Results of Proficiency Test
Gasoil (diesel - EN spec.)
March 2012

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 2011-2012, 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, 125 laboratories from 52 different countries have participated. See appendix 3 for a list of participants in alphabetical country order. In this report the results of the 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 send two identical samples of Gasoil, 1*1L Gasoil and 1*0.5L Gasoil, both labelled #12020. For Total Contamination, it was decided to send one bottle of 1L (80% filled), labelled #12021. 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 present in this report must be regarded as confidential and for use by the participating companies only. Disclosure of the information in this report is only allowed by means of the entire report. Use of the contents of this report for third parties is only allowed by written permission of the Institute for Interlaboratory Studies. Disclosure of the identity of one or more of the participating companies will be done only after receipt of a written agreement of the companies involved

2.4 SAMPLES

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 #12020. 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 #12020-1	832.10
sample #12020-2	832.10
sample #12020-3	832.10
sample #12020-4	832.11
sample #12020-5	832.11
sample #12020-6	832.11
sample #12020-7	832.11
sample #12020-8	832.10
sample #12020-9	832.08

table 1: homogeneity test of subsamples #12020

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 #12020)	0.03
reference test	ISO12185:96
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples #12020

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #12020 was assumed.

For Total Contamination, out of the same batch, another 78 amber glass bottles of 1L with inner and outer caps were filled up tp approx 800 mL and subsequently labelled #12021. 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 #12020) and/or 1 bottle of Gasoil for Total Contamination (1*1 L labelled #12021) were sent to the participating laboratories on February 22, 2012.

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 #12020: 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 #12021 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, was sent together with each set of samples. In addition, a letter of instructions and a SDS were added to the package.

3 RESULTS

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

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

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

3.1 STATISTICS

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

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as ‘<…’ or ‘>…’ were not used in the statistical evaluation. First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the conclusions of statistical evaluation should be used with due care.
In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests.

Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

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

3.2 GRAPHICS

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

3.3 Z-SCORES

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

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 Mauritius, Oman, Qatar, Russia and Sudan.
For sample #12020, seventeen participants reported results after the final reporting date and nine participants did not report any test results.
For sample #12021, twelve participants reported results after the final reporting date and ten participants did not report any test results.

Finally, 116 participants reported 2135 numerical results in total. Observed were 59 outlying results, which is 2.8%. 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, Lubricity, Pour Point, TAN, Water and Distillation (volume at 250°C, 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. Only one statistical outlier was observed. The calculated reproducibility is in good agreement with the requirements of ISO6245:93.

C.I. ISO4264: Nine 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 small in comparison with the reproducibility as found in last year's round: 1.226 vs 2.899.
Nine participants probably made a calculation error or used deviating formulae.

Cloud Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of EN23015:92.

CFPP: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of EN116:97.

CR on 10% res.: This determination was problematic at this low level of carbon residue. Three test results were excluded and one statistical outlier was observed.
The calculated reproducibility after rejection of the statistical outlier 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. Three results were excluded, as the reported test method (ASTM D524, Ramsbottom CR) is not equivalent with ISO10370.

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

Density @15°C: This determination was problematic for a number of laboratories. 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. Six 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 one statistical outlier was observed and the calculated reproducibility, after rejection of the statistical outlier, is in full agreement with the requirements of ISO2719:02.

Kin. visc. 40°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 full agreement with ISO3104:94.

Lubricity: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with ISO12156:04. Four results were excluded, as the reported test method (ASTM D6079) uses a deviating calculation procedure and the test results therefore is not equivalent with a test result of ISO12156.

Nitrogen: This determination was very problematic. Two statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outliers and one ASTM D6069 test result, is not in agreement with ASTM D4629:10.

Polyaromatics: This determination was problematic. Four statistical outliers were observed
The calculated reproducibility, after rejection of the statistical outliers, is not in agreement with the requirements EN12916:06.

Pour Point manual: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility 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. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D5950:07.

Sulphur: This determination was problematic. Five statistical outliers were observed. 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. Only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D974:08e1.

Water: This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is in good agreement with the requirements of ISO12937:00.

Distillation: The automated method was not problematic. In total four 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 only NOT problematic for the volumes at 250°C and 350 °C. In total seven statistical outliers were observed. All calculated reproducibilities, except for the volumes at 250°C and 350 °C, were, after rejection of the statistical outliers, not in agreement with the requirements of ISO3405:09.

Total Contamination: This determination was problematic for a number of laboratories at the high level of contamination of sample #12021.
Seven (!) statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outliers, is in full agreement with the requirements of EN12662:08.

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	45	0.0010	0.0018	0.0050
Cetane index ISO4264		76	56.05	1.23	unknown
Cloud Point	°C	95	-6.54	2.56	4.00
Cold Filter Plugging Point	°C	87	-12.16	3.52	3.83
Carbon Residue	%M/M	46	0.021	0.026	0.019
Copper Corrosion 3hrs@50ºC		83	1	unknown	unknown
Density @ 15 °C	kg/m^3	107	832.06	0.28	0.50
FAME	%V/V	56	5.48	0.56	0.30
Flash Point PMcc	°C	103	65.81	4.03	4.67
Kinematic Viscosity @ 40 °C	mm^2/s	92	2.8423	0.0301	0.0315
Lubricity by HFRR	µm	52	252.9	104.3	102.0
Nitrogen	mg/kg	25	55.9	9.8	6.4
Polyaromatics	%M/M	46	2.83	1.23	0.99
Pour Point, manual	ºC	48	-11.71	3.70	6.43
Pour Point, automated	ºC	29	-11.48	3.32	6.10
Total Sulphur	mg/kg	86	8.43	2.30	2.06
Total Acid Number	mgKOH/kg	51	0.025	0.024	0.040
Water	mg/kg	88	55.6	33.8	51.3
IBP (automated)	°C	81	179.01	9.71	9.85
10% recovery (automated)	°C	82	221.71	4.63	4.88
50% recovery (automated)	°C	82	274.90	2.47	2.97
90% recovery (automated)	°C	83	330.09	4.45	4.95
95% recovery (automated)	°C	83	344.63	6.66	8.65
FBP (automated)	°C	81	355.18	5.74	7.10
Volume at 250ºC	%V/V	76	28.16	2.50	2.70
Volume at 350ºC	%V/V	74	96.19	1.63	2.70
IBP (manual)	°C	19	177.93	7.36	6.63
10% recovery (manual)	°C	22	219.11	7.70	4.36
50% recovery (manual)	°C	22	274.10	4.96	3.85
90% recovery (manual)	°C	22	329.71	9.66	3.16
95% recovery (manual)	°C	19	342.62	12.52	3.98
FBP (manual)	°C	20	355.99	4.95	3.66
Volume at 250ºC	%V/V	16	29.06	1.10	2.57
Volume at 350ºC	%V/V	18	96.44	2.38	2.57
Total Contamination #12021	mg/kg	37	58.3	15.4	17.5

table 3: summary of tests results of Gasoil #12020 and #12021

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 2012 WITH PREVIOUS PTS.

	March 2012	*March 2011*	*March 2010*	*October 2009*
Number of reporting labs	116	102	72	178
Number of results reported	2135	1950	1322	4104
Statistical outliers	59	66	58	78
Percentage outliers	2.8%	3.4%	4.4%	1.9%

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 2012	*March 2011*	*March 2010*	*October 2009*
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	--	--	--	--
Pour Point	++	++	++	++
Sulphur	-	-	++	+/-
Total Acid Number	++	++	++	++
Water content	++	++	++	++
Total Contamination #12021	+	+/-	--	--

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 similars the standard
- : group performed worse than the standard
-- : group performed much worse than the standard
n.e.: not evaluated

APPENDIX 1

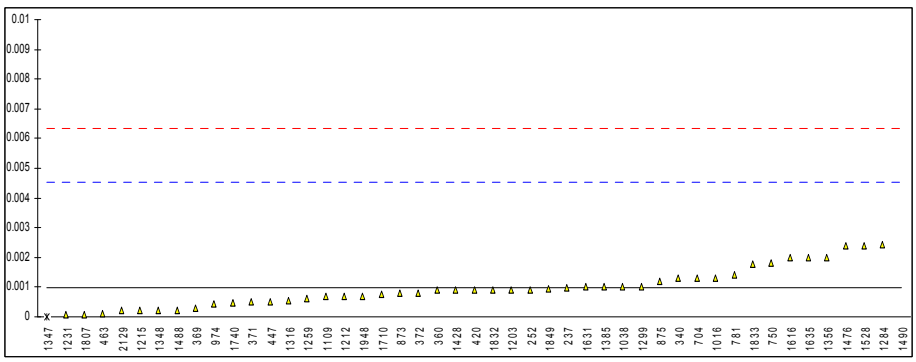
Determination of Ash on sample #12020; result in %M/M

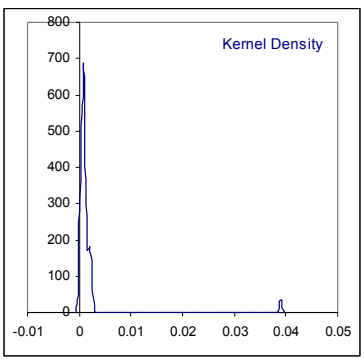
lab	method	value	mark	z(targ)	remarks
150	D482	<0.001		-----	
228	D482	<0.01		-----	
237	D482	0.00097		0.00	
238		-----		-----	
252	D482	0.0009		-0.04	
311	ISO6245	<0.001		-----	
312		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO6245	0.0013		0.19	
353		-----		-----	
357	ISO6245	<0.001		-----	
360	ISO6245	0.0009		-0.04	
369	ISO6245	0.0003		-0.37	
371	ISO6245	0.0005		-0.26	
372	ISO6245	0.0008		-0.09	
391		-----		-----	
399		-----		-----	
420	ISO6245	0.0009		-0.04	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	ISO6245	0.0005		-0.26	
463	ISO6245	0.0001		-0.49	
485		-----		-----	
488		-----		-----	
494	ISO6245	<0.001		-----	
495	ISO6245	<0.001		-----	
541	ISO6245	<0.001		-----	
671		-----		-----	
704	ISO6245	0.0013		0.19	
750	D482	0.0018		0.47	
781	ISO6245	0.0014		0.24	
791		-----		-----	
863	ISO6245	<0.001		-----	
873	ISO6245	0.0008		-0.09	
874		-----		-----	
875	D482	0.0012		0.13	
904	ISO6245	<0.01		-----	
970		-----		-----	
974	D482	0.00042		-0.31	
982		-----		-----	
1006	D482	<0.001		-----	
1016	D482	0.0013		0.19	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038	D482	0.001		0.02	
1047	ISO6245	<0.001		-----	
1059	ISO6245	<0.001		-----	
1065		-----		-----	
1081		-----		-----	
1108		-----		-----	
1109	D482	0.0007		-0.15	
1126		-----		-----	
1146	D482	<0.001		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO6245	0.0009		-0.04	
1205		-----		-----	
1212	ISO6245	0.0007		-0.15	
1215	D482	0.0002		-0.43	
1218		-----		-----	
1224		-----		-----	
1227		-----		-----	
1231	D482	0.00009		-0.49	
1254	ISO6245	<0.001		-----	
1259	ISO6245	0.0006		-0.21	
1266		-----		-----	
1272	ISO6245	<0.001		-----	

1284	D482	0.00241		0.81	
1297		-----		-----	
1299	ISO6245	0.001		0.02	
1316	D482	0.000546		-0.24	
1347	D482	0	ex	-0.54	result excluded; zero is not a real value
1348	D482	0.0002		-0.43	
1356	ISO6245	0.002		0.58	
1370		-----		-----	
1385	D482	0.001		0.02	
1395	ISO6245	<0.01		-----	
1409	ISO6245	<0.001		-----	
1412		-----		-----	
1428	ISO6245	0.0009		-0.04	
1430		-----		-----	
1457	ISO6245	<0.001		-----	
1459		-----		-----	
1476	ISO6245	0.0024		0.80	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	ISO6245	0.000225		-0.42	
1490	ISO6245	0.039	C,G(0.01)	21.30	first reported 0.009
1520	ISO6245	<0.001		-----	
1521	ISO6245	<0.001		-----	
1528	ISO6245	0.0024		0.80	
1616	D482	0.002		0.58	
1631	ISO6245	0.001		0.02	
1634		-----		-----	
1635	ISO6245	0.002		0.58	
1710	ISO6245	0.00075		-0.12	
1720		-----		-----	
1724	ISO6245	<0.001		-----	
1730		-----		-----	
1740	ISO6245	0.00048		-0.27	
1807	ISO6245	0.00009		-0.49	
1810		-----		-----	
1811		-----		-----	
1832	ISO6245	0.0009		-0.04	
1833	ISO6245	0.00178		0.46	
1834		-----		-----	
1849	ISO6245	0.00095		-0.01	
1854	ISO6245	<0.001		-----	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	ISO6245	0.0007		-0.15	
1952		-----		-----	
2129	ISO6245	0.0002		-0.43	
2146		-----		-----	

	normality	not OK
	n	45
	outliers	1
	mean (n)	0.00097
	st.dev. (n)	0.000640
	R(calc.)	0.00179
	R(ISO6245:93)	0.00500

Application range 0.001 – 0.180%M/M



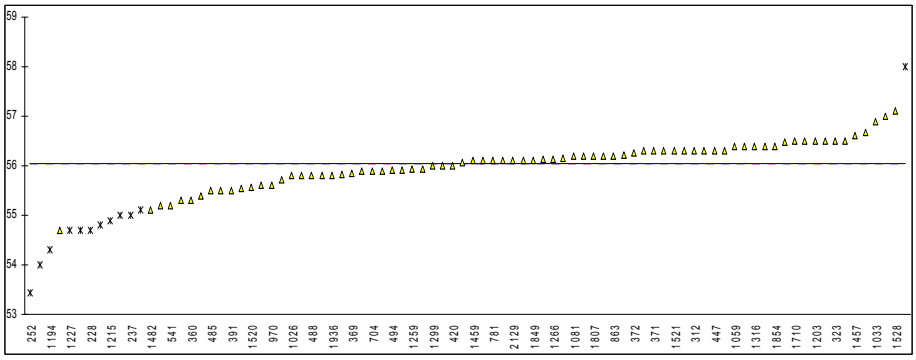


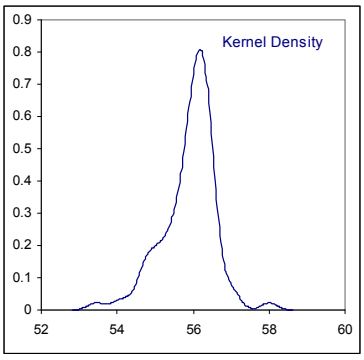
Determination of Cetane Index on sample #12020

lab	method	value	mark	z(targ)	remarks
150	D976	54.7	ex	-----	result excluded, method not equivalent to ISO4264
228	D976	54.7	ex	-----	result excluded, method not equivalent to ISO4264
237	D976	55.0	ex	-----	result excluded, method not equivalent to ISO4264
238		-----		-----	
252	D4737	53.44	E, G(0.01)	-----	After calculation by iis: 55.35
311	ISO4264	55.3	E	-----	After calculation by iis: 55.83
312	ISO4264	56.3		-----	
323	ISO4264	56.5		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337	ISO4264	55.6		-----	
338	ISO4264	56.2		-----	
340	ISO4264	56.31		-----	
353	IP380	56.16		-----	
357	ISO4264	56.21		-----	
360	ISO4264	55.30	E	-----	After calculation by iis: 56.29
369	ISO4264	55.85		-----	
371	ISO4264	56.3		-----	
372	ISO4264	56.26		-----	
391	ISO4264	55.5		-----	
399	ISO4264	56.3		-----	
420	ISO4264	56.0		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446	ISO4264	56.1		-----	
447	ISO4264	56.3		-----	
463	ISO4264	56.2		-----	
485	ISO4264	55.5		-----	
488	ISO4264	55.8		-----	
494	ISO4264	55.92		-----	
495	ISO4264	55.72		-----	
541	ISO4264	55.2	E	-----	After calculation by iis: 59.33
671		-----		-----	
704	ISO4264	55.9		-----	
750	D976	54.8	ex	-----	result excluded, method not equivalent to ISO4264
781	ISO4264	56.1		-----	
791		-----		-----	
863	ISO4264	56.20		-----	
873	ISO4264	54.7	E	-----	After calculation by iis: 55.83
874	D4737	55.9		-----	
875		-----		-----	
904		-----		-----	
970	D4737	55.6		-----	
974	D4737	55.5		-----	
982		-----		-----	
1006	D976	55.0	ex	-----	result excluded, method not equivalent to ISO4264
1016		-----		-----	
1017		-----		-----	
1026	ISO4264	55.8		-----	
1033	IP380	56.9	E	-----	After calculation by iis: 56.22
1038	D4737	56.1		-----	
1047	ISO4264	56.5		-----	
1059	ISO4264	56.4		-----	
1065	D4737	56.4		-----	
1081	ISO4264	56.2		-----	
1108	ISO4264	56.5		-----	
1109	D4737	56.5		-----	
1126	ISO4264	55.2	E	-----	After calculation by iis: 56.23
1146		-----		-----	
1194	INH-D4737	54.3	G(0.05)	-----	
1199		-----		-----	
1203	ISO4264	56.5		-----	
1205		-----		-----	
1212		-----		-----	
1215	D976	54.90	ex	-----	result excluded, method not equivalent to ISO4264
1218		-----		-----	
1224		-----		-----	
1227	D976	54.7	ex	-----	result excluded, method not equivalent to ISO4264
1231		-----		-----	
1254	ISO4264	56.14		-----	
1259	ISO4264	55.94		-----	
1266	ISO4264	56.14		-----	
1272	ISO4264	56.47		-----	
1284	D976	54.0		-----	

1297		-----		-----	
1299	ISO4264	56		-----	
1316	ISO4264	56.4		-----	
1347	D4737	55.54		-----	
1348	D4737	56.06		-----	
1356	ISO4264	57	E	-----	After calculation by iis: 53.60
1370	ISO4264	58.003	C, G(0.05)	-----	first reported 57.344
1385	D4737	55.80		-----	
1395	ISO4264	56.0		-----	
1409	ISO4264	56.4		-----	
1412	D4737	55.8		-----	
1428		-----		-----	
1430		-----		-----	
1457	ISO4264	56.6		-----	
1459	ISO4264	56.1		-----	
1476	ISO4264	55.83		-----	
1482	D4737	55.103		-----	
1483		-----		-----	
1484		-----		-----	
1488	ISO4264	56.67	C	-----	first reported 57.342
1490	ISO4264	55.9		-----	
1520	ISO4264	55.57		-----	
1521	ISO4264	56.3		-----	
1528	ISO4264	57.1		-----	
1616	D4737	55.4		-----	
1631	ISO4264	56.3		-----	
1634		-----		-----	
1635	ISO4264	55.92	E	-----	After calculation by iis: 56.28
1710	ISO4264	56.5		-----	
1720		-----		-----	
1724	ISO4264	56.3		-----	
1730		-----		-----	
1740	ISO4264	56.3		-----	
1807	ISO4264	56.2		-----	
1810		-----		-----	
1811	ISO4264	56.1		-----	
1832		-----		-----	
1833	ISO4264	55.94		-----	
1834		-----		-----	
1849	ISO4264	56.1		-----	
1854	ISO4264	56.4		-----	
1861		-----		-----	
1936	ISO4264	55.8		-----	
1937		-----		-----	
1938		-----		-----	
1948		-----		-----	
1952	D976	55.1	ex	-----	result excluded, method not equivalent to ISO4264
2129	ISO4264	56.1		-----	
2146		-----		-----	

			<u>After calculation by iis:</u>
	normality	not OK	OK
	n	76	92
	outliers	3	4
	mean (n)	56.052	56.072
	st.dev. (n)	0.4377	0.3670
	R(calc.)	1.226	1.028
	R(ISO4264:95)	n.a.	n.a.



