024		-0.27	1936		-----		-----
1109	D974	0.032		0.29	1937		-----		-----
1121	IP139	0.028		0.01	1938		-----		-----
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	D974	0.022		-0.41
1146	D664	0.036		0.57	2146		-----		-----
1150		-----		-----					

normality	OK
n	58
outliers	4
mean (n)	0.0279
st.dev. (n)	0.00641
R(calc.)	0.0179
R(D974:08)	0.0400

Lab 353: first reported 0.078
Lab 1059: first reported 0.09



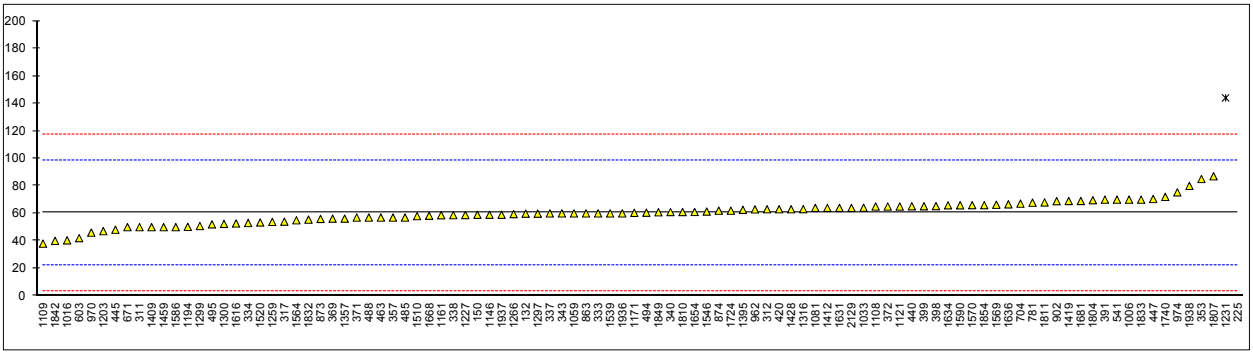


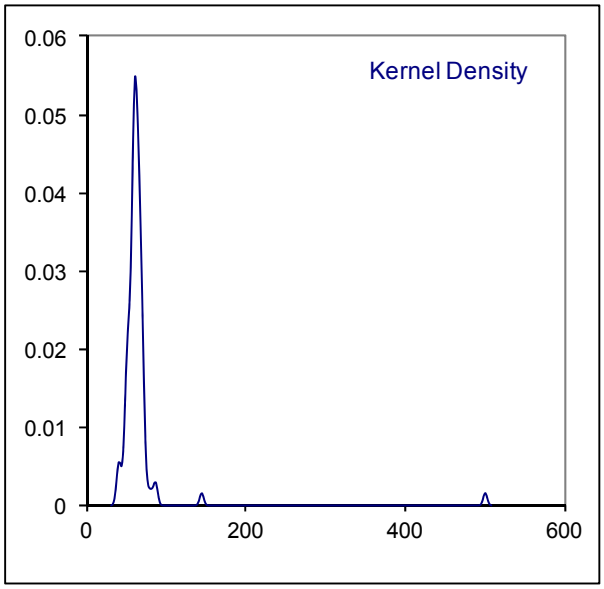
Determination of Water Content on sample #13010; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
132	D6304	59.8		-0.03	1161	ISO12937	58.681		-0.09
150	ISO12937	59		-0.07	1171	ISO12937	60.42		0.00
212	ISO3733	<1000	C	-----	1194	ISO12937	50.21		-0.53
225	D95	500	C,G(0.01)	23.03	1199		-----		-----
237		-----		-----	1203	ISO12937	47.1		-0.70
238	D95	<500		-----	1205		-----		-----
240		-----		-----	1215		-----		-----
258		-----		-----	1227	ISO12937	58.8		-0.08
311	ISO12937	50		-0.55	1231	ISO12937	144	C,G(0.01)	4.38
312	ISO12937	63		0.14	1259	ISO12937	53.8		-0.35
317	ISO12937	54		-0.34	1266	ISO12937	59.5		-0.05
333	ISO12937	60		-0.02	1284		-----		-----
334	ISO12937	53		-0.39	1297	D6304	59.8		-0.03
337	ISO12937	60		-0.02	1299	ISO12937	50.8		-0.50
338	ISO12937	58.74		-0.09	1300	ISO12937	52.35		-0.42
340	ISO12937	61		0.03	1316	E1064	63.1		0.14
343	ISO12937	60		-0.02	1347		-----		-----
353	IP439	85		1.29	1348		-----		-----
357	ISO12937	57		-0.18	1356	ISO3733	<100		-----
369	ISO12937	56.2		-0.22	1357	D6304	56.2		-0.22
371	ISO12937	57		-0.18	1385		-----		-----
372	ISO12937	65		0.24	1395	ISO12937	62.6		0.11
391	ISO12937	70		0.50	1409	ISO12937	50		-0.55
398	ISO12937	65.3		0.26	1412	D6304	64.0		0.19
399	ISO12937	65.2		0.25	1419	ISO12937	69		0.45
420	ISO12937	63		0.14	1428	ISO12937	63		0.14
430		-----		-----	1430		-----		-----
431		-----		-----	1459	ISO12937	50		-0.55
440	IP438	65.19		0.25	1483		-----		-----
445	IP438	48.1		-0.65	1484		-----		-----
447	IP438	70.5		0.53	1498	D2709	<50	C	-----
463	ISO12937	57		-0.18	1510	ISO12937	58		-0.13
485	ISO12937	57		-0.18	1520	ISO12937	53.4		-0.37
488	ISO12937	57.0		-0.18	1535		-----		-----
494	ISO12937	60.5		0.00	1539	ISO12937	60		-0.02
495	ISO12937	52.0		-0.44	1546	ISO12937	61.326		0.05
541	ISO12937	70		0.50	1564	ISO12937	55		-0.28
603	D6304	42		-0.96	1569	ISO12937	66.3		0.31
604		-----		-----	1570	ISO12937	66		0.29
607	D95	<50		-----	1586	ISO12937	50		-0.55
671	D2709	50	C	-0.55	1590	D6304	65.90		0.29
704	ISO12937	67.1		0.35	1616	UOP481	52.64		-0.41
781	ISO12937	67.8		0.39	1631	ISO12937	64		0.19
785		-----		-----	1634	ISO12937	65.85		0.28
863	D6304	60.0		-0.02	1636	ISO12937	66.6		0.32
873	D6304	56		-0.23	1654	ISO12937	61.03		0.03
874	D6304	62		0.08	1668	ISO12937	58.3		-0.11
875		-----		-----	1681	ISO12937	69.0		0.45
902	D6304	68.9		0.44	1720		-----		-----
912		-----		-----	1724	ISO12937	62		0.08
962	ISO12937	62.88		0.13	1730		-----		-----
970	D6304	46		-0.76	1740	ISO12937	72		0.61
974	D6304	75.3		0.78	1804	ISO12937	69.6		0.48
982		-----		-----	1807	ISO12937	87		1.39
998		-----		-----	1810	ISO12937	61		0.03
1006	D6304	70.0		0.50	1811	ISO12937	68		0.40
1016	ISO12937	40.4		-1.05	1832	ISO12937	55.47		-0.26
1017		-----		-----	1833	ISO12937	70		0.50
1033	IP438	64.12		0.19	1834		-----		-----
1038		-----		-----	1842	IP74	40		-1.07
1059	ISO12937	60		-0.02	1849	ISO12937	60.8		0.02
1081	D6304	64		0.19	1854	ISO12937	66.0		0.29
1095		-----		-----	1861		-----		-----
1108	ISO12937	65		0.24	1936	ISO12937	60		-0.02
1109	D6304	38.0		-1.17	1937	ISO12937	59		-0.07
1121	IP438	65		0.24	1938	ISO12937	80		1.03
1126		-----		-----	2102		-----		-----
1140		-----		-----	2129	IP439	64		0.19
1146	D6304-C	59		-0.07	2146		-----		-----
1150		-----		-----					

normality	OK
n	98
outliers	2
mean (n)	60.414
st.dev. (n)	8.4541
R(calc.)	23.671
R(ISO12937:00)	53.453

Lab 212: reported <0.1 (probably unit error)
Lab 225: reported 0.05 (probably unit error)
Lab 671: first reported <0.01
Lab 1231: first reported 0.0144 (probably unit error)
Lab 1498: first reported <0.005 (probably unit error)





Determination of Distillation (automated) on sample #13010; result in °C

lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
132	D86-A	165.1		208.8		276.9		335.4		349.7		354.1	
150	ISO3405-A	164.3		208.5		277.1		334.6		349.2		358.3	
212	D86-A	166.5		208.2		276.4		334.0		347.4		359.7	
225		-----		-----		-----		-----		-----		-----	
237		-----		-----		-----		-----		-----		-----	
238		-----		-----		-----		-----		-----		-----	
240		-----		-----		-----		-----		-----		-----	
258	D86-A	159.8		205.0		277.4		335.0		347.6		358.2	
311	ISO3405-A	160.0		203.6		276.7		335.6		350.7		361.4	
312	ISO3405-A	167.9		208.1		278.3		335.5		350.2		359.4	
317	ISO3405-A	169.9		208.7		278.3		335.9		350.5		361.0	
333	ISO3405-A	166.7		207.5		277.6		335.2		350.0		360.5	
334	D86-A	167.2		205.2		276.5		335.3		351.0		360.4	
337	ISO3405-A	165.3		204.6		277.9		337.5		348.8		360.9	
338	ISO3405-A	170.9		205.9		275.9		334.7		347.9		362.4	
340	ISO3405-A	170.6		208.0		278.6		337.2		353.1		360.4	
343	ISO3405-A	165.9		210.7		280.8		335.7		347.8		359.7	
353	ISO3405-A	157.2		204.7		278.9		337.8		352.5		363.1	
357	ISO3405-A	169.1		207.8		277.4		334.6		348.2		359.8	
369	ISO3405-A	167.3		208.0		277.1		336.0		350.0		362.0	
371	ISO3405-A	170.5		207.1		276.1		335.7		350.0		360.1	
372	ISO3405-A	167.5		208.3		278.2		335.5		349.7		359.0	
391		-----		-----		-----		-----		-----		-----	
398	ISO3405-A	166.4		208.0		276.5		335.0		349.5		360.8	
399	ISO3405-A	160.0		204.6		274.2		335.1		349.3		355.2	
420	ISO3405-A	163.4		208.4		278.4		337.8		354.8		361.0	
430		-----		-----		-----		-----		-----		-----	
431		-----		201.3	G(1)	273.0	G(1)	331.9		347.3		-----	
440	D86-A	171.1		206.5		278.1		335.9		350.1		362.1	
445	IP123-A	164.7		206.2		276.4		334.7		349.2		357.7	
447	D86-A	167.1		207.8		277.3		334.8		348.5		360.7	
463	ISO3405-A	163.8		205.6		278.2		336.8		351.8		362.6	
485	ISO3405-A	164.10		206.90		276.40		334.30		347.90		358.70	
488	ISO3405-A	166.0		208.5		276.4		335.1		350.6		360.7	
494	ISO3405-A	161.6		206.3		277.0		336.0		353.8		360.3	
495	ISO3405-A	169.8		207.2		278.1		336.4		351.4		360.8	
541		-----		-----		-----		-----		-----		-----	
603		-----		-----		-----		-----		-----		-----	
604	D86-A	164.9		206.8		277.2		336.2		352.1		360.2	
607		-----		-----		-----		-----		-----		-----	
671	D86-A	166.3		208.2		277.9		336.9		352.4		358.9	
704		-----		-----		-----		-----		-----		-----	
781	ISO3405-A	167.9		207.3		277.3		334.6		348.6		360.5	
785		-----		-----		-----		-----		-----		-----	
863		-----		-----		-----		-----		-----		-----	
873	D86-A	163.0		205.5		278.0		336.5		350.0		362.0	
874		-----		-----		-----		-----		-----		-----	
875		-----		-----		-----		-----		-----		-----	
902		-----		-----		-----		-----		-----		-----	
912		-----		-----		-----		-----		-----		-----	
962		-----		-----		-----		-----		-----		-----	
970	D86	166.0		208.0		275.0		335.0		348.0		360.0	
974		-----		-----		-----		-----		-----		-----	
982		-----		-----		-----		-----		-----		-----	
998	D86	168		206		276		305	G(1)	357		359	
1006	D86-A	168.9		208.4		278.3		337.9		349.7		359.7	
1016		-----		-----		-----		-----		-----		-----	
1017		-----		-----		-----		-----		-----		-----	
1033	IP123-A	166.7		206.4		277.4		335.7		348.6		360.7	
1038		-----		-----		-----		-----		-----		-----	
1059	ISO3405-A	165.1		204.2		276.8		333.8		347.3		358.8	
1081	D86-A	168.5		208.4		278.8		336.1		350.7		358.3	
1095		-----		-----		-----		-----		-----		-----	
1108	ISO3405-A	168.7		207.9		278.3		337.3		353.2		363.4	
1109	D86-A	165.5		207.8		277.8		335.6		350.5		357.9	
1121		-----		-----		-----		-----		-----		-----	
1126	D86	169.2		208.4		276.8		337.4		352.5		365.6	
1140		-----		-----		-----		-----		-----		-----	
1146	ISO3405-A	167.0		208.7		278.2		336.7		353.5		359.2	
1150	ISO3405-A	171.58		211.18		280.26		339.88		354.72		361.85	
1161	ISO3405-A	161.5		209.3		277.5		333.5		345.8		361.2	
1171		-----		-----		-----		-----		-----		-----	
1194	INH-86-A	128.3	G(1)	199.5	G(5)	276.5		336.8		350.8		355.8	
1199		-----		-----		-----		-----		-----		-----	
1203		-----		-----		-----		-----		-----		-----	
1205	D86-A	167.1		207.6		278.0		332.6		344.0		356.0	

