Results of Proficiency Test
Fuel Oil
February 2011

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies organizes a proficiency test for Fuel Oil every year. In the annual proficiency testing program of 2010/2011, it was decided to continue the round robin for the analysis of Fuel Oil. In this interlaboratory study 85 laboratories in 35 different countries for regular Fuel Oil and 28 laboratories in 18 different countries for Fuel Oil Aluminium/Silicium only, have participated. See appendix 2 for the number of participants per country. In this report the results of the proficiency test are presented and discussed.

2 SET-UP

The Institute for Interlaboratory Studies (i.i.s.) in Spijkenisse, The Netherlands, was the organiser of this proficiency test. It was decided to send two identical samples (2*1L bottle, labelled #11001). Depending on registration, a special sample for the determination of Aluminium and Silicon (1*0.25L bottle, half filled and labelled #11002) was sent along. 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, RvA (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 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). This protocol can be downloaded from the iis website 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

In this proficiency test two types of material were prepared, a regular Fuel Oil and a Fuel Oil positive on Aluminium and Silicon. A drum of 200 liter of regular Fuel Oil was purchased from a local refinery. After warming-up to 60°C and homogenisation, the bulk sample was divided over 166 amber glass bottles of 1L, labelled #11001. The homogeneity of the subsamples #11001 was checked by determination of density in accordance with ISO12185:96 and water in accordance with ASTM D95:10 on 8 stratified randomly selected samples.

	Density @ 15 ^{o}C in kg/m^3	Water in %V/V
Sample #11001-1	982.34	0.10
Sample #11001-2	982.28	0.10
Sample #11001-3	982.36	0.15
Sample #11001-4	982.34	0.10
Sample #11001-5	982.33	0.15
Sample #11001-6	982.27	0.15
Sample #11001-7	982.29	0.15
Sample #11001-8	982.28	0.15

Table 1: test results for homogeneity of subsamples #11001.

From the test results of table 1, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density @ 15 ^{o}C in kg/m^3	Water in %V/V
r (Observed)	0.10	0.07
Reference method	ISO12185:96	ASTM D95:10
0.3 * R (ref. method)	0.45	0.06

Table 2: repeatability of test results of subsamples #11001

The calculated repeatability for Density was in agreement and the calculated repeatability for Water is almost in agreement with 0.3 times the corresponding target reproducibility of the respective reference method. Therefore, homogeneity of the subsamples of #11001 was assumed.

For sample #11002, one can of 10 liter of Fuel Oil, positive on Aluminium and Silicon was obtained from a local distributor. After warming-up to 60°C and homogenisation, the bulk sample was divided over 111 plastic bottles of 250 mL (filled for approx. 50%) and labelled #11002. The homogeneity of the subsamples was checked by determination of Aluminium and Silicon in accordance with IP501 (by ICP) on 7 stratified randomly selected samples.

	Aluminium in mg/kg	Silicon in mg/kg
Sample #11002-1	26	23
Sample #11002-2	26	23
Sample #11002-3	26	24
Sample #11002-4	27	24
Sample #11002-5	27	24
Sample #11002-6	25	22
Sample #11002-7	27	21

Table 3: measured Aluminum and Silicon for homogeneity of subsamples #11002.

From the test results of table 3, 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:

	Aluminium in mg/kg	Silicon in mg/kg
r (Observed)	2.1	3.2
Reference method	D5184:06-B	D5184:06-B
0.3 * R (ref. method)	2.1	3.2

Table 4: repeatabilities of Aluminium and Silicon results of subsamples #11002

Both calculated repeatabilities, Aluminium and Silicon, were in agreement with 0.3 times the corresponding target reproducibility of the respective reference method. Therefore, homogeneity of the subsamples of #11002 was assumed.

Depending on the registration of the participant, one bottle of 1 L and one bottle of 0.5 L, both labelled #11001, and/or one bottle of 250 mL (half filled) labelled #11002, were dispatched to each of the participating laboratories on January 19, 2011.

2.5 STABILITY OF THE SAMPLES

The stability of Fuel Oil, packed in the amber glass and plastic bottles was checked. The material has been found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were asked to determine on sample #11001: Acid Number, Ash Content, Asphaltenes, Bromine Number, Calculated Carbon Aromaticity Index, Conradson Carbon Residue, Density @ 15 °C, Flash Point PMcc, Heat of Combustion (Gross and Net), Kinematic Viscosity (@ 50°C and 100°C), Micro Carbon Residue, Total Organic Chlorides, Pour Point (Lower, Upper and Automated), Sediments by Extraction, Total Sediment (Potential and Accelerated), Total Sulphur, Nitrogen, Water by Distillation, Metals (Ni, K, Na and V), Distillation (IBP, 5%-50% and FBP) and Total Carbon, Hydrogen and Nitrogen (CHN-analyzer).
On sample #11002 was requested to analyze: Aluminium, Silicon and total Aluminium/Silicon content. 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. Also 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 received. The original data are tabulated per sample in the appendix 1 of this report. The laboratories are represented by their code numbers.

Directly after deadline, a reminder fax was sent to those laboratories that did not report results at that moment. 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 results. Additional or corrected results are used for the 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. In case a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.
In accordance to 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 and by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test and by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of the averages and the standard deviations.

Finally, the reproducibilities were calculated from the standard deviations by multiplying these 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.13-14).

3.3 Z-SCORES

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

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

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

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

4 EVALUATION

In this interlaboratory study problems with customs clearance were encountered during dispatch of the samples to laboratories in Croatia, Jordan and Turkey. These laboratories received the sample late. For Fuel Oil sample #11001, three participants did not report any results and nine laboratories reported the results after the final reporting date. For the additional Fuel Oil sample #11002, two participants did not report any results and two participants reported the results after the final reporting date.
Not all laboratories were able to report all analyses requested. Finally, 113 participants reported in total 1267 numerical results. Observed were 60 statistically outlying results, which is 4.7%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

Not all original data sets proved to have a normal distribution. Not normal distributions were found for the following determinations: Density, Flash Point, Pour Point (Lower, Upper and Automated), Water, Nickel, Sodium, Vanadium, Total Carbon and Distillation at 40% recovered and Final Boiling Point. In all these cases, the results of the statistical evaluation should be used with care. One can see that this is justified from the Kernel Density Graphs.

4.1 EVALUATION PER SAMPLE AND PER TEST

In this section, the results are discussed per sample and per test. The methods that were used by the various laboratories are taken into account for explaining the observed differences where possible and applicable. These methods are also in the tables together with the original data. The abbreviations, used in these tables, are listed in appendix 3.

Sample #11001

Acid Number: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D664:09. Two laboratories reported to have used IP139. This test method is not suitable for dark coloured fuel oil.

Ash: This determination was very problematic. Three statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the strict requirements of ASTM D482:07. The use of different ashing temperatures by the various participating laboratories may (partly) explain the large spread. One participant reported problems during the combustion of the sample due to high carbon residue.

Asphaltenes: This determination was problematic. Two statistical outliers were observed and two results were excluded as the test method used is not suitable. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of IP143:04.

Bromine Number: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D1159:07. Preparation of the distillate upto 360 AET (@2mm Hg) may be the critival step that caused the large spread.

Calculated Carbon Aromaticity Index: This determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the estimated reproducibility of ISO8217:05.

CCR: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D189:10. two results were excluded as the test method used is not comparable to CCR.

Density @ 15°C: This determination was very problematic. Only two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ISO12185:04.

Flash Point PMcc: This determination was problematic. Five statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D93:10a (method B).
When the results of the manual-flame, automatic-flame and automatic-electric mode were evaluated separately, only automatic-flame mode is in agreement with the requirements of the standard.

HOC Gross: The determination of the Gross Heat of Combustion was not problematic. Only one statistical outlier was observed and the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D240:09.
When the results of the ASTM D240 and ASTM D4868 were evaluated separately, the both calculated reproducibilities are in full agreement with the respective requirements.

HOC Net: The determination of the Net Heat of Combustion was problematic for three laboratories. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D240:09.
When the results of the ASTM D240 were evaluated separately, the calculated reproducibility is not in agreement with its requirements. For the separately evaluated results of ASTM D4868, the calculated reproducibility is in good agreement with the requirements.

Kin. Visc. @ 50°C: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with ASTM D445:11.

Kin. Visc. @100°C: This determination was not problematic. Only two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D445:11.

MCR: This determination was problematic. Four statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4530:07.

Nitrogen: This determination was not problematic. Three results were excluded from the statistical evaluation as the method used is not suitable for Fuel Oil. The calculated reproducibility is almost in agreement with the requirements of ASTM D5762:10. Regretfully too few information was received on the injection technique used (3 x boat and 2 x syringe(!!)) to allow any conclusions.

Total Org. Chlorides: Regretfully, no significant conclusions could be drawn. Only four laboratories reported a numerical result, three were below the application range of the test method ASTM D6443:10.

Lower Pour Point: This determination was problematic. One statistical outlier was observed and three results were excluded as the reported results for lower PP > upper PP. The calculated reproducibility is not in agreement with ASTM D97:09. Rounding to 3 degrees acc. ASTM D97 may (partly) explain the large spread.

Upper Pour Point: This determination was problematic. One statistical outlier was observed and three results were excluded as the reported results for lower PP > upper PP. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with ASTM D97:09. Rounding to 3 degrees acc. ASTM D97 may (partly) explain the large spread.

Pour Point (automated): This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with ASTM D5950:07. It is remarkable to see that the automated Pour Point is approx. 4ºC lower than the consensus value for the Upper Pour Point, while the automated Pour Point was expected to be about equal to the Upper Pour Point in agreement with the specification in ISO8217.

Sediment by Extraction: This determination was problematic for a number of laboratories. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D 473:07.

Total sediment: Potential:
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 IP390:04. (IP390:04 is technically identical to ISO10307-2:93)

Total sediment: Accelerated:
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 IP390:04. (IP390:04 is technically identical to ISO10307-2:93)

Total Sulphur: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D4294:10.

Water: This determination was not problematic. Only two statistical outliers were detected and the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D95:10.

Nickel: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP470:05. However, it should be noted that the calculated reproducibility does not meet the requirements of IP501 and ASTM D5863 (method A and B).

Potassium: Regretfully, no suitable test method exists with precision data, therefore the results were compared against the Horwitz equation.
This determination was very problematic. Three statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements calculated using the Horwitz equation.

Sodium: This determination was not problematic. Three statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is almost in agreement with the requirements ASTM D5863:05-B (organic solvent dissolution).

Vanadium: The concentration was below the application range (50–500 mg/kg) of ASTM D5863. However, this determination may not be problematic. Only two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is in good agreement with the estimated requirements of ASTM D5863:05-B (organic solvent dissolution). However, it should be noted that when compared with ASTM D5863:05-A (acid decomposition) the calculated reproducibility does not meet the requirements.