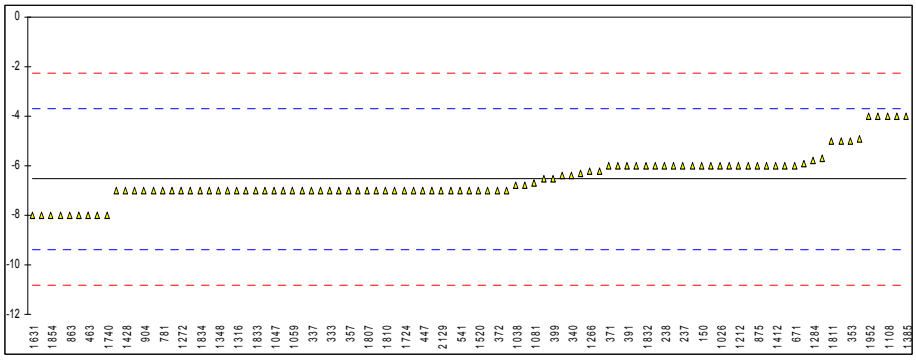


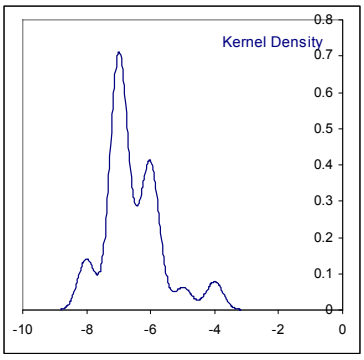
Determination of Cloud Point on sample #12020; result in °C

lab	method	value	mark	z(targ)	remarks
150	D2500	-6		0.38	
228	D2500	-7		-0.32	
237	D2500	-6		0.38	
238	D2500	-6		0.38	
252	D2500	-7.0		-0.32	
311	EN23015	-6		0.38	
312	D2500	-7		-0.32	
323	EN23015	-8		-1.02	
333	EN23015	-7		-0.32	
334	EN23015	-6.4		0.10	
335	EN23015	-8		-1.02	
337	EN23015	-7		-0.32	
338		-----		-----	
340	EN23015	-6.4		0.10	
353	IP219	-5		1.08	
357	EN23015	-7		-0.32	
360	EN23015	-7		-0.32	
369	EN23015	-6		0.38	
371	EN23015	-6		0.38	
372	EN23015	-7		-0.32	
391	EN23015	-6		0.38	
399	EN23015	-6.5		0.03	
420	EN23015	-4		1.78	
430		-----		-----	
431		-----		-----	
440	IP219	-7.0		-0.32	
446		-----		-----	
447	IP219	-7		-0.32	
463	EN23015	-8		-1.02	
485		-----		-----	
488		-----		-----	
494	EN23015	-8		-1.02	
495	EN23015	-7.0		-0.32	
541	D2500	-7		-0.32	
671	D2500	-6		0.38	
704	ISO3015	-7		-0.32	
750	D2500	-7		-0.32	
781	EN23015	-7		-0.32	
791		-----		-----	
863	D2500	-8		-1.02	
873	D2500	-7		-0.32	
874	D2500	-6		0.38	
875	D2500	-6		0.38	
904	D2500	-7		-0.32	
970		-----		-----	
974	D2500	-7		-0.32	
982		-----		-----	
1006		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026	D5773	-6		0.38	
1033	IP219	-6		0.38	
1038	D5773	-6.8		-0.18	
1047	ISO3015	-7		-0.32	
1059	EN23015	-7		-0.32	
1065	D5771	-6.2		0.24	
1081	D5772	-6.7		-0.11	
1108	EN23015	-4		1.78	
1109	D5773	-5.9		0.45	
1126		-----		-----	
1146	D2500	-4.9		1.15	
1194		-----		-----	
1199		-----		-----	
1203	EN23015	-5		1.08	
1205		-----		-----	
1212	EN23015	-6		0.38	
1215		-----		-----	
1218		-----		-----	
1224	EN23015	-7		-0.32	
1227	D2500	-7		-0.32	
1231	D2500	-4		1.78	
1254	EN23015	-6		0.38	
1259	EN23015	-6		0.38	
1266	EN23015	-6.2		0.24	
1272	ISO3015	-7		-0.32	
1284	D5771	-5.8		0.52	

1297	D5771	-7		-0.32	
1299	EN23015	-5.7		0.59	
1316	D5771	-7.0		-0.32	
1347	D2500	-7		-0.32	
1348	D2500	-7		-0.32	
1356	ISO3015	-6		0.38	
1370	EN23015	-8		-1.02	
1385	D2500	-4		1.78	
1395	EN23015	-7		-0.32	
1409	D2500	-6		0.38	
1412	D2500	-6		0.38	
1428	EN23015	-7		-0.32	
1430		-----		-----	
1457	ISO3015	-7		-0.32	
1459	EN23015	-6.5		0.03	
1476	EN23015	-7		-0.32	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	EN23015	-7		-0.32	
1490	EN23015	-6.8		-0.18	
1520	EN23015	-7		-0.32	
1521	EN23015	-6		0.38	
1528	EN23015	-7		-0.32	
1616	D2500	-6		0.38	
1631	EN23015	-8.0		-1.02	
1634		-----		-----	
1635	EN23015	-7		-0.32	
1710	EN23015	-7		-0.32	
1720	D2500	-6.3		0.17	
1724	EN23015	-7		-0.32	
1730		-----		-----	
1740	ISO3015	-8		-1.02	
1807	EN23015	-7	C	-0.32	first reported -2
1810	EN23015	-7		-0.32	
1811	EN23015	-5		1.08	
1832	EN23015	-6		0.38	
1833	EN23015	-7		-0.32	
1834	EN23015	-7		-0.32	
1849		-----		-----	
1854	EN23015	-8		-1.02	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	EN23015	-7		-0.32	
1952	D2500	-4.0		1.78	
2129	EN23015	-7		-0.32	
2146		-----		-----	

normality	not OK
n	95
outliers	0
mean (n)	-6.538
st.dev. (n)	0.9146
R(calc.)	2.561
R(EN23015:92)	4.000



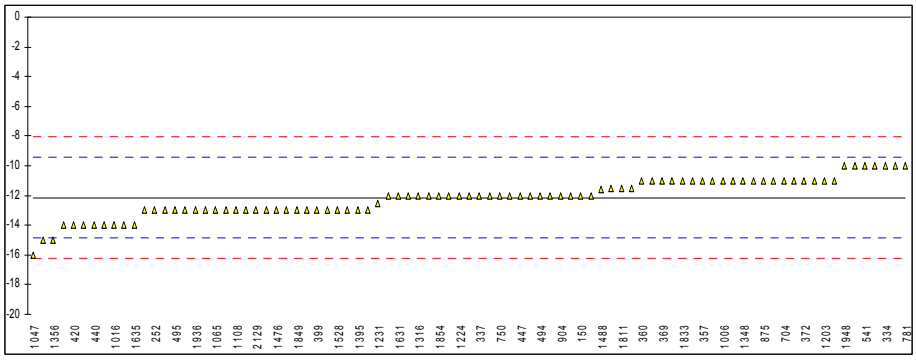


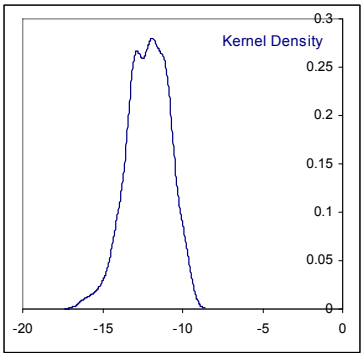
Determination of Cold Filter Plugging Point on sample #12020; result in °C

lab	method	value	mark	z(targ)	remarks
150	IP309	-12		0.11	
228		-----		-----	
237		-----		-----	
238		-----		-----	
252	IP309	-13.0		-0.62	
311	EN116	-12		0.11	
312	EN116	-12		0.11	
323	EN116	-13		-0.62	
333	EN116	-11		0.85	
334	EN116	-10		1.58	
335	EN116	-12		0.11	
337	EN116	-12		0.11	
338		-----		-----	
340	EN116	-12.0		0.11	
353	IP309	-11		0.85	
357	EN116	-11		0.85	
360	EN116	-11		0.85	
369	EN116	-11		0.85	
371	EN116	-11		0.85	
372	EN116	-11		0.85	
391	EN116	-14		-1.35	
399	EN116	-13		-0.62	
420	EN116	-14		-1.35	
430		-----		-----	
431	EN116	-14		-1.35	
440	IP309	-14.0		-1.35	
446		-----		-----	
447	IP309	-12		0.11	
463	EN116	-12		0.11	
485		-----		-----	
488		-----		-----	
494	EN116	-12		0.11	
495	EN116	-13.0		-0.62	
541	EN116	-10		1.58	
671		-----		-----	
704	EN116	-11		0.85	
750	D6371	-12		0.11	
781	EN116	-10		1.58	
791		-----		-----	
863	IP309	-15		-2.08	
873	IP309	-11		0.85	
874	IP309	-10		1.58	
875	EN116	-11		0.85	
904	EN116	-12		0.11	
970		-----		-----	
974		-----		-----	
982		-----		-----	
1006	D6371	-11		0.85	
1016	EN116	-14		-1.35	
1017		-----		-----	
1026	EN116	-13		-0.62	
1033	IP309	-13		-0.62	
1038		-----		-----	
1047	EN116	-16		-2.81	
1059	EN116	-13		-0.62	
1065	IP309	-13		-0.62	
1081	EN116	-13		-0.62	
1108	EN116	-13.0		-0.62	
1109	D6371	-12.0		0.11	
1126		-----		-----	
1146		-----		-----	
1194	EN116	-13		-0.62	
1199		-----		-----	
1203	EN116	-11		0.85	
1205		-----		-----	
1212		-----		-----	
1215		-----		-----	
1218		-----		-----	
1224	EN116	-12		0.11	
1227	EN116	-12		0.11	
1231	D6371	-12.5		-0.25	
1254	EN116	-11.5		0.48	
1259	EN116	-13		-0.62	
1266	EN116	-14		-1.35	
1272	EN116	-10		1.58	
1284		-----		-----	

1297	D6371	-12		0.11	
1299	IP309	-11		0.85	
1316	EN116	-12.0		0.11	
1347	IP309	-11		0.85	
1348	IP309	-11		0.85	
1356	EN116	-15		-2.08	
1370	EN116	-12		0.11	
1385	IP309	-11		0.85	
1395	EN116	-13		-0.62	
1409	EN116	-13	C	-0.62	first reported -17
1412		-----		-----	
1428	EN116	-11		0.85	
1430		-----		-----	
1457	EN116	-14		-1.35	
1459	EN116	-13		-0.62	
1476	EN116	-13		-0.62	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	EN116	-11.6		0.41	
1490	EN116	-12		0.11	
1520	EN116	-11		0.85	
1521	EN116	-13		-0.62	
1528	EN116	-13		-0.62	
1616	D6371	-10		1.58	
1631	EN116	-12.0		0.11	
1634		-----		-----	
1635	EN116	-14		-1.35	
1710	EN116	-13		-0.62	
1720		-----		-----	
1724	EN116	-12		0.11	
1730		-----		-----	
1740	EN116	-13		-0.62	
1807	EN116	-11		0.85	
1810	EN116	-11.5		0.48	
1811	EN116	-11.5		0.48	
1832		-----		-----	
1833	EN116	-11		0.85	
1834		-----		-----	
1849	EN116	-13		-0.62	
1854	EN116	-12		0.11	
1861		-----		-----	
1936	EN116	-13		-0.62	
1937		-----		-----	
1938		-----		-----	
1948	EN116	-10		1.58	
1952		-----		-----	
2129	EN116	-13		-0.62	
2146		-----		-----	

normality	not OK
n	87
outliers	0
mean (n)	-12.156
st.dev. (n)	1.2577
R(calc.)	3.522
R(EN116:97)	3.827



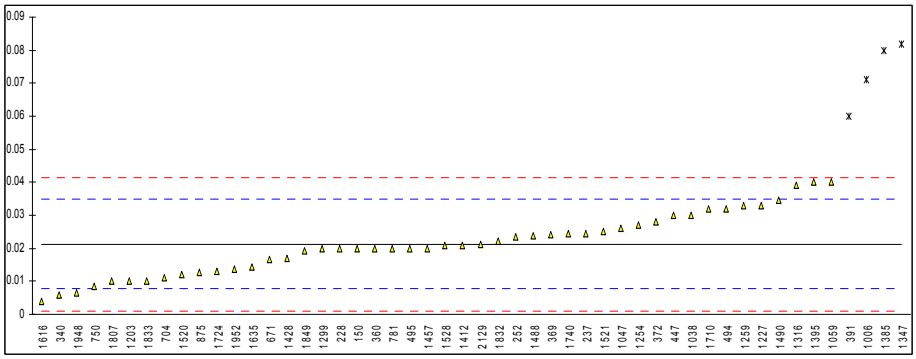


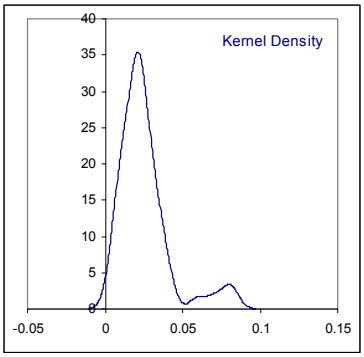
Determination of Carbon Residue on 10% residue on sample #12020; result in %M/M

lab	method	value	mark	z(targ)	remarks
150	D4530	0.02		-0.19	
228	D189	0.02		-0.19	
237	D189	0.0245		0.47	
238		-----		-----	
252	D4530	0.0236		0.34	
311	ISO10370	<0.1		-----	
312		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO10370	0.006		-2.28	
353		-----		-----	
357		-----		-----	
360	ISO10370	0.020		-0.19	
369	ISO10370	0.024		0.40	
371		-----		-----	
372	ISO10370	0.028		1.00	
391	ISO10370	0.06	G(0.01)	5.75	
399		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	ISO10370	0.03		1.29	
463		-----		-----	
485		-----		-----	
488		-----		-----	
494	ISO10370	0.032		1.59	
495	ISO10370	0.020		-0.19	
541	D189	<0.001		<-3.02	false negative?
671	D4530	0.01664		-0.69	
704	ISO10370	0.011		-1.53	
750	ISO10370	0.0085		-1.90	
781	ISO10370	0.020		-0.19	
791		-----		-----	
863	ISO10370	<0.1		-----	
873	ISO10370	<0.1		-----	
874	D4530	<0.1		-----	
875	D4530	0.0128		-1.26	
904		-----		-----	
970		-----		-----	
974		-----		-----	
982		-----		-----	
1006	D524	0.071	ex	7.39	the Ramsbottom test result may be biased from the Conradson result
1016	ISO10370	<0.10		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038	D4530	0.03		1.29	
1047	ISO10370	0.026		0.70	
1059	ISO10370	0.04		2.78	
1065		-----		-----	
1081		-----		-----	
1108		-----		-----	
1109	D4530	<0.01		-----	
1126		-----		-----	
1146		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO10370	0.01		-1.68	
1205		-----		-----	
1212		-----		-----	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227	D4530	0.033		1.74	
1231		-----		-----	
1254	ISO10370	0.0272		0.88	
1259	ISO10370	0.033		1.74	
1266		-----		-----	
1272		-----		-----	
1284		-----		-----	

1297		-----		-----	
1299	ISO10370	0.02		-0.19	
1316	D189	0.039		2.63	
1347	D524	0.082	ex	9.02	the Ramsbottom test result may be biased from the Conradson result
1348		-----		-----	
1356	ISO10370	<0.005		<-2.42	false negative?
1370		-----		-----	
1385	D524	0.08	ex	8.72	the Ramsbottom test result may be biased from the Conradson result
1395	ISO10370	0.04		2.78	
1409	ISO10370	<0.01		-----	
1412	D189	0.021		-0.05	
1428	ISO10370	0.017		-0.64	
1430		-----		-----	
1457	ISO10370	0.020		-0.19	
1459		-----		-----	
1476		-----		-----	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	ISO10370	0.0237		0.36	
1490	ISO10370	0.0345		1.96	
1520	ISO10370	0.012		-1.38	
1521	ISO10370	0.025		0.55	
1528	ISO10370	0.021		-0.05	
1616	D4530	0.004		-2.57	
1631		-----		-----	
1634		-----		-----	
1635	ISO10370	0.0143		-1.04	
1710	ISO10370	0.032		1.59	
1720		-----		-----	
1724	ISO10370	0.013		-1.23	
1730		-----		-----	
1740	ISO10370	0.0244		0.46	
1807	ISO10370	0.01		-1.68	
1810		-----		-----	
1811		-----		-----	
1832	ISO6615	0.0223		0.15	
1833	ISO10370	0.01		-1.68	
1834		-----		-----	
1849	ISO10370	0.0192		-0.31	
1854		-----		-----	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	ISO10370	0.0064		-2.22	
1952	D4530	0.0137		-1.13	
2129	ISO10370	0.0213		0.00	
2146		-----		-----	

normality	OK
n	46
outliers	1
mean (n)	0.02130
st.dev. (n)	0.009183
R(calc.)	0.02571
R(ISO10370:93)	0.01884





Determination of Copper Corrosion (3 hrs @ 50°C) on sample #12020;

lab	method	value	mark	z(targ)	remarks
150	D130	1A		-----	
228		-----		-----	
237	D130	1A		-----	
238	D130	1A		-----	
252	D130	1A		-----	
311	ISO2160	1A		-----	
312	D130	1A		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337	ISO2160	1B		-----	
338		-----		-----	
340	ISO2160	1A		-----	
353	D130	1A		-----	
357	ISO2160	1A		-----	
360	ISO2160	1A		-----	
369	ISO2160	1A		-----	
371	ISO2160	1A		-----	
372	ISO2160	1A		-----	
391	ISO2160	1A		-----	
399	ISO2160	1A		-----	
420	ISO2160	1A		-----	
430		-----		-----	
431		-----		-----	
440	D130	1A		-----	
446		-----		-----	
447	ISO2160	1A		-----	
463	ISO2160	1A		-----	
485		-----		-----	
488		-----		-----	
494	ISO2160	1A		-----	
495	ISO2160	1A		-----	
541	ISO2160	1		-----	
671	D130	1A		-----	
704	ISO2160	1A		-----	
750	D130	1A		-----	
781	ISO2160	1A		-----	
791		-----		-----	
863	ISO2160	1A		-----	
873	D130	1A		-----	
874	D130	1A		-----	
875	D130	1A		-----	
904	ISO2160	1A		-----	
970	D130	1A		-----	
974	D130	1A		-----	
982		-----		-----	
1006	D130	1A		-----	
1016	ISO2160	1A		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP154	1B		-----	
1038	D130	1A		-----	
1047	ISO2160	1A		-----	
1059	ISO2160	1A		-----	
1065		-----		-----	
1081	D130	1B		-----	
1108	ISO2160	1A		-----	
1109	D130	1A		-----	
1126		-----		-----	
1146		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO2160	1		-----	
1205		-----		-----	
1212	ISO2160	1A		-----	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227	D130	1A		-----	
1231	D130	1A		-----	
1254	ISO2160	1A		-----	
1259	ISO2160	1		-----	
1266	ISO2160	1A		-----	
1272	ISO2160	1A		-----	
1284	D130	1A		-----	

1297		-----	-----
1299	ISO2160	1A	-----
1316	D130	1A	-----
1347	D130	1A	-----
1348	D482	1A	-----
1356		-----	-----
1370		-----	-----
1385	D130	1A	-----
1395	ISO2160	1A	-----
1409	ISO2160	1A	-----
1412	D130	1A	-----
1428	ISO2160	1A	-----
1430		-----	-----
1457	ISO2160	1A	-----
1459		-----	-----
1476	ISO2160	1A	-----
1482		-----	-----
1483		-----	-----
1484		-----	-----
1488	ISO2160	1A	-----
1490	ISO2160	1A	-----
1520	ISO2160	1A	-----
1521	ISO2160	1	-----
1528	ISO2160	1B	-----
1616	D130	1A	-----
1631	ISO2160	1	-----
1634		-----	-----
1635	ISO2160	1A	-----
1710	ISO2160	1A	-----
1720		-----	-----
1724	ISO2160	1A	-----
1730		-----	-----
1740	ISO2160	1A	-----
1807	ISO2160	1A	-----
1810		-----	-----
1811	ISO2160	1	-----
1832	ISO2160	1A	-----
1833	ISO2160	1A	-----
1834		-----	-----
1849	ISO2160	1A	-----
1854	ISO2160	1A	-----
1861		-----	-----
1936		-----	-----
1937		-----	-----
1938		-----	-----
1948	ISO2160	1A	-----
1952	D130	1A	-----
2129	ISO2160	1A	-----
2146		-----	-----

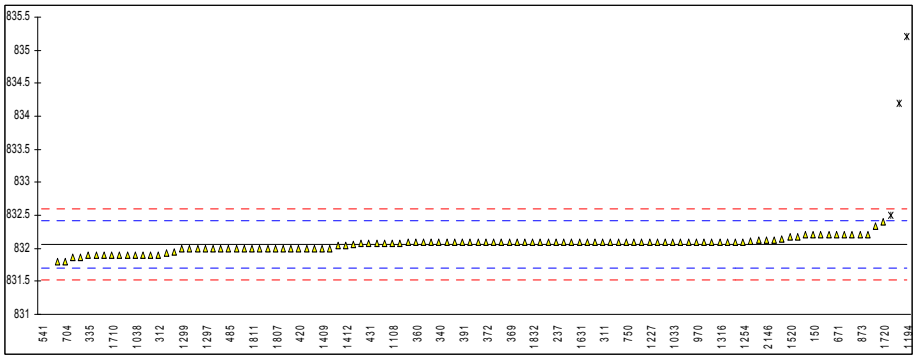
normality	unknown
n	83
outliers	0
mean (n)	1
st.dev. (n)	n.a.
R(calc.)	n.a.
R(ISO2160:98)	n.a.

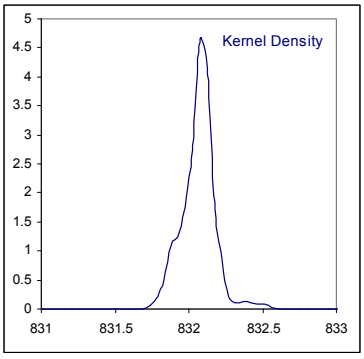
Determination of Density @15 °C on sample #12020; result in kg/m^3

lab	method	value	mark	z(targ)	remarks
150	D4052	832.2		0.77	
228	D1298	832.2		0.77	
237	D4052	832.1		0.21	
238	D1298	832.1		0.21	
252	D1298	832.12		0.32	
311	ISO12185	832.1		0.21	
312	ISO12185	831.9		-0.91	
323	ISO12185	831.9		-0.91	
333	ISO12185	832.1		0.21	
334	ISO12185	832.08		0.09	
335	ISO12185	831.9		-0.91	
337	ISO12185	832.1		0.21	
338	ISO12185	832.1		0.21	
340	ISO12185	832.10		0.21	
353	IP365	832.0		-0.35	
357	ISO12185	832.0		-0.35	
360	ISO12185	832.1		0.21	
369	ISO12185	832.1		0.21	
371	ISO12185	832.0		-0.35	
372	ISO12185	832.1		0.21	
391	ISO12185	832.1		0.21	
399	ISO12185	832.0		-0.35	
420	ISO12185	832.0		-0.35	
430		-----		-----	
431	ISO12185	832.07	C	0.04	first reported 830.31
440	D4052	832.1		0.21	
446	ISO12185	831.8		-1.47	
447	ISO12185	832.1		0.21	
463	ISO12185	832.14		0.43	
485	ISO12185	832.0		-0.35	
488	ISO12185	831.9		-0.91	
494	ISO12185	832.1		0.21	
495	ISO12185	832.1		0.21	
541	ISO12185	823.1	G(0.01)	-50.19	
671	D4052	832.2		0.77	
704	ISO12185	831.8		-1.47	
750	D4052	832.1	C	0.21	reported in a different unit 0.8321
781	ISO12185	832.1		0.21	
791		-----		-----	
863	ISO12185	832.09		0.15	
873	D4052	832.2		0.77	
874	D4052	832.1		0.21	
875	D4052	831.9		-0.91	
904	ISO12185	832.2		0.77	
970	D4052	832.1		0.21	
974	D4052	832.0		-0.35	
982		-----		-----	
1006	D4052	832.1		0.21	
1016		-----		-----	
1017		-----		-----	
1026	D4052	832.1		0.21	
1033	IP365	832.1		0.21	
1038	D4052	831.9		-0.91	
1047	ISO12185	832.06		-0.02	
1059	ISO12185	832.0		-0.35	
1065	D4052	832.33		1.49	
1081	ISO12185	832.2		0.77	
1108	ISO12185	832.08		0.09	
1109	D4052	831.87		-1.08	
1126	ISO12185	832.07		0.04	
1146	ISO12185	832.08		0.09	
1194	INH-ISO12185	835.2	G(0.01)	17.57	
1199		-----		-----	
1203	ISO12185	832.0		-0.35	
1205	ISO12185	832.05		-0.07	
1212	ISO12185	832.1		0.21	
1215	D1298	831.9		-0.91	
1218	ISO12185	832.17		0.60	
1224	ISO12185	832.08		0.09	
1227	D4052	832.1		0.21	
1231	D4052	832.2		0.77	
1254	ISO12185	832.10		0.21	
1259	ISO12185	832.1		0.21	
1266	ISO3675	832.2		0.77	
1272	ISO12185	832.0		-0.35	
1284	D4052	832.1		0.21	

