

Results of Proficiency Test  
Gasoil (EN specification)  
March 2011

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. In the annual proficiency testing program of 2010-2011, it was decided to continue the proficiency test for the analysis of Gasoil in accordance with the latest applicable version of EN590 specification. In this interlaboratory study, 103 laboratories from 45 different countries have participated. See appendix 3 for a list of participants in alphabetical country order. In this report the results of the Gasoil proficiency test are presented and discussed.

## 2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. During the planning of the annual program for 2010/2011 it was decided to dedicate one of the two annual gasoil round robins (the autumn round) to the ASTM specification and the other (the spring round) to the EN specification.

For 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 #11014. For Total Contamination, it was decided to send one bottle of 1L (80% filled), labelled #11015. Sample analyses for fit-for-use and homogeneity testing were subcontracted. Participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

### 2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO guide 43 and ILAC-G13:2007, (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This ensures 100% confidentiality 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](http://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 300 litre low sulphur Gasoil (automotive diesel) was purchased from the local market. After homogenization, the material was subsequently divided over 110 amber glass bottles of 1L and 110 amber glass bottles of 500 mL with inner and outer caps and both labelled #11014. The homogeneity of the 1L and 500 mL subsamples were checked by the determination of Density in accordance with ISO12185:96 on 10 stratified randomly selected samples.

	Density @ 15 °C in kg/m <sup>3</sup>
sample #11014-1	833.39
sample #11014-2	833.45
sample #11014-3	833.45
sample #11014-4	833.44
sample #11014-5	833.44
sample #11014-6	833.44
sample #11014-7	833.46
sample #11014-8	833.45
sample #11014-9	833.46
sample #11014-10	833.46

table 1: homogeneity test of subsamples #11014

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 @ 15°C in kg/m <sup>3</sup>
r (sample 11014)	0.06
reference test	ISO12185:96
0.3*R (reference test)	0.15

Table 2: precision data of the subsamples 11014

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #11014 was assumed.

For Total Contamination, out of the same batch another 59 amber glass bottles of 1L with inner and outer caps were filled and labelled #11014. Each sample was spiked with 1 ml of a fresh prepared and well shaken, 19 g/kg particulate quartz material BCR-067 ( $\phi$  2.4-32  $\mu$ m) in oil suspension.

The homogeneity was checked by weighting 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 #11014) and/or 1 bottle of Gasoil for Total Contamination (1\*1 L labelled #11015) were sent to the participating laboratories on February 16, 2011.

## 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 #11014: 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 250°C and 350°C), 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 #11015 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.

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

### 3.2 GRAPHICS

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

### 3.3 Z-SCORES

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

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

The  $Z_{(\text{target})}$  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 Equatorial Guinea, Georgia, Guam, Nigeria, Russia and Togo. For sample #11014, twenty-four participants reported results after the final reporting date and only one participant did not report any results. For sample #11015, twelve participants reported results after the final reporting date and six participants did not report any results.

Finally, 102 participants reported 1950 numerical results in total. Observed were 66 outlying results, which is 3.4%. 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 in: Cetane Index, Cloud Point, CFPP, Density, Flash Point, Kinematic Viscosity, Polyaromatics Hydrocarbons, Pour Point, Water and Distillation (95% recovered 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: Regretfully, the ash content for this sample was below or near the application range of the method (0.001 – 0.180 %M/M). Therefore no significant conclusions were drawn.

C.I. ISO4264: Twelve participants reported results according ASTM D976, which test method is not comparable with ISO4264/ASTM D4737. Therefore, these results were excluded for statistical evaluation. For the other results, it seems that almost all participants used the same calculation method: procedure A of ISO4264:95/IP380:98/ASTM D4737.

The calculated reproducibility of the group is much larger compared with the spread found in last years round: 2.899 vs 0.844. This large spread may (partly) be explained by the problems in the distillation results. Also, it was remarkable to find that twelve participants probably made a calculation error.

Cloud Point: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with 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. Two test results were excluded, but no statistical outliers were observed. However, 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. One result was excluded, as the reported test method (ASTM D524, Ramsbottom CR) is not comparable 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 several 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 very problematic. Eight statistical outliers were observed and the calculated reproducibility, after rejection of the statistical outliers is not at all in agreement with EN14078:09. Possibly not all participating laboratories did use this latest version of EN14078. Mixing up of %V/V and %M/M may (partly) explain for the large spread.

Flash Point: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with the requirements of ISO2719:02.

Kin. visc. 40°C: This determination was very problematic. Ten (!) statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not in 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.

Nitrogen: This determination was very problematic. Only one statistical outlier was observed. However, the calculated reproducibility, after rejection of the statistical outlier, is not at all in agreement with ASTM D4629:10.

Polyaromatics: This determination was problematic. Two statistical outliers were observed. However, 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 testmethod that prescribed a manual mode. Therefore these results were excluded for statistical evaluation.



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 ASTM D5950:07. It is noticed that the consensus values found for PP (manual) and PP (automated) differ not significantly, as was expected.

Sulphur: This determination was problematic. Three statistical outliers were observed. However, 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. Three statistical outliers were observed. One reported result was excluded for statistical evaluation. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D974:08e1.

Water: This determination was problematic for several laboratories. Four statistical outliers were observed and one result was excluded for statistical evaluation. However, the calculated reproducibility, after rejection of the statistical outliers, is in good agreement with the requirements of ISO12937:00, although several different methods were used.

Distillation: The automated method was only problematic for Initial Boiling Point. In total eight statistical outliers were observed. All calculated reproducibilities, except for IBP, are, after rejection of the statistical outliers, in good agreement with the requirements of ISO3405:09.  
The manual method was only NOT problematic for Final Boiling Point. In total fourteen, statistical outliers were observed and one result was excluded. All the calculated reproducibilities, except for FBP, were, after rejection of the statistical outliers, not in agreement with the requirements of ISO3405:09. One should keep in mind that a poor distillation has a large effect on the results of the Cetane index.

Total Contamination: This determination was problematic for several laboratories. The samples were spiked with 1 ml of a fresh prepared and well shaken, 19 g/kg particulate quartz material BCR-067 ( $\phi$  2.4-32  $\mu\text{m}$ ) in oil suspension. Therefore the minimal Total Contamination concentration to be found was known (added amount = 22.7 mg/kg). The laboratories should be able to find at least 15.9 mg/kg [ $22.7 \text{ mg/kg}_{(\text{added amount})} - 6.8 \text{ mg/kg}_{(\text{R EN12662})}$ ]. Three laboratories reported lower amounts than 15.9 mg/kg and were excluded for statistical evaluation.  
No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of EN12662:08. The average recovery (theoretical increment of 22.7 mg Quartz/kg) may be excellent: (less than 102%). Regretfully, the actual blank content of contamination is unknown.

## 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	0.0008	0.0016	(0.0050)
Cetane index ISO4264		71	56.64	2.90	unknown
Cloud Point	°C	80	-6.49	2.54	4.00
Cold Filter Plugging Point	°C	77	-8.00	2.96	3.40
Carbon Residue	%M/M	54	0.023	0.032	0.020
Copper Corrosion 3hrs@50°C		85	1	unknown	unknown
Density @ 15 °C	kg/m <sup>3</sup>	93	833.43	0.34	0.50
FAME	%V/V	40	1.1	0.2	0.1
Flash Point PMcc	°C	95	71.37	4.34	5.07
Kinematic Viscosity @ 40 °C	mm <sup>2</sup> /s	79	3.0274	0.0428	0.0330
Lubricity by HFRR	µm	55	297.3	105.8	102.0
Nitrogen	mg/kg	25	64	16	7
Polyaromatics	%M/M	43	3.02	1.32	1.02
Pour Point, manual	°C	54	-10.90	5.46	6.43
Pour Point, automated	°C	26	-9.75	3.43	6.10
Total Sulphur	mg/kg	79	8.68	2.37	2.09
Total Acid Number	mgKOH/kg	46	0.011	0.013	0.040
Water	mg/kg	71	42.75	28.71	44.96
IBP (automated)	°C	69	183.44	11.56	10.09
10% recovery (automated)	°C	68	230.64	4.82	5.07
50% recovery (automated)	°C	69	278.00	2.44	2.97
90% recovery (automated)	°C	69	327.41	4.86	4.91
95% recovery (automated)	°C	68	341.26	7.79	8.51
FBP (automated)	°C	66	351.47	6.01	7.10
Volume at 250°C	%V/V	63	22.70	2.38	2.70
Volume at 350°C	%V/V	49	96.76	1.52	2.70
IBP (manual)	°C	21	183.15	10.06	7.01
10% recovery (manual)	°C	22	228.40	7.41	4.30
50% recovery (manual)	°C	23	277.24	4.78	3.68
90% recovery (manual)	°C	22	327.58	3.76	3.04
95% recovery (manual)	°C	20	341.66	6.61	3.79
FBP (manual)	°C	19	351.91	3.12	3.53
Volume at 250°C	%V/V	22	23.39	3.11	2.69
Volume at 350°C	%V/V	21	97.02	2.84	2.69
Total Contamination #11015	mg/kg	38	23.26	6.97	6.98

table 3: summary of tests results of Gasoil #11014 and #11015

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 2011 WITH PREVIOUS PTS.

	<i>March 2011</i>	<i>March 2010</i>	<i>October 2009</i>	<i>March 2009</i>
Number of reporting labs	102	72	178	75
Number of results reported	1950	1322	4104	1346
Statistical outliers	66	58	78	45
Percentage outliers	3.4%	4.4%	1.9%	3.3%

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:

	<i>March 2011</i>	<i>March 2010</i>	<i>October 2009</i>	<i>March 2009</i>
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 #11015	+/-	--	--	n.e.

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

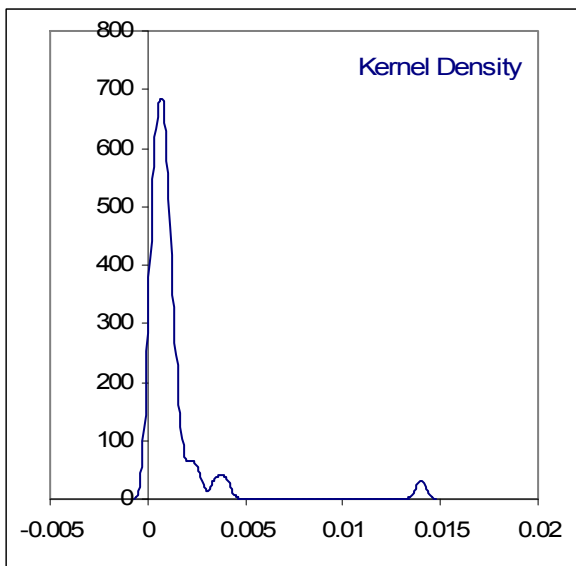
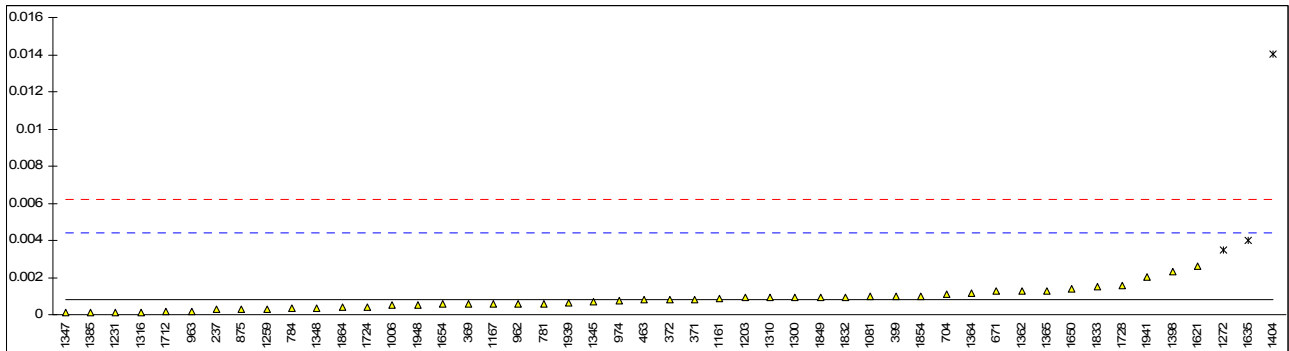
**APPENDIX 1****Determination of Ash on sample #11014; result in %M/M**

lab	method	Value	mark	z(targ)	remarks
150	D482	<0.001		----	
228	D482	<0.01		----	
237	D482	0.00028		----	
238		----		----	
240		----		----	
253	D482	<0.001		----	
312		----		----	
317	D482	<0.001		----	
323		----		----	
333		----		----	
334		----		----	
343	ISO6245	<0.001		----	
357	ISO6245	<0.001		----	
360	ISO6245	<0.001		----	
369	ISO6245	0.0006		----	
371	ISO6245	0.0008		----	
372	ISO6245	0.0008		----	
391		----		----	
399	ISO6245	0.0010		----	
420	ISO6245	<0.001		----	
440		----		----	
445	IP4	<0.001		----	
447	ISO6245	<0.0001		----	
463	ISO6245	0.0008		----	
604		----		----	
671	D482	0.0013		----	
704	ISO6245	0.0011		----	
759		----		----	
781	ISO6245	0.0006		----	
784	D482	0.00033		----	
875	D482	0.0003		----	
962	ISO6245	0.0006		----	
963	D482	0.0002		----	
974	D482	0.00073		----	
1006	D482	0.0005		----	
1016	ISO6245	<0.001		----	
1017	ISO6245	<0.001		----	
1038	D482	<0.001		----	
1059	ISO6245	<0.001		----	
1067		----		----	
1080		----		----	
1081	D482	<0.001		----	
1108		----		----	
1109	D482	<0.001		----	
1138	IP4	<0.001		----	
1140	IP4	<0.001		----	
1146	D874	<0.001		----	
1161	ISO6245	0.000884		----	
1167	ISO6245	0.0006		----	
1194		----		----	
1203	ISO6245	0.0009	C	----	First reported 0.015
1205		----		----	
1215		----		----	
1218		----		----	
1227		----		----	
1231	D482	0.00014		----	
1259	ISO6245	0.000313		----	
1266		----		----	
1272	ISO6245	0.0035	G(0.01)	----	
1297		----		----	
1300	ISO6245	0.000905		----	
1310	ISO6245	0.0009		----	
1316	ISO6245	0.00014		----	
1345	D482	0.0007		----	
1347	D482	0.0001		----	
1348	D482	0.00034		----	
1356	ISO6245	<0.005		----	
1362	ISO6245	0.0013		----	
1364	ISO6245	0.001137		----	
1365	D482	0.0013		----	
1370		----		----	
1385	D482	0.0001		----	
1393		----		----	
1394		----		----	
1395	D482	<0.001		----	
1398	INH-1461	0.0023		----	

1404	ISO6245	0.014	G(0.01)	----
1428	ISO6245	<0.001		----
1520	ISO6245	<0.001		----
1621	ISO6245	0.0026		----
1635	ISO6245	0.004	G(0.01)	----
1650	ISO6245	0.0014		----
1654	ISO6245	0.0006		----
1712	ISO6245	0.0002		----
1720		----		----
1724	ISO6245	0.0004		----
1728	ISO6245	0.00155		----
1730		----		----
1807	ISO6245	<0.0010		----
1810		----		----
1811		----		----
1832	ISO6245	0.00095		----
1833	ISO6245	0.0015		----
1834		----		----
1849	ISO6245	0.00095		----
1854	ISO6245	0.001		----
1861		----		----
1864	ISO6245	0.00039		----
1939	D482	0.00061	C	---- First reported 0.0061
1941	ISO6245	0.002		----
1948	ISO6245	0.0005		----
2146		----		----
8010		----		----

normality OK  
 n 45  
 outliers 3  
 mean (n) 0.00081  
 st.dev. (n) 0.000563  
 R(calc.) 0.00158  
 R(ISO6245:93) (0.00500)

Application range: 0.001 – 0.180%M/M



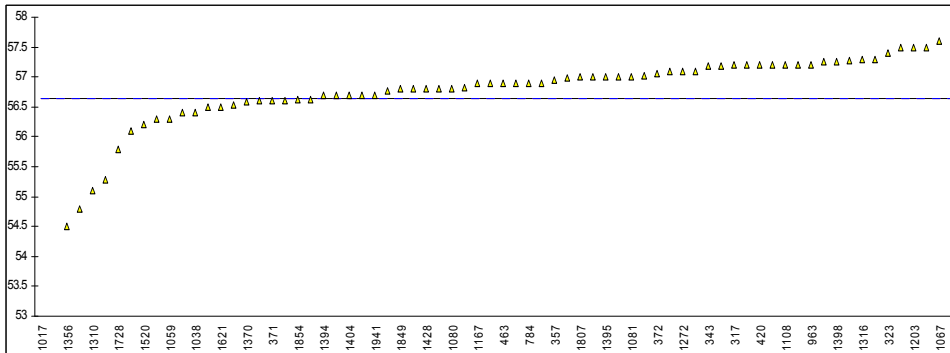
## Determination of Cetane Index on sample #11014

lab	method	value	mark	z(targ)	remarks
150	D4737	54.8	E	----	After manual recalculation by iis 55.67
228	D976	55.0	ex	----	Result excluded, method is not comparable with ISO4264
237	D976	54.9	ex	----	Result excluded, method is not comparable with ISO4264
238		----		----	
240	D976	54.85	ex	----	Result excluded, method is not comparable with ISO4264
253	D976	55.1	ex	----	Result excluded, method is not comparable with ISO4264
312	ISO4264	57.5		----	
317	ISO4264	57.2		----	
323	ISO4264	57.4		----	
333		----		----	
334		----		----	
343	ISO4264	57.18		----	
357	ISO4264	56.95		----	
360	ISO4264	56.54		----	
369	ISO4264	56.76		----	
371	ISO4264	56.6		----	
372	ISO4264	57.06		----	
391	ISO4264	57.2		----	
399	ISO4264	57.3	E	----	After manual recalculation by iis 56.85
420	ISO4264	57.2		----	
440		----		----	
445	IP380	56.8		----	
447	ISO4264	57.2		----	
463	ISO4264	56.9		----	
604	D976	54.91	ex	----	Result excluded, method is not comparable with ISO4264
671	D976	54.5	ex	----	Result excluded, method is not comparable with ISO4264
704	ISO4264	56.9		----	
759	ISO4264	56.6		----	
781	ISO4264	56.9		----	
784	D4737	56.9		----	
875	D4737	56.5	E	----	After manual recalculation by iis 56.81
962		----		----	
963	D4737	57.2		----	
974	D4737	56.6		----	
1006	D976	55.1	ex	----	Result excluded, method is not comparable with ISO4264
1016		----		----	
1017	ISO4264	51.03	E	----	After manual recalculation by iis 55.21
1038	D4737	56.40		----	
1059	ISO4264	56.3		----	
1067	D4737	57.6		----	
1080	ISO4264	56.8		----	
1081	ISO4264	57.0		----	
1108	ISO4264	57.2		----	
1109	D4737	57.0	E	----	After manual recalculation by iis 57.32
1138	D4737	56.9		----	
1140	IP380	56.4		----	
1146		----		----	
1161	ISO4264	56.70		----	
1167	ISO4264	56.9		----	
1194	D4737	52.3	E	----	After manual recalculation by iis 54.63
1203	ISO4264	57.5	E	----	After manual recalculation by iis 57.22
1205		----		----	
1215		----		----	
1218		----		----	
1227	D976	54.7	ex	----	Result excluded, method is not comparable with ISO4264
1231	D976	55.12	ex	----	Result excluded, method is not comparable with ISO4264
1259	ISO4264	56.82		----	
1266	ISO4264	57.27		----	
1272	ISO4264	57.1		----	
1297		----		----	
1300	D4737	57.1		----	
1310	ISO4264	55.1	E	----	After manual recalculation by iis 56.81
1316	ISO4264	57.3		----	
1345	D4737	55.28		----	
1347	D976	56.457	ex	----	Result excluded, method is not comparable with ISO4264
1348	D976	57.89	ex	----	Result excluded, method is not comparable with ISO4264
1356	ISO4264	54.5	E	----	After manual recalculation by iis 52.59
1362	ISO4264	56.70		----	
1364	ISO4264	56.3		----	
1365	D4737	56.10		----	
1370	ISO4264	56.586	E	----	After manual recalculation by iis 56.31
1385	D976	57.32	ex	----	Result excluded, method is not comparable with ISO4264
1393		----		----	
1394	ISO4264	56.69		----	
1395	ISO4264	57.00		----	
1398	D4737	57.26		----	

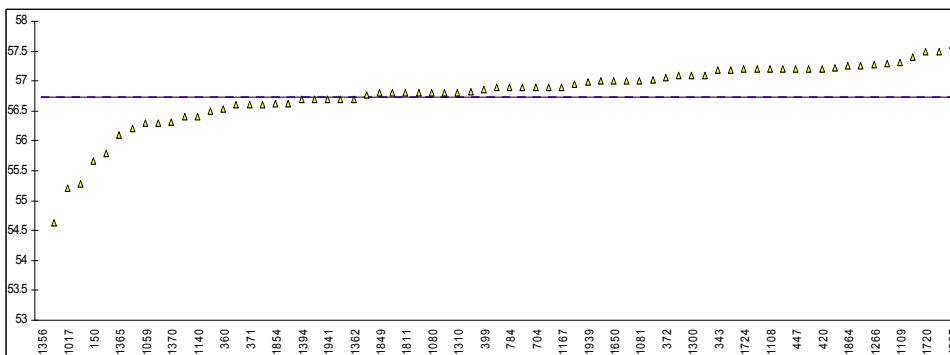
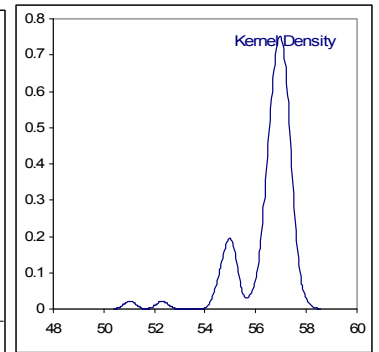
1404	ISO4264	56.7	----
1428	ISO4264	56.8	----
1520	ISO4264	56.20	----
1621	ISO4264	56.5	----
1635	ISO4264	57.19	----
1650	ISO4264	57.0	----
1654	ISO4264	57.02	----
1712	ISO4264	57.1	----
1720	D4737	57.5	----
1724	ISO4264	57.2	----
1728	ISO4264	55.798	----
1730		----	----
1807	ISO4264	57.0	----
1810		----	----
1811	ISO4264	56.8	----
1832		----	----
1833	ISO4264	56.62	----
1834		----	----
1849	ISO4264	56.80	----
1854	ISO4264	56.62	----
1861		----	----
1864	ISO4264	57.26	----
1939	D4737	56.99	----
1941	ISO4264	56.7	----
1948		----	----
2146		----	----
8010		----	----