CHN-Analyzer: This determination was not problematic. In total only one statistical outlier was observed. The calculated reproducibilities of the Carbon, Hydrogen and Nitrogen determination are all in agreement with the requirements of ASTM D5291:10.

Distillation: This determination was problematic. In total eleven statistical outliers were detected from the statistical evaluation. Only the calculated reproducibilities of IBP, 5% and 50% recovered are, after rejection of statistical outliers, in agreement with the requirements of ASTM D1160:06.

Sample #11002:

Aluminium: This determination may be problematic. Only two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D5184:06-AAS, nor of the ICP method, nor of IP407 and of IP501.

Silicon: This determination may be problematic. Only two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM

D5184:06-B (AAS method) and of IP470, but it is not in agreement with the requirements of ASTM D5184:06-A (ICP method), nor of IP501.

Total Al/Si: The determination of the sum of aluminium and silicon may not be problematic. The fact that a low silicon result can be compensated by a high alumium result (and visa versa) means that the good result may not mean that the individual test results for aluminium and silicon are reliable. Four statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers is in agreement with the estimated reproducibility of ASTM D5184:06-B (AAS method) and of IP470, but does not agree with the requirements of ASTM D5183:06-A (ICP method), nor of IP501.

It is known that the contamination by aluminium and silicon has catalyst fines (aluminium silicates) as source. And therefore the ratio between the alumium and the silicon test result should be approx 1 (one). This was the case for all results, except for the results as reported by laboratories 1161 and 1271.
Finally, it should be remarked that proper attention for homogenisation is crucial for a material such as Fuel Oil. Due to the nature of the material it is very susceptible to problems when not handled correctly. Practically all methods for the determination of metals in Fuel Oil have similar statements regarding homogenization.

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 table.

Parameters	Unit	n	average	2.8 * sd	R (lit)
Acid Number	mg KOH/g	25	0.3248	0.1295	0.1868
Ash	%M/M	58	0.0242	0.0148	0.0050
Asphaltenes	%M/M	34	3.875	1.448	0.775
Bromine Number	g Br/100g	11	11.98	6.44	4.09
Calc. Carbon Aromaticity Index		15	843.85	2.03	0.74
Conradson Carbon Residue	%M/M	18	11.095	2.282	1.767
Density @ 15 °C	kg/m^3	67	982.92	2.29	1.50
Flash Point PMcc	°C	59	103.02	8.32	6.00
Heat of Combustion Gross	MJ/kg	42	43.099	0.322	0.400
Heat of Combustion Net	MJ/kg	31	40.793	0.397	0.400
Kinematic Viscosity @ 50 °C	cSt	59	379.773	25.885	28.103
Kinematic Viscosity @ 100 °C	cSt	54	32.803	1.526	1.632
Micro Carbon Residue	%M/M	45	10.777	0.870	0.645
Nitrogen	µg/g	11	3688.5	1046.7	981.1

Total Organic Chlorides	mg/kg	3	2.5	unknown	unknown
Lower Pour Point	°C	27	3.67	9.79	6.60
Upper Pour Point	°C	38	6.33	8.75	6.60
Pour Point (automated)	°C	21	2.05	9.14	6.10
Sediment by Extraction	%M/M	29	0.0142	0.0189	0.0366
Total Sediment (Potential)	%M/M	26	0.0137	0.0189	0.0344
Total Sediment (Accelerated)	%M/M	22	0.0137	0.0190	0.0345
Total Sulphur	%M/M	75	0.920	0.088	0.069
Water by Distillation	%V/V	50	0.070	0.100	0.200
Nickel as Ni	mg/kg	37	10.50	6.75	8.50
Potassium as K	mg/kg	20	16.78	9.90	4.92
Sodium as Na	mg/kg	37	6.39	4.72	4.41
Vanadium as V	mg/kg	38	20.82	9.19	(13.61)
CHN analyzer					
Total Carbon	%M/M	23	87.44	2.64	2.45
Total Hydrogen	%M/M	22	10.68	0.78	0.76
Total Nitrogen	%M/M	17	0.44	0.22	0.45
Distillation @ 760 mm Hg					
IBP	°C	17	206.15	50.40	49.45
5% recovered	°C	17	278.56	28.43	26.83
10% recovered	°C	18	340.56	30.16	21.97
20% recovered	°C	18	402.21	24.15	18.18
30% recovered	°C	18	443.43	22.01	16.32
40% recovered	°C	18	481.18	22.24	16.27
50% recovered	°C	10	521.78	12.22	12.56
FBP	°C	15	530.58	46.75	26.89

table 5: summary of test results on Fuel Oil sample #11001

*results between brackets should be used with care, because the average found was below the application range

Parameters	Unit	n	average	2.8 * sd	R (lit)
Aluminium	mg/kg	24	23.61	9.32	6.49
Silicon	mg/kg	23	21.94	9.29	10.49
Total Aluminium + Silicon	mg/kg	21	48.02	12.28	12.35

Table 6: summary of test results on Fuel Oil sample #11002

Without further statistical calculations it can be concluded that for a number 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 PROFICIENCY TEST OF FEBRUARY 2011 WITH PREVIOUS PT'S

	February 2011	January 2010	October 2009	January 2009
Number of reporting labs	113	75	106	99
Number of results reported	1267	1081	1426	1223
Statistical outliers	60	61	59	45
Percentage outliers	4.7%	5.9%	4.1%	3.7%

Table 7: 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:

Determination	February 2011	January 2010	October 2009	January 2009
Acid Number	++	+	++	
Ash	--	--	--	--
Asphaltenes	--	-	++	--
Bromine Number	--	--	++	--
Calc. Carb. Aromaticity Index	--	n.e.	n.e.	
Conradson Carbon Residue	--	++	++	++
Density @ 15 °C	--	+	+	+/-
Flash Point PMcc	--	--	--	--
Heat of Combustion Gross	++	-	+/-	--
Heat of Combustion Net	+/-	--	++	--
Kinematic Viscosity @ 50 °C	+	++	++	++
Kinematic Viscosity @ 100 °C	+	--	+	--
Micro Carbon Residue	--	+/-	+/-	+
Nitrogen	-	--	--	--
Total Organic Chlorides	n.e.	n.e.	n.e.	n.e.
Lower Pour Point	--	-	-	--
Upper Pour Point	--	--	--	--
Pour Point (automated)	--	++	n.e.	n.e.
Sediments by Extraction	++	++	++	++
Total Sediment (Accelerated)	++	++	++	+
Total Sediment (Potential)	++	++	++	++
Total Sulphur	-	--	--	--
Water by Distillation	++	++	++	++
Aluminium as Al #11002	--	++	--	--
Nickel as Ni	++	--	--	--
Potassium as K	--	(--)	n.a.	(n.a.)
Silicon as Si #11002	+	++	+	+
Sodium as Na	-	++	++	--
Vanadium as V	(++)	++	++	++
Total Carbon	+/-	+/-	n.e.	++
Total Hydrogen	+/-	--	n.e.	++
Total Nitrogen	++	++	n.e.	++
Distillation	--	++	+/-	-

table 8: comparison determinations of sample #11001 and #11002 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 equals the standard
- : group performed worse than the standard
-- : group performed much worse than the standard
n.e.: not evaluated

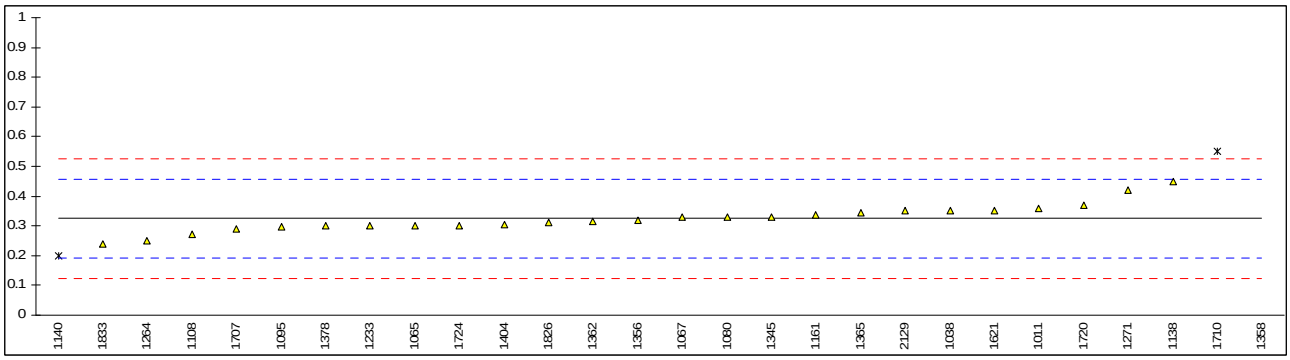
APPENDIX 1

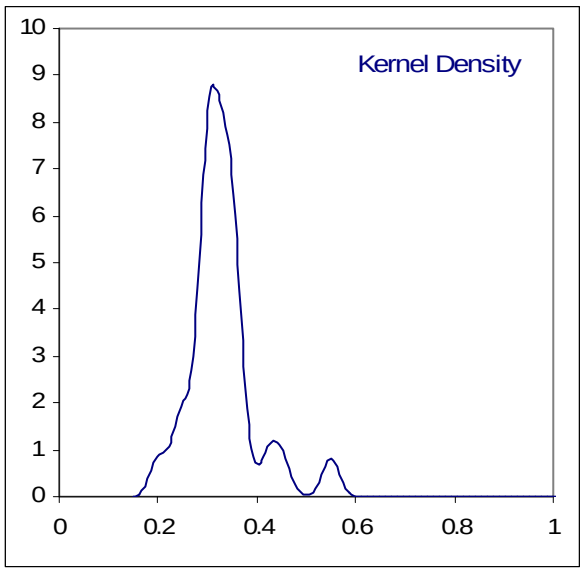
Determination of Acid Number on sample #11001; results in mg KOH/g

lab	method	value	Mark	z(targ)	remarks
1011	D664	0.357		0.48	
1013		-----		-----	
1022		-----		-----	
1038	D664	0.35		0.38	
1059		-----		-----	
1062		-----		-----	
1065	D664	0.3003		-0.37	
1067	D664	0.33		0.08	
1080	D664	0.33		0.08	
1081		-----		-----	
1095	D664	0.296		-0.43	
1108	D664	0.273		-0.78	
1126		-----		-----	
1138	D664	0.45		1.88	
1140	IP139	0.2	ex	-1.87	Result excluded, method not suitable for Fuel Oil
1161	D664	0.338		0.20	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233	D664	0.30		-0.37	
1254		-----		-----	
1259		-----		-----	
1264	D664	0.25		-1.12	
1271	D664	0.4215		1.45	
1275		-----		-----	
1289		-----		-----	
1345	D664	0.330		0.08	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356	D664	0.32		-0.07	
1357		-----		-----	
1358	IP139	3.2	C,ex	43.10	First reported 0, result excluded, method not suitable for Fuel Oil
1362	D664	0.314		-0.16	
1363		-----		-----	
1364		-----		-----	
1365	D664	0.345	C	0.30	
1370		-----		-----	
1378	D664	0.30		-0.37	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	D664	0.305		-0.30	
1425		-----		-----	
1428		-----		-----	
1431		-----		-----	
1510		-----		-----	
1520		-----		-----	
1613		-----		-----	
1621	D664	0.35		0.38	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707	D664	0.29023		-0.52	
1710	D664	0.55	CG(0.01)	3.37	First reported 0.74
1720	D664	0.37		0.68	
1724	D664	0.301		-0.36	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	D664	0.31		-0.22	
1832		-----		-----	