1297	D4052	832.0		-0.35	
1299	ISO12185	832.0		-0.35	
1316	D4052	832.1		0.21	
1347	D4052	832.12		0.32	
1348	D4052	832.1		0.21	
1356	ISO12185	834.2	C,G(0.01)	11.97	first reported 833.0
1370	ISO3675	827.5	C,G(0.01)	-25.55	first reported 828.936
1385	D4052	832.1		0.21	
1395	ISO12185	832.0		-0.35	
1409	ISO12185	832.0		-0.35	
1412	D4052	832.05	C	-0.07	first reported 0.83205
1428	ISO12185	832.1		0.21	
1430		-----		-----	
1457	ISO12185	832.1		0.21	
1459	ISO12185	832.1		0.21	
1476	ISO12185	832.1		0.21	
1482	D1298	832.5	G(0.01)	2.45	
1483		-----		-----	
1484		-----		-----	
1488	ISO3675	831.86	C	-1.14	first reported 830.37
1490	ISO12185	831.94	C	-0.69	first reported 832.94
1520	ISO12185	832.17		0.60	
1521	ISO12185	832.1		0.21	
1528	ISO12185	831.93		-0.75	
1616	D4052	832.1		0.21	
1631	ISO12185	832.1		0.21	
1634		-----		-----	
1635	ISO12185	831.9		-0.91	
1710	ISO12185	831.9		-0.91	
1720	D4052	832.4		1.89	
1724	ISO12185	832.11		0.26	
1730	ISO12185	832.0		-0.35	
1740	ISO3675	832.0	C	-0.35	first reported 0.8320
1807	ISO12185	832.0		-0.35	
1810	ISO12185	832.1		0.21	
1811	ISO12185	832.0		-0.35	
1832	ISO12185	832.1		0.21	
1833	ISO12185	832.1		0.21	
1834	ISO12185	832.1		0.21	
1849	ISO12185	832.2025		0.78	
1854	ISO12185	831.9		-0.91	
1861		-----		-----	
1936	ISO12185	832.1		0.21	
1937		-----		-----	
1938		-----		-----	
1948	ISO12185	832.1		0.21	
1952	D4052	832.0		-0.35	
2129	ISO12185	832.0		-0.35	
2146	ISO12185	832.12		0.32	

normality	not OK
n	107
outliers	5
mean (n)	832.063
st.dev. (n)	0.0996
R(calc.)	0.279
R(ISO12185:96)	0.500



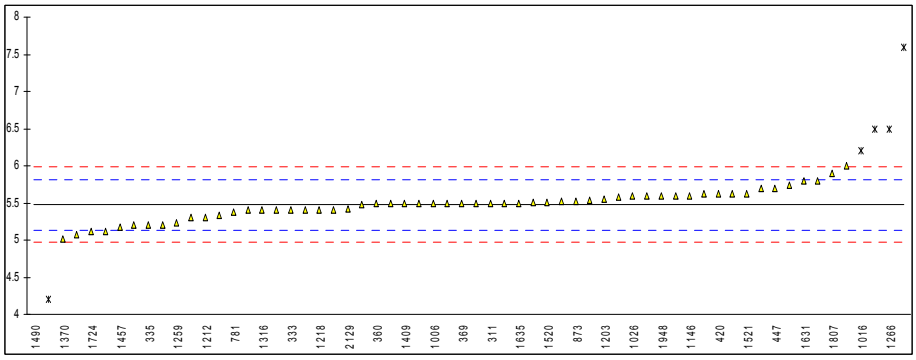


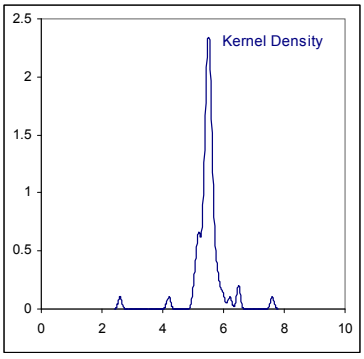
Determination of FAME Content on sample #12020; result in %V/V

lab	method	value	mark	z(targ)	remarks
150		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
252		-----		-----	
311	EN14078	5.5		0.14	
312	EN14078	5.2		-1.63	
323	EN14078	5.5		0.14	
333	EN14078	5.4		-0.45	
334	EN14078	5.48		0.02	
335	EN14078	5.2		-1.63	
337		-----		-----	
338	EN14078	5.12		-2.10	
340	EN14078	5.5		0.14	
353	EN14078	5.577		0.59	
357		-----		-----	
360	EN14078	5.49		0.08	
369	EN14078	5.5	C	0.14	first reported 6.40
371		-----		-----	
372	EN14078	5.4		-0.45	
391		-----		-----	
399		-----		-----	
420	EN14078	5.62		0.84	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	EN14078	5.7		1.31	
463		-----		-----	
485		-----		-----	
488		-----		-----	
494		-----		-----	
495	EN14078	5.50		0.14	
541		-----		-----	
671		-----		-----	
704	EN14078	5.07		-2.39	
750		-----		-----	
781	EN14078	5.38		-0.57	
791		-----		-----	
863	EN14078	5.74		1.55	
873	EN14078	5.52	C	0.26	first reported 3.52
874		-----		-----	
875		-----		-----	
904		-----		-----	
970		-----		-----	
974		-----		-----	
982		-----		-----	
1006	EN14078	5.5		0.14	
1016	EN14078	6.21	G(0.05)	4.32	
1017		-----		-----	
1026	EN14078	5.6		0.73	
1033	EN14078	5.6		0.73	
1038		-----		-----	
1047	EN14078	5.51		0.20	
1059	EN14078	5.8		1.90	
1065	EN14078	5.53		0.31	
1081		-----		-----	
1108	EN14078	5.4		-0.45	
1109		-----		-----	
1126	in house	7.60	G(0.01)	12.50	
1146	in house	5.60		0.73	
1194	INH-EN14078	4.2	G(0.01)	-7.52	
1199		-----		-----	
1203	EN14078	5.55		0.43	
1205	EN14078	5.4		-0.45	
1212	EN14078	5.31		-0.98	
1215		-----		-----	
1218	EN14078	5.40		-0.45	
1224		-----		-----	
1227		-----		-----	
1231	EN14078	5.3		-1.04	
1254	EN14078	5.621		0.85	
1259	EN14078	5.225		-1.48	
1266	EN14078	6.5	C,G(0.05)	6.02	first reported 6.8
1272		-----		-----	
1284		-----		-----	

1297		-----		-----	
1299	EN14078	5.5		0.14	
1316	EN14078	5.4		-0.45	
1347		-----		-----	
1348		-----		-----	
1356	EN14078	6.5	C,G(0.01)	6.02	first reported 4
1370	EN14078	5.010		-2.75	
1385		-----		-----	
1395	EN14078	5.21		-1.57	
1409	EN14078	5.5		0.14	
1412		-----		-----	
1428	EN14078	5.62		0.84	
1430		-----		-----	
1457	EN14078	5.17		-1.81	
1459	EN14078	5.34		-0.80	
1476		-----		-----	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488		-----		-----	
1490	EN14078	2.6	C,G(0.01)	-16.94	first reported 6.2
1520	EN14078	5.51		0.20	
1521	EN14078	5.63		0.90	
1528	EN14078	5.52		0.26	
1616		-----		-----	
1631	EN14078	5.8		1.90	
1634		-----		-----	
1635	EN14078	5.5		0.14	
1710	EN14078	5.6		0.73	
1720		-----		-----	
1724	EN14078	5.1169		-2.12	
1730		-----		-----	
1740	EN14078	5.693		1.27	
1807	EN14078	5.9		2.49	
1810	EN14078	5.5		0.14	
1811	EN14078	5.41		-0.39	
1832		-----		-----	
1833	EN14078	6.0	C	3.08	first reported 4.1
1834		-----		-----	
1849		-----		-----	
1854		-----		-----	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	EN14078	5.6		0.73	
1952		-----		-----	
2129	EN14078	5.421		-0.33	
2146		-----		-----	

normality	not OK
n	56
outliers	6
mean (n)	5.477
st.dev. (n)	0.1987
R(calc.)	0.556
R(EN14078:03)	0.476



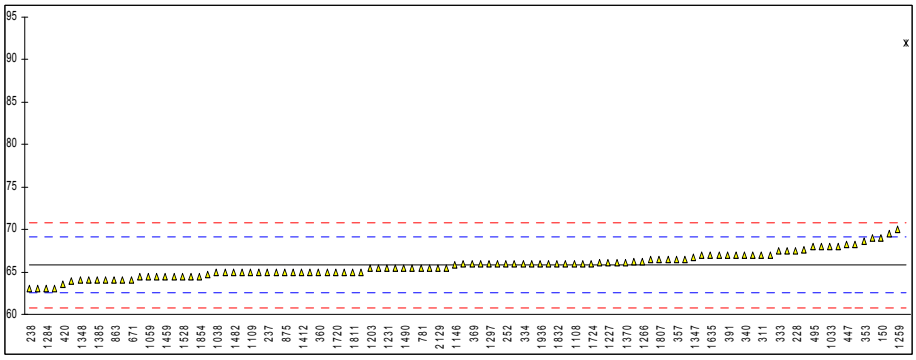


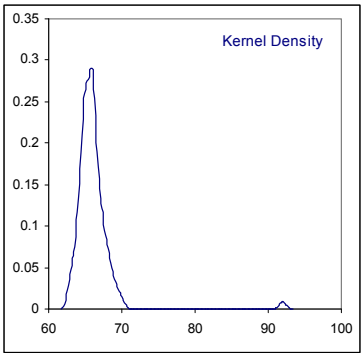
Determination of Flash Point PMcc on sample #12020; result in °C

lab	method	value	mark	z(targ)	remarks
150	D93	69.0		1.91	
228	D93	67.5		1.01	
237	D93	65.0		-0.49	
238	D93	63		-1.69	
252	D93	66.0		0.11	
311	ISO2719	67.0		0.71	
312	D93	66.0		0.11	
323	ISO2719	65.0		-0.49	
333	ISO2719	67.5		1.01	
334	ISO2719	66.0		0.11	
335	ISO2719	65.5		-0.19	
337		-----		-----	
338	ISO2719	63.9		-1.15	
340	ISO2719	67.0		0.71	
353	IP34	68.625		1.68	
357	ISO2719	66.5		0.41	
360	ISO2719	65.0		-0.49	
369	ISO2719	66.0		0.11	
371	ISO2719	65.0		-0.49	
372	ISO2719	65.5		-0.19	
391	ISO2719	67.0		0.71	
399	ISO2719	66.0		0.11	
420	ISO2719	63.5		-1.39	
430		-----		-----	
431	ISO2719	66		0.11	
440	IP34	66.1		0.17	
446	ISO2719	66.5		0.41	
447	ISO2719	68.3		1.49	
463	ISO2719	69.0		1.91	
485	ISO2719	67.0		0.71	
488		-----		-----	
494	ISO2719	65.0		-0.49	
495	ISO2719	68.0		1.31	
541	ISO2719	67.0		0.71	
671	D93	64		-1.09	
704	ISO2719	66.2		0.23	
750	D93	65.0		-0.49	
781	ISO2719	65.5		-0.19	
791		-----		-----	
863	ISO2719	64.0		-1.09	
873	D93	66.0		0.11	
874	D93	65.0		-0.49	
875	D93	65.0		-0.49	
904	ISO2719	64.0		-1.09	
970	D93	65.0		-0.49	
974	D93	66.0		0.11	
982		-----		-----	
1006	D93	67		0.71	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP34	68		1.31	
1038	D93	65.0		-0.49	
1047	ISO2719	69.5		2.21	
1059	ISO2719	64.5		-0.79	
1065	D93	63		-1.69	
1081	D93	65.5		-0.19	
1108	ISO2719	66.0		0.11	
1109	D93	65.0		-0.49	
1126	ISO2719	67.5		1.01	
1146	D93	65.8		-0.01	
1194		-----		-----	
1199		-----		-----	
1203	ISO2719	65.5		-0.19	
1205	D93	63.0		-1.69	
1212		-----		-----	
1215	D93	66.082		0.16	
1218		-----		-----	
1224	ISO2719	67.6		1.07	
1227	D93	66.1		0.17	
1231	D93	65.5		-0.19	
1254	ISO2719	65.0		-0.49	
1259	ISO2719	70.0		2.51	
1266	ISO2719	66.2		0.23	
1272	ISO2719	65.5		-0.19	
1284	D93	63.0		-1.69	

1297	D93	66.0		0.11	
1299	ISO2719	64.5		-0.79	
1316	D93	64.0		-1.09	
1347	D93	66.7		0.53	
1348	D93	64		-1.09	
1356	ISO2719	92	C,G(0.01)	15.69	first reported 78
1370	ISO2719	66.12		0.18	
1385	D93	64		-1.09	
1395	ISO2719	65.0		-0.49	
1409	ISO2719	67.0		0.71	
1412	D93	65.0		-0.49	
1428	ISO2719	64.5		-0.79	
1430		-----		-----	
1457	ISO2719	66.0		0.11	
1459	ISO2719	64.5		-0.79	
1476	ISO2719	64.75		-0.64	
1482	D93	65		-0.49	
1483		-----		-----	
1484		-----		-----	
1488	ISO2719	66.48		0.40	
1490	ISO2719	65.5		-0.19	
1520	ISO2719	64.5		-0.79	
1521	ISO2719	68.0		1.31	
1528	ISO2719	64.5		-0.79	
1616	D93	66.0		0.11	
1631	ISO2719	65		-0.49	
1634		-----		-----	
1635	ISO2719	67.0		0.71	
1710	ISO2719	67.0		0.71	
1720	D93	65.0		-0.49	
1724	ISO2719	66		0.11	
1730	ISO2719	64.5		-0.79	
1740	ISO2719	64.0		-1.09	
1807	ISO2719	66.5		0.41	
1810	ISO2719	65.5		-0.19	
1811	ISO2719	65.0		-0.49	
1832	ISO2719	66.0		0.11	
1833	ISO2719	66		0.11	
1834		-----		-----	
1849	ISO2719	66.5		0.41	
1854	ISO2719	64.5		-0.79	
1861		-----		-----	
1936	ISO2719	66		0.11	
1937		-----		-----	
1938		-----		-----	
1948	ISO2719	68.0		1.31	
1952	D93	68.3		1.49	
2129	ISO2719	65.5		-0.19	
2146		-----		-----	

normality	not OK
n	103
outliers	1
mean (n)	65.813
st.dev. (n)	1.4384
R(calc.)	4.028
R(ISO2719:02)	4.673



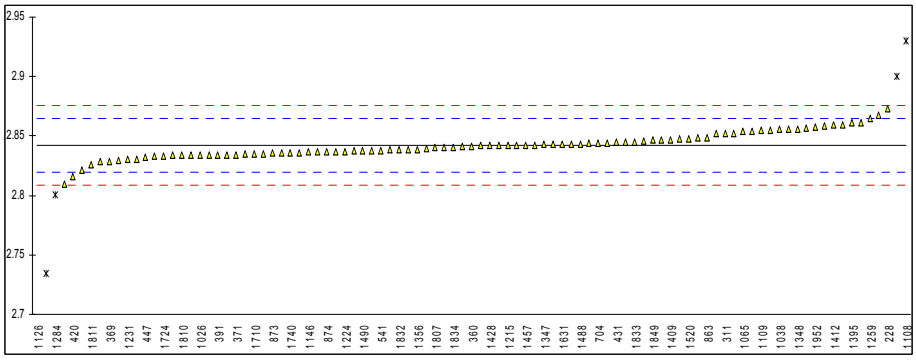


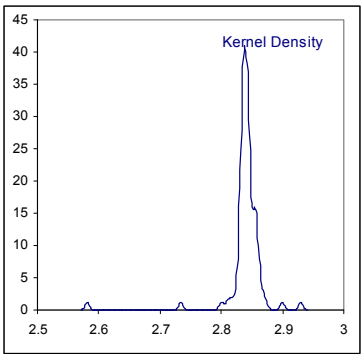
Determination of Kinematic Viscosity @ 40°C on sample #12020; result in mm^2/s

lab	method	value	mark	z(targ)	remarks
150	D445	2.8373		-0.44	
228	D445	2.8727		2.70	
237	D445	2.8419		-0.03	
238		-----		-----	
252	D445	2.8347		-0.67	
311	ISO3104	2.852		0.87	
312	D445	2.840		-0.20	
323	ISO3104	2.846		0.33	
333	ISO3104	2.837		-0.47	
334		-----		-----	
335		-----		-----	
337	ISO3104	2.845		0.24	
338		-----		-----	
340	ISO3104	2.8391		-0.28	
353	IP71	2.836		-0.56	
357	ISO3104	2.837		-0.47	
360	ISO3104	2.8412		-0.09	
369	ISO3104	2.829		-1.18	
371	ISO3104	2.834		-0.73	
372	ISO3104	2.842		-0.02	
391	ISO3104	2.834		-0.73	
399	ISO3104	2.843		0.07	
420	ISO3104	2.8156		-2.37	
430		-----		-----	
431	ISO3104	2.8449		0.23	
440	D445	2.8350		-0.65	
446		-----		-----	
447	ISO3104	2.8325		-0.87	
463	ISO3104	2.8587		1.46	
485		-----		-----	
488		-----		-----	
494	ISO3104	2.8565		1.27	
495	ISO3104	2.855		1.13	
541	D7042	2.838		-0.38	
671	D445	2.841027		-0.11	
704	ISO3104	2.8443		0.18	
750	D445	2.839		-0.29	
781	ISO3104	2.847		0.42	
791		-----		-----	
863	ISO3104	2.8490		0.60	
873	ISO3104	2.836		-0.56	
874	D445	2.837		-0.47	
875	D445	2.843		0.07	
904	ISO3104	2.810		-2.87	
970		-----		-----	
974	D7042	2.859		1.49	
982		-----		-----	
1006	D445	2.8340		-0.73	
1016		-----		-----	
1017		-----		-----	
1026	ISO3104	2.834		-0.73	
1033	IP71	2.856		1.22	
1038	D445	2.856		1.22	
1047	ISO3104	2.821	C	-1.89	first reported 2.891
1059	ISO3104	2.834		-0.73	
1065	D445	2.854		1.04	
1081	D445	2.842		-0.02	
1108	ISO3104	2.930	G(0.01)	7.80	
1109	D445	2.8547		1.11	
1126	D445	2.581	G(0.01)	-23.22	
1146	ISO3104	2.8367		-0.49	
1194		-----		-----	
1199		-----		-----	
1203	ISO3104	2.844		0.15	
1205		-----		-----	
1212		-----		-----	
1215	D445	2.842		-0.02	
1218		-----		-----	
1224	ISO3104	2.8372		-0.45	
1227	D445	2.8296		-1.13	
1231	D445	2.830	C	-1.09	first reported 2.954
1254	ISO3104	2.8362		-0.54	
1259	ISO3104	2.86508		2.03	
1266	ISO3104	2.8289		-1.19	
1272	ISO3104	2.8675		2.24	
1284	D445	2.8001	G(0.05)	-3.75	

1297	D7042	2.8444		0.19	
1299	ISO3104	2.833		-0.82	
1316	D445	2.852		0.87	
1347	D445	2.843		0.07	
1348	D445	2.856		1.22	
1356	ISO3104	2.839		-0.29	
1370	ISO3104	2.8472		0.44	
1385	D445	2.9	G(0.01)	5.13	
1395	ISO3104	2.861		1.66	
1409	ISO3104	2.847		0.42	
1412	D445	2.859		1.49	
1428	ISO3104	2.842		-0.02	
1430		-----		-----	
1457	ISO3104	2.8422		-0.01	
1459	D7042	2.8543		1.07	
1476	ISO3104	2.8382		-0.36	
1482	D445	2.8483		0.54	
1483		-----		-----	
1484	ISO3104	2.8302		-1.07	
1488	ISO3104	2.843361		0.10	
1490	ISO3104	2.8376		-0.41	
1520	ISO3104	2.8476		0.47	
1521	ISO3104	2.8424		0.01	
1528	ISO3104	2.8614		1.70	
1616	D445	2.852		0.87	
1631	ISO3104	2.843		0.07	
1634		-----		-----	
1635	ISO3104	2.734	G(0.01)	-9.62	
1710	ISO3104	2.835		-0.65	
1720		-----		-----	
1724	ISO3104	2.8331		-0.81	
1730		-----		-----	
1740	ISO3104	2.836		-0.56	
1807	ISO3104	2.840		-0.20	
1810	ISO3104	2.834		-0.73	
1811	ISO3104	2.8258		-1.46	
1832	ISO3104	2.8384		-0.34	
1833	ISO3104	2.845		0.24	
1834	ISO3104	2.8408		-0.13	
1849	ISO3104	2.8468		0.40	
1854	ISO3104	2.834		-0.73	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	ISO3104	2.8378	C	-0.40	first reported 3.0304
1952	D445	2.8576		1.36	
2129	ISO3104	2.83365		-0.77	
2146		-----		-----	

normality	not OK
n	92
outliers	5
mean (n)	2.84227
st.dev. (n)	0.010738
R(calc.)	0.03007
R(ISO3104:94)	0.03151



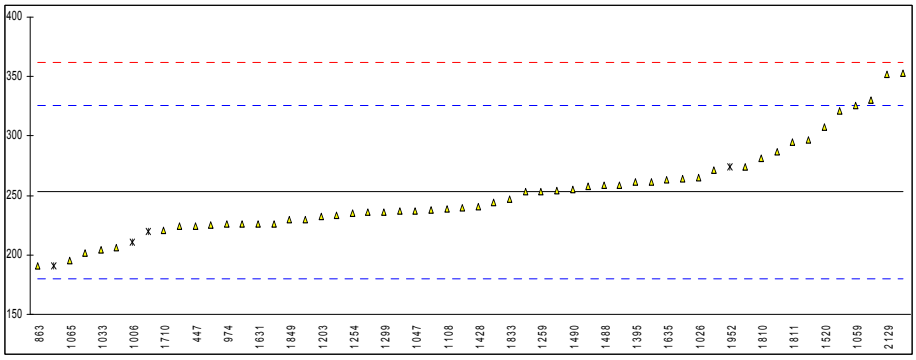


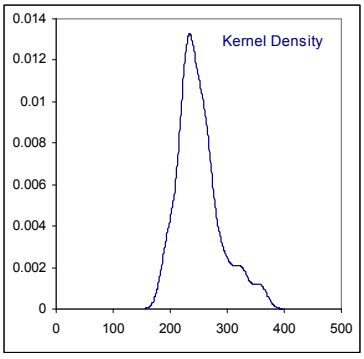
Determination of Lubricity by HFRR on sample #12020; result in µm

lab	method	value	mark	z(targ)	remarks
150	D6079	220	ex	-0.90	calculation procedure of test method is different then of ISO12156
228		-----		-----	
237		-----		-----	
238		-----		-----	
252		-----		-----	
311	ISO12156	271		0.50	
312	ISO12156	353		2.75	
323	ISO12156	297		1.21	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO12156	330		2.12	
353		-----		-----	
357		-----		-----	
360	ISO12156	240		-0.35	
369	ISO12156	254		0.03	
371		-----		-----	
372	ISO12156	202		-1.40	
391	ISO12156	287		0.94	
399		-----		-----	
420		-----		-----	
430	ISO12156	261		0.22	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	ISO12156	224		-0.79	
463		-----		-----	
485		-----		-----	
488		-----		-----	
494	ISO12156	237		-0.44	
495	ISO12156	225		-0.77	
541		-----		-----	
671		-----		-----	
704		-----		-----	
750		-----		-----	
781		-----		-----	
791		-----		-----	
863	ISO12156	190.5		-1.71	
873	ISO12156	206		-1.29	
874		-----		-----	
875		-----		-----	
904		-----		-----	
970		-----		-----	
974	ISO12156	226		-0.74	
982		-----		-----	
1006	D6078	211.0	ex	-1.15	calculation procedure of test method is different then of ISO12156
1016	ISO12156	264		0.30	
1017		-----		-----	
1026	ISO12156	265		0.33	
1033	IP450	204		-1.34	
1038		-----		-----	
1047	ISO12156	237		-0.44	
1059	ISO12156	326		2.01	
1065	ISO12156	195		-1.59	
1081	ISO12156	244		-0.24	
1108	ISO12156	239		-0.38	
1109	IP450	321		1.87	
1126		-----		-----	
1146		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO12156	232		-0.57	
1205		-----		-----	
1212	ISO12156	224		-0.79	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227		-----		-----	
1231		-----		-----	
1254	ISO12156	235.5		-0.48	
1259	ISO12156	253		0.00	
1266		-----		-----	
1272	ISO12156	233		-0.55	
1284		-----		-----	