1215	D86-A	167.0	207.5		277.6		335.0		349.2	359.8
1227	D86-A	169.7	209.8	C	278.0		338.2		347.7	361.6
1231	D86-A	165.65	205.65		277.60		335.0		-----	-----
1259	ISO3405-A	164.9	207.9		277.4		334.7		347.7	360.1
1266	ISO3405-A	175.0	209.1		278.3		337.2		351.4	358.1
1284	D86-A	163.7	208.5		277.8		336.2		351.3	360.8
1297	D86-A	170.3	208.5		278.6		336.5		350.9	363.1
1299	D86-A	163.9	199.5	G(1)	367.5	G(1)	328.2	G(1)	344.1	355.8
1300	ISO3405-A	165.4	204.7		276.5		336.4		351.1	359.4
1316	D86-A	166.3	209.2		278.3		337.1		353.7	360.6
1347		-----	-----		-----		-----		-----	-----
1348	D86-A	168.9	207.0		276.0		336.3		349.8	361.2
1356		-----	-----		-----		-----		-----	-----
1357	D86-A	166.5	207.9		277.8		336.1		351.5	361.2
1385		-----	-----		-----		-----		-----	-----
1395	ISO3405-A	172.8	210.1		278.8		336.2		350.6	362.3
1409	ISO3405-A	167.7	208.5		277.7		335.4		348.3	362.1
1412		-----	-----		-----		-----		-----	-----
1419	ISO3405-A	168.7	208.8		278.9		337.0		352.1	362.0
1428	ISO3405-A	168.3	209.0		277.9		334.6		348.6	360.2
1430	D86	167.1	206.1		277.6		336.5		351.1	359.6
1459	ISO3405-A	166.5	208.2		278.2		335.8		350.0	361.2
1483		-----	-----		-----		-----		-----	-----
1484		-----	-----		-----		-----		-----	-----
1498	D86-A	166.7	208.7		279.8		338.8		355.7	362.0
1510	ISO3405-A	170.0	207.9		277.6		336.4		351.8	360.9
1520		-----	-----		-----		-----		-----	-----
1535		-----	-----		-----		-----		-----	-----
1539	ISO3405-A	167.7	208.1		278.5		336.8		352.1	360.4
1546		-----	-----		-----		-----		-----	-----
1564	D86-A	166.9	210.9		277.4		333.2		346.8	358.7
1569	ISO3405-A	165.0	205.6		277.0		335.4		348.6	359.3
1570	ISO3405-A	167.6	210.1		279.6		337.8		354.1	359.4
1586	ISO3405-A	167.7	207.3		219.1	G(1)	335.3		349.3	361.5
1590	D86-A	160.0	204.0		276.6		336.6		353.0	360.0
1616	D86-A	171.4	209.3		277.1		333.4		347.3	357.5
1631	ISO3405-A	167.2	208		275.7		335		350	362.0
1634	ISO3405-A	165.4	207.0		276.9		336.0		350.3	361.0
1636	ISO3405-A	166.7	207.7		277.1		335.1		348.5	361.0
1654	ISO3405-A	171.1	207.5		277.5		335.9		350.9	361.8
1668		-----	-----		-----		-----		-----	-----
1681	ISO3405-A	162.3	204.7		276.5		335.0		349.2	359.9
1720	D86-A	169.3	209.3		277.4		334.6		348.2	361.7
1724	ISO3405-A	169.4	209.8		278.6		336.4		351.5	361.6
1730		-----	-----		-----		-----		-----	-----
1740	ISO3405-A	169.2	208.1		277.6		336.0		350.6	362.0
1804	ISO3405-A	169.0	207.6		276.5		335.6		350.0	357.0
1807	ISO3405-A	170.6	205.4		276.6		334.3		346.9	360.4
1810	ISO3405-A	164.2	206.0		276.5		335.4		349.9	360.5
1811	ISO3405-A	161.3	205.9		277.1		335.3		348.7	361.0
1832	ISO3405-A	167.1	208.3		278.3		335.2		349.8	361.5
1833	ISO3405-A	167.0	206.7		277.2		334.7		348.5	361.6
1834	ISO3405-A	170.2	211.3		279.2		336.4		350.3	361.3
1842	D86-A	159.9	204.5		275.9		333.9		348.0	359.7
1849	ISO3405-A	163	206		277		335.2		349.05	361.9
1854	ISO3405-A	167.5	209.3		277.4		336.2		350.5	361.5
1861		-----	-----		-----		-----		-----	-----
1936	ISO3405-A	166.6	204.8		276.6		333.9		347.3	360.9
1937	ISO3405	166.3	205.6		276.9		334.2		348.1	361.0
1938	ISO3405-A	165.9	206.1		276.7		334.3		348.5	359.0
2102		-----	-----		-----		-----		-----	-----
2129	ISO3405-A	165.2	205.4		276.5		333.4		346.0	360.3
2146	ISO3405-A	169.1	208.5		278.2		337.7		353.5	355.2

normality	OK	not OK	OK	OK	OK	not OK
n	96	95	95	96	97	96
outliers	1	3	3	2	0	0
mean (n)	166.671	207.438	277.470	335.678	350.000	360.236
st.dev. (n)	3.1299	1.7080	1.0592	1.3358	2.3232	1.8915
R(calc.)	8.764	4.782	2.966	3.740	6.505	5.296
R(ISO3405:09)	9.145	4.564	2.970	5.035	8.877	7.100

Lab 1227: first reported 199.8

Determination of Distillation (automated) continued on sample #13010; result in %V/V

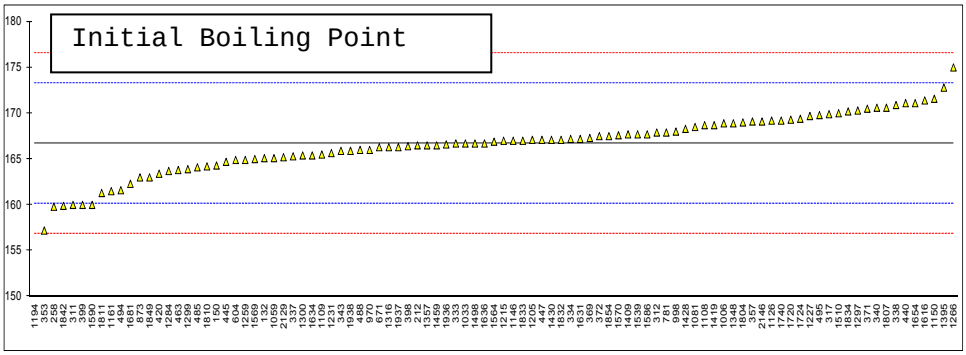
lab	method	Vol 250°C	mark	Vol 350°C	mark	%residue	mark	remarks
132	D86-A	30.7		95.1		1.4		
150	ISO3405-A	31.4		95.4		1.4		
212	D86-A	31.9		95.9		1.3		
225		-----		-----		-----		
237		-----		-----		-----		
238		-----		-----		-----		
240		-----		-----		-----		
258	D86-A	31.5		95.3		1.1		
311	ISO3405-A	32.6		94.9		1.1		
312	ISO3405-A	30.8		94.9		2.3		
317	ISO3405-A	31.7		95.0		1.1		
333	ISO3405-A	31.5		95.0		1.4		
334	D86-A	32.4		94.7		1.2		
337	ISO3405-A	32.5		95.4		1.5		
338	ISO3405-A	31.4		95.6		1.2		
340	ISO3405-A	30.8		94.2		1.6		
343	ISO3405-A	30.8		95.7		1.0		
353	ISO3405-A	31.1		94.3		0.9		
357	ISO3405-A	30.8		95.4		1.8		
369	ISO3405-A	31.4		95.0		1.3		
371	ISO3405-A	32.4		95.2		1.0		
372	ISO3405-A	30.6		95.1		1.8		
391		-----		-----		-----		
398	ISO3405-A	32.1		95.2		0.6		
399	ISO3405-A	33.6		95.2		0.5		
420	ISO3405-A	30.8		94.0		1.2		
430		-----		-----		-----		
431		-----		-----		-----		
440	D86-A	31.4		94.9		1.5		
445	IP123-A	31.3		95.3		1.9		
447	D86-A	31.2		95.3		1.0		
463	ISO3405-A	31.5		94.5		1.7		
485	ISO3405-A	32.30		95.50		1.6		
488	ISO3405-A	32.0		94.9		1.4		
494	ISO3405-A	31.3		94.3		1.5		
495	ISO3405-A	32.3		95.7		0.9		
541		-----		-----		-----		
603		-----		-----		-----		
604	D86-A	31.7		94.6		1.4		
607		-----		-----		-----		
671	D86-A	31	C	94.6	C	1		First reported : 1 resp 31
704		-----		-----		-----		
781	ISO3405-A	31.3		95.3		1.2		
785		-----		-----		-----		
863		-----		-----		-----		
873	D86-A	32.0		95.0		1.0		
874		-----		-----		-----		
875		-----		-----		-----		
902		-----		-----		-----		
912		-----		-----		-----		
962		-----		-----		-----		
970	D86	31.0		96.0		2.0		
974		-----		-----		-----		
982		-----		-----		-----		
998		-----		95		1		
1006		-----		-----		1.9		
1016		-----		-----		-----		
1017		-----		-----		-----		
1033	IP123-A	30.5		94.2		1.4		
1038		-----		-----		-----		
1059	ISO3405-A	31.8		95.7		1.8		
1081	D86-A	30.3		94.8		1.1		
1095		-----		-----		-----		
1108	ISO3405-A	30.7		94.2		1.3		
1109	D86-A	31.4		95.0		1.2		
1121		-----		-----		-----		
1126	D86	31.8		94.2		-----		
1140		-----		-----		-----		
1146	ISO3405-A	30.56		94.22		1.4		
1150	ISO3405-A	30.8		94.33		1.2		
1161	ISO3405-A	31.1		96.4		1.6		
1171		-----		-----		-----		
1194	INH-86-A	34.7	G(0.01)	94.6		1.8		
1199		-----		-----		-----		
1203		-----		-----		-----		
1205	D86-A	30.9		96.5		1.4		