1833	D664	0.24	C	-1.27	First reported 0.72
1849		-----		-----	
1854		-----		-----	
1902		-----		-----	
1906		-----		-----	
1938		-----		-----	
1942		-----		-----	
1948		-----		-----	
2129	D665	0.35		0.38	
2160		-----		-----	

		Compare with November 2010 #1094
normality	OK	OK
n	25	29
outliers	1	2
mean (n)	0.3248	0.3204
st.dev. (n)	0.04624	0.03790
R(calc.)	0.1295	0.1061
R(D664:09a)	0.1868	0.1862



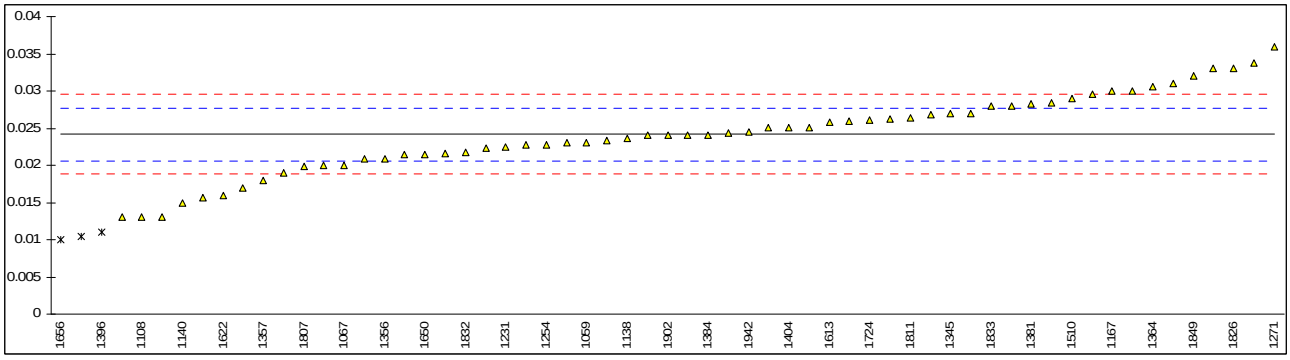


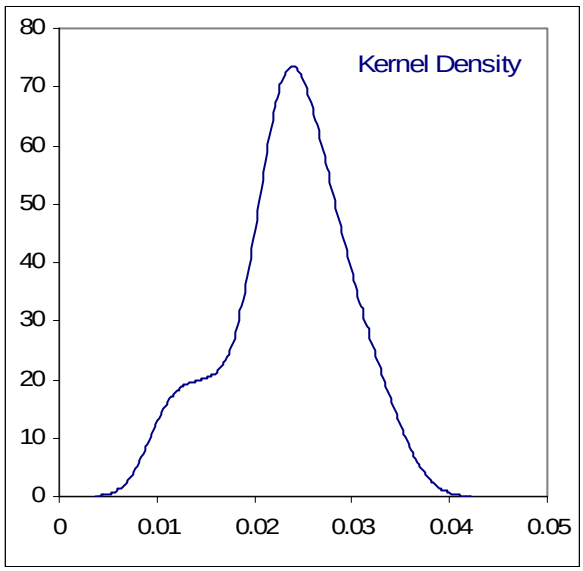
Determination of Ash on sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011	D482	0.0216		-1.44	
1013		-----		-----	
1022	D482	0.0227		-0.83	
1038	D482	0.025		0.46	
1059	ISO6245	0.023		-0.66	
1062		-----		-----	
1065	D482	0.031		3.82	
1067	D482	0.02		-2.34	
1080		-----		-----	
1081		-----		-----	
1095	D482	0.013		-6.26	
1108	D482	0.013		-6.26	
1126		-----		-----	
1138	IP4	0.0236		-0.32	
1140	IP004	0.015		-5.14	
1161	ISO6245	0.019		-2.90	
1167	ISO6245	0.03		3.26	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	D482	0.0224		-0.99	
1233	ISO6245	0.0295		2.98	
1254	D482	0.0227		-0.83	
1259		-----		-----	
1264	D482	0.023		-0.66	
1271	ISO6245	0.036		6.62	
1275	IP4	0.0268		1.47	
1289		-----		-----	
1345	D482	0.027		1.58	
1347	D482	0.0214		-1.55	
1348	D482	0.02086		-1.86	
1353		-----		-----	
1356	ISO6245	0.0209		-1.83	
1357	D482	0.018		-3.46	
1358	IP4	0.013		-6.26	
1362	D482	0.0244		0.13	
1363		-----		-----	
1364	D482	0.03058		3.59	
1365	D482	0.0240		-0.10	
1370		-----		-----	
1378	D482	0.033		4.94	
1381	ISO6245	0.0282		2.25	
1383	IP4	0.010381	G(0.05)	-7.73	
1384	ISO6245	0.024		-0.10	
1385	D482	0.02		-2.34	
1392		-----		-----	
1396	IP4	0.011	C,G(0.05)	-7.38	First reported 0.048 (IP550)
1403		-----		-----	
1404	D482	0.025		0.46	
1425	in house	<1.5		-----	
1428	ISO6245	0.026		1.02	
1431	D482	0.030		3.26	
1510	D482	0.029		2.70	
1520	D482	0.0233		-0.49	
1613	D482	0.02575		0.88	
1621	D482	0.0284		2.37	
1622	D482	0.0160		-4.58	
1631	D482	0.017		-4.02	
1633		-----		-----	
1635		-----		-----	
1636	D482	0.028		2.14	
1648		-----		-----	
1650	D482	0.0215		-1.50	
1656	IP4	0.01	G(0.05)	-7.94	
1707	D482	0.02625		1.16	
1710	D482	0.024		-0.10	
1720	D482	0.027		1.58	
1724	D482	0.0261		1.08	
1728	D482	0.02225		-1.08	
1740		-----		-----	
1807	D482	0.0199		-2.39	
1810		-----		-----	
1811	D482	0.0264		1.25	
1826	D482	0.033		4.94	
1832	ISO6245	0.0217		-1.39	
1833	D482	0.028		2.14	

1849	D482	0.03205	4.41
1854	D482	0.025	0.46
1902	D482	0.0240	-0.10
1906		-----	-----
1938		-----	-----
1942	D482	0.0245	0.18
1948		-----	-----
2129	D482	0.0338	5.39
2160	D482	0.0157	-4.75

		Compare with November 2010 #1094
normality	OK	Not OK
n	58	75
outliers	3	5
mean (n)	0.0242	0.0239
st.dev. (n)	0.00529	0.00353
R(calc.)	0.0148	0.0099
R(D482:07)	0.0050	0.0050



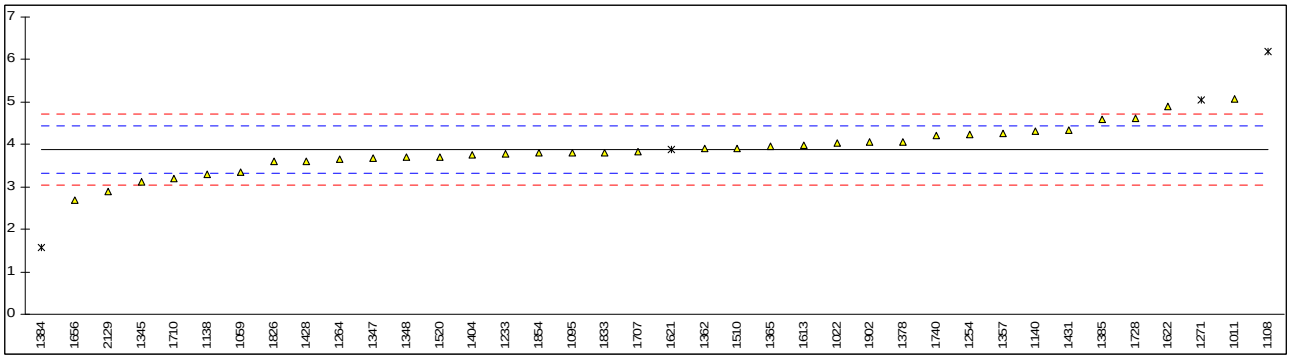


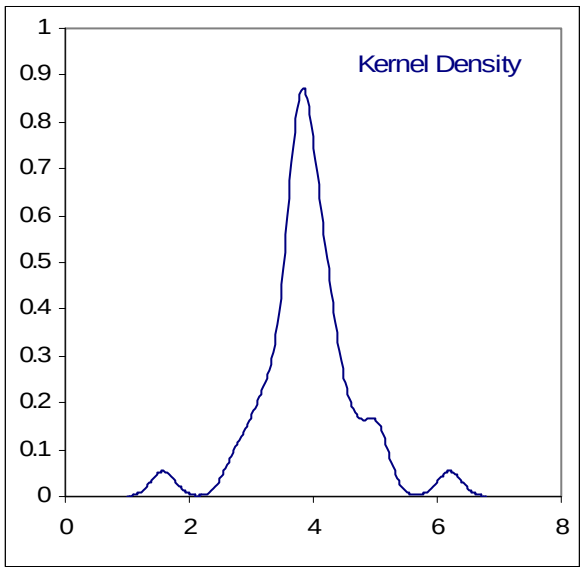
Determination of Asphaltenes on sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011	IP143	5.08		4.36	
1013		-----		-----	
1022	IP143	4.04		0.60	
1038		-----		-----	
1059	IP143	3.35		-1.90	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1095	IP143	3.8		-0.27	
1108	IP143	6.2	G(0.05)	8.40	
1126		-----		-----	
1138	IP143	3.3		-2.08	
1140	IP143	4.3		1.54	
1161		-----		-----	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233	IP143	3.78		-0.34	
1254	IP143	4.23		1.28	
1259		-----		-----	
1264	IP143	3.65		-0.81	
1271	D3279	5.055	ex	4.27	Result excluded, method not suitable
1275		-----		-----	
1289		-----		-----	
1345	IP143	3.11		-2.76	
1347	IP143	3.669		-0.74	
1348	IP143	3.70		-0.63	
1353		-----		-----	
1356		-----		-----	
1357	IP143	4.27		1.43	
1358		-----		-----	
1362	IP143	3.90		0.09	
1363		-----		-----	
1364		-----		-----	
1365	IP143	3.950		0.27	
1370		-----		-----	
1378	IP143	4.07		0.71	
1381		-----		-----	
1383		-----		-----	
1384	inh-25	1.58	G(0.05)	-8.29	
1385	IP143	4.6		2.62	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	in house	3.75		-0.45	
1425		-----		-----	
1428	IP143	3.6		-0.99	
1431	D6560	4.34		1.68	
1510	IP143	3.9		0.09	
1520	IP143	3.70		-0.63	
1613	IP143	3.987		0.41	
1621	D3279	3.89	ex	0.06	Result excluded method not suitable
1622	IP143	4.9		3.71	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656	IP143	2.7		-4.24	
1707	IP143	3.84		-0.12	
1710	in house	3.2		-2.44	
1720		-----		-----	
1724		-----		-----	
1728	D6560	4.62		2.69	
1740	IP143	4.22		1.25	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	IP143	3.6		-0.99	
1832		-----		-----	
1833	IP143	3.81		-0.23	