After manual recalculation:

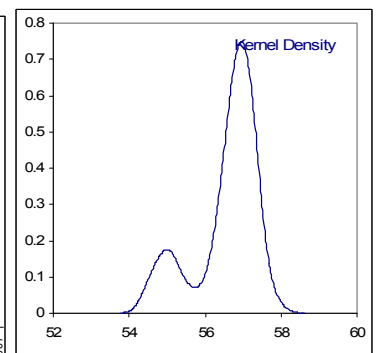
normality	not OK		not OK	
n	71		71	
outliers	0	(+ 12 excl.)	0	(+ 12 excl.)
mean (n)	56.636		56.731	
st.dev. (n)	1.0355		0.7263	
R(calc.)	2.899		2.034	
R(ISO4264:95)	unknown		Unknown	



Original reported data (D976 results excluded)



After manual recalculation



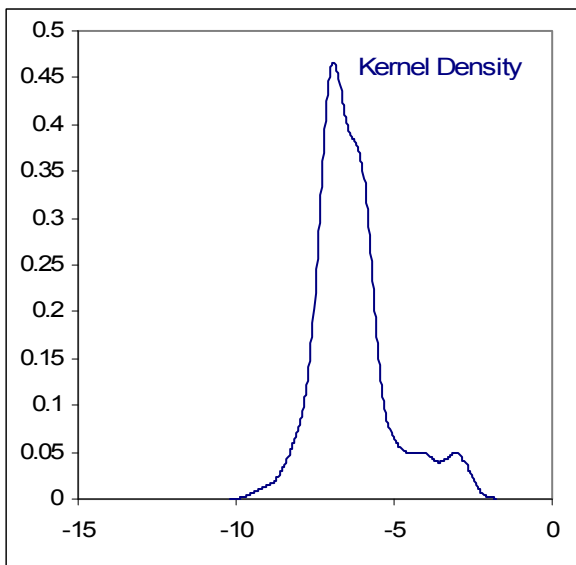
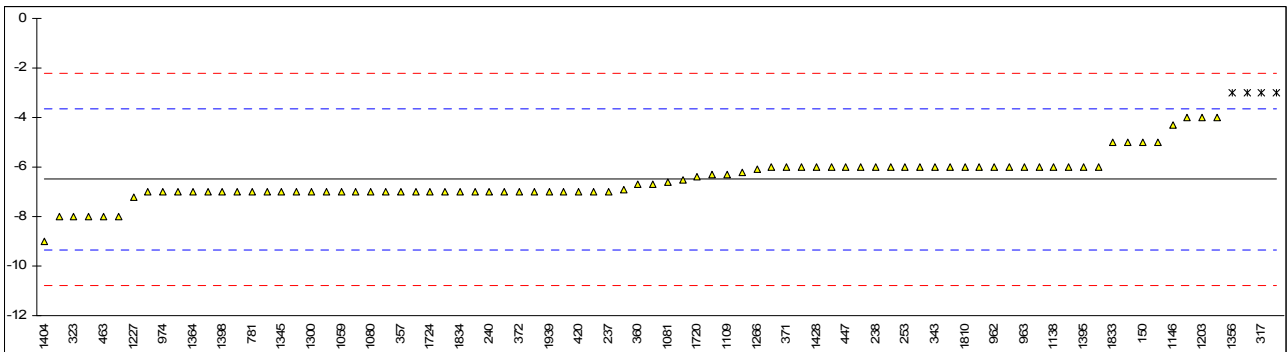
## Determination of Cloud Point on sample #11014; result in °C

lab	method	value	mark	z(targ)	remarks
150	D2500	-5		1.04	
228	D2500	-7		-0.36	
237	D2500	-7		-0.36	
238	D2500	-6		0.34	
240	D2500	-7		-0.36	
253	D2300	-6		0.34	
312	EN23015	-6		0.34	
317	D5771	-3	DG(0.05)	2.44	
323	EN23015	-8		-1.06	
333		----		----	
334	EN23015	-6.9		-0.29	
343	EN23015	-6		0.34	
357	EN23015	-7		-0.36	
360	EN23015	-6.7		-0.15	
369	EN23015	-6		0.34	
371	EN23015	-6		0.34	
372	EN23015	-7		-0.36	
391	EN23015	-5		1.04	
399	EN23015	-6		0.34	
420	EN23015	-7		-0.36	
440	IP219	-8.0		-1.06	
445	D2500	-7		-0.36	
447	IP219	-6		0.34	
463	EN23015	-8		-1.06	
604	D2500	-6		0.34	
671	D2500	-6		0.34	
704	ISO3015	-7		-0.36	
759		----		----	
781	EN23015	-7		-0.36	
784	D2500	-7		-0.36	
875	D2500	-6		0.34	
962	EN23015	-6		0.34	
963	D2500	-6		0.34	
974	D2500	-7		-0.36	
1006		----		----	
1016		----		----	
1017	D2500	-7		-0.36	
1038	D5773	-6.2		0.20	
1059	ISO3015	-7		-0.36	
1067	D5771	-7		-0.36	
1080	EN23015	-7		-0.36	
1081	D5772	-6.6		-0.08	
1108	D5771	-6		0.34	
1109	D5773	-6.3		0.13	
1138	D2500	-6		0.34	
1140	D5773	-6.3		0.13	
1146	D2500	-4.3		1.53	
1161		----		----	
1167		----		----	
1194	D2500	-6.7		-0.15	
1203	EN23015	-4		1.74	
1205		----		----	
1215		----		----	
1218		----		----	
1227	D2500	-7.2		-0.50	
1231	D2500	-4		1.74	
1259	EN23015	-6		0.34	
1266	EN23015	-6.1		0.27	
1272		----		----	
1297	D2500	-7.0		-0.36	
1300	EN23015	-7.0		-0.36	
1310	EN23015	-3	DG(0.05)	2.44	
1316	EN23015	-7.0		-0.36	
1345	D2500	-7		-0.36	
1347	D2500	-7		-0.36	
1348	D2500	-8		-1.06	
1356	ISO3015	-3	DG(0.05)	2.44	
1362	EN23015	-7.0		-0.36	
1364	EN23015	-7		-0.36	
1365	D2500	-6		0.34	
1370		----		----	
1385	D2500	-3	DG(0.05)	2.44	
1393		----		----	
1394	EN23015	-6.5		-0.01	
1395	EN23015	-6		0.34	
1398	D2500	-7		-0.36	



1404	EN23015	-9	-1.76
1428	EN23015	-6	0.34
1520	EN23015	-6	0.34
1621	D2500	-4	1.74
1635	EN23015	-5	1.04
1650	D2500	-7	-0.36
1654		----	----
1712	ISO3015	-7	-0.36
1720	D2500	-6.4	0.06
1724	EN23015	-7	-0.36
1728	EN23015	-7	-0.36
1730		----	----
1807	D2500	-7	-0.36
1810	EN23015	-6	0.34
1811	EN23015	-6	0.34
1832	EN23015	-7	-0.36
1833	EN23015	-5	1.04
1834	EN23015	-7	-0.36
1849		----	----
1854	EN23015	-7	-0.36
1861		----	----
1864		----	----
1939	D2500	-7	-0.36
1941	EN23015	-6.0	0.34
1948	EN23015	-8	-1.06
2146		----	----
8010		----	----

normality not OK  
n 80  
outliers 4  
mean (n) -6.49  
st.dev. (n) 0.906  
R(calc.) 2.54  
R(EN23015:92) 4.00

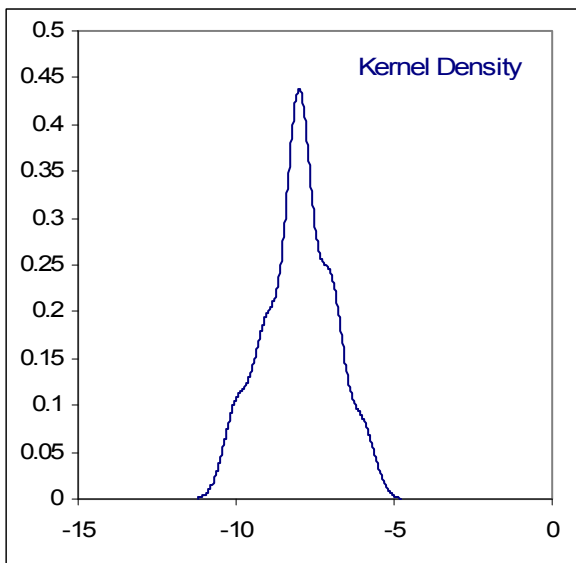
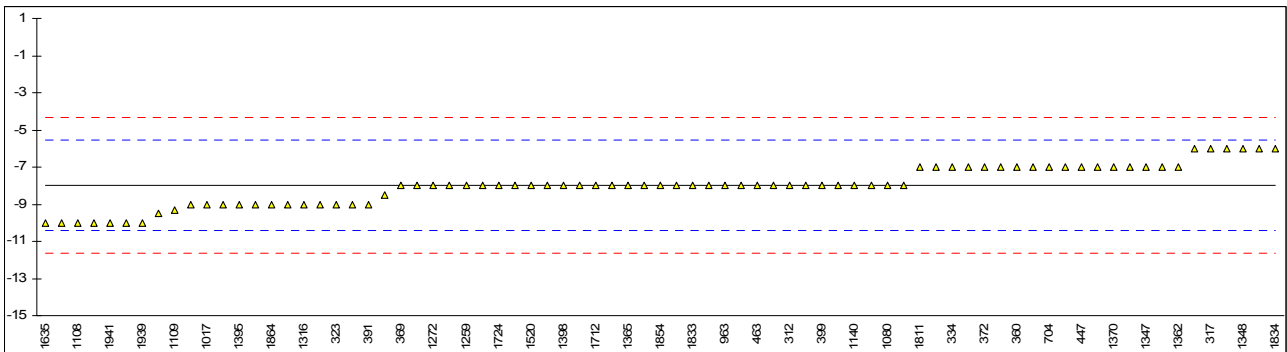


## Determination of Cold Filter Plugging Point on sample #11014; result in °C

lab	method	value	mark	z(targ)	remarks
150	IP309	-10		-1.64	
228		----		----	
237		----		----	
238		----		----	
240		----		----	
253		----		----	
312	EN116	-8		0.00	
317	D6371	-6		1.65	
323	EN116	-9		-0.82	
333	EN116	-7		0.83	
334	EN116	-7		0.83	
343	EN116	-9		-0.82	
357	EN116	-7		0.83	
360	EN116	-7		0.83	
369	EN116	-8		0.00	
371	EN116	-8		0.00	
372	EN116	-7		0.83	
391	EN116	-9		-0.82	
399	EN116	-8		0.00	
420	EN116	-8		0.00	
440	IP309	-8.0		0.00	
445	IP309	-8		0.00	
447	IP309	-7		0.83	
463	EN116	-8		0.00	
604		----		----	
671		----		----	
704	EN116	-7		0.83	
759		----		----	
781	EN116	-7		0.83	
784		----		----	
875	EN116	-6		1.65	
962	EN116	-8		0.00	
963	IP309	-8		0.00	
974	IP309	-8		0.00	
1006	D6371	-6		1.65	
1016		----		----	
1017	EN116	-9		-0.82	
1038		----		----	
1059	EN116	-7		0.83	
1067	EN116	-9		-0.82	
1080	EN116	-8		0.00	
1081	EN116	-10		-1.64	
1108	EN116	-10		-1.64	
1109	IP309	-9.3		-1.07	
1138	EN116	-8		0.00	
1140	IP309	-8		0.00	
1146		----		----	
1161		----		----	
1167	EN116	-6		1.65	
1194	EN116	-9		-0.82	
1203	EN116	-8		0.00	
1205		----		----	
1215		----		----	
1218		----		----	
1227	IP309	-9.0		-0.82	
1231	D6371	-8		0.00	
1259	EN116	-8		0.00	
1266	EN116	-9.5		-1.23	
1272	EN116	-8		0.00	
1297		----		----	
1300	EN116	-8.5		-0.41	
1310	EN116	-7		0.83	
1316	EN116	-9.0		-0.82	
1345	IP309	-9		-0.82	
1347	IP309	-7		0.83	
1348	IP309	-6		1.65	
1356		----		----	
1362	EN116	-7.0		0.83	
1364	EN116	-8		0.00	
1365	EN116	-8		0.00	
1370	EN116	-7	C	0.83	First reported -11.33
1385	IP309	-7		0.83	
1393		----		----	
1394	INH22254	-7		0.83	
1395	EN116	-9		-0.82	
1398	EN116	-8		0.00	

1404	EN116	-8	0.00
1428	EN116	-8	0.00
1520	EN116	-8	0.00
1621		----	----
1635	EN116	-10	-1.64
1650	EN116	-8	0.00
1654	EN116	-10.0	-1.64
1712	EN116	-8	0.00
1720		----	----
1724	EN116	-8	0.00
1728	D6371	-9	-0.82
1730		----	----
1807	EN116	-8	0.00
1810	EN116	-7	0.83
1811	EN116	-7	0.83
1832		----	----
1833	EN116	-8	0.00
1834	EN116	-6	1.65
1849	EN116	-8	0.00
1854	EN116	-8	0.00
1861		----	----
1864	EN116	-9	-0.82
1939	IP309	-10	-1.64
1941	EN116	-10.0	-1.64
1948	EN116	-8	0.00
2146		----	----
8010		----	----

normality not OK  
 n 77  
 outliers 0  
 mean (n) -8.00  
 st.dev. (n) 1.059  
 R(calc.) 2.96  
 R(EN116:97) 3.40

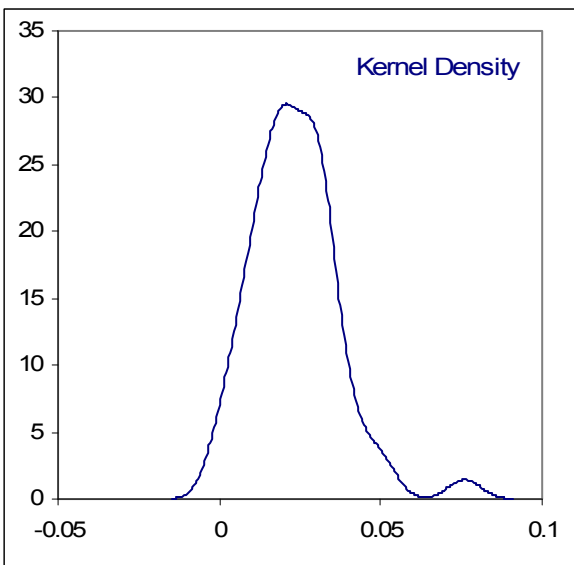
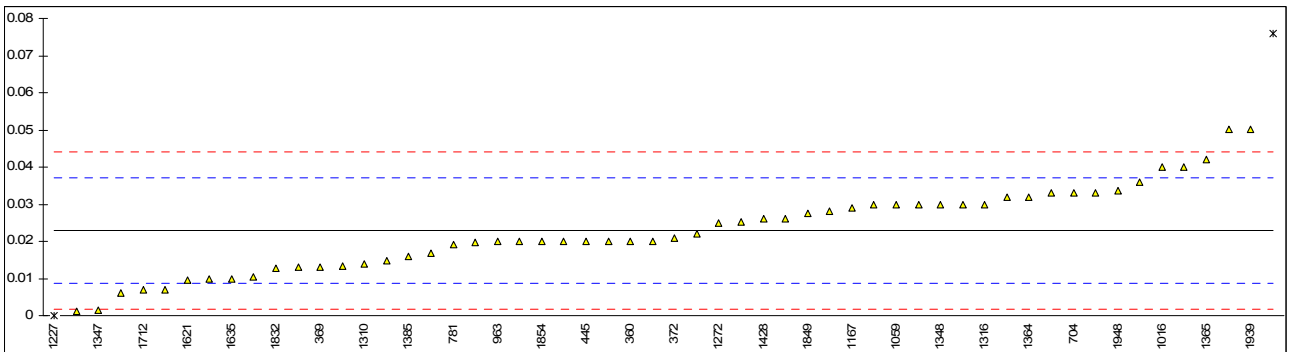


## Determination of Carbon Residue on 10% residue on sample #11014; result in %M/M

lab	method	value	mark	z(targ)	remarks
150	D4530	0.006		-2.40	
228	D189	0.03		1.00	
237		----		----	
238		----		----	
240		----		----	
253	D189	0.02		-0.42	
312		----		----	
317	D4530	<0.10		----	
323	ISO10370	<0.10		----	
333		----		----	
334		----		----	
343	ISO10370	<0.1		----	
357		----		----	
360	ISO10370	0.02		-0.42	
369	ISO10370	0.013		-1.41	
371		----		----	
372	ISO10370	0.021		-0.28	
391		----		----	
399	ISO10370	0.02		-0.42	
420		----		----	
440		----		----	
445	IP398	0.02		-0.42	
447	ISO10370	<0.01		<-1.83	
463	ISO10370	0.0134		-1.35	
604		----		----	
671	D4530	0.0331		1.44	
704	ISO10370	0.033		1.42	
759		----		----	
781	ISO10370	0.019		-0.56	
784		----		----	
875	D4530	0.0251		0.30	
962	ISO10370	0.02		-0.42	
963	D189	0.02		-0.42	
974	D189	0.0169		-0.86	
1006	D524	0.076	ex	7.51	Used testmethod is not comparable with carbon residue micro method
1016	ISO10370	0.04		2.41	
1017	ISO10370	0.007		-2.26	
1038		----		----	
1059	ISO10370	0.03		1.00	
1067		----		----	
1080	ISO10370	<0.01		<-1.83	
1081	ISO10370	0.03		1.00	
1108	ISO10370	0.03		1.00	
1109	D4530	<0.01		<-1.83	
1138	IP13	0.02		-0.42	
1140	IP398	0.05		3.83	
1146		----		----	
1161	ISO10370	0.0282		0.74	
1167	ISO10370	0.029		0.86	
1194		----		----	
1203	ISO10370	0.01		-1.83	
1205		----		----	
1215	D4530	0.0196		-0.47	
1218		----		----	
1227	D4530	0.0	ex	-3.25	Result excluded, zero is not a real result
1231		----		----	
1259	ISO10370	0.035914		1.83	
1266		----		----	
1272	ISO10370	0.0249		0.28	
1297		----		----	
1300	ISO10370	0.0104		-1.77	
1310	ISO10370	0.0139		-1.28	
1316	ISO10370	0.03		1.00	
1345	D189	0.032		1.28	
1347	D189	0.0015		-3.03	
1348	D189	0.03		1.00	
1356		----		----	
1362	ISO10370	0.033		1.42	
1364	D189	0.0320		1.28	
1365	D4530	0.042		2.70	
1370		----		----	
1385	D189	0.0158		-1.01	
1393		----		----	
1394		----		----	
1395	ISO10370	0.022		-0.13	
1398	D4530	0.026		0.43	

1404	ISO10370	<0.10	----
1428	ISO10370	0.026	0.43
1520	ISO10370	<0.01	<-1.83
1621	ISO10370	0.0095	-1.90
1635	ISO10370	0.01	-1.83
1650		----	----
1654		----	----
1712	ISO10370	0.007	-2.26
1720		----	----
1724	ISO10370	0.0013	-3.06
1728	ISO10370	0.0149	-1.14
1730		----	----
1807	ISO10370	<0.1	----
1810		----	----
1811		----	----
1832	ISO6615	0.0128	-1.44
1833	ISO10370	0.04	2.41
1834		----	----
1849	ISO10370	0.0274	0.63
1854	ISO10370	0.02	-0.42
1861		----	----
1864		----	----
1939	D189	0.05	3.83
1941	ISO10370	0.013	-1.41
1948	ISO10370	0.0335	1.49
2146		----	----
8010		----	----

normality OK  
n 54  
outliers 0  
mean (n) 0.0229  
st.dev. (n) 0.01124  
R(calc.) 0.0315  
R(ISO10370:93) 0.0198



## Determination of Copper Corrosion (3 hrs @ 50°C) on sample #11014;

lab	method	value	mark	z(targ)	remarks
150	D130	1A		----	
228	D130	1A		----	
237	D130	1A		----	
238	D130	1A		----	
240	D130	1A		----	
253	D130	1A		----	
312	D130	1A		----	
317	D849	1A		----	
323	ISO2160	1A		----	
333	ISO2160	1		----	
334		----		----	
343	ISO2160	1A		----	
357	ISO2160	1A		----	
360	ISO2160	1A		----	
369	ISO2160	1A		----	
371	ISO2160	1A		----	
372	ISO2160	1A		----	
391		----		----	
399	ISO2160	1A		----	
420	ISO2160	1A		----	
440	D130	1A		----	
445	D130	1A		----	
447	ISO2160	1A		----	
463	ISO2160	1A		----	
604		----		----	
671	D130	1A		----	
704	ISO2160	1A		----	
759		----		----	
781	ISO2160	1A		----	
784	D130	1A		----	
875	D130	1A		----	
962	ISO2160	1A		----	
963	D130	1A		----	
974	D130	1A		----	
1006	D130	1A		----	
1016	ISO2160	1A		----	
1017	D130	1A		----	
1038	D130	1A		----	
1059	ISO2160	1A		----	
1067	ISO2160	1A		----	
1080	ISO2160	1A		----	
1081	D130	1A		----	
1108	ISO2160	1		----	
1109	D130	1A		----	
1138	D130	1A		----	
1140	IP154	1A		----	
1146		----		----	
1161	ISO2160	1B		----	
1167	ISO2160	1A		----	
1194		----		----	
1203	ISO2160	1		----	
1205		----		----	
1215	D130	1A		----	
1218		----		----	
1227	D130	1A		----	
1231	D130	1A		----	
1259	ISO2160	1A		----	
1266		----		----	
1272	ISO2160	1A		----	
1297		----		----	
1300	ISO2160	1A		----	
1310	ISO2160	1		----	
1316	ISO2160	1A		----	
1345	D130	1A		----	
1347	D130	1A		----	
1348	D130	1A		----	
1356		----		----	
1362	ISO2160	1A		----	
1364	ISO2160	1A		----	
1365	D130	1A		----	
1370		----		----	
1385	D130	1B		----	
1393		----		----	
1394		----		----	
1395	ISO2160	1A		----	
1398	D130	1A		----	

1404	ISO2160	1A	----
1428	ISO2160	1	----
1520	ISO2160	1A	----
1621	D130	1A	----
1635	ISO2160	1A	----
1650	D130	1A	----
1654		----	----
1712	ISO2160	1A	----
1720		----	----
1724	ISO2160	1A	----
1728	ISO2160	1A	----
1730		----	----
1807	ISO2160	1A	----
1810		----	----
1811	ISO2160	1	----
1832	ISO2160	1A	----
1833	ISO2160	1A	----
1834		----	----
1849	ISO2160	1	----
1854	ISO2160	1A	----
1861		----	----
1864	ISO2160	1A	----
1939	D130	1B	----
1941	ISO2160	1A	----
1948	ISO2160	1A	----
2146		----	----
8010		----	----
	normality	n.a.	
	n	85	
	outliers	0	
	mean (n)	1	
	st.dev. (n)	n.a.	
	R(calc.)	n.a.	
	R(ISO2160:98)	n.a.	