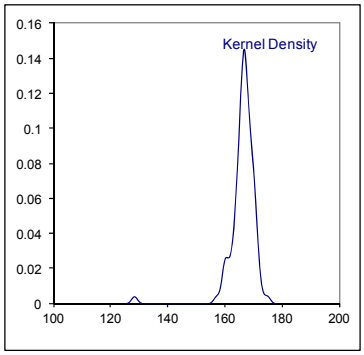
1215		-----		-----		1.3
1227	D86-A	30.2		95.5	C	1.0
1231		-----		-----		-----
1259	ISO3405-A	31.5		95.6		1.4
1266	ISO3405-A	30.5		94.6		1.7
1284	D86-A	30.76		94.67		1.4
1297	D86-A	30.8		94.8		1.4
1299	D86-A	37.2	G(0.01)	96.2		1.4
1300	ISO3405-A	31.8		94.7		1.7
1316	D86-A	30.6		94.2		1.7
1347		-----		-----		-----
1348	D86-A	32		95		1.3
1356		-----		-----		-----
1357	D86-A	32.0		94.5		-----
1385		-----		-----		-----
1395	ISO3405-A	30.4		94.8		1.4
1409	ISO3405-A	31.2		95.4		1.2
1412		-----		-----		-----
1419	ISO3405-A	30.4		94.6		1.4
1428	ISO3405-A	30.6		95.3		1.6
1430		-----		-----		1.4
1459	ISO3405-A	31.1		95.0		1.4
1483		-----		-----		-----
1484		-----		-----		-----
1498	D86-A	30		94		1.2
1510	ISO3405-A	31.5		94.6		1.2
1520		-----		-----		-----
1535		-----		-----		-----
1539	ISO3405-A	30.6		94.5		-----
1546		-----		-----		-----
1564	D86-A	31.3		95.8		0.8
1569	ISO3405-A	31.2		95.4		1.4
1570	ISO3405-A	29.6		94.1		1.8
1586	ISO3405-A	31.6		95.2		1.4
1590	D86-A	32.0		94.6		1.2
1616	D86-A	31.1		96.0		1.5
1631	ISO3405-A	30.8		95.3		1.1
1634	ISO3405-A	31.5		94.9		1.4
1636	ISO3405-A	30.3		94.3		1.4
1654	ISO3405-A	31.4		94.8		1.5
1668		-----		-----		-----
1681	ISO3405-A	32.7		95.2		1.5
1720	D86-A	31.2		95.6		1.4
1724	ISO3405-A	30.7		94.6		1.4
1730		-----		-----		-----
1740	ISO3405-A	31.1		94.8		1.1
1804	ISO3405-A	31.9		95.0		-----
1807	ISO3405-A	32.6		96.2		1.0
1810	ISO3405-A	32.6		95.1		1.0
1811	ISO3405-A	31.6		95.3		1.4
1832	ISO3405-A	30.7		95.0		1.5
1833	ISO3405-A	31.2		95.4		1.4
1834	ISO3405-A	29.2		94.7		1.5
1842		-----		-----		1.4
1849	ISO3405-A	31.8		95.25		1.4
1854	ISO3405-A	30.2		94.8		1.5
1861		-----		-----		-----
1936	ISO3405-A	32.3		95.7		1.4
1937	ISO3405	31.8		95.5		1.4
1938	ISO3405-A	32.2		95.4		1.7
2102		-----		-----		-----
2129	ISO3405-A	31.3		95.5		1.2
2146	ISO3405-A	30.8		94.2		2.6

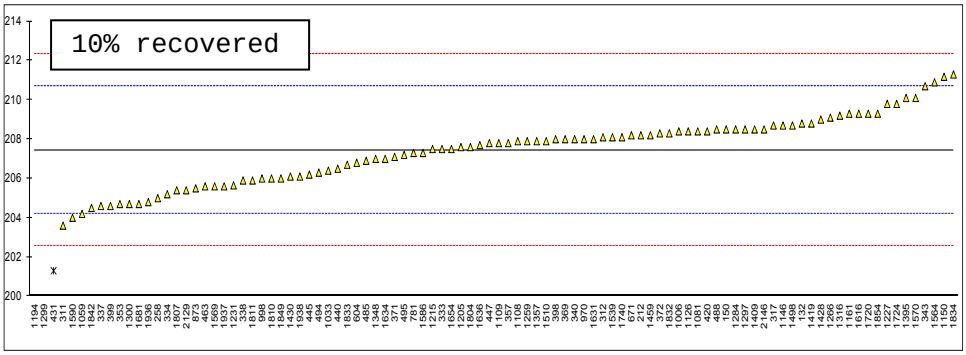
normality	OK	OK
n	89	92
outliers	2	0
mean (n)	31.299	95.034
st.dev. (n)	0.7480	0.5585
R(calc.)	2.094	1.564
R(ISO3405:09)	2.700	2.700

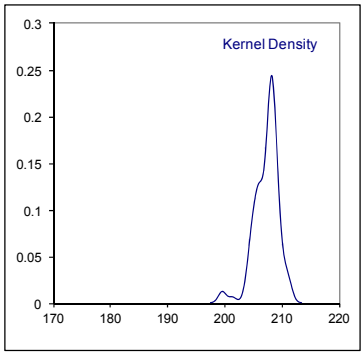
Lab 1227: first reported 97.5

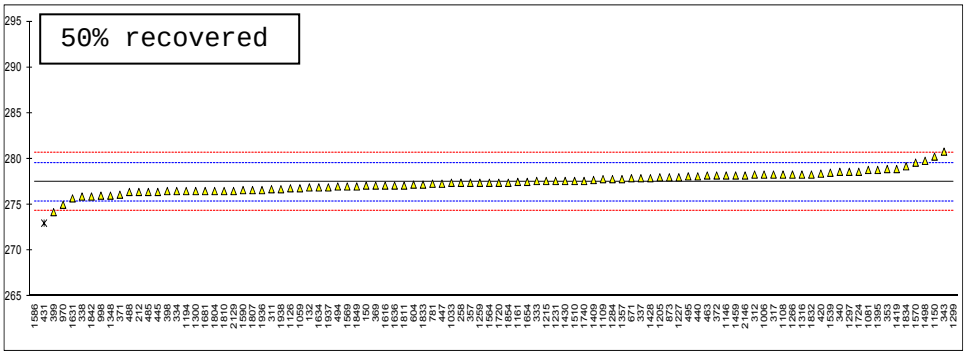
Determination of Distillation (automated) on sample #13010; result in °C (Graphics)