1297		-----		-----	
1299	ISO12156	236		-0.46	
1316	ISO12156	253		0.00	
1347		-----		-----	
1348		-----		-----	
1356		-----		-----	
1370		-----		-----	
1385		-----		-----	
1395	ISO12156	261		0.22	
1409	ISO12156	226		-0.74	
1412		-----		-----	
1428	ISO12156	241		-0.33	
1430		-----		-----	
1457	ISO12156	274		0.58	
1459		-----		-----	
1476		-----		-----	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	ISO12156	258.5		0.15	
1490	ISO12156	255		0.06	
1520	ISO12156	308		1.51	
1521		-----		-----	
1528	ISO12156	259	C	0.17	first reported 359
1616	D6079	191	ex	-1.70	calculation procedure of test method is different then of ISO12156
1631	ISO12156	226		-0.74	
1634		-----		-----	
1635	ISO12156	263		0.28	
1710	ISO12156	221		-0.88	
1720		-----		-----	
1724	ISO12156	236		-0.46	
1730		-----		-----	
1740	ISO12156	258		0.14	
1807	ISO12156	238		-0.41	
1810	ISO12156	281		0.77	
1811	ISO12156	295		1.16	
1832		-----		-----	
1833	ISO12156	247		-0.16	
1834		-----		-----	
1849	ISO12156	230		-0.63	
1854	ISO12156	226		-0.74	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	ISO12156	230		-0.63	
1952	D6079	274	ex	0.58	calculation procedure of test method is different then of ISO12156
2129	ISO12156	352	C	2.72	first reported 362
2146		-----		-----	

normality	not OK
n	52
outliers	0
mean (n)	252.894
st.dev. (n)	37.2420
R(calc.)	104.278
R(ISO12156:04)	102.000



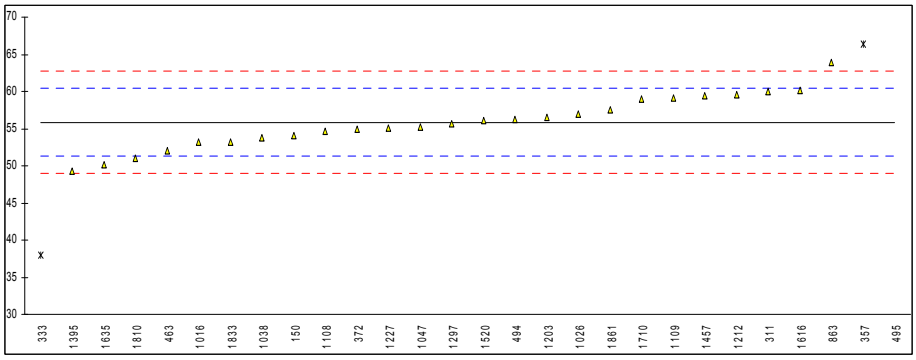


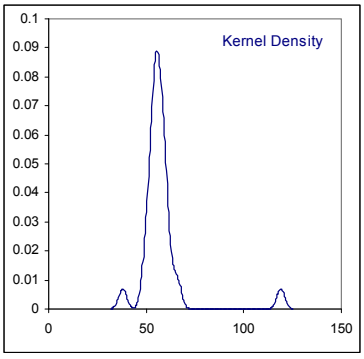
Determination of Total Nitrogen on sample #12020; result in mg/kg

lab	method	value	mark	z(targ)	remarks
150	D4629	54		-0.81	
228		-----		-----	
237		-----		-----	
238		-----		-----	
252		-----		-----	
311	D4629	60		1.80	
312		-----		-----	
323		-----		-----	
333	D4629	38	G(0.01)	-7.79	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
353		-----		-----	
357	D6069	66.4	ex	4.59	Application range of the test method is 0.2-2 mg N/kg
360		-----		-----	
369		-----		-----	
371		-----		-----	
372	D4629	55		-0.37	
391		-----		-----	
399		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447		-----		-----	
463	D4629	51.99		-1.69	
485		-----		-----	
488		-----		-----	
494	D4629	56.18		0.14	
495	D4629	119.0	G(0.01)	27.52	
541		-----		-----	
671		-----		-----	
704		-----		-----	
750		-----		-----	
781		-----		-----	
791		-----		-----	
863	D4629	63.9		3.50	
873		-----		-----	
874		-----		-----	
875		-----		-----	
904		-----		-----	
970		-----		-----	
974		-----		-----	
982		-----		-----	
1006		-----		-----	
1016	D4629	53.2		-1.16	
1017		-----		-----	
1026	D4629	57.0		0.50	
1033		-----		-----	
1038	D4629	53.7		-0.94	
1047	D4629	55.20		-0.29	
1059		-----		-----	
1065		-----		-----	
1081		-----		-----	
1108	D4629	54.7		-0.51	
1109	D4629	59.1		1.41	
1126		-----		-----	
1146		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	D4629	56.5		0.28	
1205		-----		-----	
1212	D4629	59.5		1.59	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227	D4629	55.1		-0.33	
1231		-----		-----	
1254		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1284		-----		-----	

1297	D4629	55.66		-0.09	
1299		-----		-----	
1316		-----		-----	
1347		-----		-----	
1348		-----		-----	
1356		-----		-----	
1370		-----		-----	
1385		-----		-----	
1395	D4629	49.28	C	-2.87	first reported 41
1409		-----		-----	
1412		-----		-----	
1428		-----		-----	
1430		-----		-----	
1457	D4629	59.4		1.54	
1459		-----		-----	
1476		-----		-----	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488		-----		-----	
1490		-----		-----	
1520	D4629	56.1		0.10	
1521		-----		-----	
1528		-----		-----	
1616	D4629	60.20		1.89	
1631		-----		-----	
1634		-----		-----	
1635	D4629	50.1		-2.51	
1710	D4629	59		1.37	
1720		-----		-----	
1724		-----		-----	
1730		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810	D4629	51		-2.12	
1811		-----		-----	
1832		-----		-----	
1833	D4629	53.2		-1.16	
1834		-----		-----	
1849		-----		-----	
1854		-----		-----	
1861	D4629	57.487		0.71	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948		-----		-----	
1952		-----		-----	
2129		-----		-----	
2146		-----		-----	

normality	OK
n	25
outliers	2
mean (n)	55.860
st.dev. (n)	3.4866
R(calc.)	9.763
R(D4629:10)	6.423



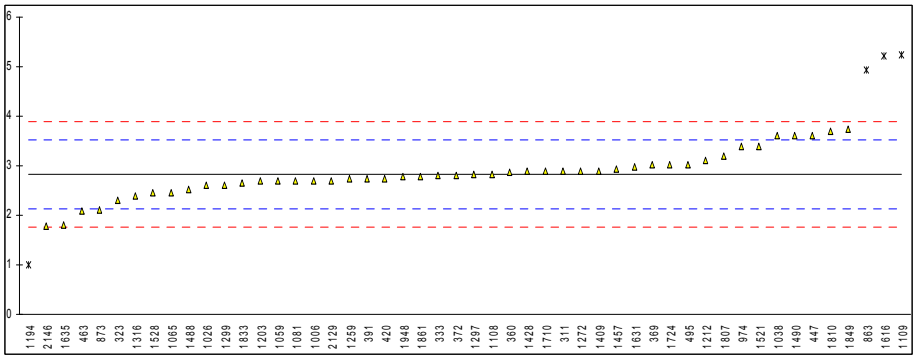


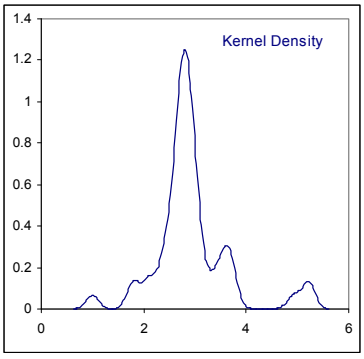
Determination of Poly-Aromatic Hydrocarbons on sample #12020; result in %M/M

lab	method	value	mark	z(targ)	remarks
150		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
252		-----		-----	
311	EN12916	2.9		0.21	
312		-----		-----	
323	EN12916	2.3		-1.49	
333	EN12916	2.8		-0.07	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
353		-----		-----	
357		-----		-----	
360	EN12916	2.88		0.15	
369	EN12916	3.02		0.55	
371		-----		-----	
372	EN12916	2.8		-0.07	
391	EN12916	2.74		-0.24	
399		-----		-----	
420	EN12916	2.75		-0.22	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	EN12916	3.60		2.19	
463	EN12916	2.08		-2.12	
485		-----		-----	
488		-----		-----	
494		-----		-----	
495	EN12916	3.03		0.58	
541		-----		-----	
671		-----		-----	
704		-----		-----	
750		-----		-----	
781		-----		-----	
791		-----		-----	
863	EN12916	4.93	G(0.01)	5.96	
873	EN12916	2.1		-2.06	
874		-----		-----	
875		-----		-----	
904		-----		-----	
970		-----		-----	
974	IP391	3.4	C	1.63	first reported 4.41
982		-----		-----	
1006	D6591	2.7		-0.36	
1016		-----		-----	
1017		-----		-----	
1026	EN12916	2.6	C	-0.64	first reported 21.0
1033		-----		-----	
1038	IP391	3.6		2.19	
1047		-----		-----	
1059	EN12916	2.7		-0.36	
1065	IP391	2.45		-1.07	
1081	EN12916	2.7		-0.36	
1108	EN12916	2.82		-0.02	
1109	D6591	5.23	DG(0.01)	6.81	
1126		-----		-----	
1146		-----		-----	
1194	INH-EN12916	1	G(0.01)	-5.18	
1199		-----		-----	
1203	EN12916	2.7		-0.36	
1205		-----		-----	
1212	EN12916	3.10		0.78	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227		-----		-----	
1231		-----		-----	
1254		-----		-----	
1259	EN12916	2.729		-0.28	
1266		-----		-----	
1272	EN12916	2.9		0.21	
1284		-----		-----	

1297	EN12916	2.82		-0.02	
1299	EN12916	2.6		-0.64	
1316	IP391	2.4		-1.21	
1347		-----		-----	
1348		-----		-----	
1356		-----		-----	
1370		-----		-----	
1385		-----		-----	
1395		-----		-----	
1409	EN12916	2.9		0.21	
1412		-----		-----	
1428	EN12916	2.90		0.21	
1430		-----		-----	
1457	EN12916	2.93		0.29	
1459		-----		-----	
1476		-----		-----	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	EN12916	2.526	C	-0.85	first reported 1.526
1490	EN12916	3.6	C	2.19	first reported 1.6
1520		-----		-----	
1521	EN12916	3.40		1.63	
1528	EN12916	2.45		-1.07	
1616	D6591	5.21	DG(0.01)	6.76	
1631	EN12916	2.98		0.44	
1634		-----		-----	
1635	EN12916	1.8		-2.91	
1710	EN12916	2.9		0.21	
1720		-----		-----	
1724	EN12916	3.02		0.55	
1730		-----		-----	
1740		-----		-----	
1807	EN12916	3.2		1.06	
1810	EN12916	3.7		2.48	
1811		-----		-----	
1832		-----		-----	
1833	EN12916	2.66		-0.47	
1834		-----		-----	
1849	EN12916	3.75		2.62	
1854		-----		-----	
1861	EN12916	2.791		-0.10	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	EN12916	2.79	C	-0.10	first reported 4.37
1952		-----		-----	
2129	EN12916	2.7038		-0.35	
2146	EN12916	1.79		-2.94	

normality	OK
n	46
outliers	4
mean (n)	2.8263
st.dev. (n)	0.44085
R(calc.)	1.2344
R(EN12916:06)	0.9879



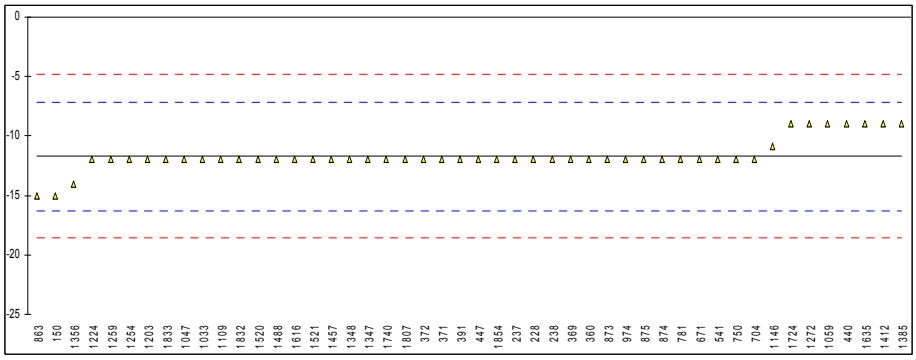


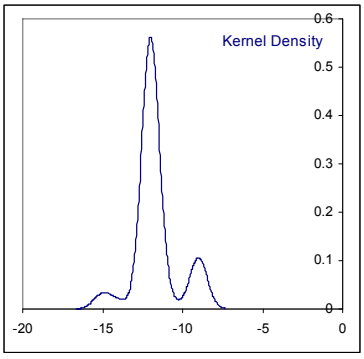
Determination of Pour Point, Manual on sample #12020; result in °C

lab	method	value	mark	z(targ)	remarks
150	D97	-15		-1.43	
228	D97	-12		-0.13	
237	D97	-12		-0.13	
238	D97	-12		-0.13	
252		-----		-----	
311		-----		-----	
312		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
353		-----		-----	
357		-----		-----	
360	ISO3016	-12		-0.13	
369	ISO3016	-12		-0.13	
371	ISO3016	-12		-0.13	
372	ISO3016	-12		-0.13	
391	ISO3016	-12		-0.13	
399		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440	IP15	-9.0		1.18	
446		-----		-----	
447	ISO3016	-12		-0.13	
463		-----		-----	
485		-----		-----	
488		-----		-----	
494		-----		-----	
495		-----		-----	
541	D97	-12		-0.13	
671	D97	-12		-0.13	
704	ISO3016	-12		-0.13	
750	D97	-12		-0.13	
781	ISO3016	-12		-0.13	
791		-----		-----	
863	ISO3016	-15		-1.43	
873	D97	-12		-0.13	
874	D97	-12		-0.13	
875	D97	-12		-0.13	
904		-----		-----	
970		-----		-----	
974	D97	-12		-0.13	
982		-----		-----	
1006		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP15	-12		-0.13	
1038		-----		-----	
1047	ISO3016	-12		-0.13	
1059	ISO3016	-9		1.18	
1065		-----		-----	
1081		-----		-----	
1108		-----		-----	
1109	D97	-12		-0.13	
1126		-----		-----	
1146	ISO3016	-10.9		0.35	
1194		-----		-----	
1199		-----		-----	
1203	ISO3016	-12		-0.13	
1205		-----		-----	
1212		-----		-----	
1215		-----		-----	
1218		-----		-----	
1224	ISO3016	-12		-0.13	
1227		-----		-----	
1231		-----		-----	
1254	ISO3016	-12		-0.13	
1259	ISO3016	-12		-0.13	
1266		-----		-----	
1272	ISO3016	-9		1.18	
1284		-----		-----	

1297		-----		-----	
1299		-----		-----	
1316		-----		-----	
1347	D97	-12		-0.13	
1348	D97	-12		-0.13	
1356	ISO3016	-14	C	-1.00	first reported -16
1370		-----		-----	
1385	D97	-9		1.18	
1395		-----		-----	
1409		-----		-----	
1412	D97	-9		1.18	
1428		-----		-----	
1430		-----		-----	
1457	ISO3016	-12		-0.13	
1459		-----		-----	
1476		-----		-----	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	ISO3016	-12		-0.13	
1490		-----		-----	
1520	ISO3016	-12		-0.13	
1521	ISO3016	-12		-0.13	
1528		-----		-----	
1616	D97	-12		-0.13	
1631		-----		-----	
1634		-----		-----	
1635	ISO3016	-9		1.18	
1710		-----		-----	
1720		-----		-----	
1724	ISO3016	-9		1.18	
1730		-----		-----	
1740	ISO3016	-12		-0.13	
1807	ISO3016	-12		-0.13	
1810		-----		-----	
1811		-----		-----	
1832	ISO3016	-12		-0.13	
1833	ISO3016	-12		-0.13	
1834		-----		-----	
1849		-----		-----	
1854	ISO3016	-12		-0.13	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948		-----		-----	
1952		-----		-----	
2129		-----		-----	
2146		-----		-----	

normality	not OK
n	48
outliers	0
mean (n)	-11.706
st.dev. (n)	1.3214
R(calc.)	3.700
R(ISO3016:94)	6.430



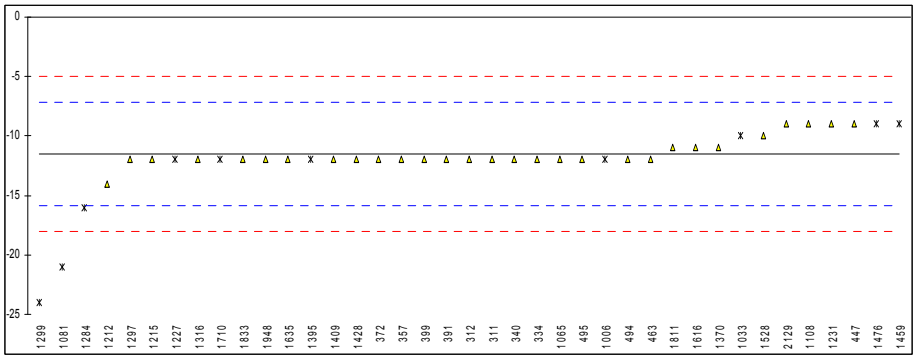


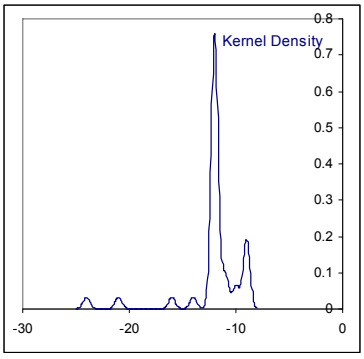
Determination of Pour Point, Automated on sample #12020; result in °C

lab	method	value	mark	z(targ)	remarks
150		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
252		-----		-----	
311	D5950	-12		-0.24	
312	D5950	-12		-0.24	
323		-----		-----	
333		-----		-----	
334	D5950	-12		-0.24	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340	D5950	-12.0		-0.24	
353		-----		-----	
357	D5950	-12		-0.24	
360		-----		-----	
369		-----		-----	
371		-----		-----	
372	D5950	-12		-0.24	
391	D5950	-12		-0.24	
399	D5950	-12		-0.24	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	D5950	-9		1.14	
463	D6892	-12		-0.24	
485		-----		-----	
488		-----		-----	
494	D6892	-12		-0.24	
495	D5950	-12		-0.24	
541		-----		-----	
671		-----		-----	
704		-----		-----	
750		-----		-----	
781		-----		-----	
791		-----		-----	
863		-----		-----	
873		-----		-----	
874		-----		-----	
875		-----		-----	
904		-----		-----	
970		-----		-----	
974		-----		-----	
982		-----		-----	
1006	D97	-12	ex	-0.24	result excluded as reported test method is a manual method
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP15	-10	ex	0.68	result excluded as reported test method is a manual method
1038		-----		-----	
1047		-----		-----	
1059		-----		-----	
1065	D5950	-12		-0.24	
1081	D5950	-21	G(0.01)	-4.37	
1108	D5950	-9		1.14	
1109		-----		-----	
1126		-----		-----	
1146		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203		-----		-----	
1205		-----		-----	
1212	D7346	-14		-1.16	
1215	D5950	-12.0		-0.24	
1218		-----		-----	
1224		-----		-----	
1227	D97	-12	ex	-0.24	result excluded as reported test method is a manual method
1231	D5950	-9		1.14	
1254		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1284	D5950	-16.0	G(0.05)	-2.07	

1297	D5950	-12		-0.24	
1299	D5950	-24	G(0.01)	-5.75	
1316	D5950	-12.0		-0.24	
1347		-----		-----	
1348		-----		-----	
1356		-----		-----	
1370	D5950	-11		0.22	
1385		-----		-----	
1395	D97	-12	ex	-0.24	result excluded as reported test method is a manual method
1409	D5950	-12		-0.24	
1412		-----		-----	
1428	D6749	-12		-0.24	
1430		-----		-----	
1457		-----		-----	
1459	D97	-9	ex	1.14	result excluded as reported test method is a manual method
1476	ISO3016	-9	ex	1.14	result excluded as reported test method is a manual method
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488		-----		-----	
1490		-----		-----	
1520		-----		-----	
1521		-----		-----	
1528	D5950	-10		0.68	
1616	D6749	-11		0.22	
1631		-----		-----	
1634		-----		-----	
1635	D5950	-12		-0.24	
1710	ISO3016	-12	ex	-0.24	result excluded as reported test method is a manual method
1720		-----		-----	
1724		-----		-----	
1730		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811	D5950	-11		0.22	
1832		-----		-----	
1833	D5950	-12		-0.24	
1834		-----		-----	
1849		-----		-----	
1854		-----		-----	
1861		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1948	D5950	-12		-0.24	
1952		-----		-----	
2129	D5950	-9		1.14	
2146		-----		-----	

normality	not OK
n	29
outliers	3
mean (n)	-11.483
st.dev. (n)	1.1838
R(calc.)	3.315
R(D5950:07)	6.100