1849		-----		-----	
1854	IP143	3.8		-0.27	
1902	IP143	4.07		0.71	
1906		-----		-----	
1938		-----		-----	
1942		-----		-----	
1948		-----		-----	
2129	IP143	2.90	C	-3.52	First reported 1.63
2160		-----		-----	

		Compare with November 2010 #1094
	normality	OK	OK
	n	34	50
	outliers	2	1
	mean (n)	3.875	3.784
	st.dev. (n)	0.5173	0.5883
	R(calc.)	1.448	1.647
	R(IP143:04)	0.775	0.757



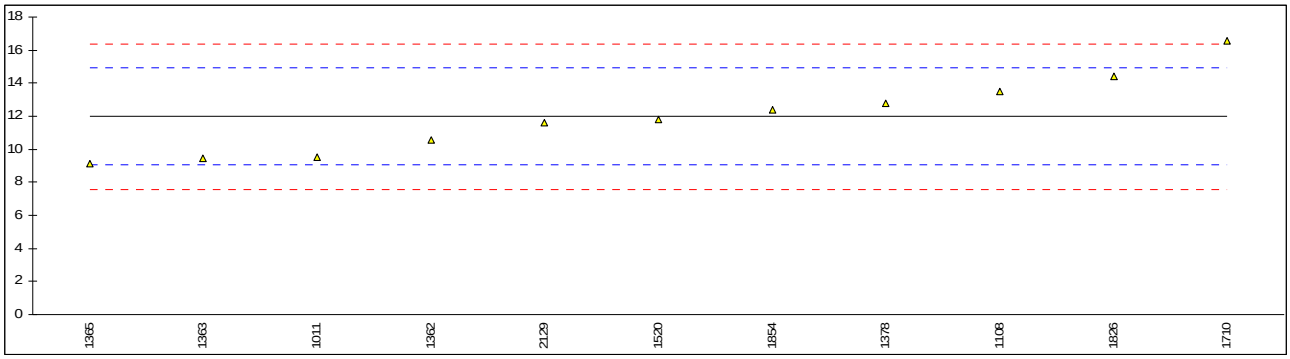


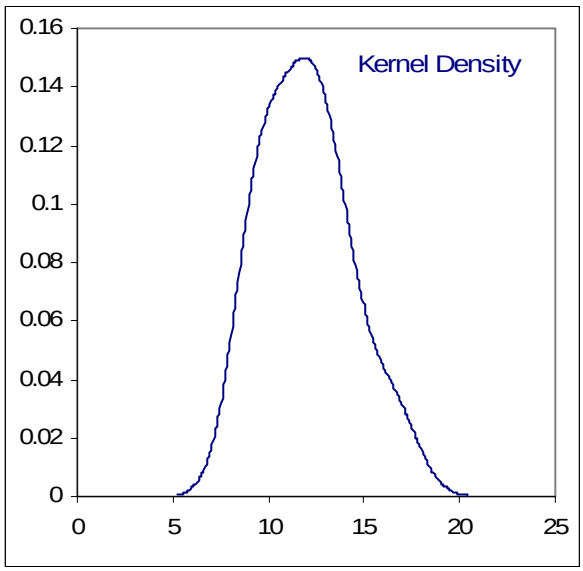
Determination of Bromine Number on sample #11001; results in g Br/100g

lab	method	value	mark	z(targ)	remarks
1011	D1159	9.55		-1.66	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----	W	-----	Result withdrawn, reported 17.77
1081		-----		-----	
1095		-----		-----	
1108	D1159	13.5		1.04	
1126		-----		-----	
1138		-----		-----	
1140		-----		-----	
1161		-----		-----	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264		-----		-----	
1271		-----		-----	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362	D1159	10.55		-0.98	
1363	D1159	9.473		-1.71	
1364		-----		-----	
1365	D1159	9.11		-1.96	
1370		-----		-----	
1378	D1159	12.81		0.57	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404		-----		-----	
1425		-----		-----	
1428		-----		-----	
1431		-----		-----	
1510		-----		-----	
1520	D1159	11.78		-0.14	
1613		-----		-----	
1621		-----		-----	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710	D1159	16.59		3.15	
1720		-----		-----	
1724		-----		-----	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	D1159	14.4		1.66	
1832		-----		-----	
1833		-----		-----	

1849		-----	-----
1854	D1159	12.4	0.29
1902		-----	-----
1906		-----	-----
1938		-----	-----
1942		-----	-----
1948		-----	-----
2129	D1159	11.6	-0.26
2160		-----	-----

		Compare with November 2010 #1094
normality	OK	OK
n	11	11
outliers	0	0
mean (n)	11.98	11.10
st.dev. (n)	2.301	1.300
R(calc.)	6.44	3.64
R(D1159:07)	4.09	3.88



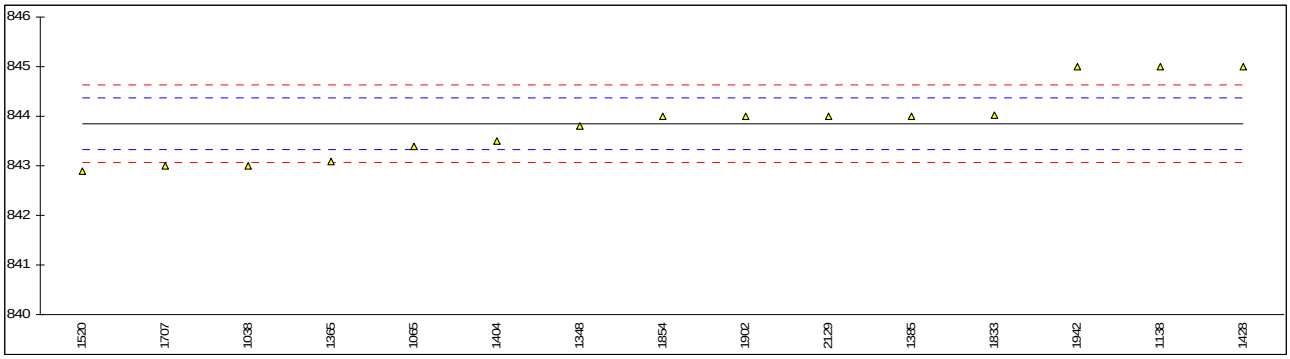


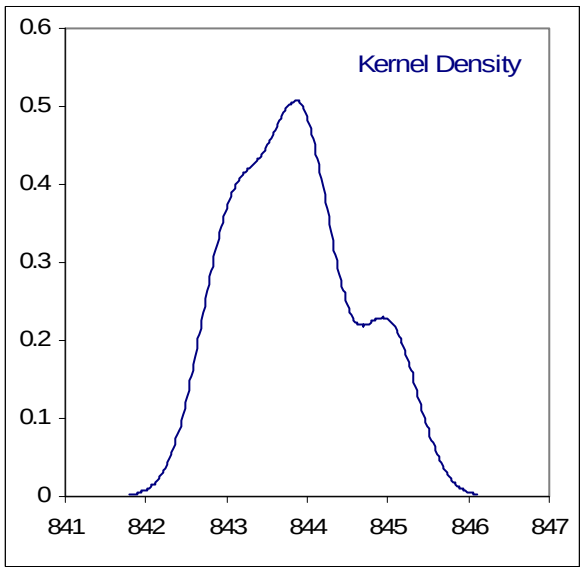
Determination of Calculated Carbon Aromaticity Index on sample #11001;

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		843		-3.21	
1059		-----		-----	
1062		-----		-----	
1065	ISO8217	843.4		-1.69	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1095		-----		-----	
1108		-----		-----	
1126		-----		-----	
1138		845		4.37	
1140		-----		-----	
1161		-----		-----	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264		-----		-----	
1271		-----		-----	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		843.8		-0.18	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362		-----		-----	
1363		-----		-----	
1364		-----		-----	
1365	ISO8217	843.08		-2.91	
1370		-----		-----	
1378		-----		-----	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		844		0.58	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	calc	843.5		-1.31	
1425		-----		-----	
1428		845		4.37	
1431		-----		-----	
1510		-----		-----	
1520		842.9		-3.59	
1613		-----		-----	
1621		-----		-----	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707	ISO8217	843		-3.21	
1710		-----		-----	
1720		-----		-----	
1724		-----		-----	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832		-----		-----	
1833		844.016		0.64	

1849		-----	-----
1854		844	0.58
1902	ISO8217	844.0	0.58
1906		-----	-----
1938		-----	-----
1942		845	4.37
1948		-----	-----
2129	calc	844	0.58
2160		-----	-----

		Compare with November 2010 #1094
	normality	OK	Not OK
	n	15	27
	outliers	0	0
	mean (n)	843.85	843.79
	st.dev. (n)	0.725	0.364
	R(calc.)	2.03	1.02
	R(theoretically)	0.74	0.74