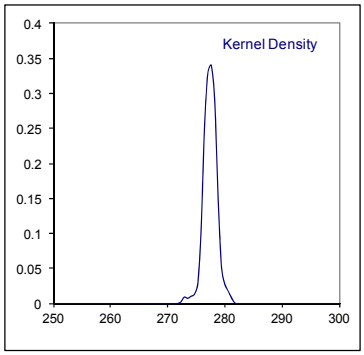


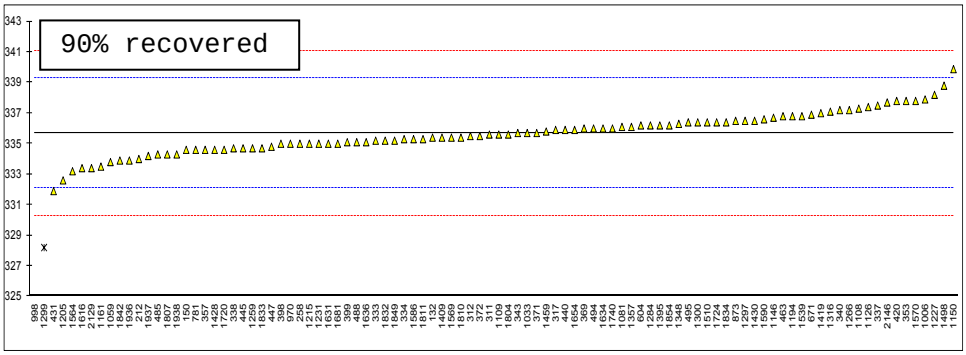


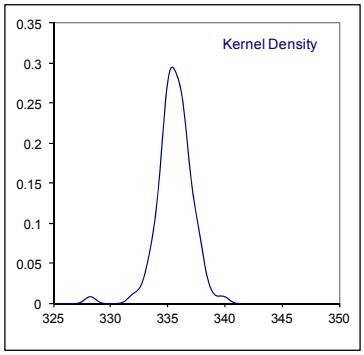


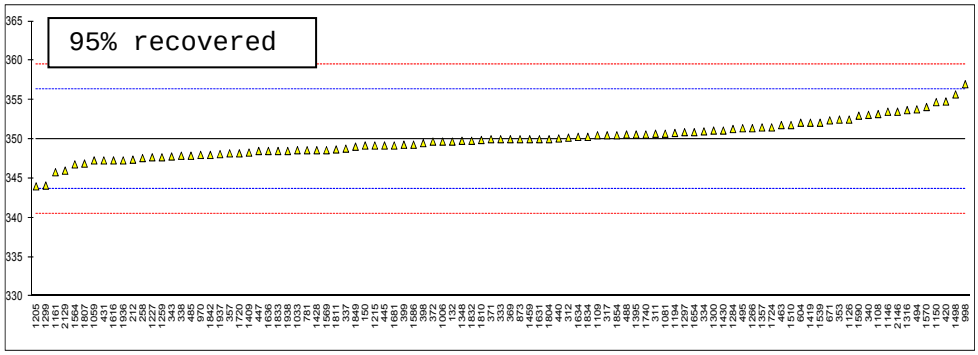


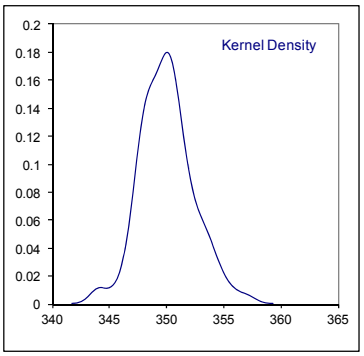


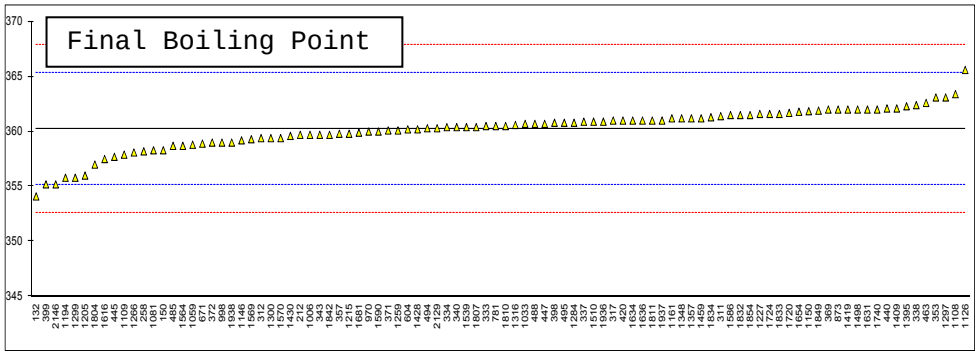


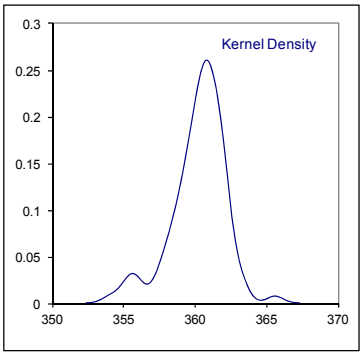


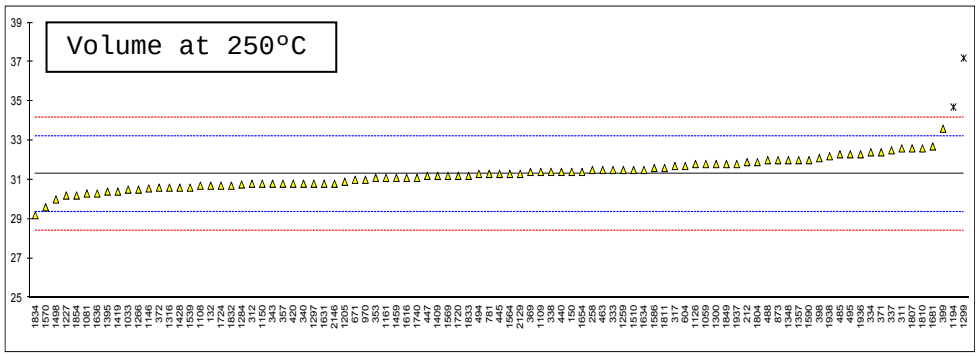


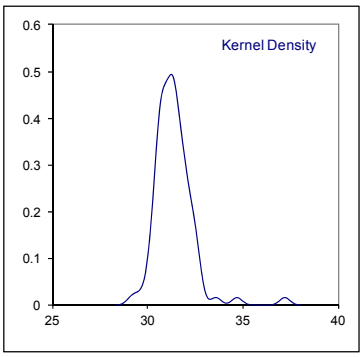

95% recovered

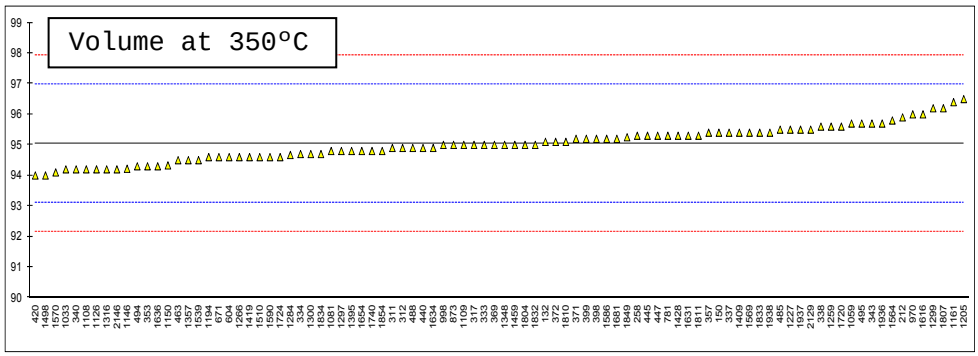

Kernel Density

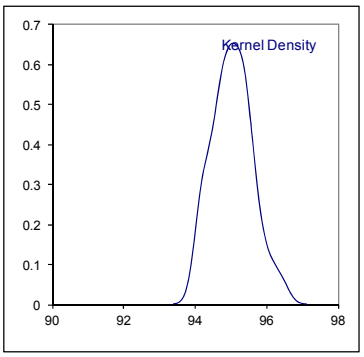

Final Boiling Point


Kernel Density


Volume at 250°C


Kernel Density


Volume at 350°C


Kernel Density

Determination of Distillation (manual) on sample #13010; result in °C

lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
132		-----		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----		-----	
212		-----		-----		-----		-----		-----		-----	
225	D86-M	170.0		209.0		278.0		338.0		355.0		360.0	
237	D86-M	173.0		204.0		276.0		333.0		345.0		358.0	
238		-----		-----		-----		-----		-----		-----	
240		-----		-----		-----		-----		-----		-----	
258		-----		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----		-----	
317		-----		-----		-----		-----		-----		-----	
333		-----		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----		-----	
338		-----		-----		-----		-----		-----		-----	
340		-----		-----		-----		-----		-----		-----	
343		-----		-----		-----		-----		-----		-----	
353		-----		-----		-----		-----		-----		-----	
357		-----		-----		-----		-----		-----		-----	
369		-----		-----		-----		-----		-----		-----	
371		-----		-----		-----		-----		-----		-----	
372		-----		-----		-----		-----		-----		-----	
391	ISO3405-M	168		209		279		337		350		359	
398		-----		-----		-----		-----		-----		-----	
399		-----		-----		-----		-----		-----		-----	
420		-----		-----		-----		-----		-----		-----	
430		-----		-----		-----		-----		-----		-----	
431		-----		-----		-----		-----		-----		-----	
440		-----		-----		-----		-----		-----		-----	
445		-----		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----		-----	
485		-----		-----		-----		-----		-----		-----	
488		-----		-----		-----		-----		-----		-----	
494		-----		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----		-----	
541	ISO3405-M	159.0		200.0		275.0		337.0		350.0		364.0	
603	D86-M	164.0		206.0		278.0		338.0		354.0		361.0	
604		-----		-----		-----		-----		-----		-----	
607		-----		-----		-----		-----		-----		-----	
671		-----		-----		-----		-----		-----		-----	
704	ISO3405-M	166.5		207.0		278.5		336.0		350.0		361.5	
781		-----		-----		-----		-----		-----		-----	
785		-----		-----		-----		-----		-----		-----	
863	D86-M	168.5		208.0		278.5		336.0		351.0		363.0	
873		-----		-----		-----		-----		-----		-----	
874	D86-M	164.5		207.0		277.0		335.0		350.0		361.0	
875	D86-M	167.0		206.0		277.5		336.5		352.0		361.0	
902	D86-M	159.6		204.1		277.1		335.2		351.1		363.1	
912	ISO3405-M	167		205		277		335		350		357	
962	ISO3405-M	166.0		206.5		278.5		336.0		350.0		364.0	
970		-----		-----		-----		-----		-----		-----	
974	D86-M	162.5		199.5		275.5		334.5		344.5		359.5	
982	D86-M	160.0		205.0		275.0		333.0		346.0		357.4	
998		-----		-----		-----		-----		-----		-----	
1006		-----		-----		-----		-----		-----		-----	
1016		-----		-----		-----		-----		-----		-----	
1017		-----		-----		-----		-----		-----		-----	
1033		-----		-----		-----		-----		-----		-----	
1038		-----		-----		-----		-----		-----		-----	
1059		-----		-----		-----		-----		-----		-----	
1081		-----		-----		-----		-----		-----		-----	
1095		-----		-----		-----		-----		-----		-----	
1108		-----		-----		-----		-----		-----		-----	
1109		-----		-----		-----		-----		-----		-----	
1121	IP123-M	165		206		274	C	336		350		355	
1126		-----		-----		-----		-----		-----		-----	
1140		-----		-----		-----		-----		-----		-----	
1146		-----		-----		-----		-----		-----		-----	
1150		-----		-----		-----		-----		-----		-----	
1161		-----		-----		-----		-----		-----		-----	
1171	ISO3405-M	163.48		200.65		276.36		336.15		350.67		360.69	
1194		-----		-----		-----		-----		-----		-----	
1199		-----		-----		-----		-----		-----		-----	
1203	ISO3405-M	161.2		206.9		280.5		337.0	C	356.2		356.5	
1205		-----		-----		-----		-----		-----		-----	

1215		-----		-----		-----		-----		-----	
1227		-----		-----		-----		-----		-----	
1231		-----		-----		-----		-----		-----	
1259	ISO3405-M	166.0		206.0		275.0		333.0		345.0		359.0	
1266		-----		-----		-----		-----		-----		-----	
1284		-----		-----		-----		-----		-----		-----	
1297		-----		-----		-----		-----		-----		-----	
1299		-----		-----		-----		-----		-----		-----	
1300	ISO3405-M	164.3		203.3		274.8		333.8		348.3		358.8	
1316		-----		-----		-----		-----		-----		-----	
1347	D86-M	168.0		203.0		276.0		332.0	G(1)	342.0		360.0	
1348		-----		-----		-----		-----		-----		-----	
1356	ISO3405-M	179	C,G(5)	210	ex	283	C,G(5)	349	C,G(1)	363	C,G(5)	366	ex
1357		-----		-----		-----		-----		-----		-----	
1385	D86-M	163		200		274		334		342		358	
1395		-----		-----		-----		-----		-----		-----	
1409		-----		-----		-----		-----		-----		-----	
1412	D86-M	166.0		205.0		276.0		336.0		353.0		360.5	
1419		-----		-----		-----		-----		-----		-----	
1428		-----		-----		-----		-----		-----		-----	
1430		-----		-----		-----		-----		-----		-----	
1459		-----		-----		-----		-----		-----		-----	
1483		-----		-----		-----		-----		-----		-----	
1484		-----		-----		-----		-----		-----		-----	
1498		-----		-----		-----		-----		-----		-----	
1510		-----		-----		-----		-----		-----		-----	
1520	ISO3405-M	161.3		201.2		275.1		334.0		347.0		361.0	
1535		-----		-----		-----		-----		-----		-----	
1539		-----		-----		-----		-----		-----		-----	
1546	ISO3405-M	165.5		203.0		278.0		336.5		350.0		-----	
1564		-----		-----		-----		-----		-----		-----	
1569		-----		-----		-----		-----		-----		-----	
1570		-----		-----		-----		-----		-----		-----	
1586		-----		-----		-----		-----		-----		-----	
1590		-----		-----		-----		-----		-----		-----	
1616		-----		-----		-----		-----		-----		-----	
1631		-----		-----		-----		-----		-----		-----	
1634		-----		-----		-----		-----		-----		-----	
1636		-----		-----		-----		-----		-----		-----	
1654		-----		-----		-----		-----		-----		-----	
1668	ISO3405-M	168.40		206.44		277.51		336.57		349.57		355.58	
1681		-----		-----		-----		-----		-----		-----	
1720		-----		-----		-----		-----		-----		-----	
1724		-----		-----		-----		-----		-----		-----	
1730		-----		-----		-----		-----		-----		-----	
1740		-----		-----		-----		-----		-----		-----	
1804		-----		-----		-----		-----		-----		-----	
1807		-----		-----		-----		-----		-----		-----	
1810		-----		-----		-----		-----		-----		-----	
1811		-----		-----		-----		-----		-----		-----	
1832		-----		-----		-----		-----		-----		-----	
1833		-----		-----		-----		-----		-----		-----	
1834		-----		-----		-----		-----		-----		-----	
1842		-----		-----		-----		-----		-----		-----	
1849		-----		-----		-----		-----		-----		-----	
1854		-----		-----		-----		-----		-----		-----	
1861		-----		-----		-----		-----		-----		-----	
1936		-----		-----		-----		-----		-----		-----	
1937		-----		-----		-----		-----		-----		-----	
1938		-----		-----		-----		-----		-----		-----	
2102		-----		-----		-----		-----		-----		-----	
2129		-----		-----		-----		-----		-----		-----	
2146		-----		-----		-----		-----		-----		-----	
	normality	OK		OK		OK		not OK		not OK		OK	
	n	25		25		25		24		25		24	
	outliers	1		0		1		2		1		0	
	mean (n)	165.111		204.704		276.715		335.551		349.294		359.774	
	st.dev. (n)	3.3948		2.7768		1.6906		1.4998		3.6455		2.4724	
	R(calc.)	9.505		7.775		4.734		4.199		10.207		6.923	
	R(ISO3405:09)	6.501		4.769		4.200		3.185		4.016		3.540	

Lab 1121: first reported 271
Lab 1203: first reported 341.6
Lab 1356: first reported 185, 210, 286, 352, 360, 366
ex: see §4.1