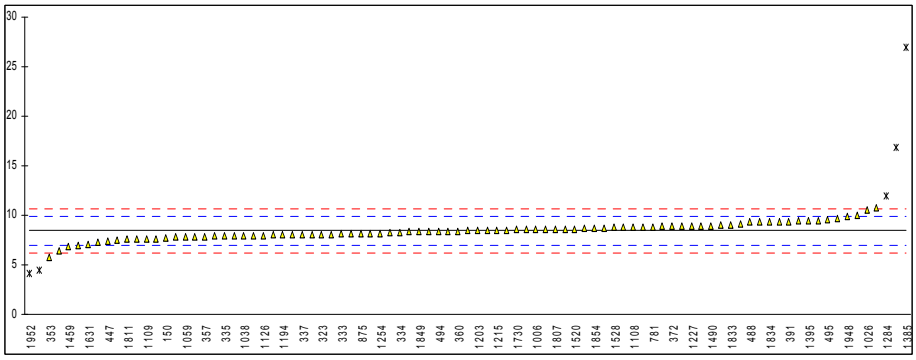


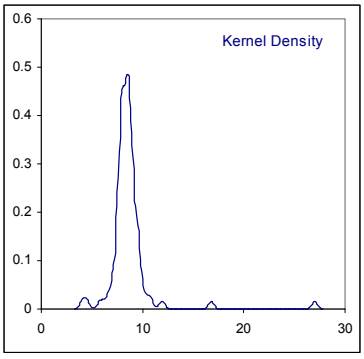
Determination of Sulphur Content on sample #12020; result in mg/kg

lab	method	value	mark	z(targ)	remarks
150	D5453	7.7		-0.99	
228		-----		-----	
237	D4294	9.5		1.45	
238		-----		-----	
252		-----		-----	
311	ISO20846	8.5		0.10	
312	D5453	7.9		-0.72	
323	ISO20846	8.0		-0.58	
333	ISO20846	8.1		-0.45	
334	ISO20846	8.3		-0.17	
335	ISO20846	7.9		-0.72	
337	ISO20846	8.0		-0.58	
338	ISO20846	7.89		-0.73	
340	ISO20846	8.02		-0.55	
353	IP531	5.81		-3.55	
357	ISO20846	7.87		-0.76	
360	ISO20846	8.41		-0.02	
369	ISO20884	7.6	C	-1.12	first reported 5.1
371	ISO20846	8.38		-0.07	
372	ISO20846	8.9		0.64	
391	ISO20846	9.4		1.32	
399	ISO20846	9.0		0.78	
420	ISO20846	9.09		0.90	
430		-----		-----	
431		-----		-----	
440	D5453	7.86		-0.77	
446		-----		-----	
447	ISO20846	7.44		-1.34	
463	ISO20846	8.90		0.64	
485		-----		-----	
488	ISO20846	9.3		1.18	
494	ISO20846	8.38		-0.07	
495	ISO20846	9.6		1.59	
541	ISO20846	8.0		-0.58	
671	D5453	7.79		-0.87	
704	ISO20846	7.29		-1.54	
750		-----		-----	
781	ISO20846	8.81		0.52	
791		-----		-----	
863	D5453	8.90		0.64	
873	D4294	<150		-----	
874	ISO8754	<20		-----	
875	D2622	8.1		-0.45	
904	ISO20846	7.0		-1.94	
970	D4294	<17		-----	
974		-----		-----	
982		-----		-----	
1006	D5453	8.6		0.23	
1016		-----		-----	
1017		-----		-----	
1026	ISO20884	10.5	C	2.81	first reported 11
1033		-----		-----	
1038	D2622	7.9		-0.72	
1047	ISO20846	8.8		0.50	
1059	ISO20846	7.8		-0.85	
1065		-----		-----	
1081	ISO20846	8.0		-0.58	
1108	ISO20846	8.8		0.50	
1109	D7039	7.6		-1.12	
1126	ISO20846	7.95		-0.65	
1146	in house	<10		-----	
1194	INH-D7220	8		-0.58	
1199		-----		-----	
1203	ISO20846	8.5		0.10	
1205	ISO20884	8.0		-0.58	
1212		-----		-----	
1215	D5453	8.50		0.10	
1218	ISO20886	7.55		-1.19	
1224		-----		-----	
1227	D5453	8.9		0.64	
1231		-----		-----	
1254	ISO20846	8.162		-0.36	
1259	ISO20846	8.69		0.35	
1266	ISO20846	8.80		0.50	
1272	ISO20846	8.3		-0.17	
1284	D5453	11.93	G(0.05)	4.75	

1297	D5453	8.72		0.40
1299	ISO20846	8.6		0.23
1316		-----		-----
1347	D4294	16.8	G(0.01)	11.36
1348	D4294	<50		-----
1356	D8754	<100		-----
1370	ISO20846	6.373		-2.79
1385	D4294	27	G(0.01)	25.19
1395	ISO20846	9.5		1.45
1409	ISO20846	9.4		1.32
1412		-----		-----
1428	ISO20846	9.7		1.73
1430		-----		-----
1457	ISO20846	8.61		0.25
1459	ISO20884	6.8		-2.21
1476	ISO20847	4.51	G(0.01)	-5.32
1482	D5453	8.1		-0.45
1483		-----		-----
1484		-----		-----
1488		-----		-----
1490	ISO20846	8.91		0.65
1520	ISO20846	8.63		0.27
1521	ISO20846	8.86		0.59
1528	D5453	8.775		0.47
1616	D5453	10.80		3.22
1631	ISO20846	7.11		-1.79
1634		-----		-----
1635	ISO20846	9.98		2.10
1710	ISO20846	8.6		0.23
1720	D5453	9.3		1.18
1724	ISO20846	8.34		-0.12
1730	ISO20846	8.6		0.23
1740	ISO20846	8.40		-0.04
1807	ISO20846	8.6		0.23
1810	ISO20846	8.5		0.10
1811	ISO20846	7.59		-1.14
1832	ISO20846	7.95		-0.65
1833	ISO20846	9		0.78
1834	ISO20846	9.4		1.32
1849	ISO20846	8.36		-0.09
1854	ISO20846	8.7		0.37
1861	D5453	8.531		0.14
1936	ISO20846	8.1		-0.45
1937		-----		-----
1938		-----		-----
1948	ISO20846	9.91		2.01
1952	D5453	4.08	G(0.01)	-5.90
2129	ISO20846	7.64		-1.07
2146	ISO20846	9.46		1.40

normality	OK
n	86
outliers	5
mean (n)	8.428
st.dev. (n)	0.8218
R(calc.)	2.301
R(ISO20846:04)	2.064



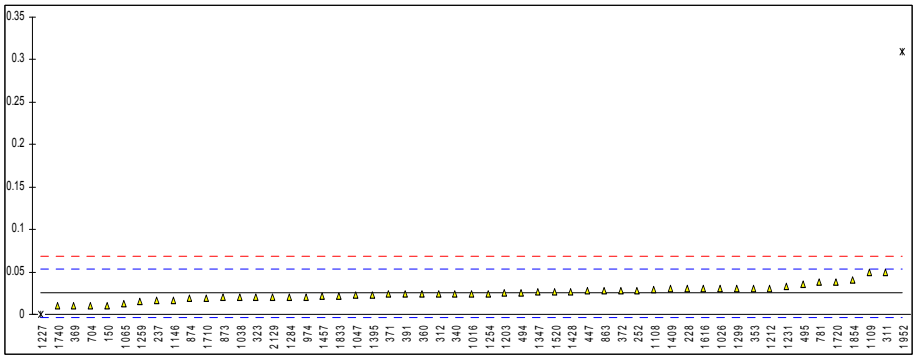


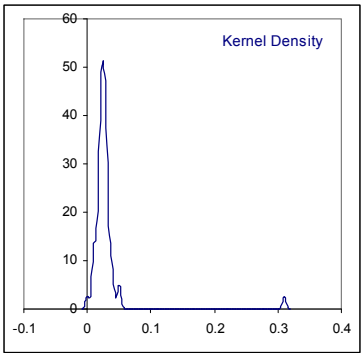
Determination of Total Acid Number (TAN) on sample #12020; result in mgKOH/g

lab	method	value	mark	z(targ)	remarks
150	D974	0.01		-1.06	
228	D974	0.03		0.34	
237	D974	0.01591		-0.65	
238		-----		-----	
252	D974	0.0284		0.22	
311	D974	0.05		1.74	
312	D974	0.024		-0.08	
323	D974	0.02		-0.36	
333		-----		-----	
334		-----		-----	
335		-----		-----	
337		-----		-----	
338		-----		-----	
340	D974	0.024		-0.08	
353	IP177	0.030		0.34	
357	D664	<0.1		-----	
360	D974	0.024		-0.08	
369	D974	0.010		-1.06	
371	D974	0.024		-0.08	
372	D974	0.028		0.20	
391	D974	0.024		-0.08	
399		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
446		-----		-----	
447	D974	0.028		0.20	
463		-----		-----	
485		-----		-----	
488		-----		-----	
494	D664	0.025		-0.01	
495	D974	0.036		0.76	
541	D664	<0.1		-----	
671		-----		-----	
704	D974	0.01		-1.06	
750		-----		-----	
781	D974	0.038		0.90	
791		-----		-----	
863	D974	0.028		0.20	
873	D974	0.02		-0.36	
874	D974	0.019		-0.43	
875		-----		-----	
904		-----		-----	
970		-----		-----	
974	D974	0.0204		-0.34	
982		-----		-----	
1006		-----		-----	
1016	ISO6618	0.024		-0.08	
1017		-----		-----	
1026	D974	0.03		0.34	
1033	D664	<0.01		-----	
1038	D664	0.02		-0.36	
1047	D974	0.023		-0.15	
1059	ISO6619	<0.05		-----	
1065	D664	0.0124		-0.90	
1081		-----		-----	
1108	D664	0.029		0.27	
1109	D974	0.050		1.74	
1126		-----		-----	
1146	D664	0.017		-0.57	
1194		-----		-----	
1199		-----		-----	
1203	D974	0.025		-0.01	
1205		-----		-----	
1212	D974	0.031		0.41	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227	D974	0	ex	-1.76	result excluded; zero is not a real value
1231	D974	0.033		0.55	
1254	D974	0.0241		-0.08	
1259	D974	0.0157		-0.67	
1266		-----		-----	
1272		-----		-----	
1284	D664	0.0203		-0.34	

1297		-----		-----
1299	D974	0.03		0.34
1316		-----		-----
1347	D974	0.0263		0.08
1348		-----		-----
1356	D664	<0.05		-----
1370		-----		-----
1385		-----		-----
1395	D974	0.023		-0.15
1409	D974	0.03		0.34
1412		-----		-----
1428	D664	0.027		0.13
1430		-----		-----
1457	D974	0.022		-0.22
1459		-----		-----
1476		-----		-----
1482		-----		-----
1483		-----		-----
1484		-----		-----
1488		-----		-----
1490		-----		-----
1520	D974	0.0265		0.09
1521		-----		-----
1528		-----		-----
1616	D974	0.03		0.34
1631		-----		-----
1634		-----		-----
1635		-----		-----
1710	ISO6618	0.0194		-0.41
1720	D974	0.038		0.90
1724		-----		-----
1730		-----		-----
1740	D664	0.01		-1.06
1807		-----		-----
1810		-----		-----
1811		-----		-----
1832		-----		-----
1833	D974	0.022		-0.22
1834		-----		-----
1849		-----		-----
1854	D974	0.04		1.04
1861		-----		-----
1936		-----		-----
1937		-----		-----
1938		-----		-----
1948		-----		-----
1952	D664	0.31	G(0.01)	19.94
2129	D974	0.0200		-0.36
2146		-----		-----

normality	not OK
n	51
outliers	1
mean (n)	0.0252
st.dev. (n)	0.00869
R(calc.)	0.0243
R(D974:08)	0.0400



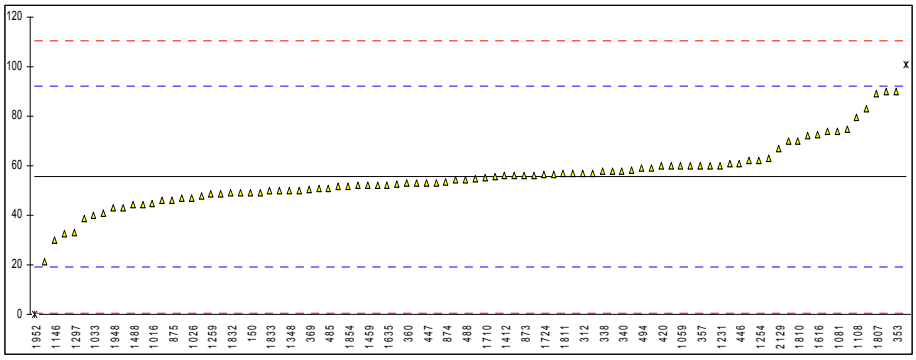


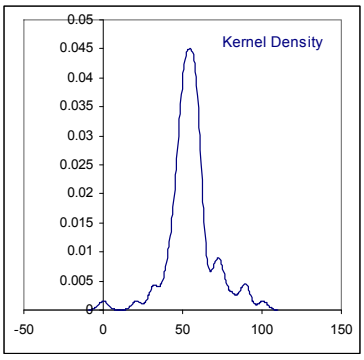
Determination of Water Content on sample #12020; result in mg/kg

lab	method	value	mark	z(targ)	remarks
150	E1064	49		-0.36	
228		-----		-----	
237	D6304	44.30		-0.62	
238	D95	<500		-----	
252	D95	<500		-----	
311	ISO12937	50		-0.30	
312	ISO12937	57		0.08	
323	ISO12937	50		-0.30	
333		-----		-----	
334	ISO12937	53		-0.14	
335	ISO12937	54.4		-0.06	
337	ISO12937	60		0.24	
338	ISO12937	57.75		0.12	
340	ISO12937	58		0.13	
353	IP439	90		1.88	
357	ISO12937	60		0.24	
360	ISO12937	52.9		-0.15	
369	ISO12937	50.5		-0.28	
371	ISO12937	61		0.30	
372	ISO12937	60		0.24	
391	ISO12937	90		1.88	
399	ISO12937	75		1.06	
420	ISO12937	60		0.24	
430		-----		-----	
431		-----		-----	
440	IP438	62.0		0.35	
446	ISO12937	61		0.30	
447	ISO12937	53.1		-0.14	
463	D6304	47.0		-0.47	
485	ISO12937	51.0		-0.25	
488	ISO12937	54.4		-0.06	
494	ISO12937	59		0.19	
495	ISO12937	52		-0.20	
541	ISO12937	60		0.24	
671		-----		-----	
704	ISO12937	57.0		0.08	
750		-----		-----	
781	ISO12937	57		0.08	
791		-----		-----	
863	D6304	74.0		1.01	
873	D6304	56		0.02	
874	D6304	53.34		-0.12	
875	D6304	46		-0.52	
904		-----		-----	
970	D6304	51		-0.25	
974	D6304	48		-0.41	
982		-----		-----	
1006	ISO12937	100.72	G(0.05)	2.47	
1016	ISO12937	44.8		-0.59	
1017		-----		-----	
1026	D1744	47		-0.47	
1033	IP438	40.07		-0.85	
1038		-----		-----	
1047	ISO12937	56		0.02	
1059	ISO12937	60		0.24	
1065	D6304	72.03		0.90	
1081	D6304	74		1.01	
1108	ISO12937	79.5		1.31	
1109	D6304	38.5		-0.93	
1126		-----		-----	
1146	D6304	30		-1.40	
1194		-----		-----	
1199		-----		-----	
1203	ISO12937	53.11		-0.13	
1205		-----		-----	
1212		-----		-----	
1215		-----		-----	
1218		-----		-----	
1224		-----		-----	
1227	D6304	32.6		-1.25	
1231	ISO12937	60	C	0.24	first reported 0.006
1254	ISO12937	62.15		0.36	
1259	ISO12937	48.8		-0.37	
1266	ISO12937	49.0		-0.36	
1272	ISO12937	52.7		-0.16	
1284	D6304	59.07		0.19	

1297	D6304	32.9		-1.24	
1299	ISO12937	49.0		-0.36	
1316	D6304	41		-0.80	
1347	D95	nil		-----	
1348	D95	50	C	-0.30	first reported 0.005
1356	ISO3733	<500		-----	
1370	ISO12937	56.575		0.05	
1385	D95	nil		-----	
1395	ISO12937	52		-0.20	
1409	ISO12937	70		0.79	
1412	D6304	56		0.02	
1428	ISO12937	55		-0.03	
1430		-----		-----	
1457	ISO12937	63		0.41	
1459	ISO12937	52		-0.20	
1476	ISO12937	46.0		-0.52	
1482		-----		-----	
1483		-----		-----	
1484		-----		-----	
1488	ISO12937	44.17		-0.62	
1490	ISO12937	21.1		-1.88	
1520	ISO12937	56.1		0.03	
1521	ISO12937	83		1.50	
1528	ISO12937	48.8		-0.37	
1616	UOP481	72.61		0.93	
1631	ISO12937	58.3		0.15	
1634		-----		-----	
1635	ISO12937	52		-0.20	
1710	ISO12937	55.4		-0.01	
1720		-----		-----	
1724	ISO12937	56.5		0.05	
1730		-----		-----	
1740	ISO12937	55.85		0.02	
1807	ISO12937	89		1.83	
1810	ISO12937	70		0.79	
1811	ISO12937	57		0.08	
1832	ISO12937	48.95		-0.36	
1833	ISO12937	49.8		-0.32	
1834		-----		-----	
1849	ISO12937	43		-0.69	
1854	ISO12937	51.8		-0.21	
1861	D6304	51.63		-0.22	
1936	ISO12937	58		0.13	
1937		-----		-----	
1938		-----		-----	
1948	ISO12937	42.9981		-0.69	
1952	D95	0	ex	-3.04	result excluded; zero is not a real value for ISO12937 (it is for D95)
2129	ISO12937	67		0.62	
2146		-----		-----	

normality	not OK
n	88
outliers	1
mean (n)	55.574
st.dev. (n)	12.0628
R(calc.)	33.776
R(ISO12937:00)	51.267





Determination of Distillation (automated) on sample #12020; result in °C

lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
150	D86-A	171.7		222.4		274.8		329.8		344.7		355.4	
228		-----		-----		-----		-----		-----		-----	
237		-----		-----		-----		-----		-----		-----	
238		-----		-----		-----		-----		-----		-----	
252		-----		-----		-----		-----		-----		-----	
311	ISO3405-A	178.3		219.2	C	274.6		331.7		345.4		357.8	
312	D86-A	179.8		222.2		275.3		329.8		343.9		353.2	
323	ISO3405-A	184.7		223.7		275.5		328.4		342.3		350.3	
333		-----		-----		-----		-----		-----		-----	
334	ISO3405-A	177.1		219.6		274.3		330.2		345.3		355.3	
335	D86-A	174.9		218.7		274.5		331.1		348.6		355.4	
337	ISO3405-A	177.5		217.8		274.4		330.8		345.2		353.5	
338	ISO3405-A	184.8		220.6		275.9		330.0		343.0		358.6	
340	ISO3405-A	182.5		221.2		276.0		332.1		348.5		353.2	
353	IP123-A	179.0		220.5		275.5		330.6		344.7		358.8	
357	ISO3405-A	180.7		221.9		275.1		329.4		343.0		353.8	
360	ISO3405-A	179.3		223.0		275.2		329.1		342.7		353.0	
369	ISO3405-A	176.0		220.5		274.1		330.2		344.7		356.4	
371	ISO3405-A	175.9		223.0		275.1		331.5		346.5		356.5	
372	ISO3405-A	179.0		223.0		275.4		330.0		344.0		355.0	
391	ISO3405-A	181.9		218.4		273.2		328.6		342.6		354.7	
399	ISO3405-A	187.0		224.9		273.9		328.3		342.7		355.4	
420	ISO3405-A	176.0		221.0		274.3		329.7		344.3		354.5	
430		-----		-----		-----		-----		-----		-----	
431		-----		220.7		272.9		329.0		346.0		-----	
440	D86-A	183.8		222.3		275.3		331.1		345.5		358.6	
446	D86-A	174.6		222.1		274.0		330.1		344.2		354.1	
447	ISO3405-A	181.0		222.8		275.2		331.3		345.9		357.4	
463	ISO3405-A	177.0		222.8		274.5		332.5		346.8		357.8	
485	ISO3405-A	176.70		217.60		273.40		328.10		341.80		352.00	
488	ISO3405-A	175.7		222.1		272.4		328.8		343.6		354.0	
494	ISO3405-A	178.1		220.5		274.5		328.9		343.0		355.1	
495	ISO3405-A	180.3		220.1		273.7		328.1		341.4		355.6	
541		-----		-----		-----		-----		-----		-----	
671	D86-A	175.9		220.6		271.4	G(0.05)	325.5		340.5		352.4	
704		-----		-----		-----		-----		-----		-----	
750		-----		-----		-----		-----		-----		-----	
781	ISO3405-A	178.7		221.5		274.9		330.8		346.8		356.0	
791		-----		-----		-----		-----		-----		-----	
863		-----		-----		-----		-----		-----		-----	
873	D86-A	179.0		221.0		274.0		329.0		344.0		352.5	
874		-----		-----		-----		-----		-----		-----	
875		-----		-----		-----		-----		-----		-----	
904	ISO3405-A	177.4		220.8		274.4		328.6		341.7		354.2	
970		-----		-----		-----		-----		-----		-----	
974	D86-A	172.5		217.1		273.5		329.3		343.3		355.4	
982		-----		-----		-----		-----		-----		-----	
1006	D86-A	177.6		220.5		275.4		331.5		344.7		354.4	
1016		-----		-----		-----		-----		-----		-----	
1017		-----		-----		-----		-----		-----		-----	
1026	ISO3405-A	169.7		220.0		274.3		330.5		345.1		355.7	
1033	IP123-A-	185.1		224.3		274.1	C	330.2	C	343.9	C	358.4	
1038	D86-A	180.4		221.3		274.7		328.3		342.2		353.8	
1047	ISO3405-A	183.1		223.5		276.2		332.8		349.0		354.0	
1059	ISO3405-A	184.9		223.2		275.6		330.8		345.1		358.0	
1065	D86-A	176.1		222.1		276.0		332.1		346.2		353.1	
1081	D86-A	181		222.2		275.5		330.3		345.1		354.2	
1108	ISO3405-A	175.2		222.3		276.5		334.1		350.6		356.2	
1109	D86-A	184.8		222.0		275.8		330.4		345.4		353.4	
1126	D7213-A	178.5		221.4		275.5		332.8		346.0		358.6	
1146		-----		-----		-----		-----		-----		-----	
1194	INH-D86-A	164.9	G(0.01)	213.3	G(0.01)	275.2		330.5		344.8		351.1	
1199		-----		-----		-----		-----		-----		-----	
1203	ISO3405-A	176.2		222.6		276.3		332.3		345.9		353.1	
1205	D86-A	177.9		220.3		274.0		327.6		340.7		353.8	
1212		-----		-----		-----		-----		-----		-----	
1215	D86-A	180.55		221.20		274.40		328.20		341.45		352.95	
1218		-----		-----		-----		-----		-----		-----	
1224		-----		-----		-----		-----		-----		-----	
1227	D86-A	179.8	C	219.3		275.1		331.7		347.7		355.3	
1231	D86-A	179.65		221.55		274.80		329.10		343.00		-----	
1254	ISO3405-A	176.9		222.2		274.8		330.6		345.5		355.4	
1259	ISO3405-A	175.5		221.3		274.3		327.3		338.7		354.2	
1266	ISO3405-A	182.6		221.2		275.4		332.5		348.4		355.2	
1272	ISO3405-A	176.2		222.7		276.0		331.1		348.1		356.9	
1284	D86-A	176.3		221.5		275.2		331.0		346.0		355.5	
1297		-----		-----		-----		-----		-----		-----	
1299	ISO3405-A	178.1		221.0		274.4		330.0		345.1		357.3	