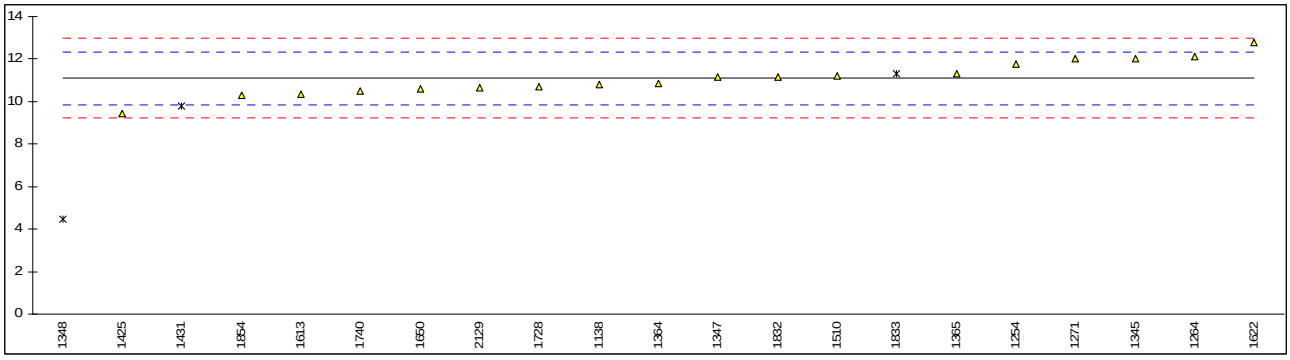


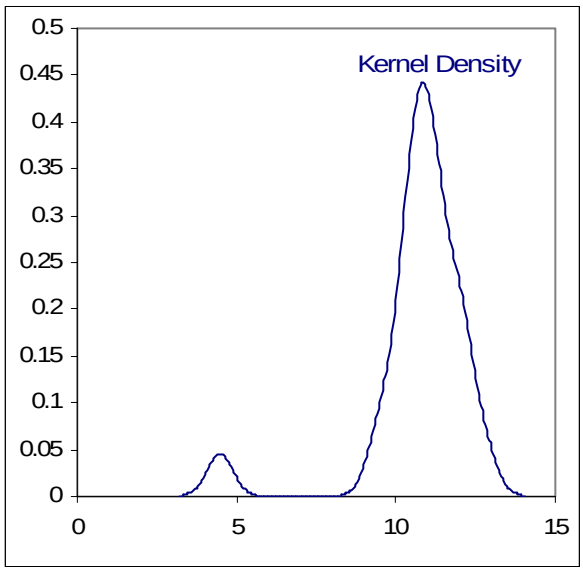
Determination of Conradson Carbon Residue on sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1095		-----		-----	
1108		-----		-----	
1126		-----		-----	
1138	IP13	10.8		-0.47	
1140		-----		-----	
1161		-----		-----	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254	D189	11.79		1.10	
1259		-----		-----	
1264	D189	12.1		1.59	
1271	ISO6615	12.036		1.49	
1275		-----		-----	
1289		-----		-----	
1345	D189	12.04		1.50	
1347	D189	11.152		0.09	
1348	D189	4.48	G(0.01)	-10.48	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362		-----		-----	
1363		-----		-----	
1364	D189	10.837		-0.41	
1365	D189	11.32		0.36	
1370		-----		-----	
1378		-----		-----	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404		-----		-----	
1425	in house	9.43		-2.64	
1428		-----		-----	
1431	D524	9.79	ex	-2.07	Result excluded, method is not comparable
1510	D189	11.2		0.17	
1520		-----		-----	
1613	D189	10.344		-1.19	
1621		-----		-----	
1622	D189	12.78		2.67	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650	D189	10.58		-0.82	
1656		-----		-----	
1707		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724		-----		-----	
1728	D189	10.72		-0.59	
1740	D189	10.48		-0.97	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832	ISO6615	11.156		0.10	
1833	D524	11.3	ex	0.33	Result excluded, method is not comparable

1849		-----	-----
1854	D189	10.3	-1.26
1902		-----	-----
1906		-----	-----
1938		-----	-----
1942		-----	-----
1948		-----	-----
2129	D189	10.642	-0.72
2160		-----	-----

		Compare with November 2010 #1094
normality	OK	OK
n	18	35
outliers	1	0
mean (n)	11.095	10.920
st.dev. (n)	0.8150	0.6691
R(calc.)	2.282	1.873
R(D189:10)	1.767	1.740

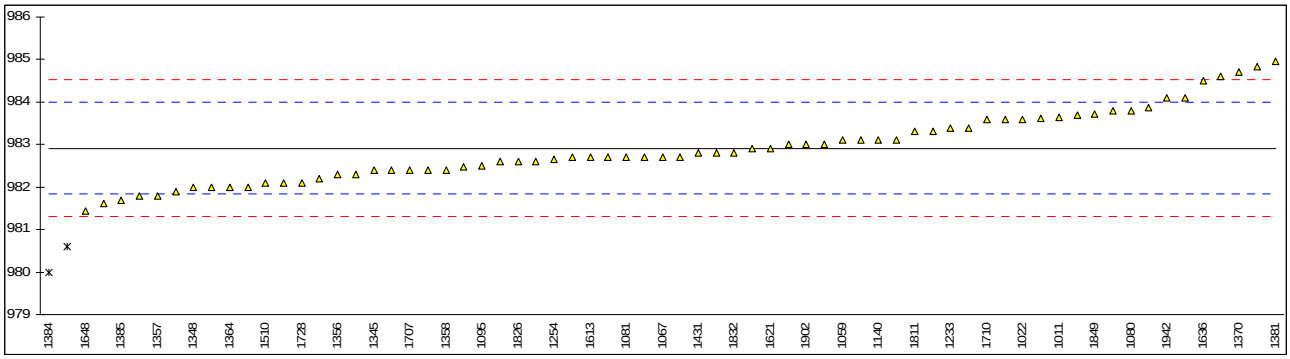


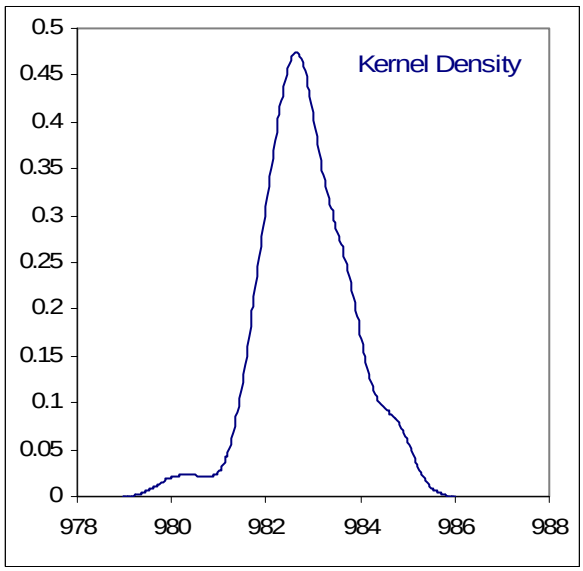


Determination of Density @ 15 °C on sample #11001; results in kg/m^3

lab	method	value	mark	z(targ)	remarks
1011	ISO12185	983.65		1.37	
1013		-----		-----	
1022	ISO12185	983.6	C	1.28	First reported 0.9836
1038		-----		-----	
1059	ISO12185	983.1		0.34	
1062		-----		-----	
1065	D1298	982.3		-1.15	
1067	ISO12185	982.7		-0.40	
1080	ISO12185	983.8		1.65	
1081	ISO12185	982.7		-0.40	
1095	ISO12185	982.5		-0.78	
1108	ISO3675	983.62		1.31	
1126	in house	982.0		-1.71	
1138	IP365	982.9	C	-0.03	First reported 0.9829
1140	IP365	983.1		0.34	
1161	ISO3675	983.8		1.65	
1167	ISO12185	982.4		-0.96	
1177		-----		-----	
1205	ISO12185	983.86		1.76	
1215	D1298	982.7		-0.40	
1231	D1298	982.7		-0.40	
1233	ISO12185	983.4		0.90	
1254	ISO12185	982.64		-0.52	
1259		-----		-----	
1264	D4052	982.8		-0.22	
1271		-----		-----	
1275	IP365	983.3		0.72	
1289		-----		-----	
1345	ISO12185	982.4		-0.96	
1347	D4052	982.4	C	-0.96	First reported 0.9824
1348	D4052	982.0	C	-1.71	First reported 0.9820
1353		-----		-----	
1356	ISO12185	982.3		-1.15	
1357	D1298	981.8	C	-2.08	First reported 0.9837
1358	IP160	982.4	C	-0.96	First reported 0.983
1362	ISO12185	982.00		-1.71	
1363	ISO12185	984.1		2.21	
1364	ISO12185	982.0		-1.71	
1365	D4052	981.80	C	-2.08	First reported 0.98180
1370	ISO12185	984.7		3.33	
1378	D4052	983.0		0.16	
1381	ISO12185	984.96		3.82	
1383		-----		-----	
1384	ISO3675	980	C,G(0.05)	-5.44	First reported 1071
1385	D4052	981.7	C	-2.27	First reported 0.9817
1392	D1298	983.6		1.28	
1396		-----		-----	
1403		-----		-----	
1404	ISO12185	982.7	C	-0.40	First reported 928.7
1425	in house	982.1		-1.52	
1428	ISO12185	983.7		1.46	
1431	D4052	982.80		-0.22	
1510	ISO12185	982.1		-1.52	
1520	ISO12185	982.47		-0.83	
1613	D4052	982.7	C	-0.40	First reported 0.9827
1621	ISO12185	982.9		-0.03	
1622	D4052	983.1		0.34	
1631	ISO12185	980.6	G(0.05)	-4.32	
1633		-----		-----	
1635		-----		-----	
1636	D1298	984.5		2.96	
1648	D1298	981.43	C	-2.77	First reported 0.98143
1650	D4052	982.6		-0.59	
1656	IP365	982.2		-1.34	
1707	ISO12185	982.4		-0.96	
1710	ISO12185	983.6		1.28	
1720	D4052	981.6		-2.46	
1724		-----		-----	
1728	D4052	982.1		-1.52	
1740	ISO3675	981.9		-1.90	
1807	ISO12185	984.6		3.14	
1810	ISO12185	983.4		0.90	
1811	ISO12185	983.3		0.72	
1826	ISO12185	982.6		-0.59	
1832	ISO12185	982.8		-0.22	
1833	ISO12185	983.1		0.34	

1849	ISO12185	983.72		1.50	
1854	ISO12185	982.7		-0.40	
1902	D4052	983.0	C	0.16	First reported 0.9830
1906		-----		-----	
1938	ISO12185	982.6		-0.59	
1942	D7042	984.1	C	2.21	First reported 0.9841
1948		-----		-----	
2129	ISO12185	983.0		0.16	
2160	ISO12185	984.83		3.57	
					Compare with November 2010 #1094
	normality	not OK			OK
	n	67			93
	outliers	2			2
	mean (n)	982.92			982.95
	st.dev. (n)	0.819			0.591
	R(calc.)	2.29			1.66
	R(ISO12185:04)	1.50			1.50