Determination of Distillation (manual) continued on sample #13010; result in %V/V

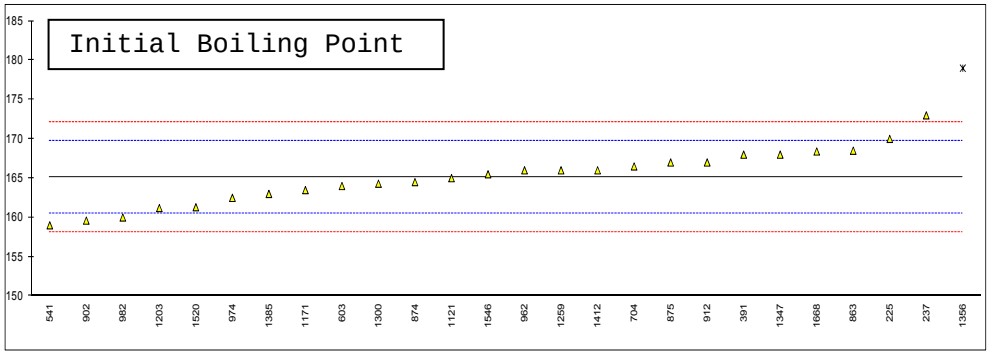
lab	method	Vol 250°C	mark	Vol 350°C	mark	% residue	mark	remarks
132		-----		-----		-----		
150		-----		-----		-----		
212		-----		-----		-----		
225	D86-M	30.0		94.0		1.6		
237	D86-M	34.0		96.0		1.5		
238		-----		-----		-----		
240		-----		-----		-----		
258		-----		-----		-----		
311		-----		-----		-----		
312		-----		-----		-----		
317		-----		-----		-----		
333		-----		-----		-----		
334		-----		-----		-----		
337		-----		-----		-----		
338		-----		-----		-----		
340		-----		-----		-----		
343		-----		-----		-----		
353		-----		-----		-----		
357		-----		-----		-----		
369		-----		-----		-----		
371		-----		-----		-----		
372		-----		-----		-----		
391	ISO3405-M	32		95		1.9		
398		-----		-----		-----		
399		-----		-----		-----		
420		-----		-----		-----		
430		-----		-----		-----		
431		-----		-----		-----		
440		-----		-----		-----		
445		-----		-----		-----		
447		-----		-----		-----		
463		-----		-----		-----		
485		-----		-----		-----		
488		-----		-----		-----		
494		-----		-----		-----		
495		-----		-----		-----		
541	ISO3405-M	34.0		95.0		0.8		
603	D86-M	33.0		96.0		1.5		
604		-----		-----		-----		
607		-----		-----		-----		
671		-----		-----		-----		
704	ISO3405-M	32.0		95.0		1.8		
781		-----		-----		-----		
785		-----		-----		-----		
863	D86-M	30.1		95.0		1.4		
873		-----		-----		-----		
874	D86-M	30.0		95.0		1.5		
875	D86-M	32.0		94.0		2.0		
902	D86-M	32.0		94.8		1.5		
912	ISO3405-M	31		95		1.5		
962	ISO3405-M	31.5		95.0		1.0		
970		-----		-----		-----		
974	D86-M	33.5		96.1		1.0		
982	D86-M	30		96		1.8		
998		-----		-----		-----		
1006		-----		-----		-----		
1016		-----		-----		-----		
1017		-----		-----		-----		
1033		-----		-----		-----		
1038		-----		-----		-----		
1059		-----		-----		-----		
1081		-----		-----		-----		
1095		-----		-----		-----		
1108		-----		-----		-----		
1109		-----		-----		-----		
1121	IP123-M	33.0		95.0		1.90		
1126		-----		-----		-----		
1140		-----		-----		-----		
1146		-----		-----		-----		
1150		-----		-----		-----		
1161		-----		-----		-----		
1171	ISO3405-M	32.56		94.88		2.00		
1194		-----		-----		-----		
1199		-----		-----		-----		
1203	ISO3405-M	30.2		95.4	C	2.2		
1205		-----		-----		-----		

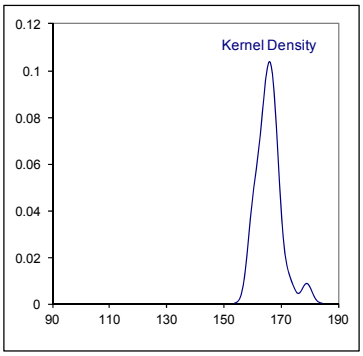
1215		-----		-----		-----
1227		-----		-----		-----
1231		-----		-----		-----
1259	ISO3405-M	32.5		96.5		1.2
1266		-----		-----		-----
1284		-----		-----		-----
1297		-----		-----		-----
1299		-----		-----		-----
1300	ISO3405-M	32.3		95.8		1.5
1316		-----		-----		-----
1347	D86-M	33.0		98.0	G(0.01)	0.8
1348		-----		-----		-----
1356	ISO3405-M	28	C,G(0.05)	90	C,G(0.01)	-----
1357		-----		-----		-----
1385	D86-M	34		97		0.5
1395		-----		-----		-----
1409		-----		-----		-----
1412	D86-M	31.5		94.0		-----
1419		-----		-----		-----
1428		-----		-----		-----
1430		-----		-----		-----
1459		-----		-----		-----
1483		-----		-----		-----
1484		-----		-----		-----
1498		-----		-----		-----
1510		-----		-----		-----
1520	ISO3405-M	32.0		96.0		2.0
1535		-----		-----		-----
1539		-----		-----		-----
1546	ISO3405-M	32.0		95.0		-----
1564		-----		-----		-----
1569		-----		-----		-----
1570		-----		-----		-----
1586		-----		-----		-----
1590		-----		-----		-----
1616		-----		-----		-----
1631		-----		-----		-----
1634		-----		-----		-----
1636		-----		-----		-----
1654		-----		-----		-----
1668	ISO3405-M	31.0		95.0		2.0
1681		-----		-----		-----
1720		-----		-----		-----
1724		-----		-----		-----
1730		-----		-----		-----
1740		-----		-----		-----
1804		-----		-----		-----
1807		-----		-----		-----
1810		-----		-----		-----
1811		-----		-----		-----
1832		-----		-----		-----
1833		-----		-----		-----
1834		-----		-----		-----
1842		-----		-----		-----
1849		-----		-----		-----
1854		-----		-----		-----
1861		-----		-----		-----
1936		-----		-----		-----
1937		-----		-----		-----
1938		-----		-----		-----
2102		-----		-----		-----
2129		-----		-----		-----
2146		-----		-----		-----

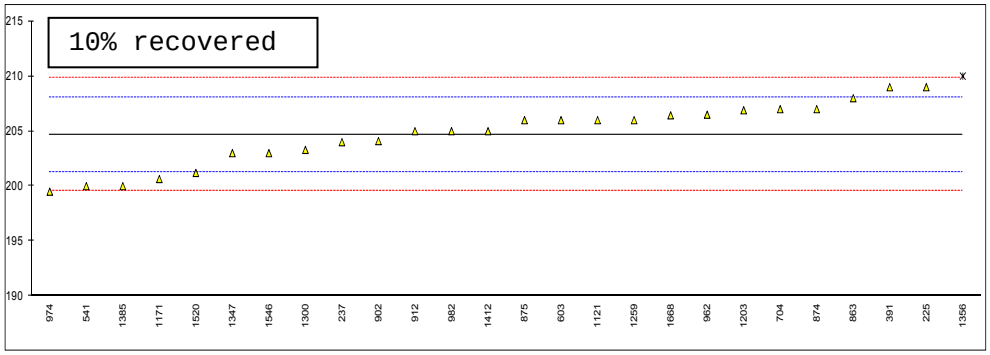
normality	OK	not OK
n	25	24
outliers	1	2
mean (n)	31.966	95.270
st.dev. (n)	1.2784	0.7680
R(calc.)	3.580	2.150
R(ISO3405:09)	2.496	2.496

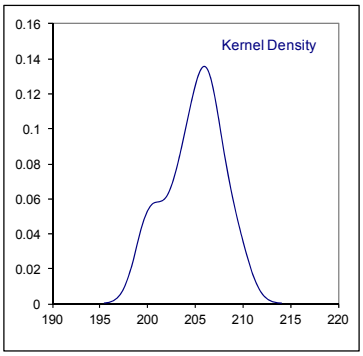
Lab 1203: first reported 92.8
Lab 1356: first reported 28, 90

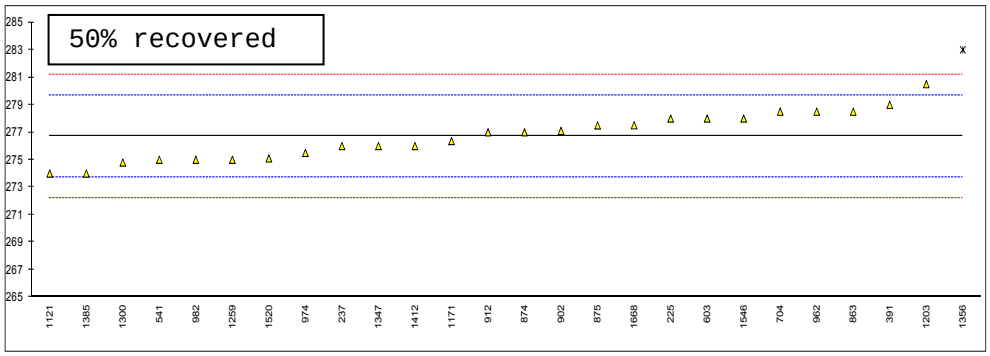
Determination of Distillation continued on sample #13010; result in %V/V (Graphics)