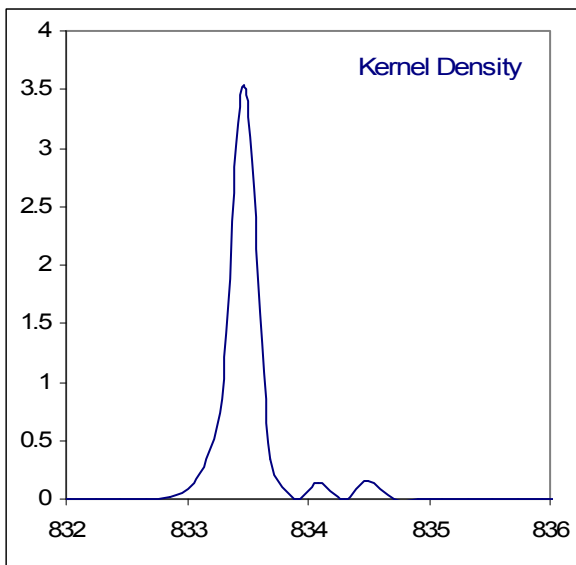
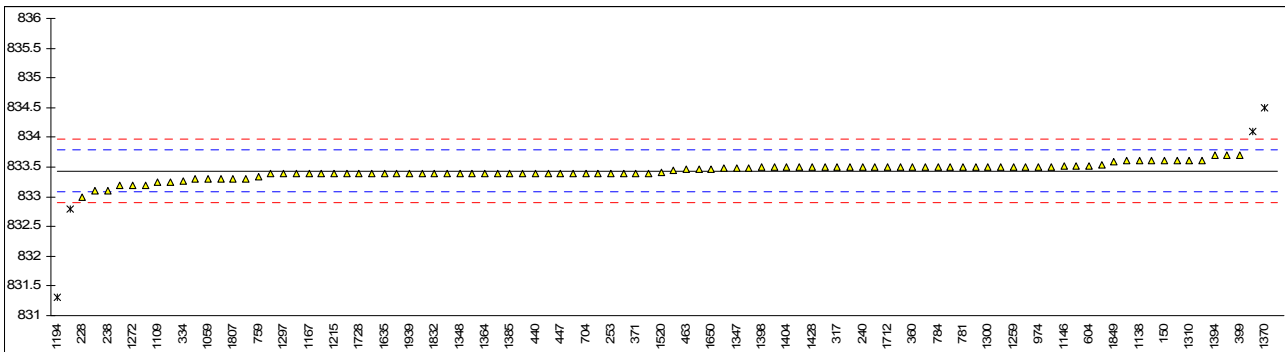
Determination of Density @15 °C on sample #11014; result in kg/m<sup>3</sup>

lab	method	value	mark	z(targ)	remarks
150	D4052	833.6		0.92	
228	D1298	833.0		-2.44	
237	D1298	832.8	G(0.01)	-3.56	
238	D1298	833.1	C	-1.88	First reported 735.0
240	D4052	833.5		0.36	
253	D4052	833.4		-0.20	
312	ISO12185	833.4		-0.20	
317	D4052	833.5		0.36	
323	ISO12185	833.1		-1.88	
333	ISO12185	833.5		0.36	
334	ISO12185	833.26	C	-0.98	First reported 883.26
343	ISO12185	833.47		0.20	
357	ISO12185	833.4		-0.20	
360	ISO12185	833.5		0.36	
369	ISO12185	833.4		-0.20	
371	ISO12185	833.4		-0.20	
372	ISO12185	833.5		0.36	
391	ISO12185	833.2		-1.32	
399	ISO12185	833.7		1.48	
420	ISO12185	833.4		-0.20	
440	D4052	833.4		-0.20	
445	IP365	833.5		0.36	
447	ISO12185	833.4		-0.20	
463	ISO12185	833.46		0.14	
604	D4052	833.52		0.48	
671	D4052	833.7		1.48	
704	ISO12185	833.4		-0.20	
759	ISO12185	833.33		-0.59	
781	ISO12185	833.5		0.36	
784	D4052	833.5		0.36	
875	D4052	833.4		-0.20	
962	ISO12185	833.5		0.36	
963	D4052	833.5		0.36	
974	D4052	833.5		0.36	
1006	D4052	833.5		0.36	
1016		----		----	
1017	ISO12185	833.48		0.25	
1038	D4052	833.3		-0.76	
1059	ISO12185	833.3		-0.76	
1067	D4052	883.4	G(0.01)	279.80	
1080	ISO12185	833.5		0.36	
1081	ISO12185	833.6		0.92	
1108	ISO12185	833.2		-1.32	
1109	D4052	833.24		-1.09	
1138	IP365	833.6		0.92	
1140	IP365	833.4		-0.20	
1146	ISO12185	833.51		0.42	
1161	ISO12185	833.24		-1.09	
1167	ISO12185	833.4		-0.20	
1194	ISO12185	831.3	G(0.01)	-11.96	
1203	ISO12185	833.4		-0.20	
1205	ISO12185	833.39		-0.25	
1215	D1298	833.4		-0.20	
1218	ISO12185	833.53		0.53	
1227	D4052	833.5		0.36	
1231	D4052	833.6		0.92	
1259	ISO12185	833.50		0.36	
1266	ISO3675	833.4		-0.20	
1272	ISO12185	833.2		-1.32	
1297	D4052	833.4		-0.20	
1300	ISO12185	833.5		0.36	
1310	ISO12185	833.6		0.92	
1316	ISO12185	833.4		-0.20	
1345	D4052	833.5		0.36	
1347	D4052	833.48		0.25	
1348	D4052	833.4		-0.20	
1356	ISO12185	834.1	G(0.01)	3.72	
1362	ISO12185	833.40		-0.20	
1364	ISO12185	833.4		-0.20	
1365	D4052	833.40		-0.20	
1370	ISO3675	834.5	C,G(0.01)	5.96	First reported 832
1385	D4052	833.4		-0.20	
1393		----		----	
1394	ISO12185	833.7		1.48	
1395	ISO12185	833.4		-0.20	
1398	D4052	833.5		0.36	



1404	ISO12185	833.5	0.36
1428	ISO12185	833.5	0.36
1520	ISO12185	833.41	-0.14
1621	ISO12185	833.6	0.92
1635	ISO12185	833.4	-0.20
1650	D4052	833.47	0.20
1654	ISO12185	833.5	0.36
1712	ISO12185	833.5	0.36
1720	D4052	833.5	0.36
1724	ISO12185	833.4	-0.20
1728	ISO12185	833.4	-0.20
1730	ISO12185	833.4	-0.20
1807	ISO12185	833.3	-0.76
1810	ISO12185	833.3	-0.76
1811	ISO12185	833.51	0.42
1832	ISO12185	833.4	-0.20
1833	ISO12185	833.4	-0.20
1834		----	----
1849	ISO12185	833.59	0.87
1854	ISO12185	833.3	-0.76
1861		----	----
1864	ISO12185	833.45	0.08
1939	D4052	833.4	-0.20
1941	ISO12185	833.60	0.92
1948	ISO12185	833.5	0.36
2146	ISO12185	833.48	0.25
8010		----	----

normality not OK  
n 93  
outliers 5  
mean (n) 833.43  
st.dev. (n) 0.123  
R(calc.) 0.34  
R(ISO12185:96) 0.50

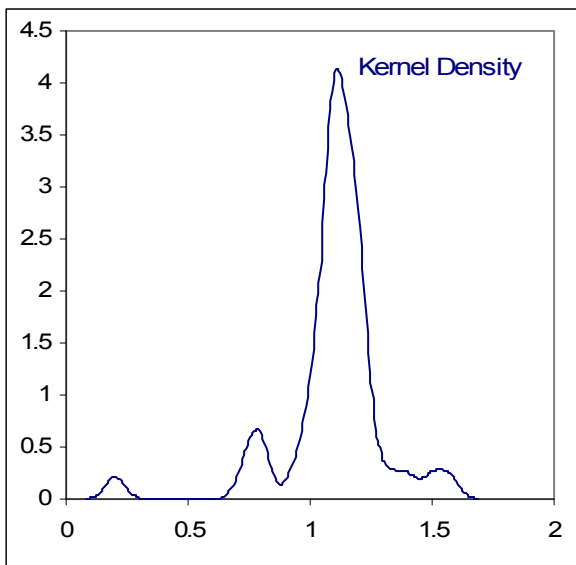
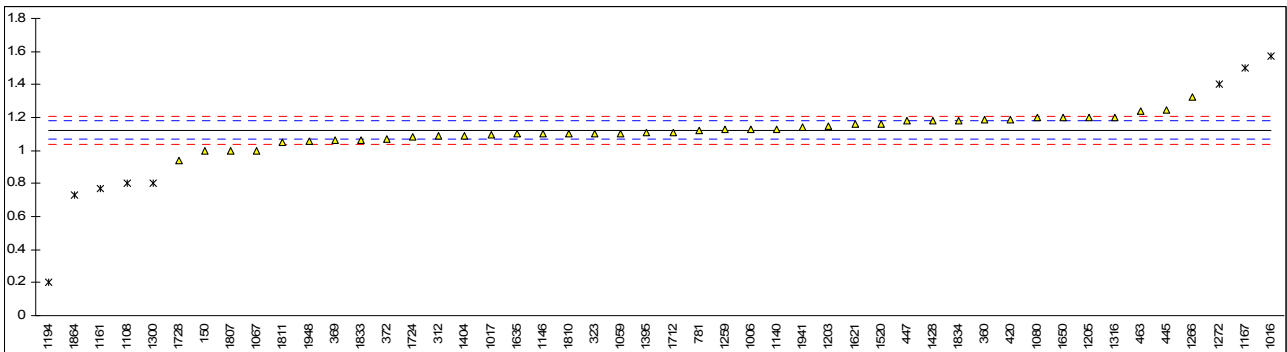


## Determination of FAME Content on sample #11014; result in %V/V

lab	method	value	mark	z(targ)	remarks
150	EN14078	1.0		-4.39	
228		----		----	
237		----		----	
238		----		----	
240		----		----	
253		----		----	
312	EN14078	1.09		-1.20	
317		----		----	
323	EN14078	1.10		-0.85	
333		----		----	
334		----		----	
343		----		----	
357		----		----	
360	EN14078	1.19		2.33	
369	EN14078	1.06		-2.26	
371		----		----	
372	EN14078	1.07		-1.91	
391		----		----	
399		----		----	
420	EN14078	1.19		2.33	
440		----		----	
445	EN14078	1.245		4.28	
447	EN14078	1.178		1.91	
463	EN14078	1.24		4.10	
604		----		----	
671		----		----	
704		----		----	
759		----		----	
781	EN14078	1.123		-0.04	
784		----		----	
875		----		----	
962		----		----	
963		----		----	
974		----		----	
1006	EN14078	1.13		0.21	
1016	EN14078	1.57	DG(0.05)	15.77	
1017	EN14078	1.0938		-1.07	
1038		----		----	
1059	EN14078	1.10		-0.85	
1067	EN14078	1.0		-4.39	
1080	EN14078	1.2		2.69	
1081		----		----	
1108	EN14078	0.8	DG(0.01)	-11.46	
1109		----		----	
1138		----		----	
1140	D7371	1.13		0.21	
1146	EN14078	1.10		-0.85	
1161	EN14078	0.77	DG(0.05)	-12.52	
1167	EN14078	1.499	DG(0.05)	13.26	
1194	EN14078	0.2	G(0.01)	-32.67	
1203	EN14078	1.15		0.92	
1205	EN14078	1.2		2.69	
1215		----		----	
1218		----		----	
1227		----		----	
1231		----		----	
1259	EN14078	1.12684		0.10	
1266	EN14078	1.325		7.11	
1272	EN14078	1.4	G(0.05)	9.76	
1297		----		----	
1300	EN14078	0.8	DG(0.01)	-11.46	
1310		----		----	
1316	EN14078	1.2		2.69	
1345		----		----	
1347		----		----	
1348		----		----	
1356		----		----	
1362	EN14078	< 1.7		----	
1364		----		----	
1365		----		----	
1370		----		----	
1385		----		----	
1393		----		----	
1394		----		----	
1395	EN14078	1.11		-0.50	
1398		----		----	

1404	EN14078	1.09		-1.20
1428	EN14078	1.18		1.98
1520	EN14078	1.163		1.38
1621	EN14078	1.16		1.27
1635	EN14078	1.1		-0.85
1650	EN14078	1.20		2.69
1654		----		----
1712	EN14078	1.11		-0.50
1720		----		----
1724	EN14078	1.0855		-1.36
1728	EN14078	0.936		-6.65
1730		----		----
1807	EN14078	1.0		-4.39
1810	EN14078	1.1		-0.85
1811	EN14078	1.05		-2.62
1832		----		----
1833	EN14078	1.06		-2.26
1834	EN14078	1.18		1.98
1849		----		----
1854		----		----
1861		----		----
1864	EN14078	0.73	DG(0.05)	-13.93
1939		----		----
1941	D7371	1.14		0.56
1948	EN14078	1.055		-2.44
2146		----		----
8010		----		----

normality OK  
n 40  
outliers 8  
mean (n) 1.124  
st.dev. (n) 0.0758  
R(calc.) 0.212  
R(EN14078:09) 0.079

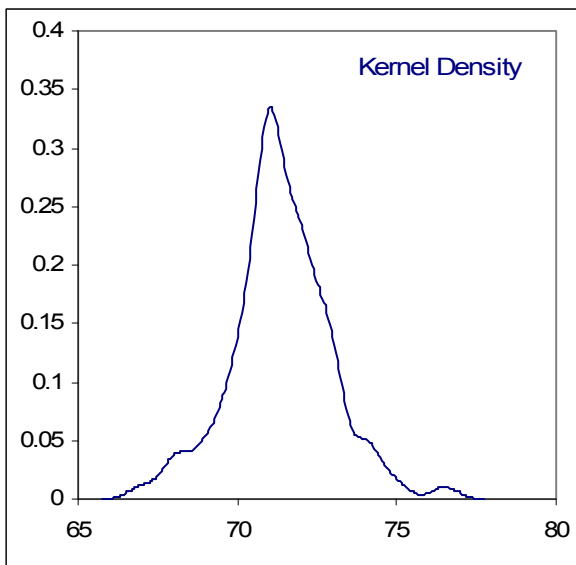
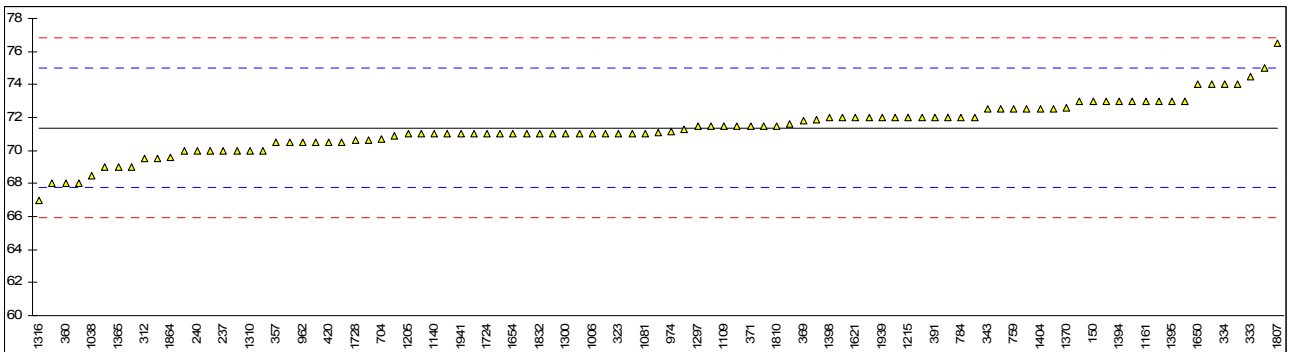


## Determination of Flash Point PMcc on sample #11014; result in °C

lab	method	value	mark	z(targ)	remarks
150	D93A	73.0		0.90	
228	D93A	73.0		0.90	
237	D93-M	70.0		-0.76	
238	D93	70.0		-0.76	
240	D93	70		-0.76	
253	D93	71.0		-0.20	
312	D93	69.5		-1.03	
317	D93	72.0		0.35	
323	ISO2719	71.0		-0.20	
333	ISO2719	74.5		1.73	
334	ISO2719	74.0		1.45	
343	ISO2719	72.5		0.63	
357	ISO2719	70.5		-0.48	
360	ISO2719	68.0		-1.86	
369	ISO2719	71.8		0.24	
371	ISO2719	71.5		0.07	
372	ISO2719	71.0		-0.20	
391	ISO2719	72.0		0.35	
399	ISO2719	70.9		-0.26	
420	ISO2719	70.5		-0.48	
440	IP34	71.1		-0.15	
445	D93A	73.0		0.90	
447	ISO2719	71.9		0.29	
463	ISO2719	72.5		0.63	
604	D93	72.5		0.63	
671	D93	70		-0.76	
704	ISO2719	70.7		-0.37	
759	D3828	72.5		0.63	
781	ISO2719	71.5		0.07	
784	D93A	72.0		0.35	
875	D93	72.0		0.35	
962	ISO2719	70.5		-0.48	
963	D93	70.0		-0.76	
974	D93	71.15		-0.12	
1006	D93	71		-0.20	
1016		----		----	
1017	ISO2719	71.0		-0.20	
1038	D93	68.5		-1.58	
1059	ISO2719	72.5		0.63	
1067	ISO2719	70.5		-0.48	
1080	ISO2719	69.5		-1.03	
1081	D93-AE	71.0		-0.20	
1108	ISO2719	72.0		0.35	
1109	D93	71.5		0.07	
1138	IP34	71.0		-0.20	
1140	IP34	71		-0.20	
1146	D93	70.62		-0.41	
1161	ISO2719	73.0		0.90	
1167	ISO2719	71.0		-0.20	
1194		----		----	
1203	ISO2719	71.5		0.07	
1205	D93	71.0		-0.20	
1215	D93	72.0		0.35	
1218		----		----	
1227		----		----	
1231	D93	74.0		1.45	
1259	ISO2719	74.0		1.45	
1266	ISO2719	71.6		0.13	
1272	ISO2719	71		-0.20	
1297	D93	71.5		0.07	
1300	ISO2719	71.0		-0.20	
1310	ISO2719	70		-0.76	
1316	ISO2719	67		-2.41	
1345	D93	73.0		0.90	
1347	D93	73		0.90	
1348	D93	72		0.35	
1356	ISO2719	75		2.01	
1362	ISO2719	68.00		-1.86	
1364	ISO2719	70.0		-0.76	
1365	D93	69.0		-1.31	
1370	ISO2719	72.6		0.68	
1385	D93	69		-1.31	
1393		----		----	
1394	INH-6356	73		0.90	
1395	ISO2719	73.0		0.90	
1398	ISO2719	72.0		0.35	

1404	ISO2719	72.5	0.63
1428	ISO2719	71.5	0.07
1520	ISO2719	73.0	0.90
1621	ISO2719	72.0	0.35
1635	ISO2719	69	-1.31
1650	D93	74.0	1.45
1654	ISO2719	71.0	-0.20
1712	ISO2719	72.0	0.35
1720	D93	71.0	-0.20
1724	ISO2719	71	-0.20
1728	ISO2719	70.6	-0.42
1730	ISO2719	71	-0.20
1807	ISO2719	76.5	2.84
1810	ISO2719	71.5	0.07
1811	ISO2719	70.5	-0.48
1832	ISO2719	71.0	-0.20
1833	ISO2719	68	-1.86
1834	ISO2719	70.5	-0.48
1849	ISO2719	71.3	-0.04
1854	ISO2719	71	-0.20
1861	----	----	----
1864	ISO2719	69.6	-0.98
1939	D93	72	0.35
1941	ISO2719	71.0	-0.20
1948	ISO2719	72	0.35
2146	----	----	----
8010	----	----	----

normality not OK  
n 95  
outliers 0  
mean (n) 71.37  
st.dev. (n) 1.551  
R(calc.) 4.34  
R(ISO2719:02) 5.07

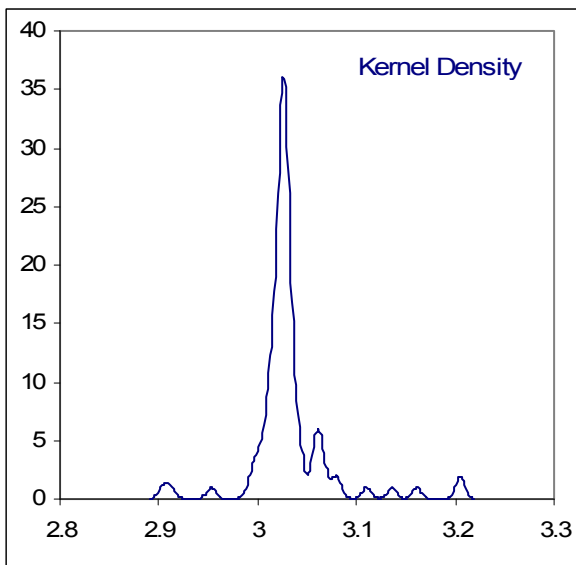
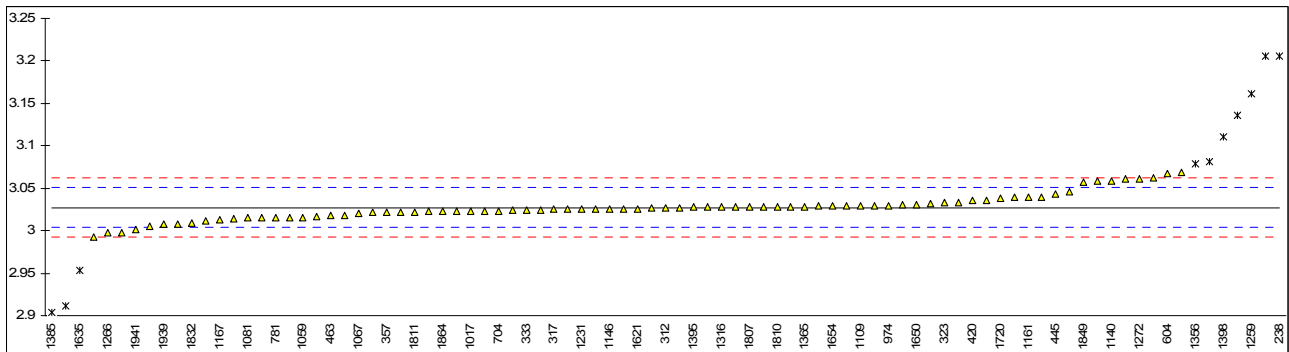