Determination of Flash Point PMcc on sample #11001; results in °C

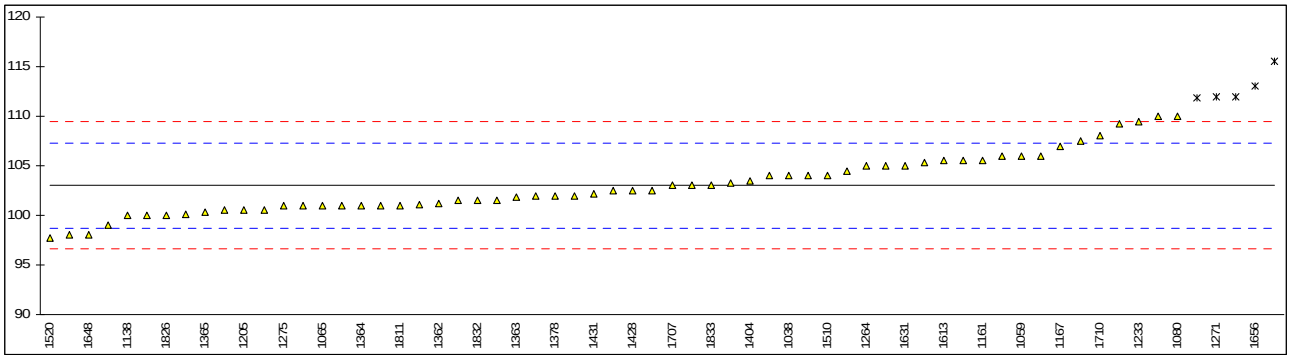
lab	Method	value	mark	z(targ)	remarks
1011	ISO2719-AF	115.5	G(0.05)	5.82	
1013		-----		-----	
1022		-----		-----	
1038	D93-AE	104.0		0.46	
1059	ISO2719-AE	106.0		1.39	
1062		-----		-----	
1065	D93-AE	101		-0.94	
1067	D93B-F	101.0		-0.94	
1080	D93-AE	110.0		3.26	
1081	D93B-	101		-0.94	
1095	D93-AE	102.5		-0.24	
1108	D93	100.5		-1.18	
1126	D93-AE	105.5		1.16	
1138	IP34B-AF	100.0		-1.41	
1140	IP034-AF	100.5		-1.18	
1161	ISO2719-AE	105.5		1.16	
1167	ISO2719-AE	107		1.86	
1177		-----		-----	
1205	D93-AF	100.5		-1.18	
1215	D93-AE	101.132		-0.88	
1231	D93-AF	104.0		0.46	
1233	ISO2719-AE	109.5		3.02	
1254	D93B-AF	100.1		-1.36	
1259		-----		-----	
1264	D93-AE	105		0.92	
1271	ISO2719-AF	112	DG(0.05)	4.19	
1275	IP34-AF	101.0		-0.94	
1289		-----		-----	
1345	D93-AE	107.5		2.09	
1347	D93-MF	105		0.92	
1348	D93-MF	106		1.39	
1353		-----		-----	
1356	ISO2719-MF	112	DG(0.05)	4.19	
1357	D93-	101		-0.94	
1358	IP34-AF	101.5	C	-0.71	First reported 119.0
1362	D93B	101.2		-0.85	
1363	D93-MF	101.9		-0.52	
1364	D93-AF	101.0		-0.94	
1365	D93B-MF	100.3		-1.27	
1370	D93-	105.3		1.06	
1378	D93-AE	102		-0.48	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385	D93-MF	104.5		0.69	
1392		-----		-----	
1396	IP523-AF	111.9	DG(0.05)	4.14	
1403		-----		-----	
1404	D93-AF	103.5		0.22	
1425		-----		-----	
1428	ISO2719-AE	102.5		-0.24	
1431	D93-AF	102.2		-0.38	
1510	D93-M	104		0.46	
1520	D93-MF	97.7		-2.48	
1613	D93-AE	105.5		1.16	
1621	D93-AF	102.0		-0.48	
1622	D93-MF	110.0		3.26	
1631	D93-AE	105		0.92	
1633		-----		-----	
1635		-----		-----	
1636	D93-AE	102.5		-0.24	
1648	D93-MF	98		-2.34	
1650		-----		-----	
1656	IP34-AF	113.0	DG(0.05)	4.66	
1707	D93-MF	103		-0.01	
1710	D93-	108.0		2.32	
1720		-----		-----	
1724	D93-AF	98		-2.34	
1728	D93-MF	103		-0.01	
1740	ISO2719-AE	100.0		-1.41	
1807	D93-	102.0		-0.48	
1810	D93-AF.	101.5		-0.71	
1811	D93-AF	101.0		-0.94	
1826	D93-	100		-1.41	
1832	ISO2719B	101.5		-0.71	
1833	D93-MF	103		-0.01	

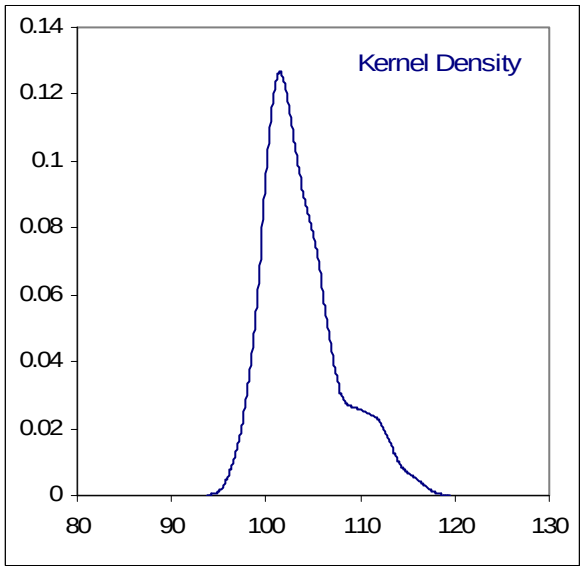
1849	D93-AE	109.2		2.88	
1854	D93-MF	104		0.46	
1902	D93-MF	>100		-----	
1906		-----		-----	
1938		-----		-----	
1942	D93-M	99	C	-1.88	First reported 94
1948		-----		-----	
2129	D93-MF	106.0		1.39	
2160	D93-AE	103.3		0.13	

		Compare with November 2010 #1094
normality	OK	Not OK
n	59	87
Outliers	5	7
mean (n)	103.02	101.80
st.dev. (n)	2.972	1.906
R(calc.)	8.32	5.34
R(D93:10a)	6.00	6.00

Method B

	Only Manual-Flame	Only Automated-Flame	Only Automated-Electric
normality	OK	OK	OK
n	13	14	20
Outliers	1	3	0
mean (n)	103.26	101.20	104.73
st.dev. (n)	3.353	1.492	2.911
R(calc.)	9.39	4.18	8.15
R(D93:10a)	6.00	6.00	6.00



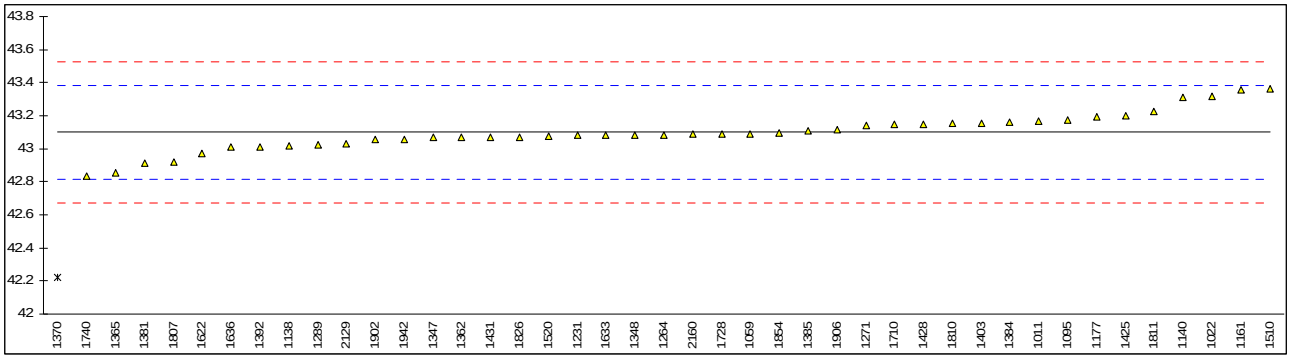


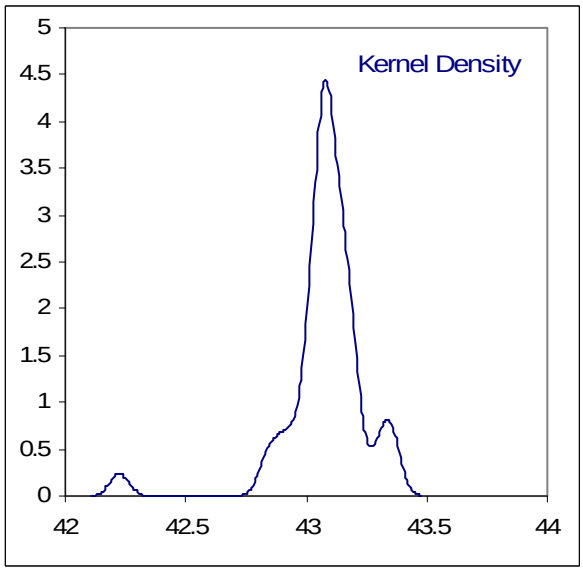
Determination of Heat of Combustion Gross on sample #11001; results in MJ/kg

lab	method	value	mark	z(targ)	remarks
1011	D240	43.165		0.46	
1013		-----		-----	
1022	ISO8217	43.32		1.55	
1038		-----		-----	
1059	DIN51900Mod.	43.090		-0.06	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1095	D240	43.175		0.53	
1108		-----		-----	
1126		-----		-----	
1138	D240	43.015		-0.59	
1140	ISO8217	43.31		1.48	
1161	ISO1928	43.358		1.81	
1167		-----		-----	
1177	DIN51900	43.191		0.64	
1205		-----		-----	
1215		-----		-----	
1231	D4868	43.08		-0.13	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264	D4868	43.082		-0.12	
1271	D4868	43.1388		0.28	
1275		-----		-----	
1289	in house	43.027		-0.51	
1345		-----		-----	
1347	D4868	43.069		-0.21	
1348	D4868	43.08		-0.13	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362	D4868	43.069		-0.21	
1363		-----		-----	
1364		-----		-----	
1365	D240	42.8571		-1.70	
1370	D240	42.225	C,G(0.01)	-6.12	First reported 44.945
1378		-----		-----	
1381	D240	42.9160		-1.28	
1383		-----		-----	
1384	inh-44	43.160		0.43	
1385	D4868	43.11		0.08	
1392	D240	43.014		-0.60	
1396		-----		-----	
1403	D240Mod	43.153		0.38	
1404		-----		-----	
1425	in house	43.2		0.71	
1428	D240	43.15		0.36	
1431	D4809	43.070		-0.20	
1510	D240	43.36		1.83	
1520	D240	43.074		-0.18	
1613		-----		-----	
1621		-----		-----	
1622	D240	42.97	C	-0.90	First reported 42.79
1631		-----		-----	
1633	D5468	43.08		-0.13	
1635		-----		-----	
1636	D240	43.011		-0.62	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710	D4809	43.150		0.36	
1720		-----		-----	
1724		-----		-----	
1728	D4868	43.08781		-0.08	
1740	D240	42.836		-1.84	
1807	D240	42.919		-1.26	
1810	D240	43.152		0.37	
1811	D240	43.228		0.90	
1826	D240	43.070		-0.20	
1832		-----		-----	
1833		-----		-----	

1849		-----	-----
1854	D240	43.093	-0.04
1902	D240	43.0535	-0.32
1906	D4809	43.114	0.10
1938		-----	-----
1942	D240	43.054	-0.32
1948		-----	-----
2129	D240	43.030	-0.48
2160	INH-1740	43.0863	-0.09