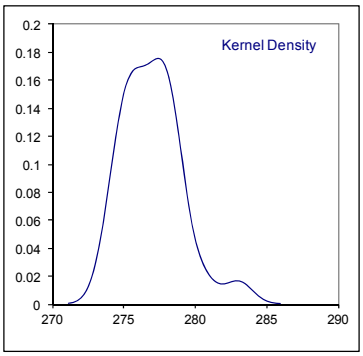


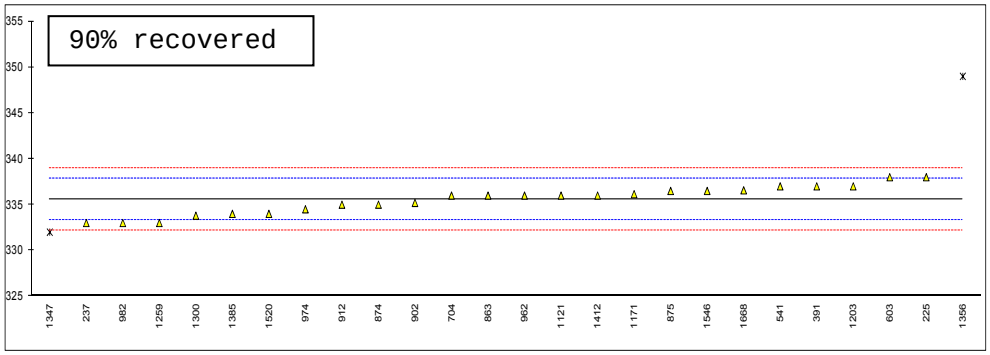


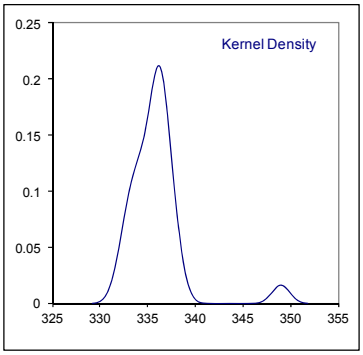


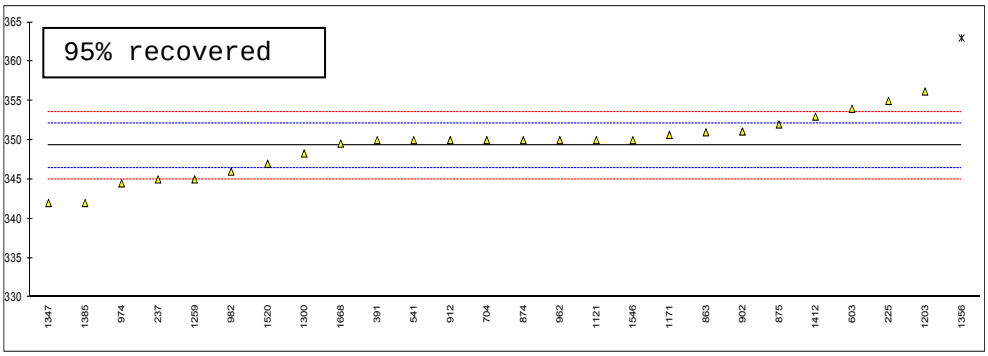


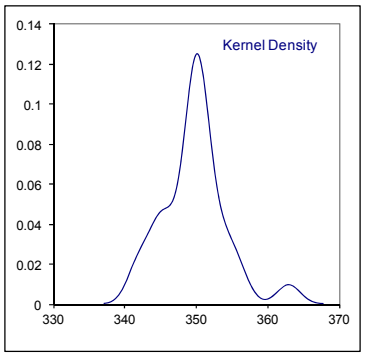


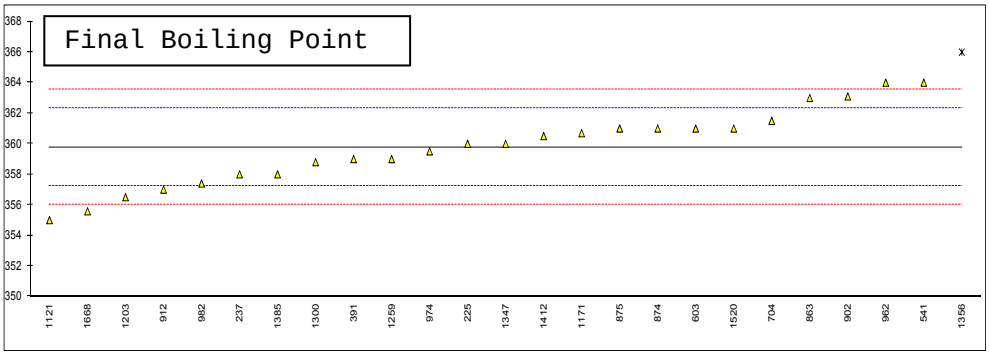


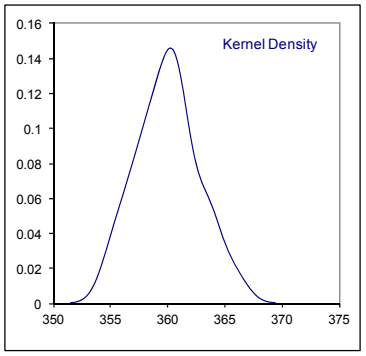


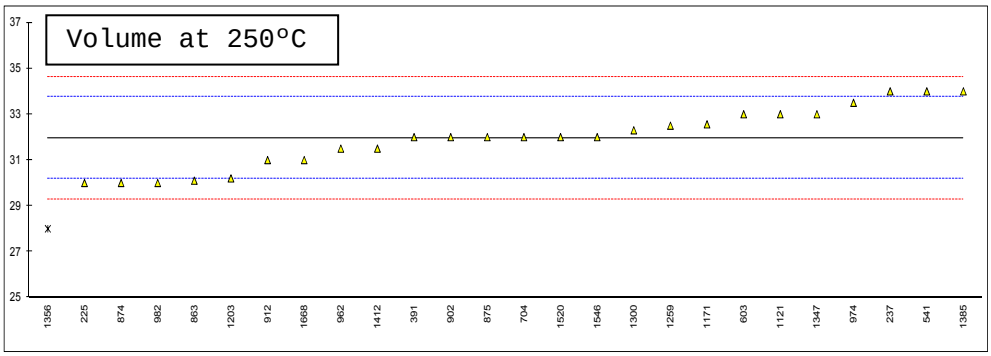


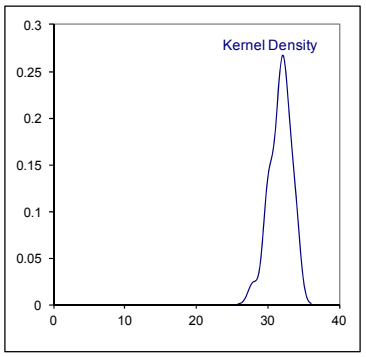

95% recovered

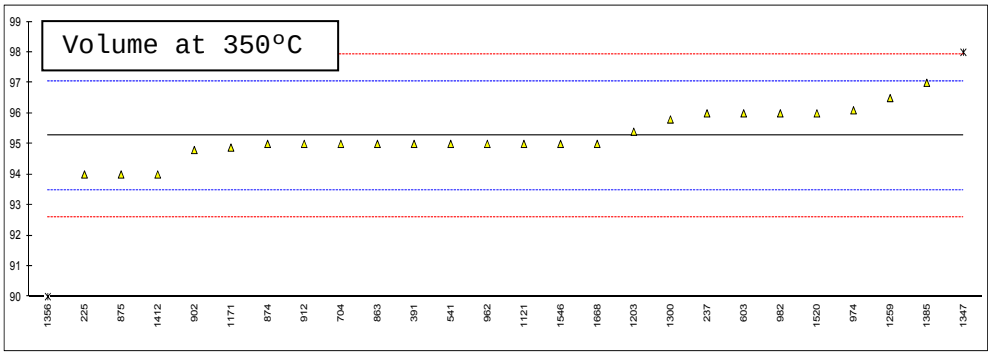

Kernel Density

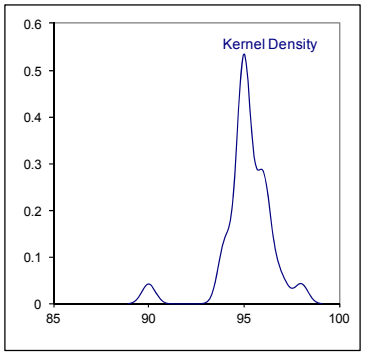

Final Boiling Point


Kernel Density


Volume at 250°C


Kernel Density

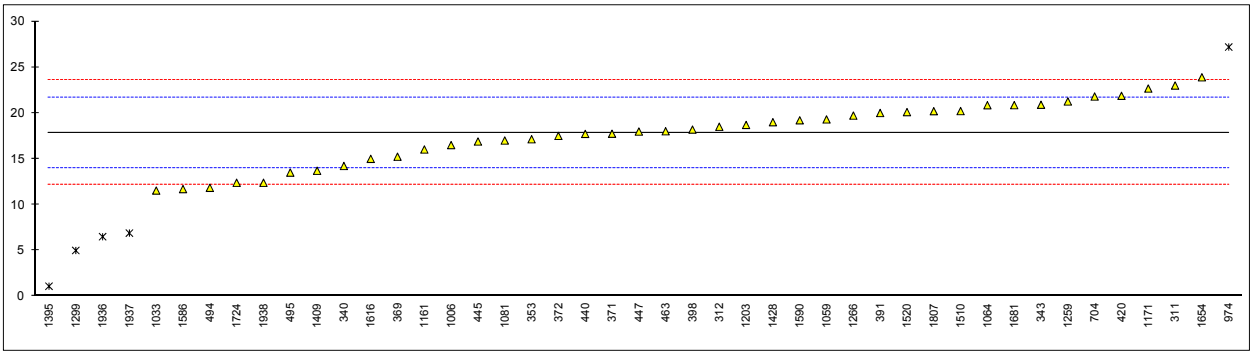

Volume at 350°C

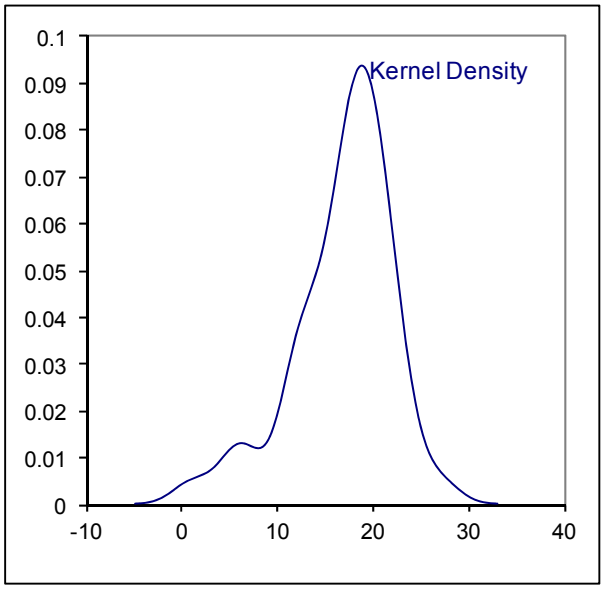

Kernel Density

Determination of Total Contamination on sample #13011; result in mg/kg

lab	method	value	mark	z(targ)	Vol. (ml)	remarks
311	EN12662	23.0		2.69	314	
312	EN12662	18.5		0.34	300	
334		-----		-----	-----	
340	EN12662	14.22		-1.90	800	
343	EN12662	20.9		1.59	800	
353	IP440	17.138		-0.38	940	
369	EN12662	15.23		-1.37	800	
371	EN12662	17.74		-0.06	800	
372	EN12662	17.5		-0.19	800	
391	EN12662	20.0		1.12	800	
398	EN12662	18.19		0.17	819	
399		-----		-----	-----	
420	EN12662	21.88		2.10	792.8	
440	IP440	17.72		-0.07	800	
445	IP440	16.89		-0.51	950	
447	EN12662	17.98		0.06	800	
463	EN12662	18.01		0.08	800	
494	EN12662	11.84		-3.14	800	
495	EN12662	13.50		-2.28	800	
704	EN12662	21.80		2.06	950	
875		-----		-----	-----	
970		-----		-----	-----	
974	IP440	27.2	G(0.05)	4.88	850	
1006	EN12662	16.5		-0.71	-----	
1017		-----		-----	-----	
1033	IP440	11.54		-3.30	574	
1038		-----		-----	-----	
1059	EN12662	19.3		0.75	808.5	
1064	EN12662	20.85		1.56	300	
1081	EN12662	17		-0.45	945	
1095		-----		-----	-----	
1161	EN12662	16.02		-0.96	-----	
1171	EN12662	22.67		2.52	590.0	
1203	EN12662	18.7		0.44	900	
1259	EN12662	21.26		1.78	400	
1266	EN12662	19.72		0.97	800	
1299	EN12662	5.0	ex	-6.72	-----	Result excluded see §4.1
1395	EN12662	1.1	ex	-8.76	800	Result excluded see §4.1
1409	EN12662	13.7		-2.17	800	
1428	EN12662	19.0		0.60	-----	
1510	EN12662	20.21		1.23	800	
1520	EN12662	20.1		1.17	790	
1586	EN12662	11.7		-3.22	800	
1590	IP440	19.206		0.71	800	
1616	IP440	15.0		-1.49	-----	
1631		-----		-----	-----	
1654	EN12662	23.9		3.16	800	
1681	EN12662	20.86		1.57	800	
1724	EN12662	12.39		-2.86	806	
1807	EN12662	20.2		1.23	-----	
1833		-----		-----	-----	
1854		-----		-----	-----	
1936	EN12662	6.5	ex	-5.94	-----	Result excluded see §4.1
1937	EN12662	6.9	ex	-5.73	-----	Result excluded see §4.1
1938	EN12662	12.39		-2.86	-----	

	normality	OK	
	n	40	
	outliers	1	Spike:
	mean (n)	17.856	10.2
	st.dev. (n)	3.3328	
	R(calc.)	9.332	
	R(EN12662:08)	5.357	