Determination of Kinematic Viscosity @ 40°C on sample #11014; result in mm<sup>2</sup>/s

lab	method	value	mark	z(targ)	remarks
150	D445	3.023		-0.37	
228	D445	3.0686		3.49	
237	D445	3.205	G(0.01)	15.06	
238	D445	3.205	C,G(0.01)	15.06	First reported 3.173
240	D445	3.062		2.93	
253	D445	3.008		-1.64	
312	D445	3.027		-0.03	
317	D445	3.025		-0.20	
323	ISO3104	3.033		0.48	
333	ISO3104	3.024		-0.29	
334		----		----	
343	ISO3104	3.0333		0.50	
357	ISO3104	3.022		-0.46	
360	ISO3104	3.0294		0.17	
369	ISO3104	3.0151		-1.04	
371	ISO3104	3.022		-0.46	
372	ISO3104	3.029		0.14	
391	ISO3104	3.029		0.14	
399	ISO3104	2.998		-2.49	
420	ISO3104	3.0354		0.68	
440	D445	3.0235		-0.33	
445	D445	3.043		1.32	
447	ISO3104	3.0140		-1.14	
463	ISO3104	3.0176		-0.83	
604	D445	3.0668	C	3.34	First reported 3.0744
671	D445	3.02284		-0.39	
704	ISO3104	3.0236		-0.32	
759		----		----	
781	ISO3104	3.016		-0.97	
784	D445	3.028		0.05	
875	D445	3.016		-0.97	
962		----		----	
963	D445	3.005		-1.90	
974	D7042	3.0295		0.18	
1006	D445	3.0238		-0.30	
1016		----		----	
1017	D445	3.0232		-0.36	
1038		----		----	
1059	ISO3104	3.016		-0.97	
1067	ISO3104	3.020		-0.63	
1080	ISO3104	3.028		0.05	
1081	D445	3.015		-1.05	
1108	ISO3104	3.136	G(0.01)	9.21	
1109	D445	3.0291	C	0.14	First reported 2.9367
1138	IP71	3.081	DG(0.05)	4.55	
1140	D445	3.059		2.68	
1146	ISO3104	3.0252		-0.19	
1161	ISO3104	3.040		1.07	
1167	ISO3104	3.013		-1.22	
1194		----		----	
1203	ISO3104	3.040		1.07	
1205		----		----	
1215	D445	3.018		-0.80	
1218		----		----	
1227	D445	3.0280	C	0.05	First reported 3.0949
1231	D445	3.025		-0.20	
1259	ISO3104	3.1614	C,G(0.01)	11.36	First reported 3.23708
1266	ISO3104	2.998		-2.49	
1272	ISO3104	3.0616		2.90	
1297	D7042	3.0218		-0.47	
1300	ISO3104	3.0391		0.99	
1310	ISO3104	3.025		-0.20	
1316	ISO3104	3.028		0.05	
1345	D445	3.012		-1.31	
1347	D445	3.028		0.05	
1348	D445	2.912	G(0.01)	-9.78	
1356	ISO3104	3.079	C,DG(0.05)	4.38	First reported 3.943
1362	ISO3104	3.0362	C	0.75	First reported 2.9440
1364	ISO3104	3.03068		0.28	
1365	D445	3.0287		0.11	
1370		----		----	
1385	D445	2.9041	G(0.05)	-10.45	
1393		----		----	
1394	D445	3.0314		0.34	
1395	ISO3104	3.0280	C	0.05	First reported 3.0970
1398	D445	3.1100	G(0.01)	7.00	

1404	ISO3104	3.061	2.85
1428	ISO3104	3.025	-0.20
1520	ISO3104	3.0169	-0.89
1621	ISO3104	3.026	-0.12
1635	ISO3104	2.953	G(0.05)
1650	D445	3.031	0.31
1654	ISO3104	3.029	0.14
1712	ISO3104	3.024	-0.29
1720	D7042	3.038	0.90
1724	ISO3104	3.0266	-0.07
1728	ISO3104	3.0580	2.60
1730		----	----
1807	ISO3104	3.028	0.05
1810	ISO3104	3.028	0.05
1811	ISO3104	3.0223	-0.43
1832	ISO3104	3.0086	-1.59
1833	ISO3104	3.046	1.58
1834	ISO3104	3.027	-0.03
1849	ISO3104	3.0571	2.52
1854	ISO3104	2.992	-3.00
1861		----	----
1864	ISO3104	3.023	-0.37
1939	D445	3.008	-1.64
1941	ISO3104	3.0012	-2.22
1948	ISO3104	3.0258	-0.13
2146		----	----
8010		----	----

normality not OK  
n 79  
outliers 10  
mean (n) 3.0274  
st.dev. (n) 0.01529  
R(calc.) 0.0428  
R(ISO3104:94) 0.0330



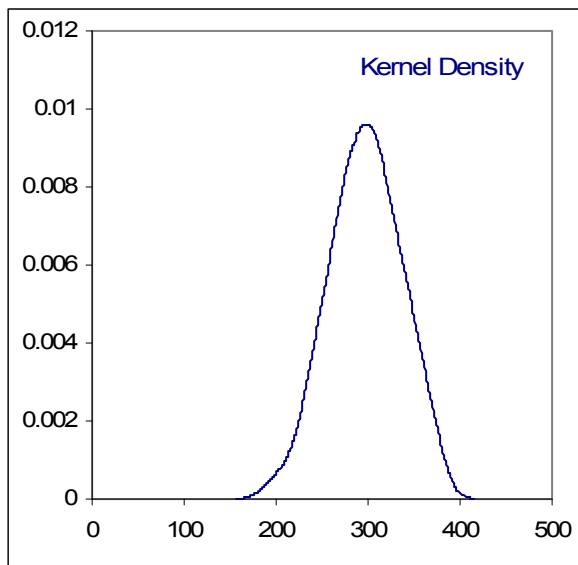
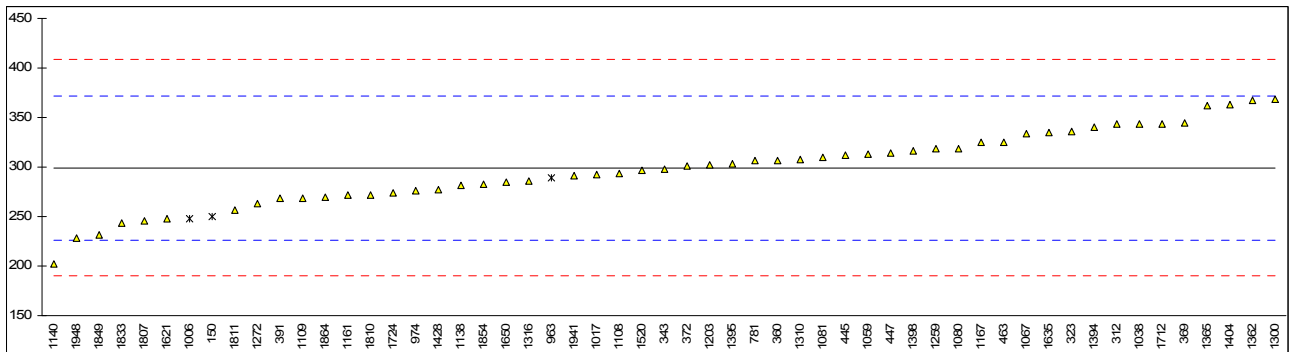
Determination of Lubricity by HFRR on sample #11014; result in  $\mu\text{m}$ 

lab	method	value	mark	z(targ)	remarks
150	D6079	250	ex	-1.35	Calculation procedure of the test method is not comparable with ISO12156
228		----		----	
237		----		----	
238		----		----	
240		----		----	
253		----		----	
312	ISO12156	343		1.20	
317		----		----	
323	ISO12156	336		1.01	
333		----		----	
334		----		----	
343	ISO12156	298		-0.04	
357		----		----	
360	ISO12156	307		0.21	
369	ISO12156	345		1.25	
371		----		----	
372	ISO12156	301		0.05	
391	ISO12156	269		-0.83	
399		----		----	
420		----		----	
440		----		----	
445	ISO12156	312.5		0.36	
447	ISO12156	314		0.40	
463	ISO12156	325.5		0.72	
604		----		----	
671		----		----	
704		----		----	
759		----		----	
781	ISO12156	307		0.21	
784		----		----	
875		----		----	
962		----		----	
963	D6079	288.7	ex	-0.29	Calculation procedure of the test method is not comparable with ISO12156
974	ISO12156	276		-0.64	
1006	D6078	248.0	ex	-1.41	Result excluded as testmethod is not comparable
1016		----		----	
1017	ISO12156	292		-0.20	
1038	IP450	343		1.20	
1059	ISO12156	313		0.37	
1067	ISO12156	334		0.95	
1080	ISO12156	319		0.54	
1081	ISO12156	310		0.29	
1108	ISO12156	294		-0.15	
1109	IP450	269		-0.83	
1138	ISO12156	281.0		-0.50	
1140	IP450	202		-2.67	
1146		----		----	
1161	ISO12156	271.46		-0.77	
1167	ISO12156	325		0.70	
1194		----		----	
1203	ISO12156	302		0.07	
1205		----		----	
1215		----		----	
1218		----		----	
1227		----		----	
1231		----		----	
1259	ISO12156	318		0.51	
1266		----		----	
1272	ISO12156	263	C	-1.00	First reported 196
1297		----		----	
1300	ISO12156	369.0		1.91	
1310	ISO12156	308		0.24	
1316	ISO12156	286		-0.37	
1345		----		----	
1347		----		----	
1348		----		----	
1356		----		----	
1362	ISO12156	367.5		1.87	
1364		----		----	
1365	ISO12156	361.9		1.72	
1370		----		----	
1385		----		----	
1393		----		----	
1394	ISO12156	340		1.12	
1395	ISO12156	303.5		0.11	
1398	ISO12156	316		0.46	



1404	ISO12156	363	1.75
1428	ISO12156	277	-0.61
1520	ISO12156	297	-0.06
1621	ISO12156	248	-1.41
1635	ISO12156	335	0.98
1650	ISO12156	285	-0.39
1654	----	----	----
1712	ISO12156	344	1.23
1720	----	----	----
1724	ISO12156	274	-0.70
1728	----	----	----
1730	----	----	----
1807	ISO12156	246	-1.46
1810	ISO12156	272	-0.75
1811	ISO12156	256	-1.19
1832	----	----	----
1833	ISO12156	244	-1.52
1834	----	----	----
1849	ISO12156	231	-1.88
1854	ISO12156	283	-0.45
1861	----	----	----
1864	ISO12156	270	-0.81
1939	----	----	----
1941	ISO12156	291	-0.23
1948	ISO12156	228	-1.96
2146	----	----	----
8010	----	----	----

normality OK  
n 52  
outliers 0 (+ 3 excl)  
mean (n) 299.4  
st.dev. (n) 37.61  
R(calc.) 105.3  
R(ISO12156:04) 102.0

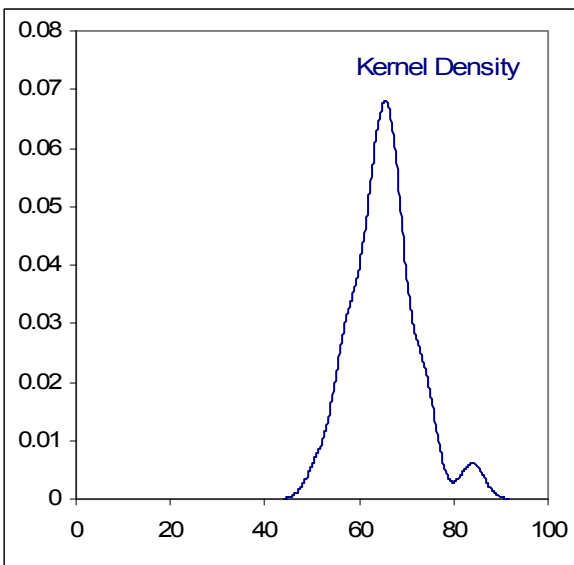
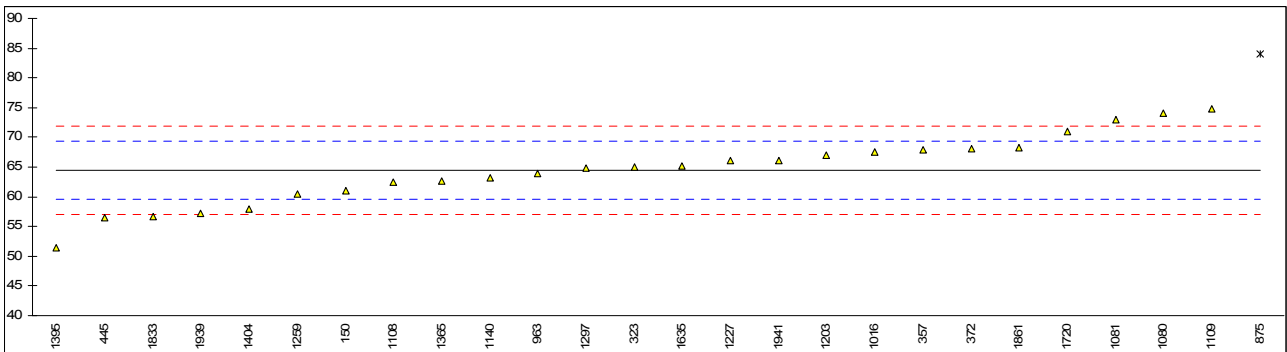


Determination of Total Nitrogen on sample #11014; result in mg/kg

lab	method	value	mark	z(targ)	remarks
150	D4629	61		-1.41	
228		----		----	
237		----		----	
238		----		----	
240		----		----	
253		----		----	
312		----		----	
317		----		----	
323	D4629	65		0.21	
333		----		----	
334		----		----	
343		----		----	
357	D6069	67.9		1.38	
360		----		----	
369		----		----	
371		----		----	
372	D4629	68		1.42	
391		----		----	
399		----		----	
420		----		----	
440		----		----	
445	D4629	56.4	C	-3.27	First reported 46.5
447		----		----	
463		----		----	
604		----		----	
671		----		----	
704		----		----	
759		----		----	
781		----		----	
784		----		----	
875	D4629	84	G(0.05)	7.90	
962		----		----	
963	D4629	64		-0.20	
974		----		----	
1006		----		----	
1016	D4629	67.61		1.26	
1017		----		----	
1038		----		----	
1059		----		----	
1067		----		----	
1080	D4629	74		3.85	
1081	D4629	73		3.45	
1108	D4629	62.5		-0.81	
1109	D4629	74.7		4.13	
1138		----		----	
1140	D5762	63.12		-0.55	
1146		----		----	
1161		----		----	
1167		----		----	
1194		----		----	
1203	D4629	67		1.02	
1205		----		----	
1215		----		----	
1218		----		----	
1227	D4629	66.1		0.65	
1231		----		----	
1259	D4629	60.494		-1.62	
1266		----		----	
1272		----		----	
1297	D4629	64.81		0.13	
1300		----		----	
1310		----		----	
1316		----		----	
1345		----		----	
1347		----		----	
1348		----		----	
1356		----		----	
1362		----		----	
1364		----		----	
1365	D4629	62.59		-0.77	
1370		----		----	
1385		----		----	
1393		----		----	
1394		----		----	
1395	D4629	51.46		-5.27	
1398		----		----	

1404	D4629	58	-2.63
1428		----	----
1520		----	----
1621		----	----
1635	D5762	65.27	0.32
1650		----	----
1654		----	----
1712		----	----
1720	D4629	71.0	2.64
1724		----	----
1728		----	----
1730		----	----
1807		----	----
1810		----	----
1811		----	----
1832		----	----
1833	D4629	56.6	-3.19
1834		----	----
1849		----	----
1854		----	----
1861	D4629	68.289	1.54
1864		----	----
1939	D4629	57.25	-2.93
1941	D4629	66.12	0.66
1948		----	----
2146		----	----
8010		----	----

normality OK  
 n 25  
 outliers 1  
 mean (n) 64.49  
 st.dev. (n) 5.773  
 R(calc.) 16.17  
 R(D4629:10) 6.92

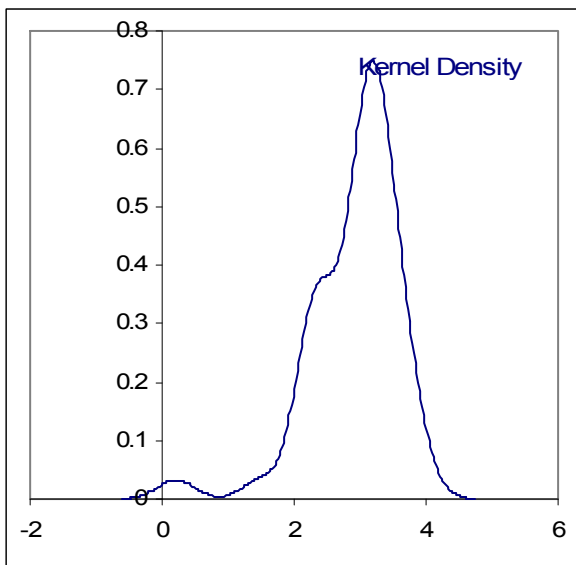
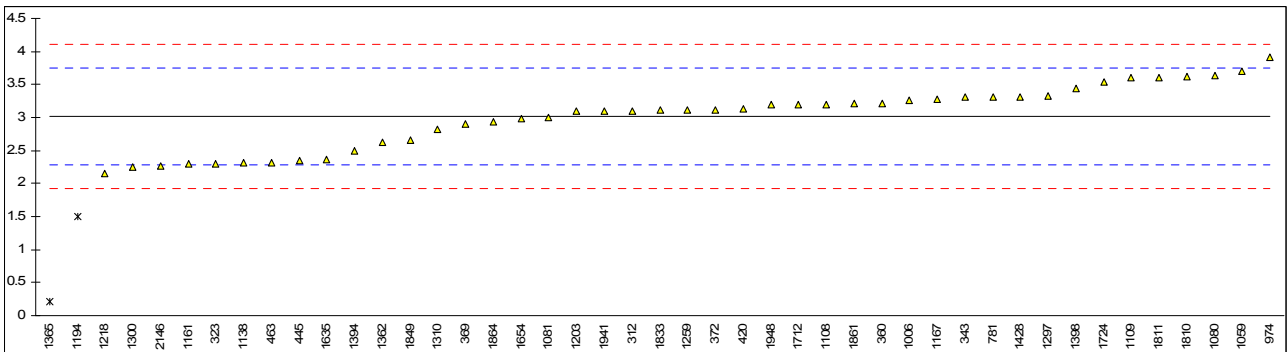


## Determination of Poly-Aromatic Hydrocarbons on sample #11014; result in %M/M

lab	method	value	mark	z(targ)	remarks
150		----		----	
228		----		----	
237		----		----	
238		----		----	
240		----		----	
253		----		----	
312	EN12916	3.10		0.23	
317		----		----	
323	EN12916	2.3		-1.96	
333		----		----	
334		----		----	
343	EN12916	3.31		0.81	
357		----		----	
360	EN12916	3.21		0.53	
369	EN12916	2.90		-0.32	
371		----		----	
372	EN12916	3.12		0.29	
391		----		----	
399		----		----	
420	EN12916	3.13		0.31	
440		----		----	
445	IP391	2.34		-1.85	
447		----		----	
463	EN12916	2.32		-1.90	
604		----		----	
671		----		----	
704		----		----	
759		----		----	
781	EN12916	3.31		0.81	
784		----		----	
875		----		----	
962		----		----	
963		----		----	
974	IP391	3.91		2.45	
1006	D6591	3.26		0.67	
1016		----		----	
1017		----		----	
1038		----		----	
1059	EN12916	3.7		1.87	
1067		----		----	
1080	EN12916	3.63		1.68	
1081	IP391	3.0		-0.04	
1108	EN12916	3.2		0.51	
1109	D6591	3.61		1.63	
1138	IP391	2.31		-1.93	
1140		----		----	
1146		----		----	
1161	EN12916	2.30		-1.96	
1167	EN12916	3.27		0.70	
1194	EN12916	1.5	G(0.05)	-4.15	
1203	EN12916	3.1		0.23	
1205		----		----	
1215		----		----	
1218	EN12916	2.16		-2.34	
1227		----		----	
1231		----		----	
1259	EN12916	3.116		0.28	
1266		----		----	
1272		----		----	
1297	EN12916	3.33		0.86	
1300	EN12916	2.2564		-2.08	
1310	EN12916	2.82		-0.53	
1316		----		----	
1345		----		----	
1347		----		----	
1348		----		----	
1356		----		----	
1362	EN12916	2.63	C	-1.06	First reported 2.01
1364		----		----	
1365	EN12916	0.21	C,G(0.01)	-7.68	First reported 1.92
1370		----		----	
1385		----		----	
1393		----		----	
1394	EN12916	2.495		-1.42	
1395		----		----	
1398	EN12916	3.44		1.16	