		Compare with Nov. 2010 #1094	Only ASTM D240	Only ASTM D4868
normality	OK	Not OK	OK	OK
n	42	47	24	8
outliers	1	1	1	0
mean (n)	43.099	43.075	43.067	43.090
st.dev. (n)	0.1151	0.1294	0.1185	0.0237
R(calc.)	0.322	0.362	0.332	0.066
R(D240:09)	0.400	0.400	0.400	0.150



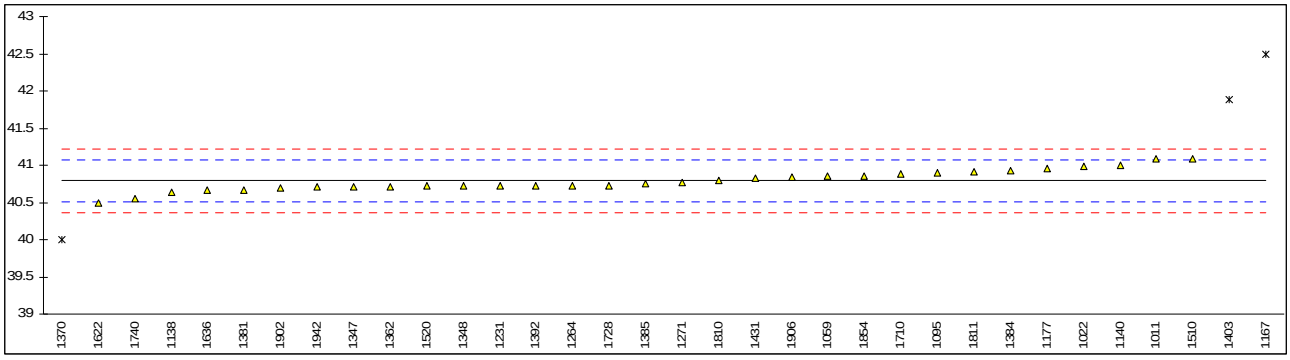


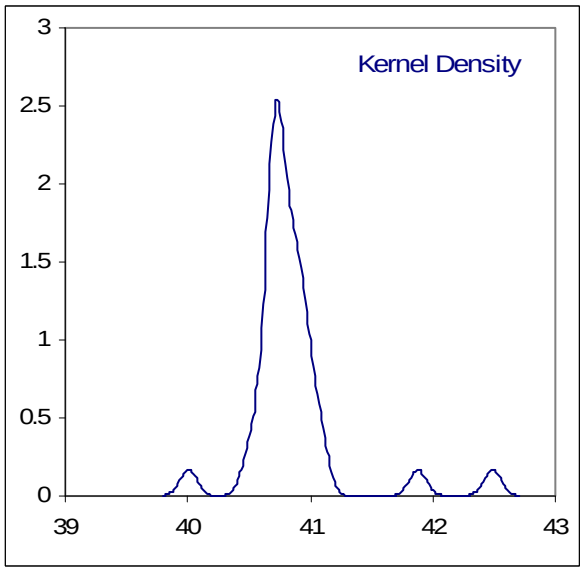
Determination of Heat of Combustion Net on sample #11001; results in MJ/kg

lab	method	value	mark	z(targ)	remarks
1011	D240	41.080		2.01	
1013		-----		-----	
1022	ISO8217	40.98		1.31	
1038		-----		-----	
1059	DIN51900Mod.	40.854		0.43	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1095	D240	40.900		0.75	
1108		-----		-----	
1126		-----		-----	
1138	D240	40.633		-1.12	
1140	ISO8217	41.0		1.45	
1161		-----		-----	
1167	DIN51900	42.490	G(0.01)	11.88	
1177	DIN51900	40.952		1.12	
1205		-----		-----	
1215		-----		-----	
1231	D4868	40.72		-0.51	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264	D4868	40.725		-0.47	
1271	D4868	40.769		-0.17	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347	D4868	40.712		-0.56	
1348	D4868	40.72		-0.51	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362	D4868	40.712		-0.56	
1363		-----		-----	
1364		-----		-----	
1365		-----		-----	
1370	D240	40.006	C,G(0.01)	-5.51	First reported 42.725
1378		-----		-----	
1381	D240	40.6645		-0.90	
1383		-----		-----	
1384	inh-44	40.927		0.94	
1385	D4868	40.75		-0.30	
1392	D240	40.722		-0.49	
1396		-----		-----	
1403	D240Mod	41.879	G(0.01)	7.60	
1404		-----		-----	
1425		-----		-----	
1428		-----		-----	
1431	D4809	40.820		0.19	
1510	D240	41.08		2.01	
1520	D240	40.718		-0.52	
1613		-----		-----	
1621		-----		-----	
1622	D240	40.50		-2.05	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636	D240	40.661		-0.92	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710	D4809	40.880		0.61	
1720		-----		-----	
1724		-----		-----	
1728	D4868	40.72881		-0.45	
1740	D240	40.544		-1.74	
1807		-----		-----	
1810	D240	40.801		0.06	
1811	D240	40.919		0.88	
1826		-----		-----	
1832		-----		-----	
1833		-----		-----	

1849		-----	-----
1854	D240	40.859	0.46
1902	D4868	40.695	-0.68
1906	D4809	40.842	0.35
1938		-----	-----
1942	D240	40.705	-0.61
1948		-----	-----
2129		-----	-----
2160		-----	-----

		Compare with Nov 2010 #1094	Only ASTM D240	Only ASTM D4868
normality	OK	Not OK	OK	OK
n	31	34	14	9
outliers	3	1	2	0
mean (n)	40.793	40.731	40.770	40.726
st.dev. (n)	0.1417	0.1190	0.1787	0.0220
R(calc.)	0.397	0.333	0.500	0.061
R(D240:09)	0.400	0.400	0.400	0.150



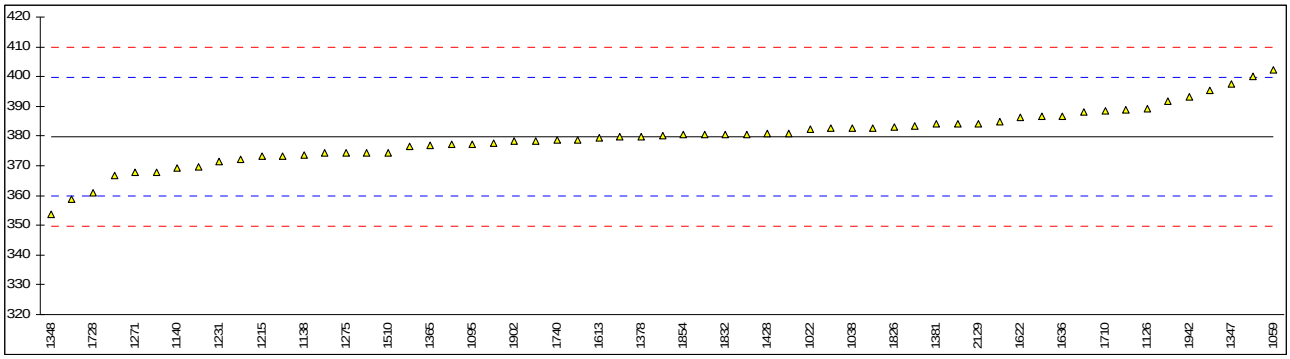


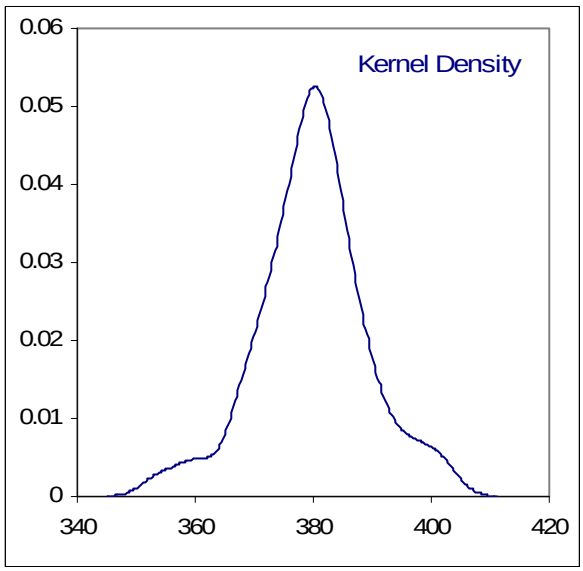
Determination of Kinematic Viscosity @ 50°C on sample #11001; results in mm^2/s

lab	method	value	mark	z(targ)	remarks
1011	D445	382.51		0.27	
1013		-----		-----	
1022	D445	382.5		0.27	
1038	D445	382.57		0.28	
1059	ISO3104	402.4		2.25	
1062		-----		-----	
1065	D445	374.4		-0.54	
1067	D445	369.6		-1.01	
1080	D7042	366.8		-1.29	
1081	D445	383.4		0.36	
1095	D445	377.4		-0.24	
1108	D445	388.2		0.84	
1126	D445	389.356		0.95	
1138	IP71	373.6		-0.62	
1140	IP71	369.10		-1.06	
1161	ISO3104	388.7		0.89	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215	D445	373.1		-0.66	
1231	D445	371.4		-0.83	
1233	ISO3104	378.3		-0.15	
1254	D445	378.83		-0.09	
1259		-----		-----	
1264	D445	382.8		0.30	
1271	ISO3104	367.81		-1.19	
1275	IP71	374.3		-0.55	
1289		-----		-----	
1345	D445	386.5		0.67	
1347	D445	397.55		1.77	
1348	D445	353.72		-2.60	
1353		-----		-----	
1356	ISO3104	385.0		0.52	
1357	D445	376.47		-0.33	
1358		-----		-----	
1362	D445	380.61		0.08	
1363	D445	377.667		-0.21	
1364	D445	367.902		-1.18	
1365	D445	376.78		-0.30	
1370		-----		-----	
1378	D445	379.8		0.00	
1381	ISO3104	384.01		0.42	
1383		-----		-----	
1384	ISO3104	395.2	C	1.54	First reported 454.4
1385	D445	380.3		0.05	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	ISO3104	358.8		-2.09	
1425	in house	391.8		1.20	
1428	ISO3104	380.7		0.09	
1431	D7042	374.25		-0.55	
1510	D445	374.5		-0.53	
1520	D445	400.18		2.03	
1613	D445	379.52		-0.03	
1621	D445	373.2		-0.65	
1622	D445	386.4		0.66	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636	D445	386.64		0.68	
1648	D445	379.74		0.00	
1650	D445	380.51		0.07	
1656		-----		-----	
1707	D445	377.1063		-0.27	
1710	D445	388.4		0.86	
1720		-----		-----	
1724	D445	372.07		-0.77	
1728	inh-117	361.05		-1.87	
1740	ISO3104	378.56		-0.12	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	D445	383.15		0.34	
1832	ISO3104	380.562		0.08	
1833	D445	381.01		0.12	