30
25
20
15
10
5
0
1395 1299 1936 1937 1033 1586 494 1724 1938 495 1409 340 1616 369 1161 1006 445 1081 353 372 440 371 447 463 398 312 1203 1428 1590 1059 1266 391 1520 1807 1510 1064 1681 343 1259 704 420 1171 311 1654 974


Kernel Density
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-10
0
10
20
30
40

APPENDIX 2

z-scores Distillation (Automated)

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
132	-0.48	0.84	-0.54	-0.15	-0.09	-2.42	-0.62	0.07
150	-0.72	0.65	-0.35	-0.60	-0.25	-0.76	0.10	0.38
212	-0.05	0.47	-1.01	-0.93	-0.82	-0.21	0.62	0.90
225	-----	-----	-----	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
240	-----	-----	-----	-----	-----	-----	-----	-----
258	-2.10	-1.50	-0.07	-0.38	-0.76	-0.80	0.21	0.28
311	-2.04	-2.35	-0.73	-0.04	0.22	0.46	1.35	-0.14
312	0.38	0.41	0.78	-0.10	0.06	-0.33	-0.52	-0.14
317	0.99	0.77	0.78	0.12	0.16	0.30	0.42	-0.04
333	0.01	0.04	0.12	-0.27	0.00	0.10	0.21	-0.04
334	0.16	-1.37	-0.91	-0.21	0.32	0.06	1.14	-0.35
337	-0.42	-1.74	0.41	1.01	-0.38	0.26	1.25	0.38
338	1.29	-0.94	-1.48	-0.54	-0.66	0.85	0.10	0.59
340	1.20	0.34	1.07	0.85	0.98	0.06	-0.52	-0.87
343	-0.24	2.00	3.14	0.01	-0.69	-0.21	-0.52	0.69
353	-2.89	-1.68	1.35	1.18	0.79	1.13	-0.21	-0.76
357	0.74	0.22	-0.07	-0.60	-0.57	-0.17	-0.52	0.38
369	0.19	0.34	-0.35	0.18	0.00	0.70	0.10	-0.04
371	1.17	-0.21	-1.29	0.01	0.00	-0.05	1.14	0.17
372	0.25	0.53	0.69	-0.10	-0.09	-0.49	-0.72	0.07
391	-----	-----	-----	-----	-----	-----	-----	-----
398	-0.08	0.34	-0.91	-0.38	-0.16	0.22	0.83	0.17
399	-2.04	-1.74	-3.08	-0.32	-0.22	-1.99	2.39	0.17
420	-1.00	0.59	0.88	1.18	1.51	0.30	-0.52	-1.07
430	-----	-----	-----	-----	-----	-----	-----	-----
431	-----	-3.77	-4.21	-2.10	-0.85	-----	-----	-----
440	1.35	-0.58	0.59	0.12	0.03	0.74	0.10	-0.14
445	-0.60	-0.76	-1.01	-0.54	-0.25	-1.00	0.00	0.28
447	0.13	0.22	-0.16	-0.49	-0.47	0.18	-0.10	0.28
463	-0.88	-1.13	0.69	0.62	0.57	0.93	0.21	-0.55
485	-0.79	-0.33	-1.01	-0.77	-0.66	-0.61	1.04	0.48
488	-0.20	0.65	-1.01	-0.32	0.19	0.18	0.73	-0.14
494	-1.55	-0.70	-0.44	0.18	1.20	0.03	0.00	-0.76
495	0.96	-0.15	0.59	0.40	0.44	0.22	1.04	0.69
541	-----	-----	-----	-----	-----	-----	-----	-----
603	-----	-----	-----	-----	-----	-----	-----	-----
604	-0.54	-0.39	-0.25	0.29	0.66	-0.01	0.42	-0.45
607	-----	-----	-----	-----	-----	-----	-----	-----
671	-0.11	0.47	0.41	0.68	0.76	-0.53	-0.31	-0.45
704	-----	-----	-----	-----	-----	-----	-----	-----
781	0.38	-0.08	-0.16	-0.60	-0.44	0.10	0.00	0.28
785	-----	-----	-----	-----	-----	-----	-----	-----
863	-----	-----	-----	-----	-----	-----	-----	-----
873	-1.12	-1.19	0.50	0.46	0.00	0.70	0.73	-0.04
874	-----	-----	-----	-----	-----	-----	-----	-----
875	-----	-----	-----	-----	-----	-----	-----	-----
902	-----	-----	-----	-----	-----	-----	-----	-----
912	-----	-----	-----	-----	-----	-----	-----	-----
962	-----	-----	-----	-----	-----	-----	-----	-----
970	-0.20	0.34	-2.33	-0.38	-0.63	-0.09	-0.31	1.00
974	-----	-----	-----	-----	-----	-----	-----	-----
982	-----	-----	-----	-----	-----	-----	-----	-----
998	0.41	-0.88	-1.39	-17.06	2.21	-0.49	-----	-0.04
1006	0.68	0.59	0.78	1.24	-0.09	-0.21	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----
1033	0.01	-0.64	-0.07	0.01	-0.44	0.18	-0.83	-0.87
1038	-----	-----	-----	-----	-----	-----	-----	-----
1059	-0.48	-1.99	-0.63	-1.04	-0.85	-0.57	0.52	0.69
1081	0.56	0.59	1.25	0.23	0.22	-0.76	-1.04	-0.24
1095	-----	-----	-----	-----	-----	-----	-----	-----
1108	0.62	0.28	0.78	0.90	1.01	1.25	-0.62	-0.87
1109	-0.36	0.22	0.31	-0.04	0.16	-0.92	0.10	-0.04
1121	-----	-----	-----	-----	-----	-----	-----	-----
1126	0.77	0.59	-0.63	0.96	0.79	2.12	0.52	-0.87
1140	-----	-----	-----	-----	-----	-----	-----	-----
1146	0.10	0.77	0.69	0.57	1.10	-0.41	-0.77	-0.84
1150	1.50	2.30	2.63	2.34	1.49	0.64	-0.52	-0.73
1161	-1.58	1.14	0.03	-1.21	-1.32	0.38	-0.21	1.42
1171	-----	-----	-----	-----	-----	-----	-----	-----
1194	-11.72	-4.87	-0.91	0.62	0.25	-1.75	3.53	-0.45
1199	-----	-----	-----	-----	-----	-----	-----	-----

1203	-----	-----	-----	-----	-----	-----	-----	-----
1205	0.13	0.10	0.50	-1.71	-1.89	-1.67	-0.41	1.52
1215	0.10	0.04	0.12	-0.38	-0.25	-0.17	-----	-----
1227	0.93	1.45	0.50	1.40	-0.73	0.54	-1.14	0.48
1231	-0.31	-1.10	0.12	-0.38	-----	-----	-----	-----
1259	-0.54	0.28	-0.07	-0.54	-0.73	-0.05	0.21	0.59
1266	2.54	1.02	0.78	0.85	0.44	-0.84	-0.83	-0.45
1284	-0.91	0.65	0.31	0.29	0.41	0.22	-0.56	-0.38
1297	1.11	0.65	1.07	0.46	0.28	1.13	-0.52	-0.24
1299	-0.85	-4.87	84.88	-4.16	-1.86	-1.75	6.12	1.21
1300	-0.39	-1.68	-0.91	0.40	0.35	-0.33	0.52	-0.35
1316	-0.11	1.08	0.78	0.79	1.17	0.14	-0.72	-0.87
1347	-----	-----	-----	-----	-----	-----	-----	-----
1348	0.68	-0.27	-1.39	0.35	-0.06	0.38	0.73	-0.04
1356	-----	-----	-----	-----	-----	-----	-----	-----
1357	-0.05	0.28	0.31	0.23	0.47	0.38	0.73	-0.55
1385	-----	-----	-----	-----	-----	-----	-----	-----
1395	1.87	1.63	1.25	0.29	0.19	0.81	-0.93	-0.24
1409	0.31	0.65	0.22	-0.15	-0.54	0.74	-0.10	0.38
1412	-----	-----	-----	-----	-----	-----	-----	-----
1419	0.62	0.84	1.35	0.74	0.66	0.70	-0.93	-0.45
1428	0.50	0.96	0.41	-0.60	-0.44	-0.01	-0.72	0.28
1430	0.13	-0.82	0.12	0.46	0.35	-0.25	-----	-----
1459	-0.05	0.47	0.69	0.07	0.00	0.38	-0.21	-0.04
1483	-----	-----	-----	-----	-----	-----	-----	-----
1484	-----	-----	-----	-----	-----	-----	-----	-----
1498	0.01	0.77	2.20	1.74	1.80	0.70	-1.35	-1.07
1510	1.02	0.28	0.12	0.40	0.57	0.26	0.21	-0.45
1520	-----	-----	-----	-----	-----	-----	-----	-----
1535	-----	-----	-----	-----	-----	-----	-----	-----
1539	0.31	0.41	0.97	0.62	0.66	0.06	-0.72	-0.55
1546	-----	-----	-----	-----	-----	-----	-----	-----
1564	0.07	2.12	-0.07	-1.38	-1.01	-0.61	0.00	0.79
1569	-0.51	-1.13	-0.44	-0.15	-0.44	-0.37	-0.10	0.38
1570	0.28	1.63	2.01	1.18	1.29	-0.33	-1.76	-0.97
1586	0.31	-0.08	-55.03	-0.21	-0.22	0.50	0.31	0.17
1590	-2.04	-2.11	-0.82	0.51	0.95	-0.09	0.73	-0.45
1616	1.44	1.14	-0.35	-1.27	-0.85	-1.08	-0.21	1.00
1631	0.16	0.34	-1.67	-0.38	0.00	0.70	-0.52	0.28
1634	-0.39	-0.27	-0.54	0.18	0.09	0.30	0.21	-0.14
1636	0.01	0.16	-0.35	-0.32	-0.47	0.30	-1.04	-0.76
1654	1.35	0.04	0.03	0.12	0.28	0.62	0.10	-0.24
1668	-----	-----	-----	-----	-----	-----	-----	-----
1681	-1.34	-1.68	-0.91	-0.38	-0.25	-0.13	1.45	0.17
1720	0.80	1.14	-0.07	-0.60	-0.57	0.58	-0.10	0.59
1724	0.83	1.45	1.07	0.40	0.47	0.54	-0.62	-0.45
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	0.77	0.41	0.12	0.18	0.19	0.70	-0.21	-0.24
1804	0.71	0.10	-0.91	-0.04	0.00	-1.28	0.62	-0.04
1807	1.20	-1.25	-0.82	-0.77	-0.98	0.06	1.35	1.21
1810	-0.75	-0.88	-0.91	-0.15	-0.03	0.10	1.35	0.07
1811	-1.64	-0.94	-0.35	-0.21	-0.41	0.30	0.31	0.28
1832	0.13	0.53	0.78	-0.27	-0.06	0.50	-0.62	-0.04
1833	0.10	-0.45	-0.25	-0.54	-0.47	0.54	-0.10	0.38
1834	1.08	2.37	1.63	0.40	0.09	0.42	-2.18	-0.35
1842	-2.07	-1.80	-1.48	-0.99	-0.63	-0.21	-----	-----
1849	-1.12	-0.88	-0.44	-0.27	-0.30	0.66	0.52	0.22
1854	0.25	1.14	-0.07	0.29	0.16	0.50	-1.14	-0.24
1861	-----	-----	-----	-----	-----	-----	-----	-----
1936	-0.02	-1.62	-0.82	-0.99	-0.85	0.26	1.04	0.69
1937	-0.11	-1.13	-0.54	-0.82	-0.60	0.30	0.52	0.48
1938	-0.24	-0.82	-0.73	-0.77	-0.47	-0.49	0.93	0.38
2102	-----	-----	-----	-----	-----	-----	-----	-----
2129	-0.45	-1.25	-0.91	-1.27	-1.26	0.03	0.00	0.48
2146	0.74	0.65	0.69	1.12	1.10	-1.99	-0.52	-0.87

z-scores Distillation (Manual)