1404		----	----
1428	EN12916	3.31	0.81
1520		----	----
1621		----	----
1635	EN12916	2.359	-1.80
1650		----	----
1654	EN12916	2.98	-0.10
1712	EN12916	3.2	0.51
1720		----	----
1724	EN12916	3.539	1.43
1728		----	----
1730		----	----
1807		----	----
1810	EN12916	3.62	1.66
1811	EN12916	3.61	1.63
1832		----	----
1833	EN12916	3.11	0.26
1834		----	----
1849	EN12916	2.66	-0.97
1854		----	----
1861	EN12916	3.207	0.52
1864	EN12916	2.94	-0.21
1939		----	----
1941	EN12916	3.10	0.23
1948	EN12916	3.19	0.48
2146	EN12916	2.26	-2.07
8010		----	----

normality not OK  
n 43  
outliers 2  
mean (n) 3.015  
st.dev. (n) 0.4698  
R(calc.) 1.315  
R(EN12916:06) 1.023

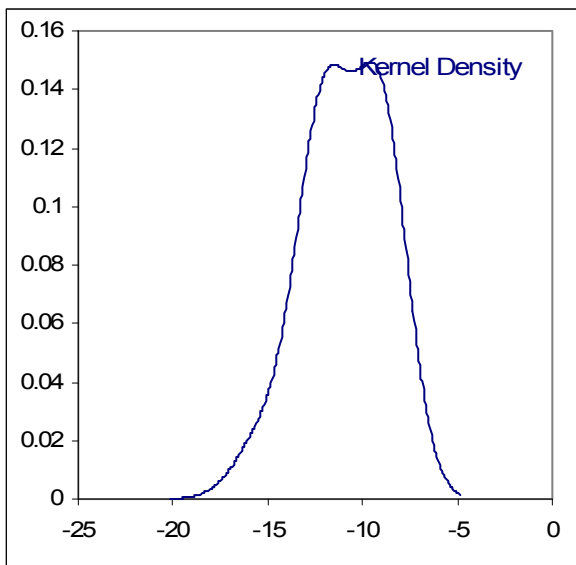
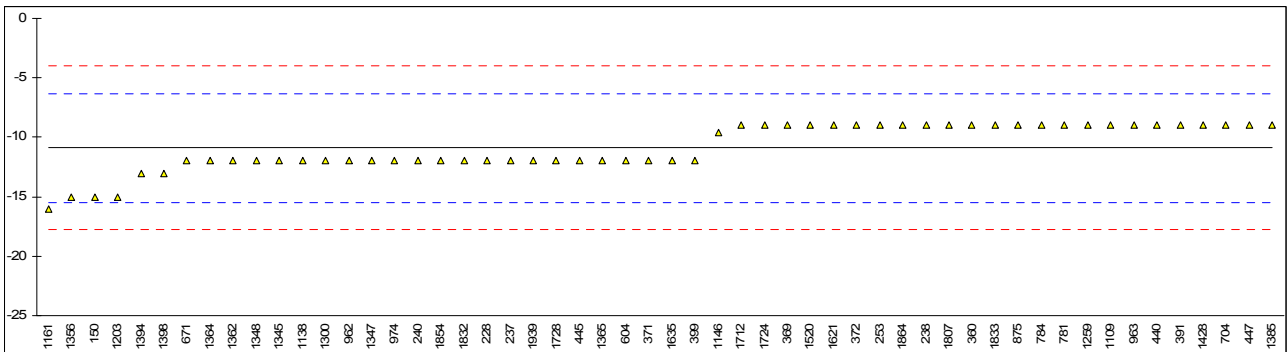


## Determination of Pour Point, Manual on sample #11014; result in °C

lab	method	value	mark	z(targ)	remarks
150	D97	-15		-1.79	
228	D97	-12		-0.48	
237	D97	-12		-0.48	
238	D97	-9		0.83	
240	D97	-12		-0.48	
253	D97	-9		0.83	
312		----		----	
317		----		----	
323		----		----	
333		----		----	
334		----		----	
343		----		----	
357		----		----	
360	ISO3016	-9		0.83	
369	ISO3016	-9		0.83	
371	ISO3016	-12		-0.48	
372	ISO3016	-9		0.83	
391	ISO3016	-9		0.83	
399	ISO3016	-12		-0.48	
420		----		----	
440	IP15	-9.0		0.83	
445	D97	-12		-0.48	
447	ISO3016	-9		0.83	
463		----		----	
604	D97	-12		-0.48	
671	D97	-12		-0.48	
704	ISO3016	-9		0.83	
759		----		----	
781	ISO3016	-9		0.83	
784	D97	-9		0.83	
875	D97	-9		0.83	
962	ISO3016	-12		-0.48	
963	D97	-9		0.83	
974	D97	-12		-0.48	
1006		----		----	
1016		----		----	
1017		----		----	
1038		----		----	
1059		----		----	
1067		----		----	
1080		----		----	
1081		----		----	
1108		----		----	
1109	D97	-9		0.83	
1138	IP15	-12		-0.48	
1140		----		----	
1146	D97	-9.6		0.57	
1161	ISO3016	-16		-2.22	
1167		----		----	
1194		----		----	
1203	ISO3016	-15		-1.79	
1205		----		----	
1215		----		----	
1218		----		----	
1227		----		----	
1231		----		----	
1259	ISO3016	-9		0.83	
1266		----		----	
1272		----		----	
1297		----		----	
1300	ISO3016	-12.0		-0.48	
1310		----		----	
1316		----		----	
1345	D97	-12		-0.48	
1347	D97	-12		-0.48	
1348	D97	-12		-0.48	
1356	ISO3016	-15		-1.79	
1362	ISO3016	-12.0		-0.48	
1364	ISO3016	-12		-0.48	
1365	D97	-12		-0.48	
1370		----		----	
1385	D97	-9		0.83	
1393		----		----	
1394	INH-20287	-13		-0.91	
1395		----		----	
1398	D97	-13		-0.91	

1404		----	----
1428	ISO3016	-9	0.83
1520	ISO3016	-9	0.83
1621	ISO3016	-9	0.83
1635	ISO3016	-12	-0.48
1650		----	----
1654		----	----
1712	ISO3016	-9	0.83
1720		----	----
1724	ISO3016	-9	0.83
1728	D97	-12	-0.48
1730		----	----
1807	ISO3016	-9	0.83
1810		----	----
1811		----	----
1832	ISO3016	-12	-0.48
1833	ISO3016	-9	0.83
1834		----	----
1849		----	----
1854	ISO3016	-12	-0.48
1861		----	----
1864	ISO3016	-9	0.83
1939	D97	-12	-0.48
1941		----	----
1948		----	----
2146		----	----
8010		----	----

normality not OK  
n 54  
outliers 0  
mean (n) -10.90  
st.dev. (n) 1.949  
R(calc.) 5.46  
R(ISO3016:94) 6.43



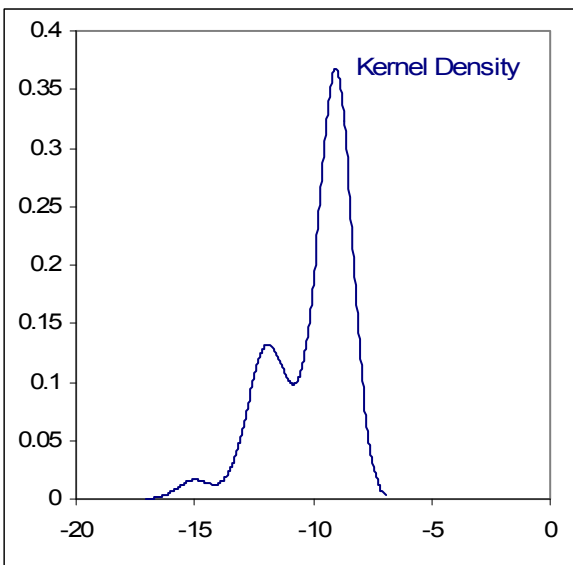
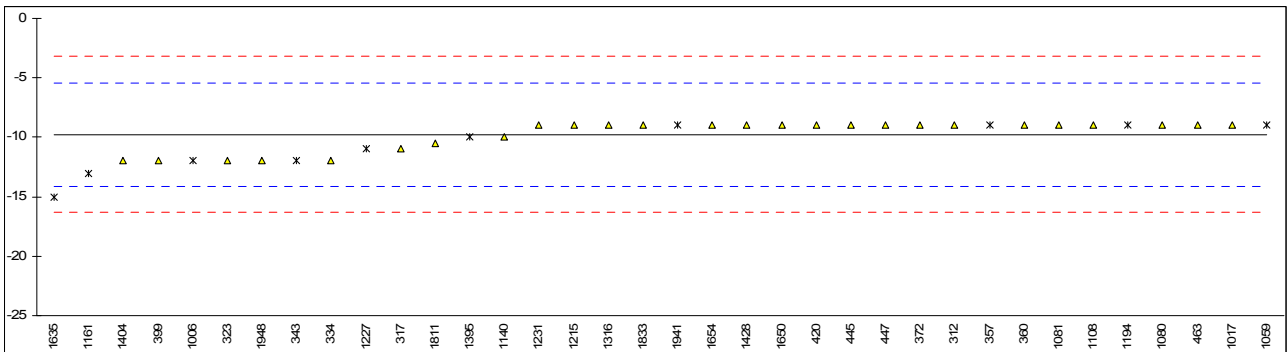
## Determination of Pour Point, Automated on sample #11014; result in °C

lab	method	value	mark	z(targ)	remarks
150		----		----	
228		----		----	
237		----		----	
238		----		----	
240		----		----	
253		----		----	
312	D5950	-9		0.34	
317	D6749	-11		-0.57	
323	D5950	-12		-1.03	
333		----		----	
334	D5950	-12		-1.03	
343	D97	-12	ex	-1.03	Result excluded as reported test method is a manual test method
357	ISO3016	-9	ex	0.34	Result excluded as reported test method is a manual test method
360	D5950	-9		0.34	
369		----		----	
371		----		----	
372	D5950	-9		0.34	
391		----		----	
399	D5950	-12		-1.03	
420	INH-6078	-9		0.34	
440		----		----	
445	D5950	-9		0.34	
447	D5950	-9		0.34	
463	D6892	-9		0.34	
604		----		----	
671		----		----	
704		----		----	
759		----		----	
781		----		----	
784		----		----	
875		----		----	
962		----		----	
963		----		----	
974		----		----	
1006	D97	-12	ex	-1.03	Result excluded as reported test method is a manual test method
1016		----		----	
1017	D5950	-9		0.34	
1038		----		----	
1059	ISO3016	-9	ex	0.34	Result excluded as reported test method is a manual test method
1067		----		----	
1080	D5950	-9		0.34	
1081	D5950	-9		0.34	
1108	D5950	-9		0.34	
1109		----		----	
1138		----		----	
1140	D5950	-10		-0.11	
1146		----		----	
1161	ISO3016	-13	ex	-1.49	Result excluded as reported test method is a manual test method
1167		----		----	
1194	D97	-9	ex	0.34	Result excluded as reported test method is a manual test method
1203		----		----	
1205		----		----	
1215	D5950	-9		0.34	
1218		----		----	
1227	D97	-11.0	ex	-0.57	Result excluded as reported test method is a manual test method
1231	D5950	-9		0.34	
1259		----		----	
1266		----		----	
1272		----		----	
1297		----		----	
1300		----		----	
1310		----		----	
1316	D5950	-9.0		0.34	
1345		----		----	
1347		----		----	
1348		----		----	
1356		----		----	
1362		----		----	
1364		----		----	
1365		----		----	
1370		----		----	
1385		----		----	
1393		----		----	
1394		----		----	
1395	D97	-10	ex	-0.11	Result excluded as reported test method is a manual test method
1398		----		----	



1404	INH-105	-12		-1.03	
1428	D5950	-9		0.34	
1520		----		----	
1621		----		----	
1635	D5950	-15	G(0.05)	-2.41	
1650	D5950	-9	C	0.34	First reported -29
1654	D5950	-9.0		0.34	
1712		----		----	
1720		----		----	
1724		----		----	
1728		----		----	
1730		----		----	
1807		----		----	
1810		----		----	
1811	D5950	-10.5		-0.34	
1832		----		----	
1833	D5950	-9		0.34	
1834		----		----	
1849		----		----	
1854		----		----	
1861		----		----	
1864		----		----	
1939		----		----	
1941	ISO3016	-9.0	ex	0.34	Result excluded as reported test method is a manual test method
1948	D5950	-12		-1.03	
2146		----		----	
8010		----		----	

normality not OK  
n 26  
outliers 1  
mean (n) -9.75  
st.dev. (n) 1.227  
R(calc.) 3.43  
R(D5950:07) 6.10

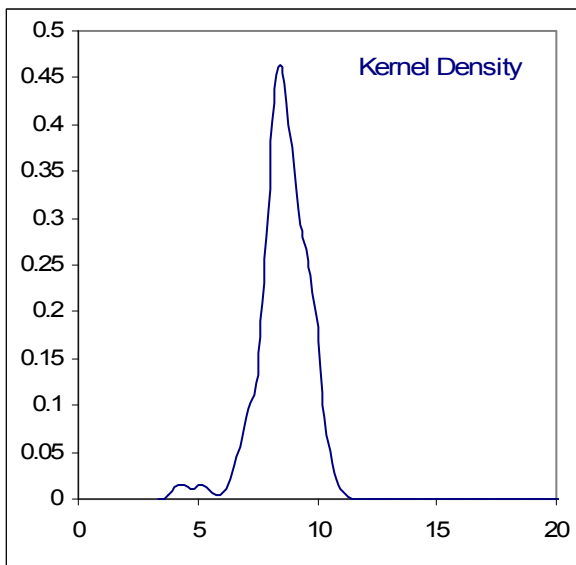
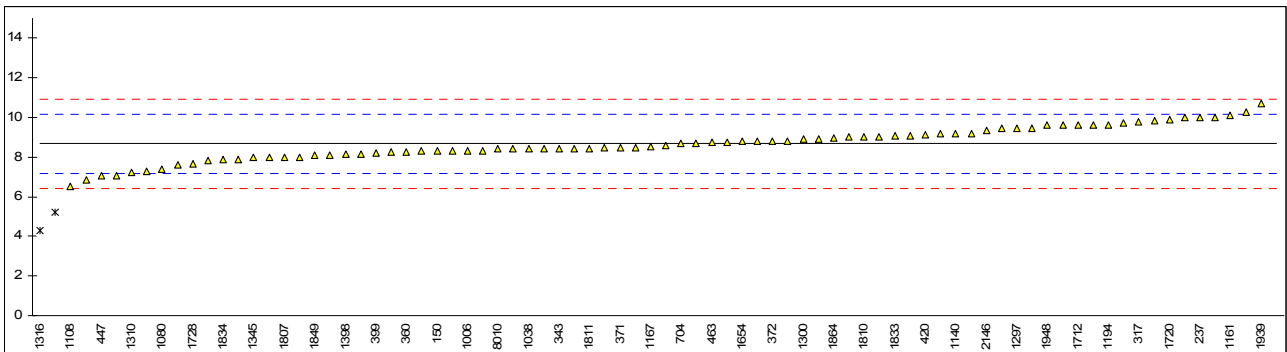


## Determination of Sulphur Content on sample #11014; result in mg/kg

lab	method	value	mark	z(targ)	remarks
150	D5453	8.3		-0.50	
228		----		----	
237	D4294	10		1.77	
238		----		----	
240	D4294	<60		----	
253		----		----	
312	ISO20846	8.3		-0.50	
317	ISO20884	9.8		1.50	
323	ISO20846	7.3		-1.84	
333		----		----	
334	ISO20846	7.6		-1.44	
343	ISO20846	8.43		-0.33	
357	ISO20846	9.74		1.42	
360	ISO20846	8.28		-0.53	
369	ISO20884	7.9		-1.04	
371	ISO20846	8.5		-0.24	
372	ISO20846	8.8		0.17	
391	ISO20846	9.2		0.70	
399	ISO20846	8.19		-0.65	
420	ISO20846	9.14		0.62	
440	D5453	7.04		-2.19	
445	IP490	8.56		-0.16	
447	ISO20846	7.04		-2.19	
463	D5453	8.74		0.09	
604		----		----	
671	D4294	53	G(0.01)	59.33	
704	ISO20846	8.68		0.00	
759	ISO20847	10		1.77	
781	ISO20846	9.44		1.02	
784		----		----	
875	ISO20846	9.84		1.56	
962		----		----	
963	D3120	8		-0.91	
974		----		----	
1006	D5453	8.3		-0.50	
1016		----		----	
1017		----		----	
1038	D2622	8.4		-0.37	
1059	ISO20846	8.3		-0.50	
1067		----		----	
1080	ISO20846	7.4		-1.71	
1081	ISO20846	8.1		-0.77	
1108	ISO20846	6.5		-2.91	
1109	D5453	6.84		-2.46	
1138	IP490	8.7		0.03	
1140	D5453	9.2		0.70	
1146	ISO20846	10		1.77	
1161	ISO20846	10.13		1.95	
1167	ISO20846	8.54		-0.18	
1194	D7220	9.6		1.24	
1203	ISO20846	8.9		0.30	
1205		----		----	
1215	D5453	8.995		0.43	
1218	ISO20884	8.75		0.10	
1227	D5453	9.2		0.70	
1231	D5453	8		-0.91	
1259	ISO20846	9.48		1.08	
1266	ISO20846	9.03		0.47	
1272	ISO20846	9.6		1.24	
1297	D5453	9.46		1.05	
1300	ISO20846	8.897		0.30	
1310	ISO20846	7.25		-1.91	
1316	ISO20846	4.3	G(0.01)	-5.86	
1345	D5453	8.0		-0.91	
1347		----		----	
1348	D4294	<100		----	
1356	D8754	<100		----	
1362	ISO20846	8.42		-0.34	
1364		----		----	
1365	ISO20846	8.25		-0.57	
1370		----		----	
1385	D4294	<100		----	
1393		----		----	
1394	ISO20846	8.83		0.21	
1395	ISO20846	9.1		0.57	
1398	ISO20846	8.14		-0.72	

1404	ISO20846	8.3		-0.50
1428	ISO20846	8.8		0.17
1520	ISO20846	7.80		-1.17
1621	IP531	5.2	G(0.01)	-4.65
1635	ISO20846	9.6		1.24
1650		----		----
1654	ISO20846	8.78		0.14
1712	ISO20846	9.6		1.24
1720	D5453	9.9		1.64
1724	ISO20846	8.40		-0.37
1728	ISO20846	7.684		-1.33
1730	ISO20884	8.5		-0.24
1807	ISO20846	8.0		-0.91
1810	ISO20846	9		0.43
1811	ISO20846	8.45		-0.30
1832	ISO20846	8.15		-0.70
1833	ISO20846	9.1		0.57
1834	ISO20846	7.9		-1.04
1849	ISO20846	8.08		-0.80
1854	ISO20846	8.5		-0.24
1861	D5453	8.4447		-0.31
1864	ISO20846	8.99		0.42
1939	D5453	10.7		2.71
1941	ISO20846	10.28		2.15
1948	ISO20846	9.60		1.24
2146	ISO20846	9.34		0.89
8010	D7220	8.4		-0.37

normality OK  
n 79  
outliers 3  
mean (n) 8.68  
st.dev. (n) 0.847  
R(calc.) 2.37  
R(ISO20846:04) 2.09

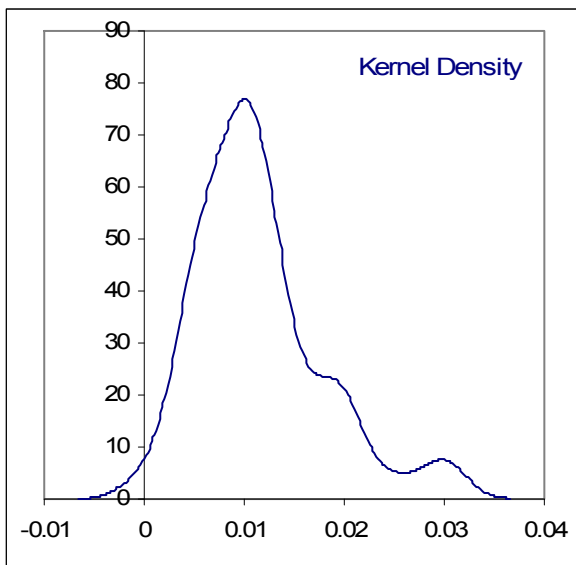
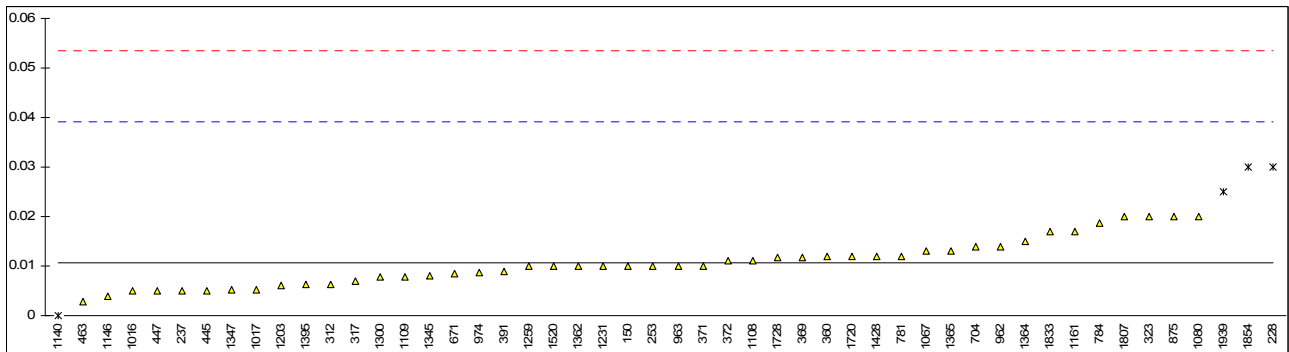