1316	D86-A	177.1		222.9		275.7	331.9	348.4	356.1
1347		-----		-----		-----	-----	-----	-----
1348		-----		-----		-----	-----	-----	-----
1356		-----		-----		-----	-----	-----	-----
1370	ISO3405-A	187.63		219.55		274.93	329.38	344.30	354.20
1385		-----		-----		-----	-----	-----	-----
1395		-----		-----		-----	-----	-----	-----
1409	ISO3405-A	180.4		222.5		275.7	331.3	346.5	355.7
1412		-----		-----		-----	-----	-----	-----
1428	ISO3405-A	180.0		222.3		275.4	329.2	342.4	353.8
1430		-----		-----		-----	-----	-----	-----
1457	ISO3405-A	182.0		223.3		276.6	330.4	345.2	356.2
1459	ISO3405-A	176.8		222.1		274.5	328.1	341.7	350.4
1476	ISO3405-A	173.85		220.2		273.7	326.6	338.85	350.2
1482		-----		-----		-----	-----	-----	-----
1483		-----		-----		-----	-----	-----	-----
1484		-----		-----		-----	-----	-----	-----
1488		-----		-----		-----	-----	-----	-----
1490	ISO3405	176.2		221.0		273.5	328.6	342.9	352.4
1520		-----		-----		-----	-----	-----	-----
1521	ISO3405-A	176.4		222.2		275.5	331.4	347.1	356.4
1528	ISO3405-A	181.5		224.6	C	276.9	331.7	346.6	356.5
1616		-----		-----		-----	-----	-----	-----
1631	ISO3405-A	177.8		222.0		275.5	330.6	345.3	357.9
1634		-----		-----		-----	-----	-----	-----
1635		-----		-----		-----	-----	-----	-----
1710	ISO3405	177.1		224.2		275.5	330.4	345.7	355.8
1720	D86-A	184.4		226.2		276.1	331.6	346.8	357.9
1724	ISO3405-A	176.4		223.2		275	330.7	346	356.5
1730		-----		-----		-----	-----	-----	-----
1740	ISO3405-A	178.3		223.2		274.7	330.2	345.0	356.5
1807	ISO3405-A	179.8		220.9		275.0	330.0	344.8	355.8
1810	ISO3405-A	182.3		221.8		274.4	328.0	340.5	354.6
1811	ISO3405-A	179.5		221.6		274.7	329.8	343.4	355.5
1832	ISO3405-A	175.6		222.8		275.0	330.9	346.7	356.4
1833	ISO3405-A	179.6		221.1		274.3	329.9	345.1	358.7
1834	ISO3405-A	185.9	C	225.0		276.5	331.0	346.1	359.2
1849	ISO3405-A	178.6		222.5		274.6	329.2	342.6	355.7
1854	ISO3405-A	176.7		223.3		275.3	330.4	344.9	356.4
1861		-----		-----		-----	-----	-----	-----
1936	ISO3405-A	178.1		221.3		273.5	328.0	340.8	355.2
1937		-----		-----		-----	-----	-----	-----
1938		-----		-----		-----	-----	-----	-----
1948	ISO3405-A	181.4		223.6		274.6	326.9	342.4	352.4
1952	D86-A	180.2		221.3		275.7	330.9	346.1	356.7
2129	ISO3405-A	181.6		222.3		274.4	329.2	342.8	355.7
2146	ISO3405-A	181.6		222.1		275.2	333.4	350.1	354.5
	normality	OK		OK		OK	OK	OK	OK
	n	81		82		82	83	83	81
	outliers	1		1		1	0	0	0
	mean (n)	179.008		221.711		274.899	330.094	344.630	355.182
	st.dev. (n)	3.4679		1.65184		0.8803	1.5894	2.3789	2.0483
	R(calc.)	9.710		4.625		2.465	4.450	6.661	5.735
	R(ISO3405:09)	9.845		4.878		2.970	4.951	8.650	7.100

Originally reported test results:

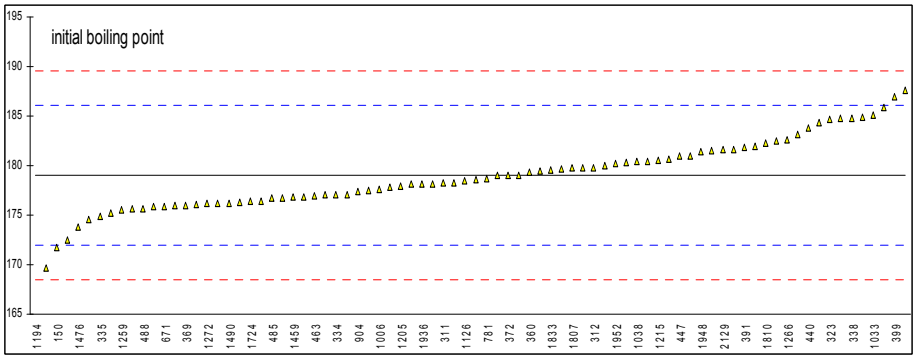
laboratory 311: 213.6
laboratory 1033: 277.6, 337.8, 356.9
laboratory 1227: 189.8
laboratory 1528: 226.6
laboratory 1834: 189.5

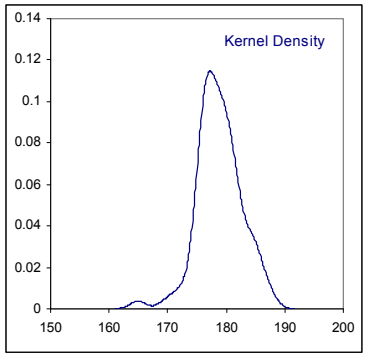
Determination of Distillation (automated) continued on sample #12020; result in %V/V

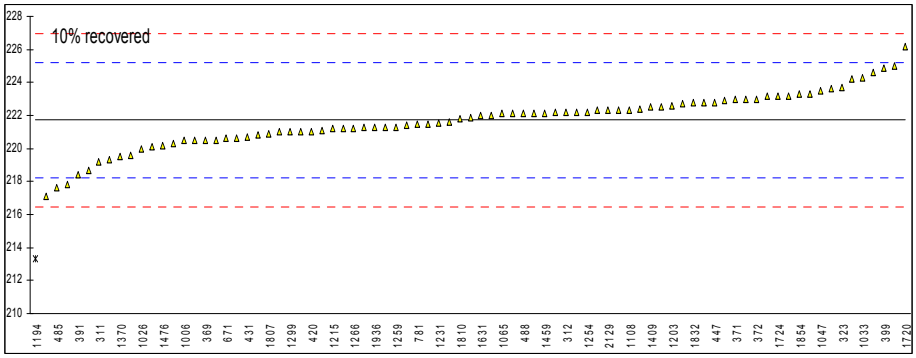
lab	method	Vol 250°C	mark	Vol 350°C	mark	%residue	mark	remarks
150		-----		-----		1.8		
228		-----		-----		-----		
237		-----		-----		-----		
238		-----		-----		-----		
252		-----		-----		-----		
311	ISO3405-A	29.2	C	96.2		0.9		first reported 31.1
312	D86-A	27.5		96.5		1.8		
323	ISO3405-A	27.4		95.0		1.2		
333		-----		-----		-----		
334	ISO3405-A	29.5		95.9		1.1		
335	D86-A	29.0		95.3		1.0		
337	ISO3405-A	29.4		96.1		1.5		
338	ISO3405-A	27.9		96.6		1.2		
340	ISO3405-A	28.1		-----		2.0		
353	IP123-A	28.0		96.3		1.3		
357	ISO3405-A	28.2		96.6		1.9		
360	ISO3405-A	28.0		96.5		1.4		
369	ISO3405-A	28.3		96.2		1.3		
371	ISO3405-A	27.6		95.7		1.4		
372	ISO3405-A	27.4		96.6		1.8		
391	ISO3405-A	29.6		97.0		1.0		
399	ISO3405-A	27.9		96.6		1.0		
420	ISO3405-A	28.6		96.3		1.4		
430		-----		-----		-----		
431		-----		-----		-----		
440	D86-A	28.4		96.0		1.4		
446	D86-A	28.9		96.2		1.9		
447	ISO3405-A	28.2		95.9		1.0		
463	ISO3405-A	28.9		95.8		1.6		
485	ISO3405-A	29.75		96.85		1.35		
488	ISO3405-A	29.6		96.4		1.3		
494	ISO3405-A	28.4		96.4		1.6		
495	ISO3405-A	29.1		96.9		1.2		
541		-----		-----		-----		
671	D86-A	30		97		0.9		
704		-----		-----		-----		
750		-----		-----		-----		
781	ISO3405-A	28.4		96.1		1.3		
791		-----		-----		-----		
863		-----		-----		-----		
873	D86-A	29.0		96.5		2.0		
874		-----		-----		-----		
875		-----		-----		-----		
904	ISO3405-A	28.2		97.0		1.3		
970		-----		-----		-----		
974	D86-A	29.5		96.5		1.6		
982		-----		-----		-----		
1006		-----		-----		1.3		
1016		-----		-----		-----		
1017		-----		-----		-----		
1026	ISO3405-A	28.6		96.0		2.0		
1033	IP123-A-	26.2		96.4	C	1.4		first reported 93.3
1038		-----		-----		1.3		
1047	ISO3405-A	27.5		95.2		1.8		
1059	ISO3405-A	27.0		95.6		1.4		
1065	D86-A	28		96		2.6		
1081	D86-A	27.6		96.1		1.5		
1108	ISO3405-A	27.3		94.8		-----		
1109	D86-A	27.5		96.0		1.4		
1126	D7213-A	27.5		96.4		-----		
1146		-----		-----		-----		
1194	INH-D86-A	29.7		96.7		1.8		
1199		-----		-----		-----		
1203	ISO3405-A	26.8		96.1		1.4		
1205	D86-A	28.3		96.3		1.4		
1212		-----		-----		-----		
1215		-----		-----		1.55		
1218		-----		-----		-----		
1224		-----		-----		-----		
1227	D86-A	30.2		97.0		1.0		
1231		-----		-----		-----		
1254	ISO3405-A	28.6		95.9		1.4		
1259	ISO3405-A	28.2		98.0		1.4		
1266	ISO3405-A	27.8		95.3		2.0		
1272	ISO3405-A	27.6		95.4		1.2		
1284	D86-A	28.1		95.8		1.4		
1297		-----		-----		-----		
1299	ISO3405-A	28.5		96.0		1.4		

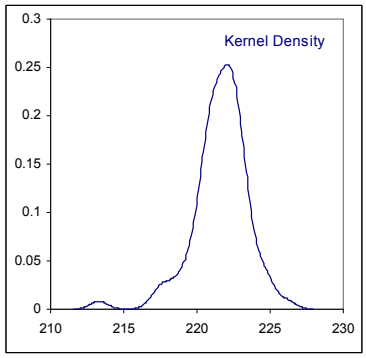
1316	D86-A	27.1	95.3		1.5
1347		-----	-----		-----
1348		-----	-----		-----
1356		-----	-----		-----
1370	ISO3405-A	28.5	96.37		1.7
1385		-----	-----		-----
1395		-----	-----		-----
1409	ISO3405-A	27.3	95.7		1.6
1412		-----	-----		-----
1428	ISO3405-A	27.4	96.7		1.6
1430		-----	-----		-----
1457	ISO3405-A	27.5	96.1		1.45
1459	ISO3405-A	28.4	97.1		1.4
1476	ISO3405-A	28.5	98.6	G(0.01)	1.4
1482		-----	-----		-----
1483		-----	-----		-----
1484		-----	-----		-----
1488		-----	-----		-----
1490	ISO3405	28.91	96.54		0.9
1520		-----	-----		-----
1521	ISO3405-A	27.6	95.6		1.4
1528	ISO3405-A	25.8	95.7		1.7
1616		-----	-----		-----
1631	ISO3405-A	27.6	96.0		1.2
1634		-----	-----		-----
1635		-----	-----		-----
1710	ISO3405	27.3	95.9		1.3
1720	D86-A	26.7	95.6		1.4
1724	ISO3405-A	27.5	95.8		1.4
1730		-----	-----		-----
1740	ISO3405-A	27.8	96.1		1.1
1807		-----	-----		1.6
1810	ISO3405-A	29.1	97.4		0.8
1811	ISO3405-A	28.2	96.5		1
1832	ISO3405-A	27.6	95.7		1.5
1833	ISO3405-A	28.7	95.9		1.6
1834	ISO3405-A	26.1	96.3		1.0
1849	ISO3405-A	28.0	96.4		1.3
1854	ISO3405-A	27.6	96.1		1.2
1861		-----	-----		-----
1936	ISO3405-A	28.8	97.1		1.2
1937		-----	-----		-----
1938		-----	-----		-----
1948	ISO3405-A	27.8	96.5		1.4
1952	D86-A	28.7	96.1		1.4
2129	ISO3405-A	28.8	96.9		1.3
2146	ISO3405-A	27.8	94.9		2.1
	normality	OK	OK		
	n	76	74		
	outliers	0	1		
	mean (n)	28.159	96.193		
	st.dev. (n)	0.8935	0.5830		
	R(calc.)	2.502	1.632		
	R(ISO3405:09)	2.700	2.700		

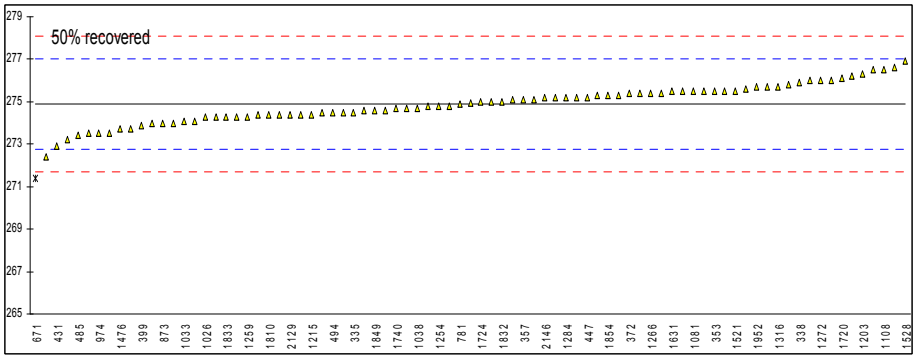
Determination of Distillation (automated) continued on sample #12020; graphs

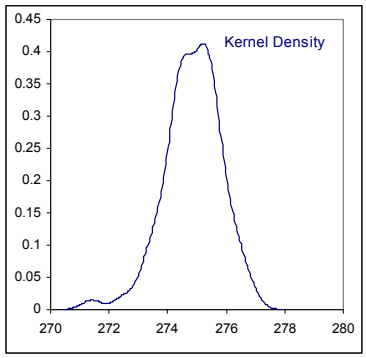


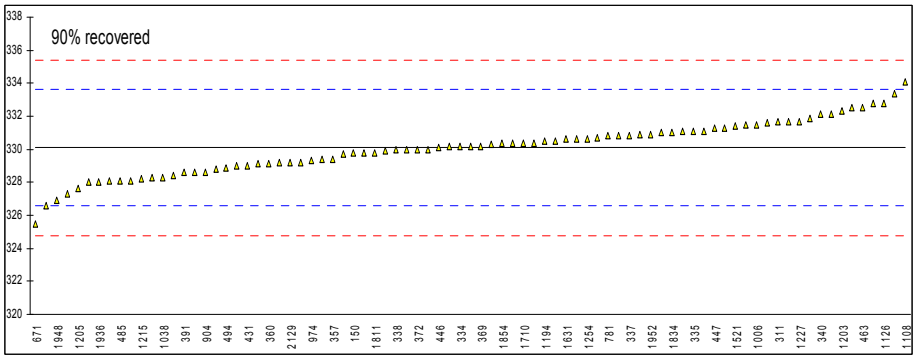


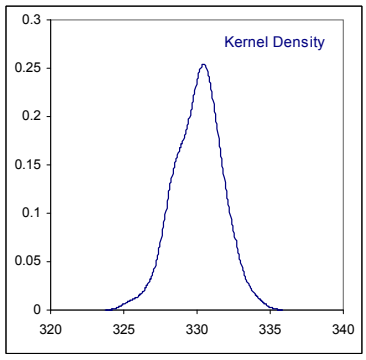




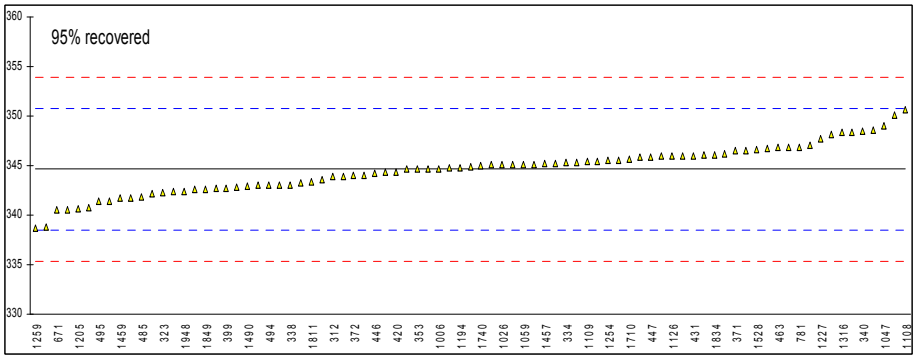


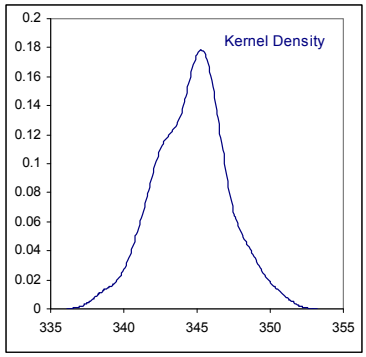


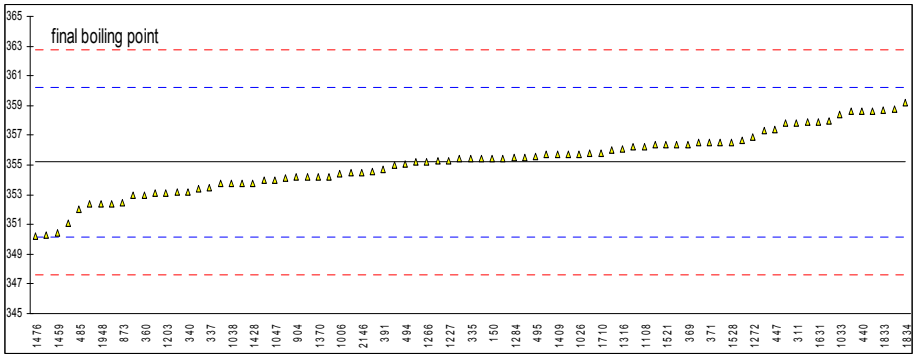


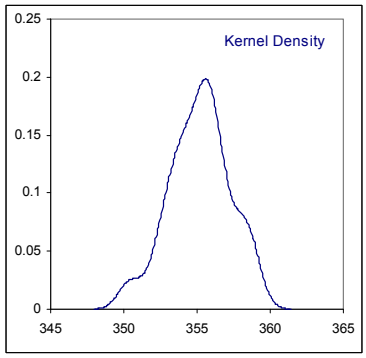


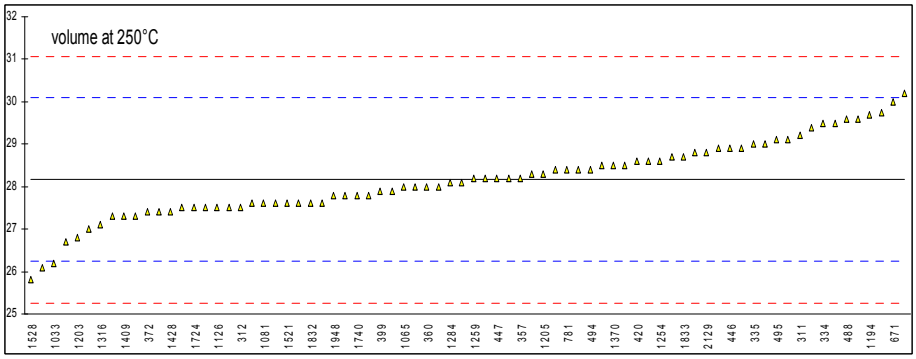
Determination of Distillation (automated) continued on sample #12020; graphs

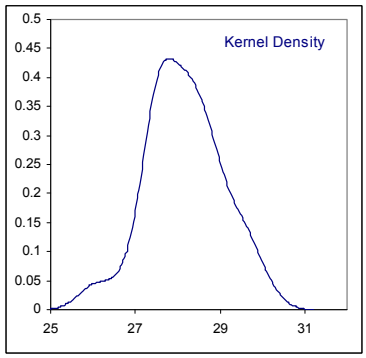


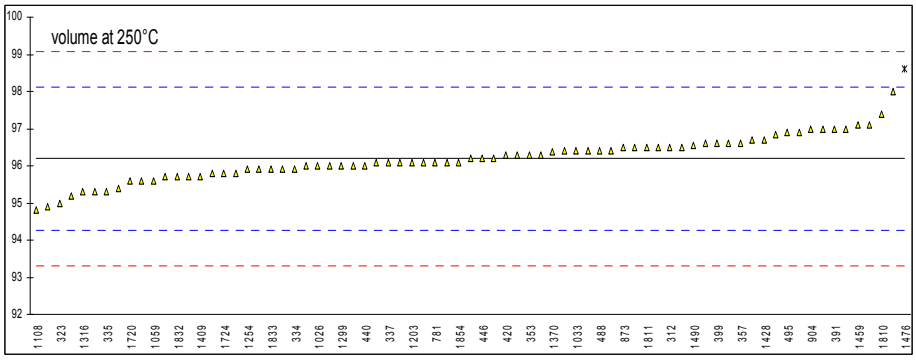


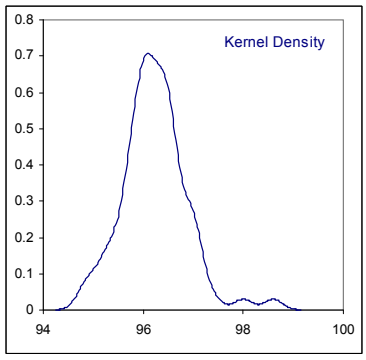












Determination of Distillation (manual) on sample #12020; result in °C

lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
150		-----		-----		-----		-----		-----		-----	
228	D86-M	176.0		215.0		274.0		331.0		345.0		355.0	
237	D86-M	176.0		221.0		275.0		326.0		340.0		354.0	
238		-----		-----		-----		-----		-----		-----	
252	D86-M	178.0		217.5		273.0		329.0		-----		355.0	
311		-----		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----		-----	
323		-----		-----		-----		-----		-----		-----	
333		-----		-----		-----		-----		-----		-----	
334		-----		-----		-----		-----		-----		-----	
335		-----		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----		-----	
338		-----		-----		-----		-----		-----		-----	
340		-----		-----		-----		-----		-----		-----	
353		-----		-----		-----		-----		-----		-----	
357		-----		-----		-----		-----		-----		-----	
360		-----		-----		-----		-----		-----		-----	
369		-----		-----		-----		-----		-----		-----	
371		-----		-----		-----		-----		-----		-----	
372		-----		-----		-----		-----		-----		-----	
391		-----		-----		-----		-----		-----		-----	
399		-----		-----		-----		-----		-----		-----	
420		-----		-----		-----		-----		-----		-----	
430		-----		-----		-----		-----		-----		-----	
431		-----		-----		-----		-----		-----		-----	
440		-----		-----		-----		-----		-----		-----	
446		-----		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----		-----	
485		-----		-----		-----		-----		-----		-----	
488		-----		-----		-----		-----		-----		-----	
494		-----		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----		-----	
541	ISO3405-M	168.0	D(0.05)	216.0		273.0		329.0		-----		354.0	
671		-----		-----		-----		-----		-----		-----	
704	ISO3405-M	177.0		217.5		275.0		330.0		344.0		354.5	
750	D86-M	179.0		220.0		274.5		328.5		343.5		356.0	
781		-----		-----		-----		-----		-----		-----	
791		-----		-----		-----		-----		-----		-----	
863	D86-M	178.5		221.0		275.5		331.5		346.5		358.5	
873		-----		-----		-----		-----		-----		-----	
874	D86-M	175.0		219.0		275.0		332.0		347.0		356.0	
875	D86-M	179.5		218.5		275.0		332.5		348.0		355.5	
904		-----		-----		-----		-----		-----		-----	
970	D86-M	173.0		218.0		274.0		329.0		342.0		354.0	
974		-----		-----		-----		-----		-----		-----	
982		-----		-----		-----		-----		-----		-----	
1006		-----		-----		-----		-----		-----		-----	
1016		-----		-----		-----		-----		-----		-----	
1017		-----		-----		-----		-----		-----		-----	
1026		-----		-----		-----		-----		-----		-----	
1033		-----		-----		-----		-----		-----		-----	
1038		-----		-----		-----		-----		-----		-----	
1047		-----		-----		-----		-----		-----		-----	
1059		-----		-----		-----		-----		-----		-----	
1065		-----		-----		-----		-----		-----		-----	
1081		-----		-----		-----		-----		-----		-----	
1108		-----		-----		-----		-----		-----		-----	
1109		-----		-----		-----		-----		-----		-----	
1126		-----		-----		-----		-----		-----		-----	
1146	ISO3405-M	189	D(0.05)	225		278	C	335		-----		358	
1194		-----		-----		-----		-----		-----		-----	
1199		-----		-----		-----		-----		-----		-----	
1203		-----		-----		-----		-----		-----		-----	
1205		-----		-----		-----		-----		-----		-----	
1212		-----		-----		-----		-----		-----		-----	
1215		-----		-----		-----		-----		-----		-----	
1218		-----		-----		-----		-----		-----		-----	
1224		-----		-----		-----		-----		-----		-----	
1227		-----		-----		-----		-----		-----		-----	
1231		-----		-----		-----		-----		-----		-----	
1254		-----		-----		-----		-----		-----		-----	
1259		-----		-----		-----		-----		-----		-----	
1266		-----		-----		-----		-----		-----		-----	
1272		-----		-----		-----		-----		-----		-----	
1284		-----		-----		-----		-----		-----		-----	
1297		-----		-----		-----		-----		-----		-----	
1299		-----		-----		-----		-----		-----		-----	