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
132	-----	-----	-----	-----	-----	-----	-----	-----
150	-----	-----	-----	-----	-----	-----	-----	-----
212	-----	-----	-----	-----	-----	-----	-----	-----
225	2.11	2.52	0.86	2.16	3.99	0.18	-2.21	-1.42
237	3.41	-0.41	-0.48	-2.25	-3.00	-1.40	2.28	0.82
238	-----	-----	-----	-----	-----	-----	-----	-----
240	-----	-----	-----	-----	-----	-----	-----	-----
258	-----	-----	-----	-----	-----	-----	-----	-----
311	-----	-----	-----	-----	-----	-----	-----	-----
312	-----	-----	-----	-----	-----	-----	-----	-----
317	-----	-----	-----	-----	-----	-----	-----	-----
333	-----	-----	-----	-----	-----	-----	-----	-----
334	-----	-----	-----	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----
340	-----	-----	-----	-----	-----	-----	-----	-----
343	-----	-----	-----	-----	-----	-----	-----	-----
353	-----	-----	-----	-----	-----	-----	-----	-----
357	-----	-----	-----	-----	-----	-----	-----	-----
369	-----	-----	-----	-----	-----	-----	-----	-----
371	-----	-----	-----	-----	-----	-----	-----	-----
372	-----	-----	-----	-----	-----	-----	-----	-----
391	1.25	2.52	1.52	1.28	0.49	-0.61	0.04	-0.30
398	-----	-----	-----	-----	-----	-----	-----	-----
399	-----	-----	-----	-----	-----	-----	-----	-----
420	-----	-----	-----	-----	-----	-----	-----	-----
430	-----	-----	-----	-----	-----	-----	-----	-----
431	-----	-----	-----	-----	-----	-----	-----	-----
440	-----	-----	-----	-----	-----	-----	-----	-----
445	-----	-----	-----	-----	-----	-----	-----	-----
447	-----	-----	-----	-----	-----	-----	-----	-----
463	-----	-----	-----	-----	-----	-----	-----	-----
485	-----	-----	-----	-----	-----	-----	-----	-----
488	-----	-----	-----	-----	-----	-----	-----	-----
494	-----	-----	-----	-----	-----	-----	-----	-----
495	-----	-----	-----	-----	-----	-----	-----	-----
541	-2.64	-2.76	-1.14	1.28	0.49	3.34	2.28	-0.30
603	-0.48	0.76	0.86	2.16	3.29	0.97	1.16	0.82
604	-----	-----	-----	-----	-----	-----	-----	-----
607	-----	-----	-----	-----	-----	-----	-----	-----
671	-----	-----	-----	-----	-----	-----	-----	-----
704	0.60	1.35	1.19	0.40	0.49	1.37	0.04	-0.30
781	-----	-----	-----	-----	-----	-----	-----	-----
785	-----	-----	-----	-----	-----	-----	-----	-----
863	1.46	1.94	1.19	0.40	1.19	2.55	-2.09	-0.30
873	-----	-----	-----	-----	-----	-----	-----	-----
874	-0.26	1.35	0.19	-0.48	0.49	0.97	-2.21	-0.30
875	0.82	0.76	0.52	0.84	1.89	0.97	0.04	-1.42
902	-2.38	-0.35	0.26	-0.31	1.26	2.63	0.04	-0.53
912	0.82	0.17	0.19	-0.48	0.49	-2.19	-1.08	-0.30
962	0.38	1.05	1.19	0.40	0.49	3.34	-0.52	-0.30
970	-----	-----	-----	-----	-----	-----	-----	-----
974	-1.13	-3.06	-0.81	-0.92	-3.35	-0.22	1.72	0.93
982	-2.21	0.17	-1.14	-2.25	-2.30	-1.88	-2.21	0.82
998	-----	-----	-----	-----	-----	-----	-----	-----
1006	-----	-----	-----	-----	-----	-----	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----
1033	-----	-----	-----	-----	-----	-----	-----	-----
1038	-----	-----	-----	-----	-----	-----	-----	-----
1059	-----	-----	-----	-----	-----	-----	-----	-----
1081	-----	-----	-----	-----	-----	-----	-----	-----
1095	-----	-----	-----	-----	-----	-----	-----	-----
1108	-----	-----	-----	-----	-----	-----	-----	-----
1109	-----	-----	-----	-----	-----	-----	-----	-----
1121	-0.05	0.76	-1.81	0.40	0.49	-3.78	1.16	-0.30
1126	-----	-----	-----	-----	-----	-----	-----	-----
1140	-----	-----	-----	-----	-----	-----	-----	-----
1146	-----	-----	-----	-----	-----	-----	-----	-----
1150	-----	-----	-----	-----	-----	-----	-----	-----
1161	-----	-----	-----	-----	-----	-----	-----	-----
1171	-0.70	-2.38	-0.24	0.53	0.96	0.72	0.67	-0.44
1194	-----	-----	-----	-----	-----	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----
1203	-1.69	1.29	2.52	1.28	4.82	-2.59	-1.98	0.15
1205	-----	-----	-----	-----	-----	-----	-----	-----
1215	-----	-----	-----	-----	-----	-----	-----	-----

1227	-----	-----	-----	-----	-----	-----	-----	-----
1231	-----	-----	-----	-----	-----	-----	-----	-----
1259	0.38	0.76	-1.14	-2.25	-3.00	-0.61	0.60	1.38
1266	-----	-----	-----	-----	-----	-----	-----	-----
1284	-----	-----	-----	-----	-----	-----	-----	-----
1297	-----	-----	-----	-----	-----	-----	-----	-----
1299	-----	-----	-----	-----	-----	-----	-----	-----
1300	-0.35	-0.82	-1.28	-1.54	-0.69	-0.77	0.37	0.59
1316	-----	-----	-----	-----	-----	-----	-----	-----
1347	1.25	-1.00	-0.48	-3.13	-5.09	0.18	1.16	3.06
1348	-----	-----	-----	-----	-----	-----	-----	-----
1356	6.00	3.11	4.19	11.84	9.57	4.92	-4.45	-5.91
1357	-----	-----	-----	-----	-----	-----	-----	-----
1385	-0.91	-2.76	-1.81	-1.37	-5.09	-1.40	2.28	1.94
1395	-----	-----	-----	-----	-----	-----	-----	-----
1409	-----	-----	-----	-----	-----	-----	-----	-----
1412	0.38	0.17	-0.48	0.40	2.59	0.57	-0.52	-1.42
1419	-----	-----	-----	-----	-----	-----	-----	-----
1428	-----	-----	-----	-----	-----	-----	-----	-----
1430	-----	-----	-----	-----	-----	-----	-----	-----
1459	-----	-----	-----	-----	-----	-----	-----	-----
1483	-----	-----	-----	-----	-----	-----	-----	-----
1484	-----	-----	-----	-----	-----	-----	-----	-----
1498	-----	-----	-----	-----	-----	-----	-----	-----
1510	-----	-----	-----	-----	-----	-----	-----	-----
1520	-1.65	-2.06	-1.08	-1.37	-1.60	0.97	0.04	0.82
1535	-----	-----	-----	-----	-----	-----	-----	-----
1539	-----	-----	-----	-----	-----	-----	-----	-----
1546	0.17	-1.00	0.86	0.84	0.49	-----	0.04	-0.30
1564	-----	-----	-----	-----	-----	-----	-----	-----
1569	-----	-----	-----	-----	-----	-----	-----	-----
1570	-----	-----	-----	-----	-----	-----	-----	-----
1586	-----	-----	-----	-----	-----	-----	-----	-----
1590	-----	-----	-----	-----	-----	-----	-----	-----
1616	-----	-----	-----	-----	-----	-----	-----	-----
1631	-----	-----	-----	-----	-----	-----	-----	-----
1634	-----	-----	-----	-----	-----	-----	-----	-----
1636	-----	-----	-----	-----	-----	-----	-----	-----
1654	-----	-----	-----	-----	-----	-----	-----	-----
1668	1.42	1.02	0.53	0.90	0.19	-3.32	-1.08	-0.30
1681	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-----	-----	-----	-----	-----	-----	-----	-----
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----	-----	-----	-----
1804	-----	-----	-----	-----	-----	-----	-----	-----
1807	-----	-----	-----	-----	-----	-----	-----	-----
1810	-----	-----	-----	-----	-----	-----	-----	-----
1811	-----	-----	-----	-----	-----	-----	-----	-----
1832	-----	-----	-----	-----	-----	-----	-----	-----
1833	-----	-----	-----	-----	-----	-----	-----	-----
1834	-----	-----	-----	-----	-----	-----	-----	-----
1842	-----	-----	-----	-----	-----	-----	-----	-----
1849	-----	-----	-----	-----	-----	-----	-----	-----
1854	-----	-----	-----	-----	-----	-----	-----	-----
1861	-----	-----	-----	-----	-----	-----	-----	-----
1936	-----	-----	-----	-----	-----	-----	-----	-----
1937	-----	-----	-----	-----	-----	-----	-----	-----
1938	-----	-----	-----	-----	-----	-----	-----	-----
2102	-----	-----	-----	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX 3

Number of participants per country

1 lab in ARGENTINA
2 labs in AUSTRALIA
2 labs in AUSTRIA
1 lab in AZERBAIJAN
3 labs in BELGIUM
1 lab in BOSNIA and HERZEGOVINA
3 labs in BULGARIA
1 lab in CHILE
1 lab in CÔTE D'IVOIRE
1 lab in CROATIA
1 lab in CYPRUS
3 labs in CZECH REPUBLIC
1 lab in EQUATORIAL GUINEA
3 labs in ESTONIA
2 labs in FINLAND
6 labs in FRANCE
2 labs in GERMANY
6 labs in GREECE
1 lab in GUAM
1 lab in HONG KONG
1 lab in HUNGARY
1 lab in INDIA
1 lab in IRAN
1 lab in IRELAND
3 labs in ITALY
4 labs in LATVIA
3 labs in LEBANON
1 lab in LITHUANIA
3 labs in MALAYSIA
1 lab in MALTA
1 lab in MAURITIUS
1 lab in MOROCCO
1 lab in MOZAMBIQUE
2 labs in NIGERIA
1 lab in NORTHERN IRELAND
2 labs in OMAN
1 lab in P.R. of CHINA
4 labs in POLAND
3 labs in PORTUGAL
2 labs in QATAR
1 lab in REPUBLIC OF MACEDONIA
7 labs in RUSSIA
1 lab in SAUDI ARABIA
1 lab in SLOVAKIA
1 lab in SLOVENIA
1 lab in SOUTH KOREA
8 labs in SPAIN
1 lab in SUDAN
2 labs in SWEDEN
1 lab in TAIWAN R.O.C.
2 labs in THAILAND
8 labs in THE NETHERLANDS
11 labs in TURKEY
2 labs in U.A.E.
2 labs in U.S.A.
1 lab in UKRAINE
9 labs in UNITED KINGDOM

APPENDIX 4

Abbreviations:

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

Literature:

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

2 ASTM E178-02

3 ASTM E1301-03

4 ISO 5725-86

5 ISO 5725, parts 1-6, 1994

6 ISO 13528-05

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

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

9 IP 367/84

10 DIN 38402 T41/42

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