## Determination of Total Acid Number (TAN) on sample #11014; result in mgKOH/g

lab	method	value	mark	z(targ)	remarks
150	D974	0.01		-0.04	
228	D974	0.03	DG(0.01)	1.36	
237	D974	0.005		-0.39	
238		----		----	
240		----		----	
253	D974	0.01		-0.04	
312	D974	0.0063		-0.30	
317	D974	0.007		-0.25	
323	D974	0.02		0.66	
333		----		----	
334		----		----	
343	D974	<0.1		----	
357	D664	<0.1		----	
360	D974	0.012		0.10	
369	D974	0.0118		0.08	
371	D974	0.01		-0.04	
372	D974	0.011		0.03	
391	D974	0.009		-0.11	
399		----		----	
420		----		----	
440		----		----	
445	D974	0.005		-0.39	
447	D974	0.005		-0.39	
463	D974	0.0028		-0.55	
604		----		----	
671	D974	0.00842		-0.15	
704	D974	0.014		0.24	
759		----		----	
781	D974	0.012		0.10	
784	D664	0.0187		0.57	
875	D664	0.02		0.66	
962	D974	0.014		0.24	
963	D974	0.01		-0.04	
974	D974	0.0086		-0.14	
1006		----		----	
1016	D974	0.005		-0.39	
1017	D974	0.0053		-0.37	
1038	D974	<0.01		----	
1059	ISO6619	<0.05		----	
1067	D974	0.013		0.17	
1080	D664	0.02		0.66	
1081	D664	<0.01		----	
1108	D664	0.011		0.03	
1109	D974	0.0079		-0.19	
1138	D974	<0.005		----	
1140	D974	0	ex	-0.74	Result excluded, zero not a real result
1146	D664	0.004		-0.46	
1161	D974	0.017		0.45	
1167		----		----	
1194		----		----	
1203	D974	0.006		-0.32	
1205		----		----	
1215		----		----	
1218		----		----	
1227		----		----	
1231	D974	0.01		-0.04	
1259	D974	0.00997		-0.04	
1266		----		----	
1272		----		----	
1297		----		----	
1300	D974	0.0079		-0.19	
1310		----		----	
1316		----		----	
1345	D974	0.008		-0.18	
1347	D974	0.0053		-0.37	
1348		----		----	
1356	D664	<0.20		----	
1362	D664	0.010		-0.04	
1364	D974	0.015		0.31	
1365	D974	0.013		0.17	
1370		----		----	
1385		----		----	
1393		----		----	
1394		----		----	
1395	664	0.00625		-0.31	
1398		----		----	

1404	D974	<0.1	----
1428	D664	0.012	0.10
1520	D974	0.010	-0.04
1621		----	----
1635		----	----
1650		----	----
1654		----	----
1712		----	----
1720	D974	0.012	0.10
1724		----	----
1728	D974	0.0117	0.08
1730		----	----
1807	D974	0.02	0.66
1810		----	----
1811		----	----
1832		----	----
1833	D974	0.017	0.45
1834		----	----
1849		----	----
1854	D974	0.03	DG(0.01) 1.36
1861		----	----
1864		----	----
1939	D974	0.025	G(0.05) 1.01
1941		----	----
1948		----	----
2146		----	----
8010		----	----

normality OK  
 n 46  
 outliers 3  
 mean (n) 0.0106  
 st.dev. (n) 0.00462  
 R(calc.) 0.0129  
 R(D974:08e1) 0.0400

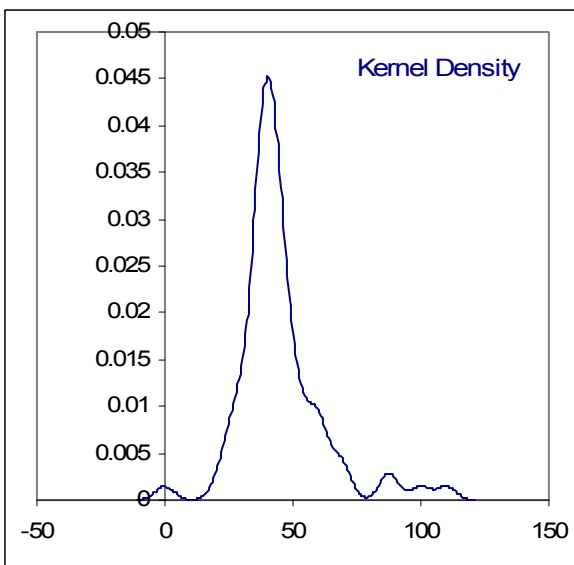
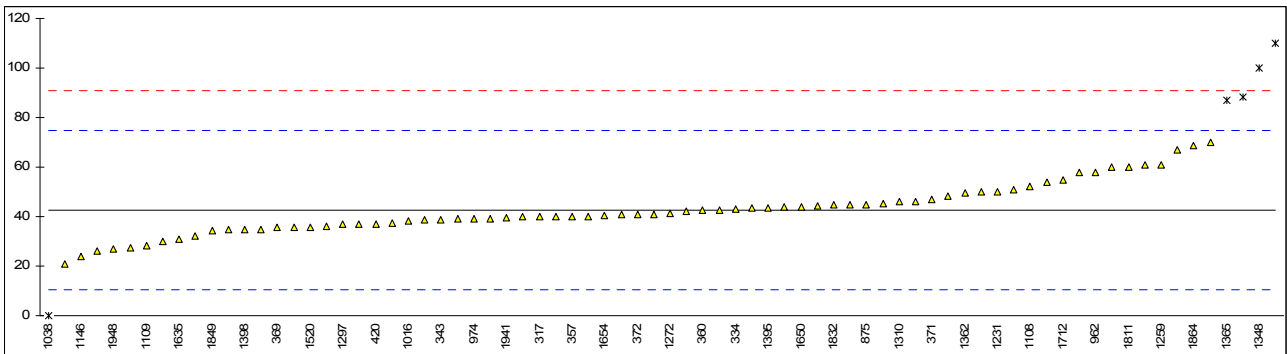


## Determination of Water Content on sample #11014; result in mg/kg

lab	method	value	mark	z(targ)	remarks
150	E1064	61		1.14	
228	D95	<500		----	
237	D95	<500		----	
238		----		----	
240		----		----	
253	D6304	58		0.95	
312	ISO12937	43.3		0.03	
317	ISO12937	40		-0.17	
323	ISO12937	40		-0.17	
333	ISO12937	30		-0.79	
334	ISO12937	43.1		0.02	
343	ISO12937	38.9		-0.24	
357	ISO12937	40		-0.17	
360	ISO12937	42.4		-0.02	
369	ISO12937	35.5		-0.45	
371	ISO12937	47		0.26	
372	ISO12937	41		-0.11	
391	ISO12937	40		-0.17	
399	ISO12937	39		-0.23	
420	ISO12937	37		-0.36	
440		----		----	
445	D6304	44.5		0.11	
447	ISO12937	35.0		-0.48	
463	ISO12937	32		-0.67	
604		----		----	
671	D2709	<0.01		----	Reported in a different unit (%V/V)
704	ISO12937	38.5		-0.26	
759		----		----	
781	ISO12937	42.6		-0.01	
784		----		----	
875	D6304	45		0.14	
962	ISO12937	58		0.95	
963	D6304A	54		0.70	
974	D6304	39.1625		-0.22	
1006		----		----	
1016	ISO12937	38.2		-0.28	
1017	ISO12937	109.9	G(0.01)	4.18	
1038	D2709	0	G(0.01)	-2.66	
1059	ISO12937	50		0.45	
1067	ISO12937	40		-0.17	
1080	ISO12937	51		0.51	
1081	D6304	36		-0.42	
1108	ISO12937	52		0.58	
1109	D6304	28.1		-0.91	
1138	IP438	60		1.07	
1140	IP438	67		1.51	
1146	D6304	24		-1.17	
1161	ISO12937	40.795		-0.12	
1167	ISO12937	46.2		0.22	
1194		----		----	
1203	ISO12937	37.6		-0.32	
1205		----		----	
1215		----		----	
1218		----		----	
1227	D6304	34.7		-0.50	
1231	D6304	50		0.45	
1259	ISO12937	61		1.14	
1266		----		----	
1272	ISO12937	41.176		-0.10	
1297	D6304	36.8		-0.37	
1300	ISO12937	44.972		0.14	
1310	ISO12937	46		0.20	
1316	ISO12937	<50		----	
1345	D6304	39.3		-0.21	
1347		----		----	
1348	D95	100	G(0.01)	3.57	
1356	ISO3733	<500		----	
1362	ISO12937	49.5		0.42	
1364	D95	<500		----	
1365	D1744	87	G(0.01)	2.76	
1370	ISO12937	88.33	G(0.05)	2.84	
1385	D95	NIL		----	
1393		----		----	
1394	ISO12937	35.53		-0.45	
1395	ISO12937	43.38		0.04	
1398	ISO12937	35		-0.48	

1404	ISO12937	37	-0.36
1428	ISO12937	42.04	-0.04
1520	ISO12937	35.8	-0.43
1621	D6304C	26	-1.04
1635	ISO12937	30.8	-0.74
1650	ISO12937	44	0.08
1654	ISO12937	40.52	-0.14
1712	ISO12937	54.6	0.74
1720		----	----
1724	ISO12937	45.1	0.15
1728	E203	69.97	1.70
1730		----	----
1807	ISO12937	21	-1.35
1810	ISO12937	44	0.08
1811	ISO12937	60	1.07
1832	ISO12937	44.6	0.12
1833	ISO12937	27.2	-0.97
1834		----	----
1849	ISO12937	34.3	-0.53
1854	ISO12937	41	-0.11
1861	D6304	48.43	0.35
1864	ISO12937	68.6	1.61
1939		----	----
1941	ISO12937	39.6	-0.20
1948	ISO12937	27.13	-0.97
2146		----	----
8010		----	----

normality not OK  
n 71  
outliers 5  
mean (n) 42.75  
st.dev. (n) 10.255  
R(calc.) 28.71  
R(ISO12937:00) 44.96



## Determination of Distillation (automated) on sample #11014; result in °C

lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
150	D86-A	185.3		231.6		278.6		329.3		347.3		350.2	
228		----		----		----		----		----		----	
237		----		----		----		----		----		----	
238		----		----		----		----		----		----	
240		----		----		----		----		----		----	
253		----		----		----		----		----		----	
312	D86-A	186.3		233.6		278.9		327.4		340.8		350.7	
317	D86-A	179.4		232.7		278.4		328.5		343.0		352.3	
323	ISO3405-A	184.6		232.2		278.7		327.8		342.7		352.2	
333		----		----		----		----		----		----	
334	D86	186.6		228.5		277.3		327.0		340.2		353.6	
343	ISO3405-A	177.5		231.9		278.5		327.2		341.2		350.8	
357	ISO3405-A	178.3		231.8		277.2		326.4		339.8		349.8	
360	ISO3405-A	178.3		229.1		277.3		323.9		336.2		352.3	C
369	ISO3405-A	177.1		227.4		278.5		329.3		343.1		353.3	
371		----		----		----		----		----		----	
372	ISO3405	184.5		231.7		277.6		326.3		340.5		350.0	
391	ISO3405-A	186.5		233.0		278.4		326.5		339.5		354.3	
399	ISO3405-A	194.6		231.5		277.7		324.4		337.2		354.9	
420	ISO3405-A	181.9		231.5		278.5		329.6		346.1		350.8	
440	D86-A	188.1		231.4		278.4		327.6		341.8		354.3	
445	IP123-A	190.0		230.8		277.5		325.2		337.9		351.5	
447	ISO3405-A	184.8		231.3		278.6		328.5		342.1		353.3	
463	ISO3405	179.6		230.7		277.8		328.6		342.8		354.2	
604	D86-A	185.6		230.9		277.3		324.3		334.2		335.0	G(1)
671	D86-A	176.2		233.3		275.4		323.3		336.9		346.1	
704		----		----		----		----		----		----	
759		----		----		----		----		----		----	
781		----		----		----		----		----		----	
784		----		----		----		----		----		----	
875		----		----		----		----		----		----	
962		----		----		----		----		----		----	
963	D86-A	184.8		232.6		278.5		327.6		341.1		351.5	
974	D86	185.3		228.2		277.6		326.2		339.2		350.9	
1006	D86-A	186.2		231.7		278.2		329.4		342.4		352.3	
1016		----		----		----		----		----		----	
1017	ISO3405-A	185.5		231.1		276.0		323.3		335.6		349.2	
1038	D86-A	178.6		227.2		276.5		327.0		341.6		350.4	
1059	ISO3405-A	180.9		228.0		276.0		324.2		336.5		347.6	
1067		----		----		----		----		----		----	
1080	ISO3405-A	185.3		228.5		278.2		328.7		344.2		352.5	
1081	D86-A	189		230.2		278.8		329.1		343.7		352	
1108	ISO3405-A	185.8		230.5		279.1		330.1		344.4		355.5	
1109	D86-A	189.9		232.3		278.5		327.1		340.9		351.6	
1138	ISO3405-A	187.2		229.8		278.5		330.5		346.1		353.4	
1140	IP123	177.5		228		276.3		325.1		338.4		351.4	
1146		----		----		----		----		----		----	
1161	ISO3405	183.7		227.8		277.8		328.0		342.6		351.3	
1167	ISO3405-A	177.5		228.65		278.5		328.05		341.3		353.15	
1194	D86	178.4		221.4	G(1)	277.8		326.1		338.5		340.3	G(1)
1203	ISO3405	183.3		230.3		279.4		328.9		342		348.8	
1205	D86-A	185.7		231.4		277.6		326.4		338.0		348.3	
1215	D86-A	184.8		230.7		277.8		326.4		339.4		351.1	
1218	ISO3405-A	188.0		228.5		278.5		328.7		341.6		348.9	
1227	D86-A	179.8		229.4		278.0		328.8		343.7		351.6	
1231	ISO3405-A	183.6		230.8		278.5		327.4		----		----	
1259	ISO3405-A	177.3		230.0		277.7		327.6		341.9		351.0	
1266	ISO3405	192.3		231.6		278.9		329.3		346.0		352.2	
1272	ISO3405-A	183.3		230.2		278.1		327.8		340.0		345.4	
1297		----		----		----		----		----		----	
1300	ISO3405	181.1		231.6		278.3		329.0		342.8		354.2	
1310	ISO3405-A	182		232	C	277	C	324		337		348	
1316	D86	178.0		231.9		278.7		329.5		345.2		352.8	
1345		----		----		----		----		----		----	
1347		----		----		----		----		----		----	
1348	D86-A	182.5		235.4		280.1		328.5		342.2		353.0	
1356		----		----		----		----		----		----	
1362		----		----		----		----		----		----	
1364		----		----		----		----		----		----	
1365		----		----		----		----		----		----	
1370		----		----		----		----		----		----	
1385		----		----		----		----		----		----	
1393		----		----		----		----		----		----	
1394	ISO3405	187.2		228.2		278.5		327.7		341.5		349.4	
1395	ISO3405-A	186.2		230.3		278.4		326.9		339.0		353.7	
1398	ISO3405-A	190.1		229.7		280.2		330.2		344.9		354.1	



1404	ISO3405	181.6	229.0		277.6	327.4	340.7	345.7
1428	ISO3405-A	183.9	229.2		278.1	327.1	341.5	351.2
1520		----	----		----	----	----	----
1621	ISO3405-A	178.2	227.5		277.7	327.9	344.4	352.2
1635		----	----		----	----	----	----
1650	D86-A	182.3	229.2		279.0	328.9	344.0	354.4
1654	ISO3405-A	184.9	229.8		277.8	327.3	341.8	352.3
1712	ISO3405	188.1	231.5		277.9	327.5	341.5	351.3
1720	ISO3405	186.3	234.1		279.2	329.4	344.9	353.0
1724	ISO3405	178.0	232.9		277.5	326.9	341.5	351.7
1728		----	----		----	----	----	----
1730		----	----		----	----	----	----
1807	ISO3405	180.8	230.9		277.9	326.7	340.0	352.3
1810	ISO3405-A	186.0	232.0	C	277.0	326.0	338.5	350.0
1811	ISO3405-A	183	229.6		277.8	326.6	340.0	351.8
1832	ISO3405-A	185.1	232.0	C	277.8	326.4	340.4	352.3
1833	ISO3405-A	179.7	229.1		276.6	326.7	341.3	352.2
1834		----	----		----	----	----	----
1849	ISO3405-A	182.8	230.4		277.5	325.5	337.9	352.7
1854		----	----		----	----	----	----
1861		----	----		----	----	----	----
1864	ISO3405-A	184.8	232.0		278.9	328.7	343.0	353.4
1939	D86	176.6	230.9		277.8	329.2	343.5	348.5
1941	ISO3405	179.2	229.6		277.4	327.0	340.4	351.5
1948	ISO3405-A	188.1	230.9		277.4	326.5	339.3	350.9
2146	ISO3405-A	182.2	231.3		278.2	330.6	346.2	350.0
8010		----	----		----	----	----	----
	normality	OK	OK		OK	OK	OK	OK
	n	69	68		69	69	68	66
	outliers	0	1		0	0	0	2
	mean (n)	183.44	230.64		278.00	327.41	341.26	351.47
	st.dev. (n)	4.127	1.722		0.872	1.735	2.783	2.146
	R(calc.)	11.56	4.82		2.44	4.86	7.79	6.01
	R(ISO3405:09)	10.09	5.07		2.97	4.91	8.51	7.10

First reported results

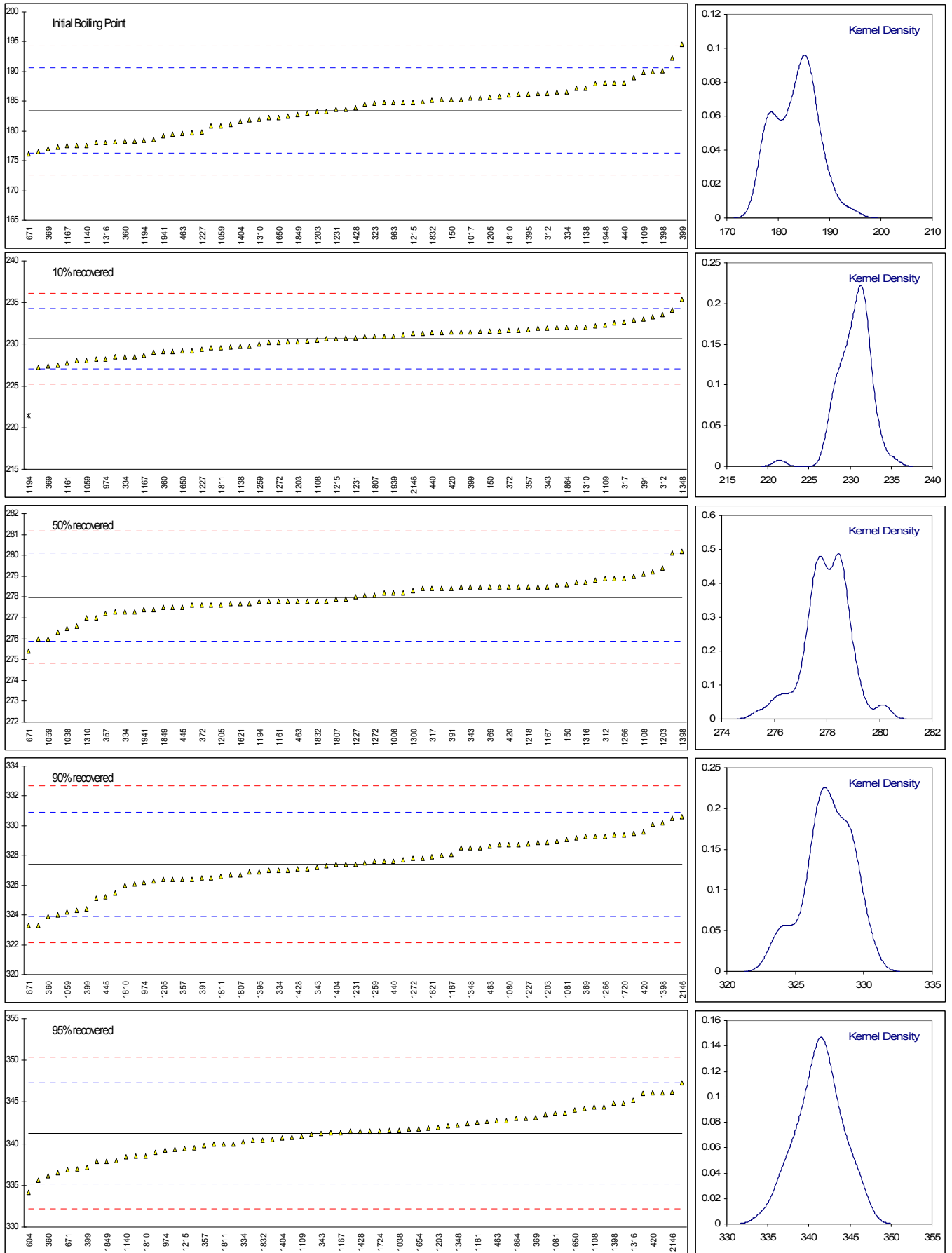
lab	Remark
360	First reported 343.7
1310	First reported 220
1310	First reported 274
1810	First reported 222.0
1832	First reported 218.0