1316		-----		-----	-----	-----	-----	-----	
1347	D86-M	182		220	273	324	334	354	
1348	D86-M	174.9		224.8	272.8	327.1	338.8	357.9	
1356	ISO3405-M	203	C, G(0.01)	215	270	324	333	-----	
1370		-----		-----	-----	-----	-----	-----	
1385	D86-M	178		216	276	339	343	357	
1395	ISO3405-M	175.8		220.2	274.8	330.4	344.6	355.9	
1409		-----		-----	-----	-----	-----	-----	
1412	D86-M	178.0		220.0	274.0	329.0	341.0	343.0	G(0.01)
1428		-----		-----	-----	-----	-----	-----	
1430		-----		-----	-----	-----	-----	-----	
1457		-----		-----	-----	-----	-----	-----	
1459		-----		-----	-----	-----	-----	-----	
1476		-----		-----	-----	-----	-----	-----	
1482	D86-M	178		218	273.5	329	342.5	357.5	
1483		-----		-----	-----	-----	-----	-----	
1484		-----		-----	-----	-----	-----	-----	
1488	ISO3405-M	183.49		222.01	277.03	333.22	350.87	358.56	
1490		-----		-----	-----	-----	-----	-----	
1520	ISO3405-M	181.5		220.0	273.0	330.5	346.0	357.5	
1521		-----		-----	-----	-----	-----	-----	
1528		-----		-----	-----	-----	-----	-----	
1616	D86-M	177.0		220.0	272.0	327.0	340.0	353.0	
1631		-----		-----	-----	-----	-----	-----	
1634		-----		-----	-----	-----	-----	-----	
1635	ISO3405-M	180		216	272	327	340	358	
1710		-----		-----	-----	-----	-----	-----	
1720		-----		-----	-----	-----	-----	-----	
1724		-----		-----	-----	-----	-----	-----	
1730		-----		-----	-----	-----	-----	-----	
1740		-----		-----	-----	-----	-----	-----	
1807		-----		-----	-----	-----	-----	-----	
1810		-----		-----	-----	-----	-----	-----	
1811		-----		-----	-----	-----	-----	-----	
1832		-----		-----	-----	-----	-----	-----	
1833		-----		-----	-----	-----	-----	-----	
1834		-----		-----	-----	-----	-----	-----	
1849		-----		-----	-----	-----	-----	-----	
1854		-----		-----	-----	-----	-----	-----	
1861		-----		-----	-----	-----	-----	-----	
1936		-----		-----	-----	-----	-----	-----	
1937		-----		-----	-----	-----	-----	-----	
1938		-----		-----	-----	-----	-----	-----	
1948		-----		-----	-----	-----	-----	-----	
1952		-----		-----	-----	-----	-----	-----	
2129		-----		-----	-----	-----	-----	-----	
2146		-----		-----	-----	-----	-----	-----	
	normality	OK		OK	OK	OK	OK	OK	
	n	19		22	22	22	19	20	
	outliers	3		0	0	0	0	1	
	mean (n)	177.931		219.114	274.097	329.714	342.620	355.993	
	st.dev. (n)	2.6273		2.7482	1.7702	3.4513	4.4730	1.7685	
	R(calc.)	7.356		7.695	4.957	9.664	12.524	4.952	
	R(ISO3405:09)	6.630		4.358	3.853	3.162	3.978	3.662	

Originally reported test results:

laboratory 1146: 244
laboratory 1356: 200

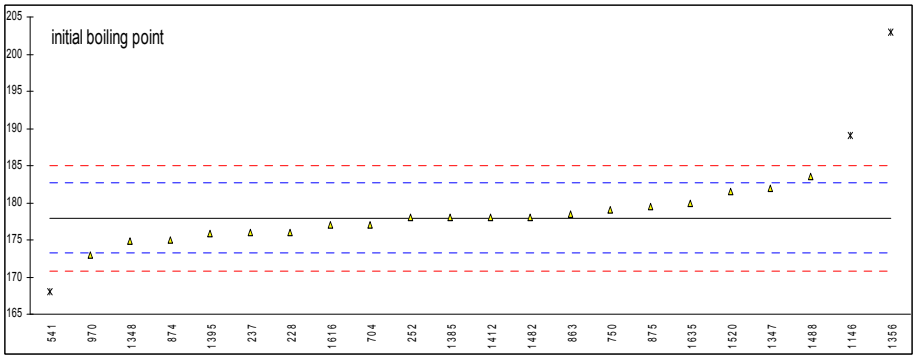
Determination of Distillation (manual) continued on sample #12020; result in %V/V

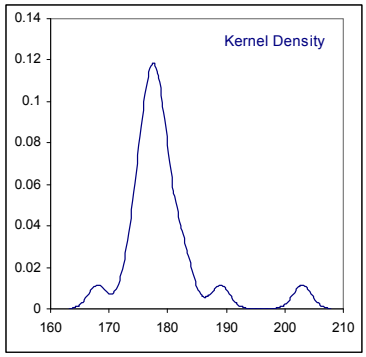
lab	method	Vol 250°C	mark	Vol 350°C	mark	% residue	mark	remarks
150		-----		-----		-----		
228	D86-M	29.0		96.0		1.4		
237	D86-M	27.0	DG(0.05)	97.0		1.5		
238		-----		-----		-----		
252		-----		-----		-----		
311		-----		-----		-----		
312		-----		-----		-----		
323		-----		-----		-----		
333		-----		-----		-----		
334		-----		-----		-----		
335		-----		-----		-----		
337		-----		-----		-----		
338		-----		-----		-----		
340		-----		-----		-----		
353		-----		-----		-----		
357		-----		-----		-----		
360		-----		-----		-----		
369		-----		-----		-----		
371		-----		-----		-----		
372		-----		-----		-----		
391		-----		-----		-----		
399		-----		-----		-----		
420		-----		-----		-----		
430		-----		-----		-----		
431		-----		-----		-----		
440		-----		-----		-----		
446		-----		-----		-----		
447		-----		-----		-----		
463		-----		-----		-----		
485		-----		-----		-----		
488		-----		-----		-----		
494		-----		-----		-----		
495		-----		-----		-----		
541	ISO3405-M	30.0		96.0		1.0		
671		-----		-----		-----		
704	ISO3405-M	29.5		96.5		1.7		
750	D86-M	29.0		96.0		1.2		
781		-----		-----		-----		
791		-----		-----		-----		
863	D86-M	28.6		95.8		1.4		
873		-----		-----		-----		
874	D86-M	29.5		95.5		1.0		
875	D86-M	29.0		95.5		1.0		
904		-----		-----		-----		
970	D86-M	29.5		96.5		1.8		
974		-----		-----		-----		
982		-----		-----		-----		
1006		-----		-----		-----		
1016		-----		-----		-----		
1017		-----		-----		-----		
1026		-----		-----		-----		
1033		-----		-----		-----		
1038		-----		-----		-----		
1047		-----		-----		-----		
1059		-----		-----		-----		
1065		-----		-----		-----		
1081		-----		-----		-----		
1108		-----		-----		-----		
1109		-----		-----		-----		
1126		-----		-----		-----		
1146		-----		-----		2		
1194		-----		-----		-----		
1199		-----		-----		-----		
1203		-----		-----		-----		
1205		-----		-----		-----		
1212		-----		-----		-----		
1215		-----		-----		-----		
1218		-----		-----		-----		
1224		-----		-----		-----		
1227		-----		-----		-----		
1231		-----		-----		-----		
1254		-----		-----		-----		
1259		-----		-----		-----		
1266		-----		-----		-----		
1272		-----		-----		-----		
1284		-----		-----		-----		
1297		-----		-----		-----		
1299		-----		-----		-----		

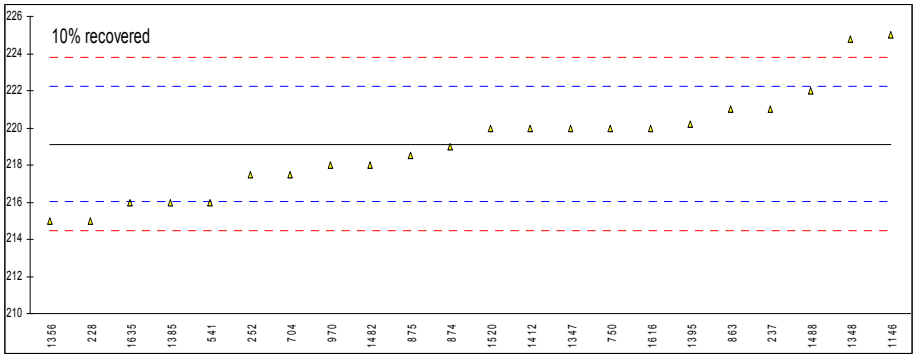
1316		-----		-----	-----	
1347	D86-M	32	G(0.01)	98	0.8	
1348	D86-M	28.75		98.0	1.0	
1356		-----		-----	-----	
1370		-----		-----	-----	
1385	D86-M	29		97	1.0	
1395	ISO3405-M	28.6		96.2	1.8	
1409		-----		-----	-----	
1412	D86-M	29.0		-----	2.5	
1428		-----		-----	-----	
1430		-----		-----	-----	
1457		-----		-----	-----	
1459		-----		-----	-----	
1476		-----		-----	-----	
1482	D86-M	29		96.5	0.8	
1483		-----		-----	-----	
1484		-----		-----	-----	
1488	ISO3405-M	25.80	C,DG(0.05)	94.90	1.53	first reported 26.33
1490		-----		-----	-----	
1520	ISO3405-M	28.5		96.0	1.8	
1521		-----		-----	-----	
1528		-----		-----	-----	
1616	D86-M	29.0		97.5	0.5	
1631		-----		-----	-----	
1634		-----		-----	-----	
1635	ISO3405-M	29		97	1.3	
1710		-----		-----	-----	
1720		-----		-----	-----	
1724		-----		-----	-----	
1730		-----		-----	-----	
1740		-----		-----	-----	
1807		-----		-----	-----	
1810		-----		-----	-----	
1811		-----		-----	-----	
1832		-----		-----	-----	
1833		-----		-----	-----	
1834		-----		-----	-----	
1849		-----		-----	-----	
1854		-----		-----	-----	
1861		-----		-----	-----	
1936		-----		-----	-----	
1937		-----		-----	-----	
1938		-----		-----	-----	
1948		-----		-----	-----	
1952		-----		-----	-----	
2129		-----		-----	-----	
2146		-----		-----	-----	

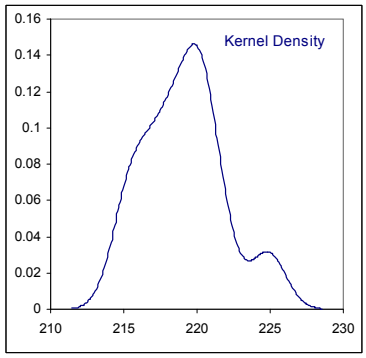
normality	not OK	OK
n	16	18
outliers	3	0
mean (n)	29.059	96.439
st.dev. (n)	0.3938	0.8514
R(calc.)	1.103	2.384
R(ISO3405:09)	2.573	2.573

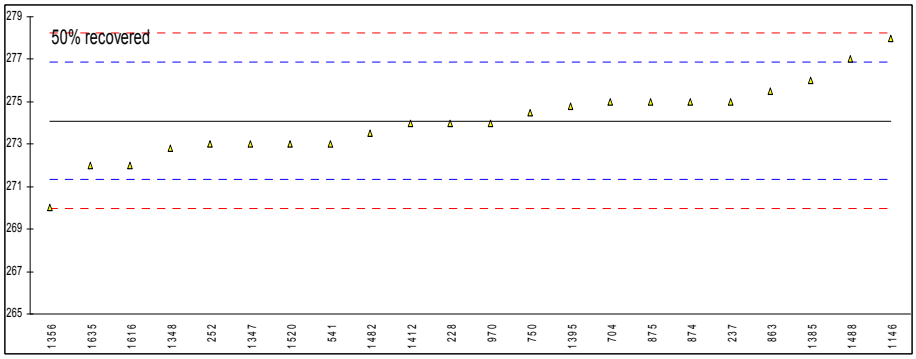
Determination of Distillation (manual) continued on sample #12020; graphs

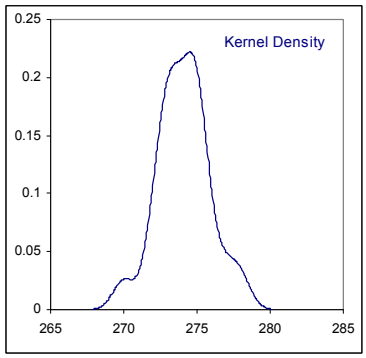


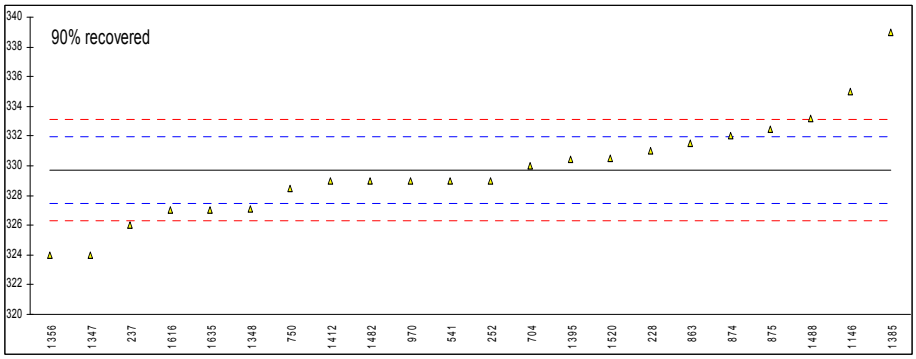


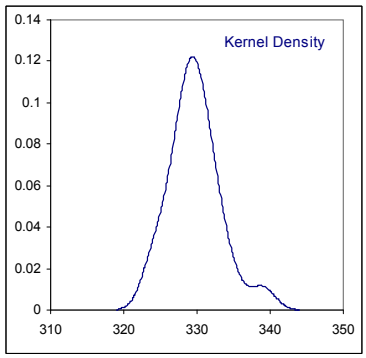




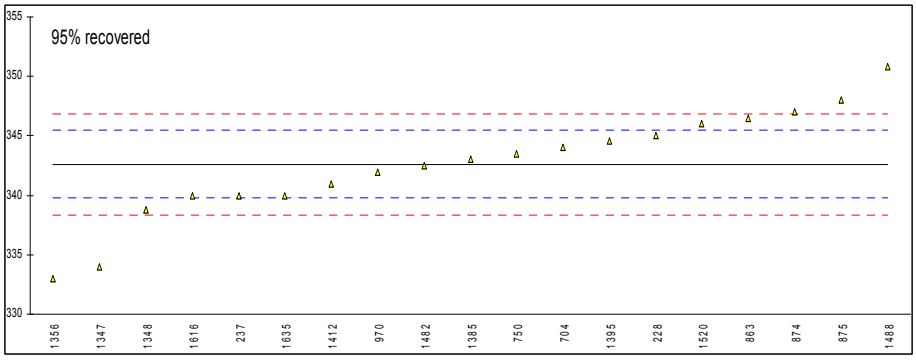


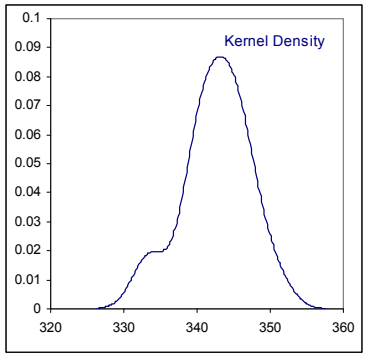


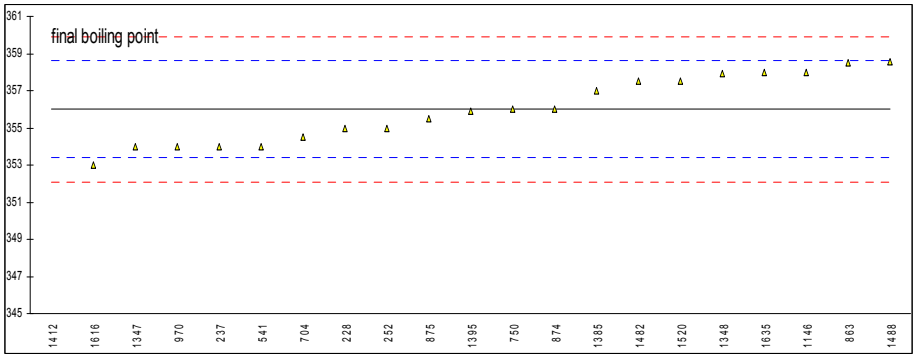


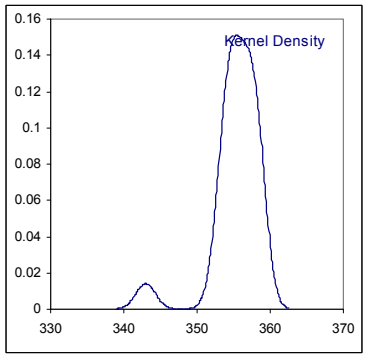


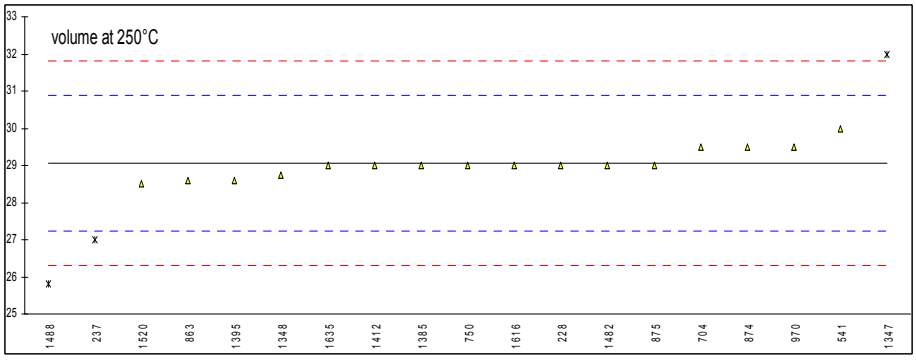
Determination of Distillation (manual) continued on sample #12020; graphs