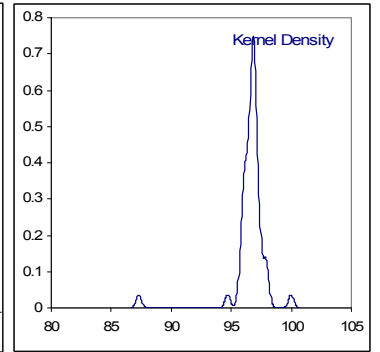
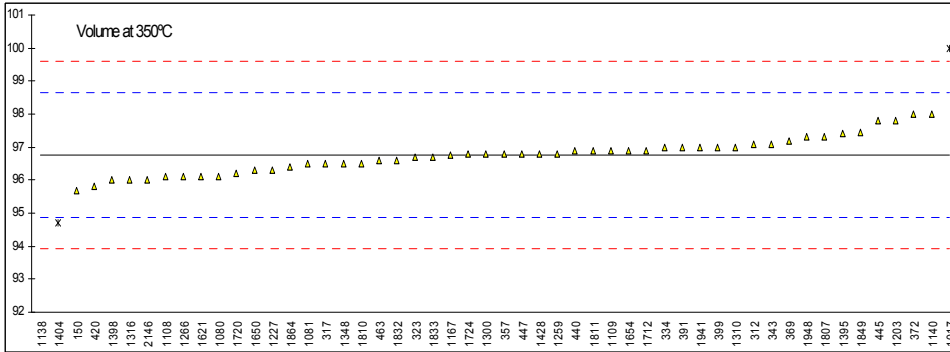
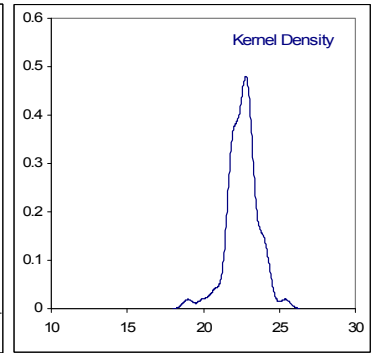
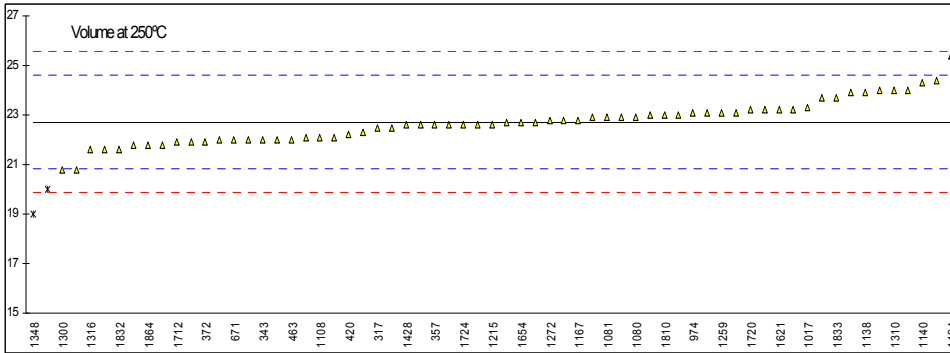
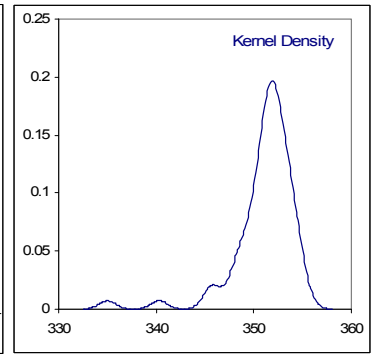
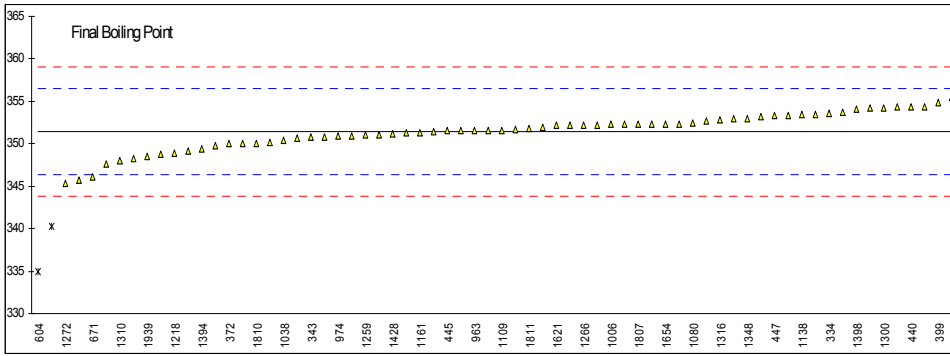
## Determination of Distillation (automated) continued on sample #11014; result in %V/V

lab	method	Vol 250°C	mark	Vol 350°C	mark	% residue	mark	remarks
150	D86-A	21.8		95.7		1.8		
228		----		----		----		
237		----		----		----		
238		----		----		----		
240		----		----		----		
253		----		----		----		
312	D86-A	20.8		97.1		1.8		
317	D86-A	22.5		96.5		2.0		
323	ISO3405-A	21.8		96.7		1.6		
333		----		----		----		
334	D86	23.9		97.0		0.6		
343	ISO3405-A	22		97.1		1.1		
357	ISO3405-A	22.6		96.8		1.9		
360	ISO3405-A	23.2		----		1.4		
369	ISO3405-A	24.4	C	97.2		1.4		First reported 27.4
371		----		----		----		
372	ISO3405	21.9		98.0		1.9		
391	ISO3405-A	20.0	G(0.05)	97.0		0.5		
399	ISO3405-A	21.6		97		0.5		
420	ISO3405-A	22.2		95.8		1.4		
440	D86-A	22.5		96.9		1.4		
445	IP123-A	23.1		97.8		0.5		
447	ISO3405-A	22.1		96.8		1.0		
463	ISO3405	22		96.6		1.8		
604	D86-A	24		----		1.4		
671	D86-A	22.0		----		1.4		
704		----		----		----		
759		----		----		----		
781		----		----		----		
784		----		----		----		
875		----		----		----		
962		----		----		----		
963	D86-A	22.0		----		1.4		
974	D86	23.1		>98.0		1.4		
1006		----		----		1.8		
1016		----		----		----		
1017	ISO3405-A	23.3		100.0	G(0.01)	1.5		
1038		----		----		1.4		
1059	ISO3405-A	24.0		>85.0		1.8		
1067		----		----		----		
1080	ISO3405-A	22.9		96.1		1.5		
1081	D86-A	22.9		96.5		1.0		
1108	ISO3405-A	22.1		96.1		0.8		
1109	D86-A	22.3		96.9		1.4		
1138	ISO3405-A	23.9		87.3	G(0.01)	0.9		
1140	IP123	24.3		98		1.0		
1146		----		----		----		
1161	ISO3405	23.0		----		0.9		
1167	ISO3405-A	22.8		96.75		1.15		
1194	D86	25.4		----		1.7		
1203	ISO3405	21.9		97.8		1.7		
1205	D86-A	22.6		----		1.8		
1215	D86-A	22.6		----		1.4		
1218		----		----		----		
1227	D86-A	23.7		96.3		0.5		
1231		----		----		----		
1259	ISO3405-A	23.1		96.8		1.4		
1266	ISO3405	22.1		96.1		1.8		
1272	ISO3405-A	22.8		----		----		
1297		----		----		----		
1300	ISO3405	20.8		96.8		1.6		
1310	ISO3405-A	24	C	97		1.7		First reported 30
1316	D86	21.6		96.0		1.4		
1345		----		----		----		
1347		----		----		----		
1348	D86-A	19	G(0.05)	96.5		1.5		
1356		----		----		----		
1362		----		----		----		
1364		----		----		----		
1365		----		----		----		
1370		----		----		----		
1385		----		----		----		
1393		----		----		----		
1394	ISO3405	22.0		----		2.0		
1395	ISO3405-A	22.7		97.4		1.4		
1398	ISO3405-A	22		96		1.5		

1404	ISO3405	22.9	94.7	G(0.05)	1.8
1428	ISO3405-A	22.6	96.8		1.7
1520		----	----		----
1621	ISO3405-A	23.2	96.1		1.9
1635		----	----		----
1650	D86-A	22.6	96.3		1.3
1654	ISO3405-A	22.7	96.9		1.6
1712	ISO3405	21.9	96.9		----
1720	ISO3405	23.2	96.2		1.4
1724	ISO3405	22.6	96.8		1.7
1728		----	----		----
1730		----	----		----
1807	ISO3405	22.8	97.3		1.6
1810	ISO3405-A	23.0	96.5		1.0
1811	ISO3405-A	22.6	96.9		1
1832	ISO3405-A	21.6	96.6		----
1833	ISO3405-A	23.7	96.7		1.9
1834		----	----		----
1849	ISO3405-A	22.9	97.43		1.4
1854		----	----		----
1861		----	----		----
1864	ISO3405-A	21.8	96.4		1.0
1939	D86	23.0	----		1.2
1941	ISO3405	23.2	97.0		1.2
1948	ISO3405-A	23.1	97.3		1.1
2146	ISO3405-A	22.7	96.0		2.2
8010		----	----		----
	normality	OK	OK		
	n	63	49		
	outliers	2	3		
	mean (n)	22.70	96.76		
	st.dev. (n)	0.851	0.544		
	R(calc.)	2.38	1.52		
	R(ISO3405:09)	2.66	2.66		

Determination of Distillation (automated) on sample #11014; (graphics)





Determination of Distillation (manual) on sample #11014; 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	180.0		220.0	G(5)	277.0		326.0		338.0		345.0	G(5)
237	D86-M	177.0		226.0		276.0		326.0		336.0		351.0	
238		----		----		----		----		----		----	
240	D86-M	184.0		227.0		277.0		328.0		344.0		352.0	
253	D86-M	184.0		229.5		278.0		327.5		341.0		351.5	
312		----		----		----		----		----		----	
317		----		----		----		----		----		----	
323		----		----		----		----		----		----	
333		----		----		----		----		----		----	
334		----		----		----		----		----		----	
343		----		----		----		----		----		----	
357		----		----		----		----		----		----	
360		----		----		----		----		----		----	
369		----		----		----		----		----		----	
371	ISO3405	185.5		228.0		277.5	C	327.5		342.0		351.5	
372		----		----		----		----		----		----	
391		----		----		----		----		----		----	
399		----		----		----		----		----		----	
420		----		----		----		----		----		----	
440		----		----		----		----		----		----	
445		----		----		----		----		----		----	
447		----		----		----		----		----		----	
463		----		----		----		----		----		----	
604		----		----		----		----		----		----	
671		----		----		----		----		----		----	
704	ISO3405-M	184.2		229.5		277.9		327.0		342.0		350.5	
759	ISO3405-M	179.8		226.8		277.3		326.9		341.9		351.4	
781	ISO3405-M	179.5		229.5		278.5		328.0		341.5		353.0	
784	D86-M	183.0		230.0		278.0		328.0		344.0		353.0	
875	D86-M	185.5		229.0		278.0		327.5		342.0		352.5	
962	ISO3405-M	183.5		229.0		279.0		328.0		341.5		----	
963		----		----		----		----		----		----	
974		----		----		----		----		----		----	
1006		----		----		----		----		----		----	
1016		----		----		----		----		----		----	
1017		----		----		----		----		----		----	
1038		----		----		----		----		----		----	
1059		----		----		----		----		----		----	
1067	ISO3405	187.2		233.7		279.5		329.7		344.0		351.5	
1080		----		----		----		----		----		----	
1081		----		----		----		----		----		----	
1108		----		----		----		----		----		----	
1109		----		----		----		----		----		----	
1138		----		----		----		----		----		----	
1140		----		----		----		----		----		----	
1146		----		----		----		----		----		----	
1161		----		----		----		----		----		----	
1167		----		----		----		----		----		----	
1194		----		----		----		----		----		----	
1203		----		----		----		----		----		----	
1205		----		----		----		----		----		----	
1215		----		----		----		----		----		----	
1218		----		----		----		----		----		----	
1227		----		----		----		----		----		----	
1231		----		----		----		----		----		----	
1259		----		----		----		----		----		----	
1266		----		----		----		----		----		----	
1272		----		----		----		----		----		----	
1297		----		----		----		----		----		----	
1300		----		----		----		----		----		----	
1310		----		----		----		----		----		----	
1316		----		----		----		----		----		----	
1345	D86-M	172.5	G(5)	222.5		273.5		327.0		341.0		350.5	
1347	D86-M	186		232		275		322	G(5)	337		352	
1348		----		----		----		----		----		----	
1356	ISO3405	185	ex	213	CG(1)	267	CG(1)	309	CG(1)	326	G(1)	----	
1362	ISO3405	179.50		228.00		278.00		329.50		344.50		354.00	
1364	ISO3405	185.0		225.5		277.5		325.5		377.5	G(1)	351.0	
1365	D86-M	178.00		227.00		275.00		329.00		345.00		350.00	
1370	ISO3405	188.21		229.23		277.75		329.27		350.15	CG(1)	352.47	
1385	D86-M	189		234		278		326		332	G(5)	354	
1393		----		----		----		----		----		----	
1394		----		----		----		----		----		----	
1395		----		----		----		----		----		----	
1398		----		----		----		----		----		----	
1404		----		----		----		----		----		----	
1428		----		----		----		----		----		----	

1520	ISO3405	177.7		227.7		275.7		327.6		341.6		352.6	C
1621		----		----		----		----		----		----	
1635	ISO3405-M	167.0	G(5)	227.0		281.0		330.0		343.0		358.0	G(5)
1650		----		----		----		----		----		----	
1654		----		----		----		----		----		----	
1712		----		----		----		----		----		----	
1720		----		----		----		----		----		----	
1724		----		----		----		----		----		----	
1728	ISO3405	186.954		225.408		274.352		325.289		341.769		351.762	
1730		----		----		----		----		----		----	
1807		----		----		----		----		----		----	
1810		----		----		----		----		----		----	
1811		----		----		----		----		----		----	
1832		----		----		----		----		----		----	
1833		----		----		----		----		----		----	
1834		----		----		----		----		----		----	
1849		----		----		----		----		----		----	
1854	ISO3405	182.6		228.5		277.0		327.4		341.4		356.4	G(5)
1861		----		----		----		----		----		----	
1864		----		----		----		----		----		----	
1939		----		----		----		----		----		----	
1941		----		----		----		----		----		----	
1948		----		----		----		----		----		----	
2146		----		----		----		----		----		----	
8010		----		----		----		----		----		----	
	normality	OK		OK		OK		OK		not OK		OK	
	n	21		22		23		22		20		19	
	outliers	2		2		1		2		4		3	
	mean (n)	183.15		228.40		277.24		327.58		341.66		351.91	
	st.dev. (n)	3.593		2.648		1.707		1.343		2.362		1.114	
	R(calc.)	10.06		7.41		4.78		3.76		6.61		3.12	
	R(ISO3405:09)	7.01		4.30		3.68		3.04		3.79		3.53	

First reported results

lab	Remark
371	First reported 227.5
1356	Result excluded for statistical evaluation because all other reported points appeared to be statistical outliers
1356	First reported 220
1356	First reported 273
1356	First reported 318
1390	First reported 351.28
1520	First reported 346.6

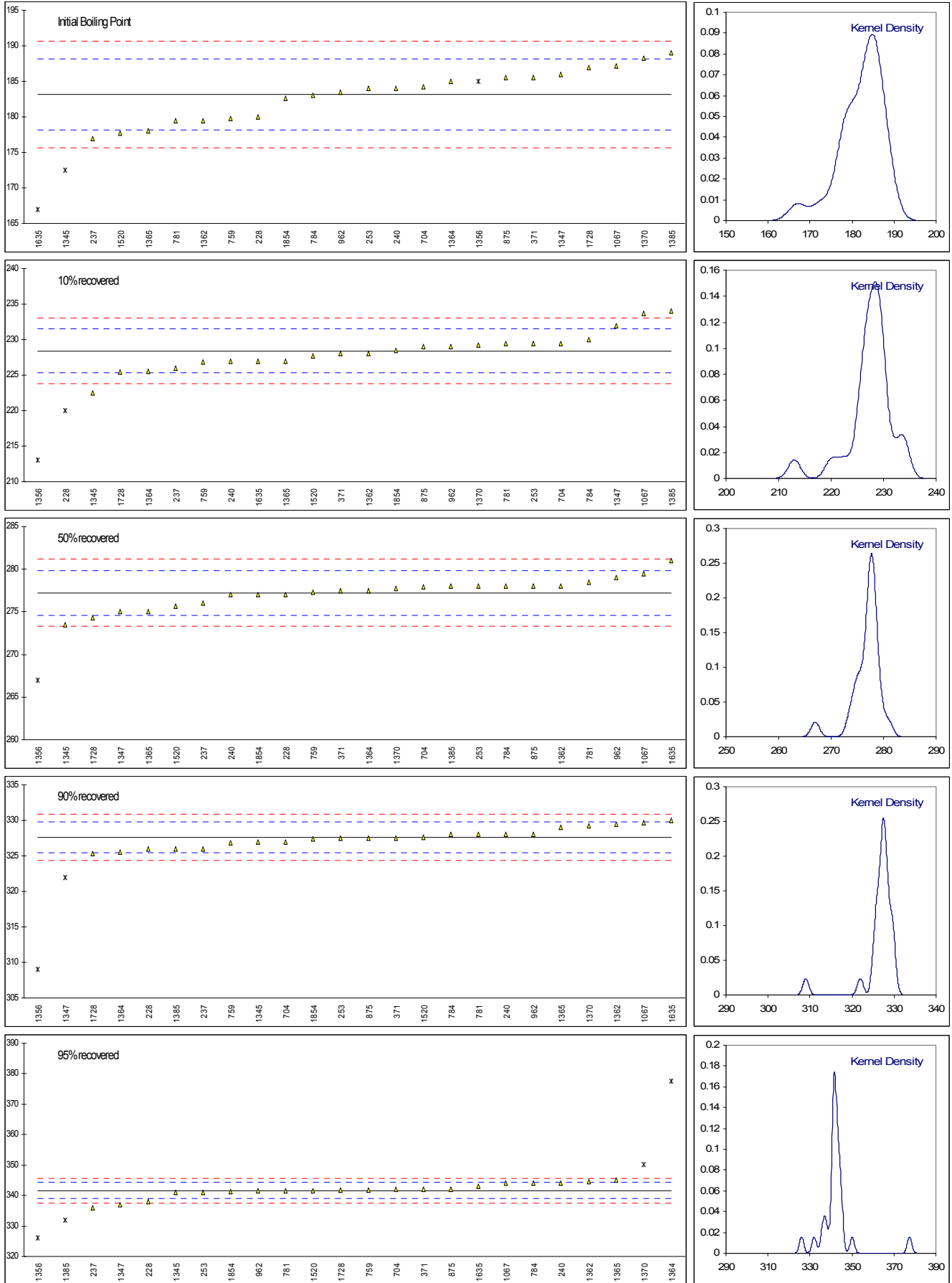
Determination of Distillation (manual) continued on sample #11014; result in %V/V

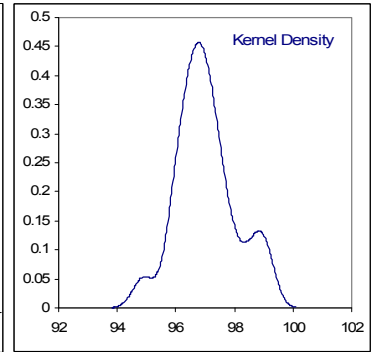
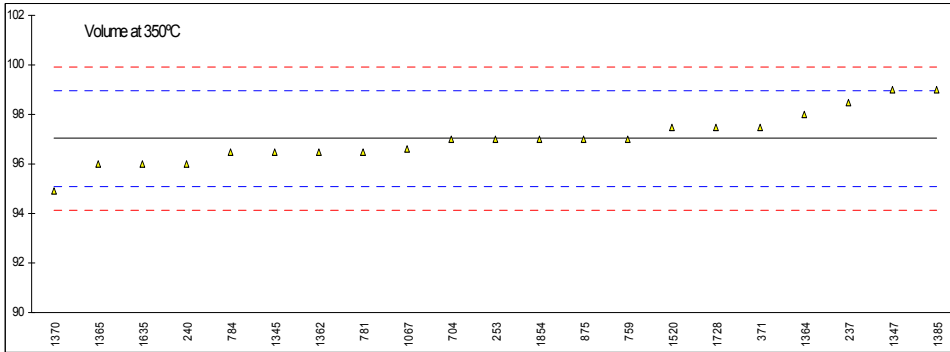
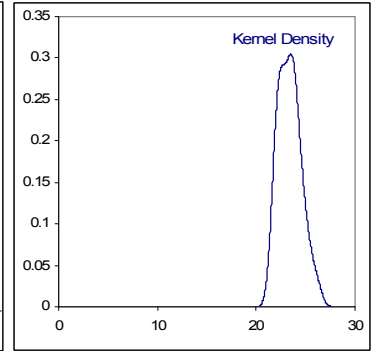
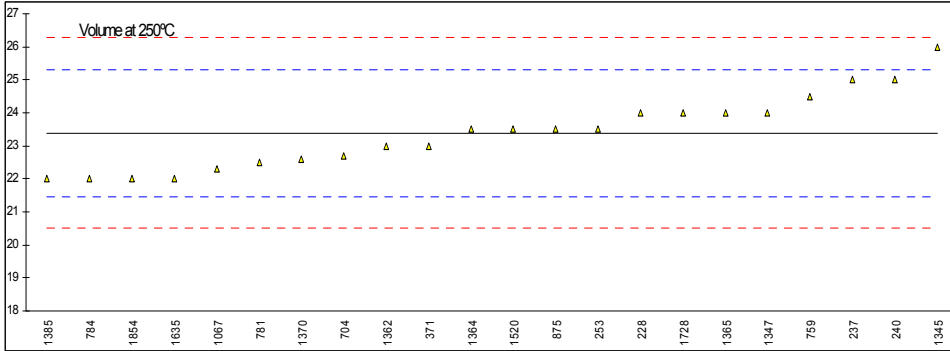
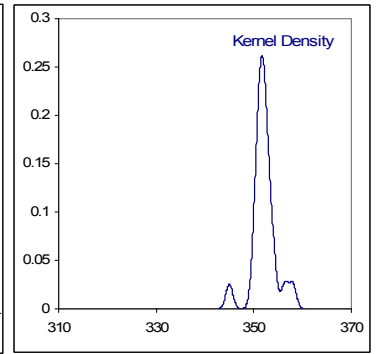
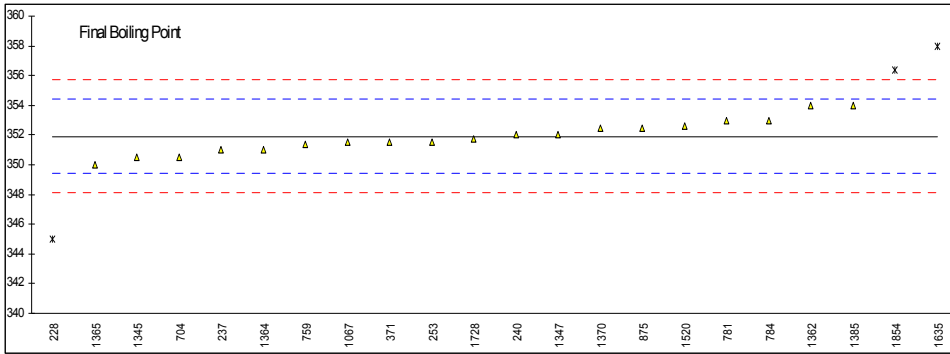
lab	method	Vol 250°C	mark	Vol 350°C	mark	% residue	mark	remarks
150		----		----		----		
228	D86-M	24.0		----		2.0		
237	D86-M	25.0		98.5		1.0		
238		----		----		----		
240	D86-M	25.0		96.0		1.6		
253	D86-M	23.5		97.0		1.3		
312		----		----		----		
317		----		----		----		
323		----		----		----		
333		----		----		----		
334		----		----		----		
343		----		----		----		
357		----		----		----		
360		----		----		----		
369		----		----		----		
371	ISO3405	23.0		97.5		1.5		
372		----		----		----		
391		----		----		----		
399		----		----		----		
420		----		----		----		
440		----		----		----		
445		----		----		----		
447		----		----		----		
463		----		----		----		
604		----		----		----		
671		----		----		----		
704	ISO3405-M	22.7		97.0		1.9		
759	ISO3405-M	24.5		97.0		1.5		
781	ISO3405-M	22.5		96.5		1.1		
784	D86-M	22.0		96.5		1.0		
875	D86-M	23.5		97.0		1.3		
962		----		----		----		
963		----		----		----		
974		----		----		----		
1006		----		----		----		
1016		----		----		----		
1017		----		----		----		
1038		----		----		----		
1059		----		----		----		
1067	ISO3405	22.3		96.6		1.4		
1080		----		----		----		
1081		----		----		----		
1108		----		----		----		
1109		----		----		----		
1138		----		----		----		
1140		----		----		----		
1146		----		----		----		
1161		----		----		----		
1167		----		----		----		
1194		----		----		----		
1203		----		----		----		
1205		----		----		----		
1215		----		----		----		
1218		----		----		----		
1227		----		----		----		
1231		----		----		----		
1259		----		----		----		
1266		----		----		----		
1272		----		----		----		
1297		----		----		----		
1300		----		----		----		
1310		----		----		----		
1316		----		----		----		
1345	D86-M	26.0		96.5		1.6		
1347	D86-M	24		99		1.5		
1348		----		----		----		
1356		----		----		----		
1362	ISO3405	23.00		96.50		1.80		
1364	ISO3405	23.5		98.0		1.9		
1365	D86-M	24.00		96.00		----	W	Reported first 99.0
1370	ISO3405	22.6		94.9		1.5		
1385	D86-M	22		99		0.5		
1393		----		----		----		
1394		----		----		----		
1395		----		----		----		
1398		----		----		----		
1404		----		----		----		
1428		----		----		----		



1520	ISO3405	23.5		97.5	2.0	
1621		----		----	----	
1635	ISO3405-M	22.0		96.0	1.3	
1650		----		----	----	
1654		----		----	----	
1712		----		----	----	
1720		----		----	----	
1724		----		----	----	
1728	ISO3405	24	C	97.5	1.3	First reported 27
1730		----		----	----	
1807		----		----	----	
1810		----		----	----	
1811		----		----	----	
1832		----		----	----	
1833		----		----	----	
1834		----		----	----	
1849		----		----	----	
1854	ISO3405	22.0		97.0	1.0	
1861		----		----	----	
1864		----		----	----	
1939		----		----	----	
1941		----		----	----	
1948		----		----	----	
2146		----		----	----	
8010		----		----	----	
	normality	OK		OK		
	n	22		21		
	outliers	0		0		
	mean (n)	23.39		97.02		
	st.dev. (n)	1.110		1.014		
	R(calc.)	3.11		2.84		
	R(ISO3405:09)	2.69		2.69		

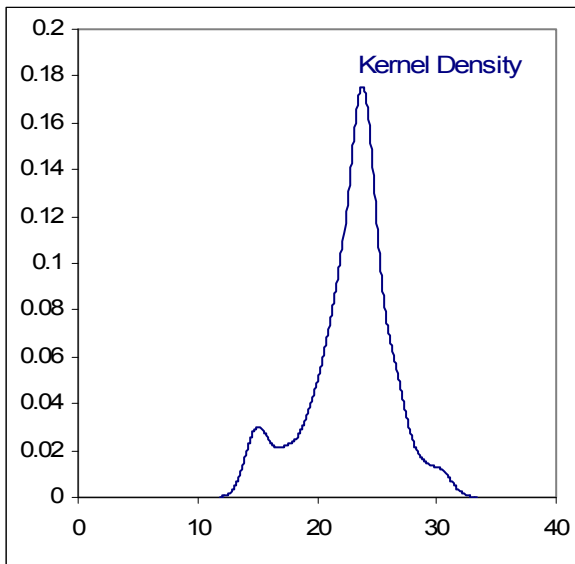
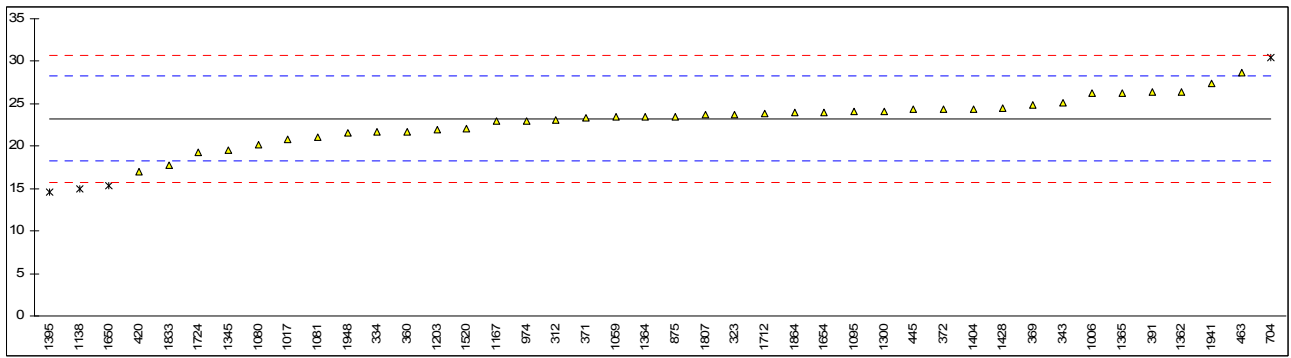
Determination of Distillation (manual) on sample #11014; (graphics)





## Determination of Total Contamination on sample #11015; result in mg/kg

lab	method	value	mark	z(targ)	remarks
312	EN12662	23.12		-0.06	
323	EN12662	23.7		0.18	
333		----		----	
334	EN12662	21.7		-0.63	
343	EN12662	25.16		0.76	
360	EN12662	21.72		-0.62	
369	EN12662	24.9		0.66	
371	EN12662	23.3		0.02	
372	EN12662	24.3		0.42	
391	EN12662	26.4		1.26	
420	EN12662	17.02		-2.50	
445	IP440	24.3		0.42	
447		----		----	
463	EN12662	28.7		2.18	
704	EN12662	30.47	ex	2.89	Result excluded. Only 450 mL used
875	EN12662	23.5		0.10	
962		----		----	
974	IP440	22.945		-0.13	
1006	EN12662	26.28		1.21	
1017	EN12662	20.81		-0.98	
1059	EN12662	23.4		0.06	
1067		----		----	
1080	EN12662	20.1		-1.27	
1081	EN12662	21		-0.91	
1095	EN12662	24.1		0.34	
1138	EN12662	15.0	ex	-3.31	Result excluded for statistical evaluation, see paragraph 4.1
1167	EN12662	22.9		-0.14	
1203	EN12662	22.0		-0.50	
1300	EN12662	24.15		0.36	
1345	DIN51419	19.5		-1.51	
1362	EN12662	26.42		1.27	
1364	EN12662	23.5		0.10	
1365	EN12662	26.3		1.22	
1393		----		----	
1394		----		----	
1395	EN12662	14.64	ex	-3.46	Result excluded for statistical evaluation, see paragraph 4.1
1398		----		----	
1404	EN12662	24.4		0.46	
1428	EN12662	24.5		0.50	
1520	EN12662	22.07		-0.48	
1650	EN12662	15.30	ex	-3.19	Result excluded for statistical evaluation, see paragraph 4.1
1654	EN12662	24.02		0.31	
1712	EN12662	23.8		0.22	
1724	EN12662	19.321		-1.58	
1807	EN12662	23.7		0.18	
1833	EN12662	17.8		-2.19	
1864	EN12662	24.01		0.30	
1941	EN12662	27.34		1.64	
1948	EN12662	21.6		-0.67	
	normality	OK			
	n	38			
	outliers	0			
	mean (n)	23.26	<u>Spike:</u>		
	st.dev. (n)	2.491	22.7	<102%	recovery
	R(calc.)	6.97			
	R(EN12662:08)	6.98			



**APPENDIX 2**  
**Z-scores Distillation (Automated)**

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250°C	Vol 350°C
150	D86-A	0.52	0.53	0.57	1.08	1.99	-0.50	-0.94	-1.10
228		----	----	----	----	----	----	----	----
237		----	----	----	----	----	----	----	----
238		----	----	----	----	----	----	----	----
240		----	----	----	----	----	----	----	----
253		----	----	----	----	----	----	----	----
312	D86-A	0.79	1.63	0.85	0.00	-0.15	-0.31	-1.98	0.35
317	D86-A	-1.12	1.14	0.38	0.62	0.57	0.33	-0.21	-0.27
323	ISO3405-A	0.32	0.86	0.66	0.23	0.47	0.29	-0.94	-0.06
333		----	----	----	----	----	----	----	----
334	D86	0.88	-1.18	-0.66	-0.23	-0.35	0.84	1.24	0.25
343	ISO3405-A	-1.65	0.70	0.48	-0.12	-0.02	-0.27	-0.73	0.35
357	ISO3405-A	-1.43	0.64	-0.75	-0.57	-0.48	-0.66	-0.11	0.04
360	ISO3405-A	-1.43	-0.85	-0.66	-2.00	-1.67	0.33	0.51	----
369	ISO3405-A	-1.76	-1.79	0.48	1.08	0.61	0.72	1.76	0.46
371		----	----	----	----	----	----	----	----
372	ISO3405	0.29	0.59	-0.37	-0.63	-0.25	-0.58	-0.83	1.29
391	ISO3405-A	0.85	1.30	0.38	-0.52	-0.58	1.11	-2.80	0.25
399	ISO3405-A	3.10	0.48	-0.28	-1.71	-1.34	1.35	-1.15	0.25
420	ISO3405-A	-0.43	0.48	0.48	1.25	1.59	-0.27	-0.52	-0.99
440	D86-A	1.29	0.42	0.38	0.11	0.18	1.11	-0.21	0.15
445	IP123-A	1.82	0.09	-0.47	-1.26	-1.11	0.01	0.41	1.08
447	ISO3405-A	0.38	0.37	0.57	0.62	0.28	0.72	-0.63	0.04
463	ISO3405	-1.07	0.03	-0.18	0.68	0.51	1.08	-0.73	-0.16
604	D86-A	0.60	0.14	-0.66	-1.77	-2.32	-6.50	1.34	----
671	D86-A	-2.01	1.47	-2.45	-2.34	-1.44	-2.12	-0.73	----
704		----	----	----	----	----	----	----	----
759		----	----	----	----	----	----	----	----
781		----	----	----	----	----	----	----	----
784		----	----	----	----	----	----	----	----
875		----	----	----	----	----	----	----	----
962		----	----	----	----	----	----	----	----
963	D86-A	0.38	1.08	0.48	0.11	-0.05	0.01	-0.73	----
974	D86	0.52	-1.35	-0.37	-0.69	-0.68	-0.23	0.41	----
1006	D86-A	0.76	0.59	0.19	1.14	0.37	0.33	----	----
1016		----	----	----	----	----	----	----	----
1017	ISO3405-A	0.57	0.26	-1.88	-2.34	-1.86	-0.90	0.62	3.36
1038	D86-A	-1.34	-1.90	-1.41	-0.23	0.11	-0.42	----	----
1059	ISO3405-A	-0.71	-1.46	-1.88	-1.83	-1.57	-1.53	1.34	----
1067		----	----	----	----	----	----	----	----
1080	ISO3405-A	0.52	-1.18	0.19	0.74	0.97	0.40	0.20	-0.68
1081	D86-A	1.54	-0.24	0.76	0.97	0.80	0.21	0.20	-0.27
1108	ISO3405-A	0.65	-0.08	1.04	1.54	1.03	1.59	-0.63	-0.68
1109	D86-A	1.79	0.92	0.48	-0.17	-0.12	0.05	-0.42	0.15
1138	ISO3405-A	1.04	-0.46	0.48	1.76	1.59	0.76	1.24	-9.81
1140	IP123	-1.65	-1.46	-1.60	-1.31	-0.94	-0.03	1.65	1.29
1146		----	----	----	----	----	----	----	----
1161	ISO3405	0.07	-1.57	-0.18	0.34	0.44	-0.07	0.31	----
1167	ISO3405-A	-1.65	-1.10	0.48	0.37	0.01	0.66	0.10	-0.01
1194	D86	-1.40	-5.10	-0.18	-0.74	-0.91	-4.41	2.80	----
1203	ISO3405	-0.04	-0.19	1.32	0.85	0.24	-1.05	-0.83	1.08
1205	D86-A	0.63	0.42	-0.37	-0.57	-1.07	-1.25	-0.11	----
1215	D86-A	0.38	0.03	-0.18	-0.57	-0.61	-0.15	-0.11	----
1218	ISO3405-A	1.26	-1.18	0.48	0.74	0.11	-1.01	----	----
1227	D86-A	-1.01	-0.68	0.00	0.80	0.80	0.05	1.03	-0.48
1231	ISO3405-A	0.04	0.09	0.48	0.00	----	----	----	----
1259	ISO3405-A	-1.70	-0.35	-0.28	0.11	0.21	-0.19	0.41	0.04
1266	ISO3405	2.46	0.53	0.85	1.08	1.56	0.29	-0.63	-0.68
1272	ISO3405-A	-0.04	-0.24	0.10	0.23	-0.42	-2.40	0.10	----
1297		----	----	----	----	----	----	----	----
1300	ISO3405	-0.65	0.53	0.29	0.91	0.51	1.08	-1.98	0.04
1310	ISO3405-A	-0.40	0.75	-0.94	-1.94	-1.40	-1.37	1.34	0.25
1316	D86	-1.51	0.70	0.66	1.19	1.30	0.52	-1.15	-0.79
1345		----	----	----	----	----	----	----	----
1347		----	----	----	----	----	----	----	----
1348	D86-A	-0.26	2.63	1.98	0.62	0.31	0.60	-3.84	-0.27
1356		----	----	----	----	----	----	----	----
1362		----	----	----	----	----	----	----	----
1364		----	----	----	----	----	----	----	----
1365		----	----	----	----	----	----	----	----
1370		----	----	----	----	----	----	----	----
1385		----	----	----	----	----	----	----	----
1393		----	----	----	----	----	----	----	----
1394	ISO3405	1.04	-1.35	0.48	0.17	0.08	-0.82	-0.73	----
1395	ISO3405-A	0.76	-0.19	0.38	-0.29	-0.74	0.88	0.00	0.66
1398	ISO3405-A	1.85	-0.52	2.08	1.59	1.20	1.04	-0.73	-0.79
1404	ISO3405	-0.51	-0.90	-0.37	0.00	-0.18	-2.28	0.20	-2.14

1428	ISO3405-A	0.13	-0.79	0.10	-0.17	0.08	-0.11	-0.11	0.04
1520		----	----	----	----	----	----	----	----
1621	ISO3405-A	-1.46	-1.73	-0.28	0.28	1.03	0.29	0.51	-0.68
1635		----	----	----	----	----	----	----	----
1650	D86-A	-0.32	-0.79	0.95	0.85	0.90	1.15	-0.11	-0.48
1654	ISO3405-A	0.40	-0.46	-0.18	-0.06	0.18	0.33	0.00	0.15
1712	ISO3405	1.29	0.48	-0.09	0.05	0.08	-0.07	-0.83	0.15
1720	ISO3405	0.79	1.91	1.14	1.14	1.20	0.60	0.51	-0.58
1724	ISO3405	-1.51	1.25	-0.47	-0.29	0.08	0.09	-0.11	0.04
1728		----	----	----	----	----	----	----	----
1730		----	----	----	----	----	----	----	----
1807	ISO3405	-0.73	0.14	-0.09	-0.40	-0.42	0.33	0.10	0.56
1810	ISO3405-A	0.71	0.75	-0.94	-0.80	-0.91	-0.58	0.31	-0.27
1811	ISO3405-A	-0.12	-0.57	-0.18	-0.46	-0.42	0.13	-0.11	0.15
1832	ISO3405-A	0.46	0.75	-0.18	-0.57	-0.28	0.33	-1.15	-0.16
1833	ISO3405-A	-1.04	-0.85	-1.32	-0.40	0.01	0.29	1.03	-0.06
1834		----	----	----	----	----	----	----	----
1849	ISO3405-A	-0.18	-0.13	-0.47	-1.09	-1.11	0.48	0.20	0.70
1854		----	----	----	----	----	----	----	----
1861		----	----	----	----	----	----	----	----
1864	ISO3405-A	0.38	0.75	0.85	0.74	0.57	0.76	-0.94	-0.37
1939	D86	-1.90	0.14	-0.18	1.02	0.74	-1.17	0.31	----
1941	ISO3405	-1.18	-0.57	-0.56	-0.23	-0.28	0.01	0.51	0.25
1948	ISO3405-A	1.29	0.14	-0.56	-0.52	-0.65	-0.23	0.41	0.56
2146	ISO3405-A	-0.35	0.37	0.19	1.82	1.63	-0.58	0.00	-0.79
8010		----	----	----	----	----	----	----	----

**Z-scores Distillation (Manual)**

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250°C	Vol 350°C
150									
228	D86-M	-1.26	-5.47	-0.18	-1.45	-2.71	-5.48	0.63	
237	D86-M	-2.46	-1.56	-0.94	-1.45	-4.18	-0.72	1.67	1.54
238									
240	D86-M	0.34	-0.91	-0.18	0.39	1.73	0.07	1.67	-1.07
253	D86-M	0.34	0.71	0.58	-0.07	-0.49	-0.32	0.11	-0.02
312									
317									
323									
333									
334									
343									
357									
360									
369									
371	ISO3405	0.94	-0.26	0.20	-0.07	0.25	-0.32	-0.41	0.50
372									
391									
399									
420									
440									
445									
447									
463									
604									
671									
704	ISO3405-M	0.42	0.71	0.50	-0.53	0.25	-1.12	-0.72	-0.02
759	ISO3405-M	-1.34	-1.04	0.05	-0.62	0.18	-0.40	1.15	-0.02
781	ISO3405-M	-1.46	0.71	0.96	0.39	-0.12	0.87	-0.93	-0.54
784	D86-M	-0.06	1.04	0.58	0.39	1.73	0.87	-1.45	-0.54
875	D86-M	0.94	0.39	0.58	-0.07	0.25	0.47	0.11	-0.02
962	ISO3405-M	0.14	0.39	1.34	0.39	-0.12			
963									
974									
1006									
1016									
1017									
1038									
1059									
1067	ISO3405	1.62	3.45	1.72	1.96	1.73	-0.32	-1.13	-0.44
1080									
1081									
1108									
1109									
1138									
1140									
1146									
1161									
1167									
1194									
1203									
1205									
1215									
1218									
1227									
1231									
1259									
1266									
1272									
1297									
1300									
1310									
1316									
1345	D86-M	-4.26	-3.84	-2.84	-0.53	-0.49	-1.12	2.71	-0.54
1347	D86-M	1.14	2.34	-1.70	-5.13	-3.45	0.07	0.63	2.06
1348									
1356	ISO3405	0.74	-10.02	-7.78	-17.10	-11.58			
1362	ISO3405	-1.46	-0.26	0.58	1.77	2.10	1.66	-0.41	-0.54
1364	ISO3405	0.74	-1.89	0.20	-1.91	26.51	-0.72	0.11	1.02
1365	D86-M	-2.06	-0.91	-1.70	1.31	2.47	-1.51	0.63	-1.07
1370	ISO3405	2.02	0.54	0.39	1.56	6.28	0.45	-0.82	-2.21
1385	D86-M	2.34	3.64	0.58	-1.45	-7.14	1.66	-1.45	2.06
1393									
1394									
1395									
1398									
1404									
1428									



1520	ISO3405	-2.18	-0.46	-1.17	0.02	-0.04	0.55	0.11	0.50
1621		----	----	----	----	----	----	----	----
1635	ISO3405-M	-6.45	-0.91	2.86	2.23	0.99	4.83	-1.45	-1.07
1650		----	----	----	----	----	----	----	----
1654		----	----	----	----	----	----	----	----
1712		----	----	----	----	----	----	----	----
1720		----	----	----	----	----	----	----	----
1724		----	----	----	----	----	----	----	----
1728	ISO3405	1.52	-1.95	-2.20	-2.10	0.08	-0.11	0.63	0.50
1730		----	----	----	----	----	----	----	----
1807		----	----	----	----	----	----	----	----
1810		----	----	----	----	----	----	----	----
1811		----	----	----	----	----	----	----	----
1832		----	----	----	----	----	----	----	----
1833		----	----	----	----	----	----	----	----
1834		----	----	----	----	----	----	----	----
1849		----	----	----	----	----	----	----	----
1854	ISO3405	-0.22	0.06	-0.18	-0.16	-0.19	3.56	-1.45	-0.02
1861		----	----	----	----	----	----	----	----
1864		----	----	----	----	----	----	----	----
1939		----	----	----	----	----	----	----	----
1941		----	----	----	----	----	----	----	----
1948		----	----	----	----	----	----	----	----
2146		----	----	----	----	----	----	----	----
8010		----	----	----	----	----	----	----	----

**APPENDIX 3****Number of participants per country**

2 laboratories in AUSTRALIA  
3 laboratories in BELGIUM  
1 laboratory in BULGARIA  
2 laboratories in CROATIA  
1 laboratory in CYPRUS  
3 laboratories in CZECH REPUBLIC  
1 laboratory in EQUATORIAL GUINEA  
4 laboratories in ESTONIA  
2 laboratories in FINLAND  
3 laboratories in FRANCE  
1 laboratory in GEORGIA  
5 laboratories in GREECE  
1 laboratory in GUAM  
2 laboratories in HUNGARY  
1 laboratory in INDIA  
1 laboratory in IRELAND  
2 laboratories in ITALY  
3 laboratories in LATVIA  
3 laboratories in LEBANON  
1 laboratory in LITHUANIA  
1 laboratory in MALAYSIA  
2 laboratories in NIGERIA  
1 laboratory in NORTHERN IRELAND  
1 laboratory in POLAND  
1 laboratory in REPUBLIC OF DJIBOUTI  
1 laboratory in REPUBLIC OF MACEDONIA  
1 laboratory in ROMANIA  
10 laboratories in RUSSIA  
2 laboratories in SAUDI ARABIA  
2 laboratories in SERBIA  
1 laboratory in SLOVAKIA  
1 laboratory in SLOVENIA  
1 laboratory in SOUTH KOREA  
4 laboratories in SPAIN  
1 laboratory in SUDAN  
2 laboratories in SWEDEN  
1 laboratory in TAIWAN R.O.C.  
2 laboratories in THAILAND  
6 laboratories in THE NETHERLANDS  
1 laboratory in TOGO  
9 laboratories in TURKEY  
2 laboratories in U.A.E.  
1 laboratory in U.S.A.  
1 laboratory in UKRAINE  
5 laboratories in UNITED KINGDOM

**APPENDIX 4****Abbreviations:**

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

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