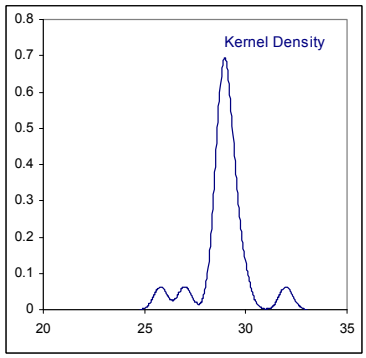


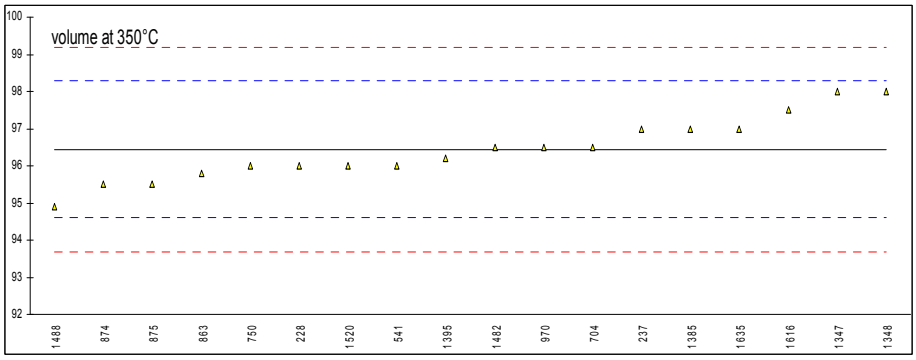


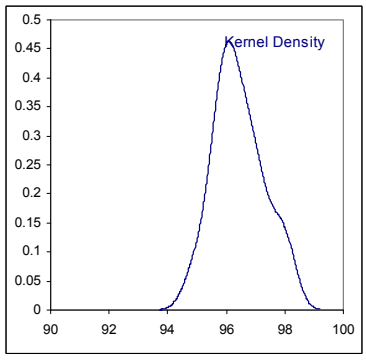








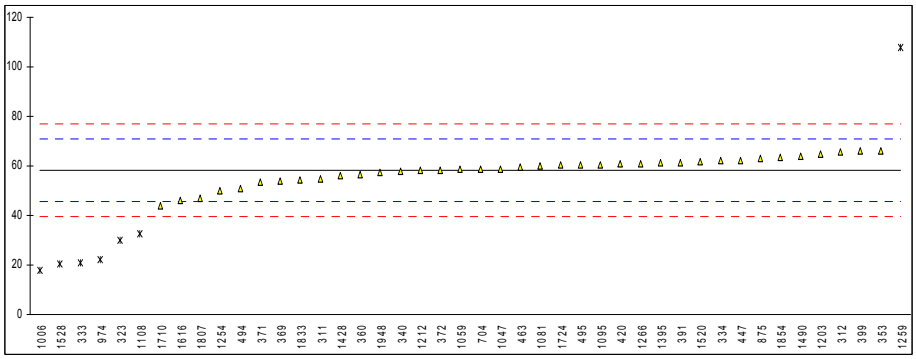


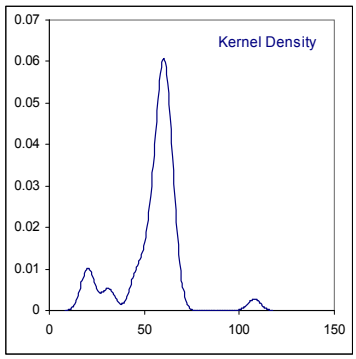


Determination of Total Contamination on sample #12021; result in mg/kg

lab	method	value	mark	z(targ)	remarks
311	EN12662	55		-0.53	
312	EN12662	65.55		1.16	
323	EN12662	30	DG(0.05)	-4.53	
333	EN12662	20.7	DG(0.05)	-6.02	
334	EN12662	62		0.59	
335	EN12662	>30		-----	
340	EN12662	57.62		-0.11	
353	EN12662	66.29		1.28	
360	EN12662	56.40		-0.31	
369	EN12662	54.0	C	-0.69	
371	EN12662	53.3	C	-0.80	
372	EN12662	58.2		-0.02	
391	EN12662	61.4		0.49	
399	EN12662	66		1.23	
420	EN12662	60.71		0.38	
447	EN12662	62.0		0.59	
463	EN12662	59.623		0.21	
494	EN12662	50.88		-1.19	
495	EN12662	60.4		0.33	
671		-----		-----	
704	EN12662	58.69		0.06	
875	EN12662	63		0.75	
904		-----		-----	
970		-----		-----	
974	IP440	22.04	DG(0.05)	-5.81	
1006	EN12662	18.0	DG(0.05)	-6.45	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1047	EN12662	58.9		0.09	
1059	EN12662	58.5		0.03	
1081	EN12662	60		0.27	
1095	EN12662	60.4		0.33	
1108	EN12662	32.4	DG(0.05)	-4.15	
1203	EN12662	64.61		1.01	
1212	EN12662	58.1		-0.04	
1254	EN12662	50.02	C	-1.33	
1259	EN12662	107.892	G(0.01)	7.93	
1266	EN12662	60.91		0.41	
1395	EN12662	61.2		0.46	
1409	EN12662	>30.0		-----	
1428	EN12662	56.1		-0.36	
1490	EN12662	64.0		0.91	
1520	EN12662	61.93		0.58	
1521	EN12662	>30		-----	
1528	EN12662	20.26	DG(0.05)	-6.09	
1616	IP441	46.0		-1.97	
1631		-----		-----	
1710	EN12662	43.7		-2.34	
1724	EN12662	60.38		0.33	
1807	EN12662	46.9		-1.83	
1833	EN12662	54.34		-0.64	
1854	EN12662	63.3		0.80	
1948	EN12662	57.49		-0.13	

normality	OK
n	37
outliers	7
mean (n)	58.320
st.dev. (n)	5.4831
R(calc.)	15.353
R(EN12662:08)	17.496





APPENDIX 2

z-scores Distillation (Automated)

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
150	-2.08	0.40	-0.09	-0.17	0.02	0.09	-----	-----
228	-----	-----	-----	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
252	-----	-----	-----	-----	-----	-----	-----	-----
311	-0.20	-1.44	-0.28	0.91	0.25	1.03	1.08	0.01
312	0.23	0.28	0.38	-0.17	-0.24	-0.78	-0.68	0.32
323	1.62	1.14	0.57	-0.96	-0.75	-1.93	-0.79	-1.24
333	-----	-----	-----	-----	-----	-----	-----	-----
334	-0.54	-1.21	-0.56	0.06	0.22	0.05	1.39	-0.30
335	-1.17	-1.73	-0.38	0.57	1.29	0.09	0.87	-0.93
337	-0.43	-2.25	-0.47	0.40	0.18	-0.66	1.29	-0.10
338	1.65	-0.64	0.94	-0.05	-0.53	1.35	-0.27	0.42
340	0.99	-0.29	1.04	1.13	1.25	-0.78	-0.06	-----
353	0.00	-0.70	0.57	0.29	0.02	1.43	-0.16	0.11
357	0.48	0.11	0.19	-0.39	-0.53	-0.55	0.04	0.42
360	0.08	0.74	0.28	-0.56	-0.62	-0.86	-0.16	0.32
369	-0.86	-0.70	-0.75	0.06	0.02	0.48	0.15	0.01
371	-0.88	0.74	0.19	0.80	0.61	0.52	-0.58	-0.51
372	0.00	0.74	0.47	-0.05	-0.20	-0.07	-0.79	0.42
391	0.82	-1.90	-1.60	-0.84	-0.66	-0.19	1.49	0.84
399	2.27	1.83	-0.94	-1.01	-0.62	0.09	-0.27	0.42
420	-0.86	-0.41	-0.56	-0.22	-0.11	-0.27	0.46	0.11
430	-----	-----	-----	-----	-----	-----	-----	-----
431	-----	-0.58	-1.88	-0.62	0.44	-----	-----	-----
440	1.36	0.34	0.38	0.57	0.28	1.35	0.25	-0.20
446	-1.25	0.22	-0.85	0.00	-0.14	-0.43	0.77	0.01
447	0.57	0.63	0.28	0.68	0.41	0.87	0.04	-0.30
463	-0.57	0.63	-0.38	1.36	0.70	1.03	0.77	-0.41
485	-0.66	-2.36	-1.41	-1.13	-0.92	-1.25	1.65	0.68
488	-0.94	0.22	-2.36	-0.73	-0.33	-0.47	1.49	0.21
494	-0.26	-0.70	-0.38	-0.68	-0.53	-0.03	0.25	0.21
495	0.37	-0.92	-1.13	-1.13	-1.05	0.16	0.98	0.73
541	-----	-----	-----	-----	-----	-----	-----	-----
671	-0.88	-0.64	-3.30	-2.60	-1.34	-1.10	1.91	0.84
704	-----	-----	-----	-----	-----	-----	-----	-----
750	-----	-----	-----	-----	-----	-----	-----	-----
781	-0.09	-0.12	0.00	0.40	0.70	0.32	0.25	-0.10
791	-----	-----	-----	-----	-----	-----	-----	-----
863	-----	-----	-----	-----	-----	-----	-----	-----
873	0.00	-0.41	-0.85	-0.62	-0.20	-1.06	0.87	0.32
874	-----	-----	-----	-----	-----	-----	-----	-----
875	-----	-----	-----	-----	-----	-----	-----	-----
904	-0.46	-0.52	-0.47	-0.84	-0.95	-0.39	0.04	0.84
970	-----	-----	-----	-----	-----	-----	-----	-----
974	-1.85	-2.65	-1.32	-0.45	-0.43	0.09	1.39	0.32
982	-----	-----	-----	-----	-----	-----	-----	-----
1006	-0.40	-0.70	0.47	0.80	0.02	-0.31	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----
1026	-2.65	-0.98	-0.56	0.23	0.15	0.20	0.46	-0.20
1033	1.73	1.49	-0.75	0.06	-0.24	1.27	-2.03	0.21
1038	0.40	-0.24	-0.19	-1.01	-0.79	-0.55	-----	-----
1047	1.16	1.03	1.23	1.53	1.41	-0.47	-0.68	-1.03
1059	1.68	0.85	0.66	0.40	0.15	1.11	-1.20	-0.61
1065	-0.83	0.22	1.04	1.13	0.51	-0.82	-0.16	-0.20
1081	0.57	0.28	0.57	0.12	0.15	-0.39	-0.58	-0.10
1108	-1.08	0.34	1.51	2.27	1.93	0.40	-0.89	-1.44
1109	1.65	0.17	0.85	0.17	0.25	-0.70	-0.68	-0.20
1126	-0.14	-0.18	0.57	1.53	0.44	1.35	-0.68	0.21
1146	-----	-----	-----	-----	-----	-----	-----	-----
1194	-4.01	-4.83	0.28	0.23	0.05	-1.61	1.60	0.53
1199	-----	-----	-----	-----	-----	-----	-----	-----
1203	-0.80	0.51	1.32	1.25	0.41	-0.82	-1.41	-0.10
1205	-0.32	-0.81	-0.85	-1.41	-1.27	-0.55	0.15	0.11
1212	-----	-----	-----	-----	-----	-----	-----	-----
1215	0.44	-0.29	-0.47	-1.07	-1.03	-0.88	-----	-----
1218	-----	-----	-----	-----	-----	-----	-----	-----
1224	-----	-----	-----	-----	-----	-----	-----	-----
1227	0.23	-1.38	0.19	0.91	0.99	0.05	2.12	0.84
1231	0.18	-0.09	-0.09	-0.56	-0.53	-----	-----	-----
1254	-0.60	0.28	-0.09	0.29	0.28	0.09	0.46	-0.30
1259	-1.00	-0.24	-0.56	-1.58	-1.92	-0.39	0.04	1.87
1266	1.02	-0.29	0.47	1.36	1.22	0.01	-0.37	-0.93

1272	-0.80	0.57	1.04	0.57	1.12	0.68	-0.58	-0.82
1284	-0.77	-0.12	0.28	0.51	0.44	0.13	-0.06	-0.41
1297	-----	-----	-----	-----	-----	-----	-----	-----
1299	-0.26	-0.41	-0.47	-0.05	0.15	0.84	0.35	-0.20
1316	-0.54	0.68	0.76	1.02	1.22	0.36	-1.10	-0.93
1347	-----	-----	-----	-----	-----	-----	-----	-----
1348	-----	-----	-----	-----	-----	-----	-----	-----
1356	-----	-----	-----	-----	-----	-----	-----	-----
1370	2.45	-1.24	0.03	-0.40	-0.11	-0.39	0.35	0.18
1385	-----	-----	-----	-----	-----	-----	-----	-----
1395	-----	-----	-----	-----	-----	-----	-----	-----
1409	0.40	0.45	0.76	0.68	0.61	0.20	-0.89	-0.51
1412	-----	-----	-----	-----	-----	-----	-----	-----
1428	0.28	0.34	0.47	-0.51	-0.72	-0.55	-0.79	0.53
1430	-----	-----	-----	-----	-----	-----	-----	-----
1457	0.85	0.91	1.60	0.17	0.18	0.40	-0.68	-0.10
1459	-0.63	0.22	-0.38	-1.13	-0.95	-1.89	0.25	0.94
1476	-1.47	-0.87	-1.13	-1.98	-1.87	-1.96	0.35	2.50
1482	-----	-----	-----	-----	-----	-----	-----	-----
1483	-----	-----	-----	-----	-----	-----	-----	-----
1484	-----	-----	-----	-----	-----	-----	-----	-----
1488	-----	-----	-----	-----	-----	-----	-----	-----
1490	-0.80	-0.41	-1.32	-0.84	-0.56	-1.10	0.78	0.36
1520	-----	-----	-----	-----	-----	-----	-----	-----
1521	-0.74	0.28	0.57	0.74	0.80	0.48	-0.58	-0.61
1528	0.71	1.66	1.89	0.91	0.64	0.52	-2.45	-0.51
1616	-----	-----	-----	-----	-----	-----	-----	-----
1631	-0.34	0.17	0.57	0.29	0.22	1.07	-0.58	-0.20
1634	-----	-----	-----	-----	-----	-----	-----	-----
1635	-----	-----	-----	-----	-----	-----	-----	-----
1710	-0.54	1.43	0.57	0.17	0.35	0.24	-0.89	-0.30
1720	1.53	2.58	1.13	0.85	0.70	1.07	-1.51	-0.61
1724	-0.74	0.85	0.10	0.34	0.44	0.52	-0.68	-0.41
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	-0.20	0.85	-0.19	0.06	0.12	0.52	-0.37	-0.10
1807	0.23	-0.47	0.10	-0.05	0.05	0.24	-----	-----
1810	0.94	0.05	-0.47	-1.18	-1.34	-0.23	0.98	1.25
1811	0.14	-0.06	-0.19	-0.17	-0.40	0.13	0.04	0.32
1832	-0.97	0.63	0.10	0.46	0.67	0.48	-0.58	-0.51
1833	0.17	-0.35	-0.56	-0.11	0.15	1.39	0.56	-0.30
1834	1.96	1.89	1.51	0.51	0.48	1.58	-2.13	0.11
1849	-0.12	0.45	-0.28	-0.51	-0.66	0.20	-0.16	0.21
1854	-0.66	0.91	0.38	0.17	0.09	0.48	-0.58	-0.10
1861	-----	-----	-----	-----	-----	-----	-----	-----
1936	-0.26	-0.24	-1.32	-1.18	-1.24	0.01	0.67	0.94
1937	-----	-----	-----	-----	-----	-----	-----	-----
1938	-----	-----	-----	-----	-----	-----	-----	-----
1948	0.68	1.08	-0.28	-1.81	-0.72	-1.10	-0.37	0.32
1952	0.34	-0.24	0.76	0.46	0.48	0.60	0.56	-0.10
2129	0.74	0.34	-0.47	-0.51	-0.59	0.20	0.67	0.73
2146	0.74	0.22	0.28	1.87	1.77	-0.27	-0.37	-1.34

z-scores Distillation (Manual)

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
150	-----	-----	-----	-----	-----	-----	-----	-----
228	-0.82	-2.64	-0.07	1.14	1.68	-0.76	-0.06	-0.48
237	-0.82	1.21	0.66	-3.29	-1.84	-1.52	-2.24	0.61
238	-----	-----	-----	-----	-----	-----	-----	-----
252	0.03	-1.04	-0.80	-0.63	-----	-0.76	-----	-----
311	-----	-----	-----	-----	-----	-----	-----	-----
312	-----	-----	-----	-----	-----	-----	-----	-----
323	-----	-----	-----	-----	-----	-----	-----	-----
333	-----	-----	-----	-----	-----	-----	-----	-----
334	-----	-----	-----	-----	-----	-----	-----	-----
335	-----	-----	-----	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----
340	-----	-----	-----	-----	-----	-----	-----	-----
353	-----	-----	-----	-----	-----	-----	-----	-----
357	-----	-----	-----	-----	-----	-----	-----	-----
360	-----	-----	-----	-----	-----	-----	-----	-----
369	-----	-----	-----	-----	-----	-----	-----	-----
371	-----	-----	-----	-----	-----	-----	-----	-----
372	-----	-----	-----	-----	-----	-----	-----	-----
391	-----	-----	-----	-----	-----	-----	-----	-----
399	-----	-----	-----	-----	-----	-----	-----	-----
420	-----	-----	-----	-----	-----	-----	-----	-----
430	-----	-----	-----	-----	-----	-----	-----	-----
431	-----	-----	-----	-----	-----	-----	-----	-----
440	-----	-----	-----	-----	-----	-----	-----	-----
446	-----	-----	-----	-----	-----	-----	-----	-----
447	-----	-----	-----	-----	-----	-----	-----	-----
463	-----	-----	-----	-----	-----	-----	-----	-----
485	-----	-----	-----	-----	-----	-----	-----	-----
488	-----	-----	-----	-----	-----	-----	-----	-----
494	-----	-----	-----	-----	-----	-----	-----	-----
495	-----	-----	-----	-----	-----	-----	-----	-----
541	-4.19	-2.00	-0.80	-0.63	-----	-1.52	1.02	-0.48
671	-----	-----	-----	-----	-----	-----	-----	-----
704	-0.39	-1.04	0.66	0.25	0.97	-1.14	0.48	0.07
750	0.45	0.57	0.29	-1.08	0.62	0.01	-0.06	-0.48
781	-----	-----	-----	-----	-----	-----	-----	-----
791	-----	-----	-----	-----	-----	-----	-----	-----
863	0.24	1.21	1.02	1.58	2.73	1.92	-0.50	-0.70
873	-----	-----	-----	-----	-----	-----	-----	-----
874	-1.24	-0.07	0.66	2.02	3.08	0.01	0.48	-1.02
875	0.66	-0.39	0.66	2.47	3.79	-0.38	-0.06	-1.02
904	-----	-----	-----	-----	-----	-----	-----	-----
970	-2.08	-0.72	-0.07	-0.63	-0.44	-1.52	0.48	0.07
974	-----	-----	-----	-----	-----	-----	-----	-----
982	-----	-----	-----	-----	-----	-----	-----	-----
1006	-----	-----	-----	-----	-----	-----	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----
1026	-----	-----	-----	-----	-----	-----	-----	-----
1033	-----	-----	-----	-----	-----	-----	-----	-----
1038	-----	-----	-----	-----	-----	-----	-----	-----
1047	-----	-----	-----	-----	-----	-----	-----	-----
1059	-----	-----	-----	-----	-----	-----	-----	-----
1065	-----	-----	-----	-----	-----	-----	-----	-----
1081	-----	-----	-----	-----	-----	-----	-----	-----
1108	-----	-----	-----	-----	-----	-----	-----	-----
1109	-----	-----	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	-----	-----	-----
1146	4.67	3.78	2.84	4.68	-----	1.53	-----	-----
1194	-----	-----	-----	-----	-----	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----
1203	-----	-----	-----	-----	-----	-----	-----	-----
1205	-----	-----	-----	-----	-----	-----	-----	-----
1212	-----	-----	-----	-----	-----	-----	-----	-----
1215	-----	-----	-----	-----	-----	-----	-----	-----
1218	-----	-----	-----	-----	-----	-----	-----	-----
1224	-----	-----	-----	-----	-----	-----	-----	-----
1227	-----	-----	-----	-----	-----	-----	-----	-----
1231	-----	-----	-----	-----	-----	-----	-----	-----
1254	-----	-----	-----	-----	-----	-----	-----	-----
1259	-----	-----	-----	-----	-----	-----	-----	-----
1266	-----	-----	-----	-----	-----	-----	-----	-----
1272	-----	-----	-----	-----	-----	-----	-----	-----
1284	-----	-----	-----	-----	-----	-----	-----	-----
1297	-----	-----	-----	-----	-----	-----	-----	-----

1299	-----	-----	-----	-----	-----	-----	-----	-----
1316	-----	-----	-----	-----	-----	-----	-----	-----
1347	1.72	0.57	-0.80	-5.06	-6.07	-1.52	3.20	1.70
1348	-1.28	3.65	-0.94	-2.32	-2.69	1.46	-0.34	1.70
1356	10.59	-2.64	-2.98	-5.06	-6.77	-----	-----	-----
1370	-----	-----	-----	-----	-----	-----	-----	-----
1385	0.03	-2.00	1.38	8.22	0.27	0.77	-0.06	0.61
1395	-0.90	0.70	0.51	0.61	1.39	-0.07	-0.50	-0.26
1409	-----	-----	-----	-----	-----	-----	-----	-----
1412	0.03	0.57	-0.07	-0.63	-1.14	-9.94	-0.06	-----
1428	-----	-----	-----	-----	-----	-----	-----	-----
1430	-----	-----	-----	-----	-----	-----	-----	-----
1457	-----	-----	-----	-----	-----	-----	-----	-----
1459	-----	-----	-----	-----	-----	-----	-----	-----
1476	-----	-----	-----	-----	-----	-----	-----	-----
1482	0.03	-0.72	-0.43	-0.63	-0.08	1.15	-0.06	0.07
1483	-----	-----	-----	-----	-----	-----	-----	-----
1484	-----	-----	-----	-----	-----	-----	-----	-----
1488	2.35	1.86	2.13	3.10	5.81	1.96	-3.55	-1.67
1490	-----	-----	-----	-----	-----	-----	-----	-----
1520	1.51	0.57	-0.80	0.70	2.38	1.15	-0.61	-0.48
1521	-----	-----	-----	-----	-----	-----	-----	-----
1528	-----	-----	-----	-----	-----	-----	-----	-----
1616	-0.39	0.57	-1.52	-2.40	-1.84	-2.29	-0.06	1.15
1631	-----	-----	-----	-----	-----	-----	-----	-----
1634	-----	-----	-----	-----	-----	-----	-----	-----
1635	0.87	-2.00	-1.52	-2.40	-1.84	1.53	-0.06	0.61
1710	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-----	-----	-----	-----	-----	-----	-----	-----
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----	-----	-----	-----
1807	-----	-----	-----	-----	-----	-----	-----	-----
1810	-----	-----	-----	-----	-----	-----	-----	-----
1811	-----	-----	-----	-----	-----	-----	-----	-----
1832	-----	-----	-----	-----	-----	-----	-----	-----
1833	-----	-----	-----	-----	-----	-----	-----	-----
1834	-----	-----	-----	-----	-----	-----	-----	-----
1849	-----	-----	-----	-----	-----	-----	-----	-----
1854	-----	-----	-----	-----	-----	-----	-----	-----
1861	-----	-----	-----	-----	-----	-----	-----	-----
1936	-----	-----	-----	-----	-----	-----	-----	-----
1937	-----	-----	-----	-----	-----	-----	-----	-----
1938	-----	-----	-----	-----	-----	-----	-----	-----
1948	-----	-----	-----	-----	-----	-----	-----	-----
1952	-----	-----	-----	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX 3

Number of participants per country

1 lab in ARGENTINA
2 labs in AUSTRALIA
2 labs in AUSTRIA
4 labs in BELGIUM
3 labs in BULGARIA
2 labs in CROATIA
1 lab in CYPRUS
3 labs in CZECH REPUBLIC
3 labs in ESTONIA
2 labs in FINLAND
7 labs in FRANCE
2 labs in GERMANY
6 labs in GREECE
1 lab in GUAM
1 lab in HONG KONG
2 labs in HUNGARY
1 lab in IRAN
2 labs in IRELAND
1 lab in ISRAEL
2 labs in ITALY
1 lab in KENYA
4 labs in LATVIA
3 labs in LEBANON
1 lab in LITHUANIA
1 lab in MAURITIUS
2 labs in NIGERIA
1 lab in NORTHERN IRELAND
2 labs in OMAN
1 lab in P.R. of CHINA
5 labs in POLAND
1 lab in PORTUGAL
2 labs in QATAR
1 lab in ROMANIA
6 labs in RUSSIA
2 labs in SERBIA
1 lab in SLOVAKIA
1 lab in SLOVENIA
1 lab in SOUTH KOREA
5 labs in SPAIN
1 lab in SUDAN
3 labs in SWEDEN
1 lab in TAIWAN R.O.C.
2 labs in THAILAND
8 labs in THE NETHERLANDS
1 lab in TOGO
10 labs in TURKEY
1 lab in TURKMENISTAN
1 lab in U.A.E.
1 lab in U.S.A.
1 lab in UKRAINE
5 labs in UNITED KINGDOM
1 lab in VIETNAM

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

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

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

13 Analytical Methods Committee Technical Brief, No4 January 2001

14 The Royal Society of Chemistry 2002, Analyst 2002, 127 page1359-1364, P.J. Lowthian and M. Thompson. (see http://www.rsc.org/suppdata/an/b2/b2110140n/)