1849		-----	-----
1854	D445	380.4	0.06
1902	D445	378.18	-0.16
1906		-----	-----
1938		-----	-----
1942	D7042	393.06	1.32
1948		-----	-----
2129	D445	384.13	0.43
2160	D445	384.1	0.43

		Compare with November 2010 #1094
normality	OK	OK
n	59	86
outliers	0	4
mean (n)	379.773	380.829
st.dev. (n)	9.2446	6.5946
R(calc.)	25.885	18.463
R(D445:11)	28.103	28.181



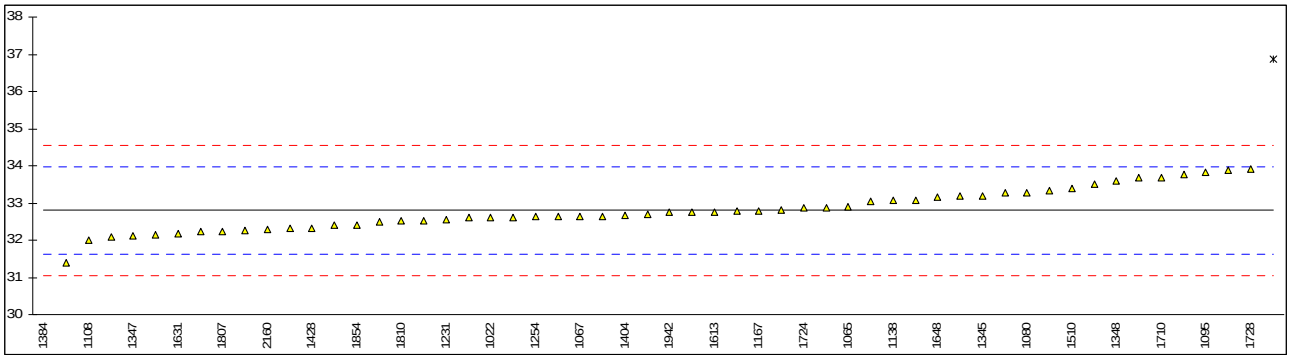


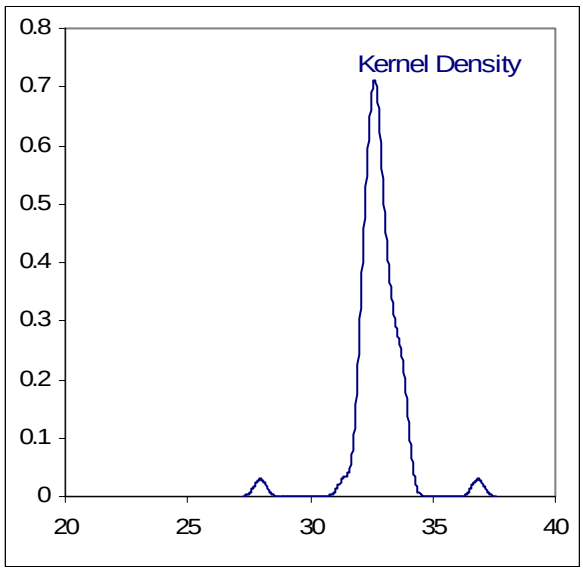
Determination of Kinematic Viscosity @ 100°C on sample #11001; results in mm^2/s

lab	method	value	mark	z(targ)	remarks
1011	D445	33.084		0.48	
1013		-----		-----	
1022	D445	32.62		-0.31	
1038		-----		-----	
1059	ISO3104	32.27		-0.91	
1062		-----		-----	
1065	D445	32.89		0.15	
1067	D445	32.65		-0.26	
1080	D445	33.27		0.80	
1081	D445	32.75		-0.09	
1095	D445	33.84		1.78	
1108	D445	32.00		-1.38	
1126		-----		-----	
1138	IP71	33.07		0.46	
1140	IP71	32.61		-0.33	
1161	ISO3104	32.52		-0.49	
1167	ISO3104	32.79		-0.02	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	D445	32.54		-0.45	
1233		-----		-----	
1254	D445	32.635		-0.29	
1259		-----		-----	
1264	D445	36.868	G(0.01)	6.97	
1271	ISO3104	33.51		1.21	
1275		-----		-----	
1289		-----		-----	
1345	D445	33.20		0.68	
1347	D445	32.11		-1.19	
1348	D445	33.60		1.37	
1353		-----		-----	
1356		-----		-----	
1357	D445	32.14		-1.14	
1358	IP71	33.03		0.39	
1362		-----		-----	
1363		-----		-----	
1364		-----		-----	
1365	D445	33.880		1.85	
1370		-----		-----	
1378	D445	32.65		-0.26	
1381	ISO3104	32.495		-0.53	
1383		-----		-----	
1384	ISO3104	27.95	C,G(0.01)	-8.33	First reported 43.21
1385	D445	32.70		-0.18	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	ISO3104	32.66		-0.25	
1425		-----		-----	
1428	ISO3104	32.33		-0.81	
1431		-----		-----	
1510	D445	33.40		1.02	
1520	D445	33.676		1.50	
1613	D445	32.765		-0.07	
1621		-----		-----	
1622	D445	32.62		-0.31	
1631	D445	32.16		-1.10	
1633		-----		-----	
1635		-----		-----	
1636	D445	33.185		0.66	
1648	D445	33.16		0.61	
1650	D445	32.884		0.14	
1656	IP71	32.23		-0.98	
1707	D445	31.40025		-2.41	
1710	D445	33.68		1.50	
1720	D445	32.08		-1.24	
1724	D445	32.876		0.13	
1728	inh-117	33.9		1.88	
1740	ISO3104	32.815		0.02	
1807	D445	32.24		-0.97	
1810	D445	32.52		-0.49	
1811	D445	32.312		-0.84	
1826	D445	33.32		0.89	
1832		-----		-----	
1833	D445	32.4		-0.69	

1849	D445	33.2668		0.80	
1854	D445	32.4		-0.69	
1902	D445	32.780		-0.04	
1906		-----		-----	
1938	D445	32.642		-0.28	
1942	D7042	32.742		-0.10	
1948		-----		-----	
2129	D445	33.760	C	1.64	First reported 34.890
2160	D445	32.30		-0.86	

		Compare with November 2010 #1094
normality	OK	Not OK
N	54	65
Outliers	2	2
mean (n)	32.803	32.971
st.dev. (n)	0.5450	0.7040
R(calc.)	1.526	1.971
R(D445:11)	1.632	1.639



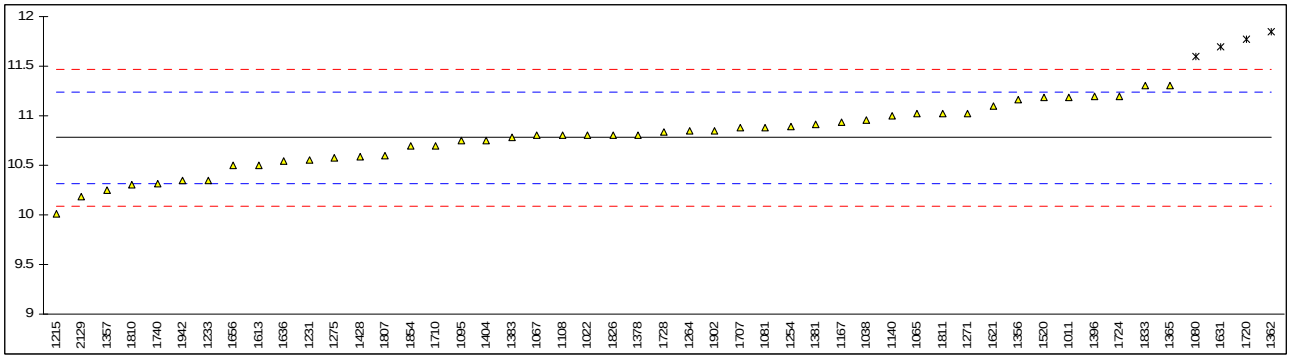


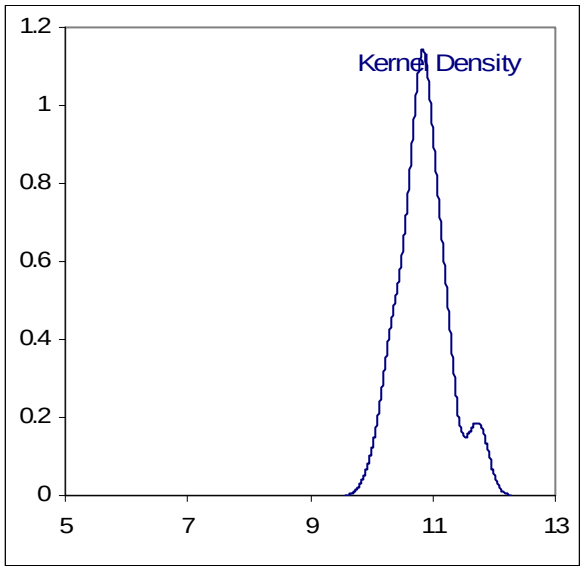
Determination of Micro Carbon Residue on sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011	D4530	11.18		1.75	
1013		-----		-----	
1022	D4530	10.8		0.10	
1038	D4530	10.96		0.79	
1059		-----		-----	
1062		-----		-----	
1065	D4530	11.02		1.05	
1067	D4530	10.8		0.10	
1080	D4530	11.6	DG(0.05)	3.57	
1081	ISO10370	10.88		0.45	
1095	D4530	10.75		-0.12	
1108	D4530	10.8		0.10	
1126		-----		-----	
1138		-----		-----	
1140	IP398	11.0		0.97	
1161		-----		-----	
1167	ISO10370	10.93		0.66	
1177		-----		-----	
1205		-----		-----	
1215	D4530	10.01		-3.33	
1231	D4530	10.55		-0.99	
1233	ISO10370	10.35		-1.86	
1254	D4530	10.89		0.49	
1259		-----		-----	
1264	D4530	10.85		0.32	
1271	D4530	11.023		1.07	
1275	IP398	10.579		-0.86	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356	ISO10370	11.164		1.68	
1357	D4530	10.25		-2.29	
1358		-----		-----	
1362	D4530	11.85	DG(0.05)	4.66	
1363		-----		-----	
1364		-----		-----	
1365	D4530	11.305		2.29	
1370		-----		-----	
1378	D4530	10.8		0.10	
1381	ISO10370	10.914		0.59	
1383	IP398	10.78555		0.04	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396	IP398	11.197		1.82	
1403		-----		-----	
1404	ISO10370	10.75		-0.12	
1425		-----		-----	
1428	ISO10370	10.59		-0.81	
1431		-----		-----	
1510		-----		-----	
1520	D4530	11.18		1.75	
1613	D4530	10.5024		-1.19	
1621	D4530	11.10		1.40	
1622		-----		-----	
1631	D4530	11.7	DG(0.05)	4.01	
1633		-----		-----	
1635		-----		-----	
1636	D4530	10.54		-1.03	
1648		-----		-----	
1650		-----		-----	
1656	IP398	10.5		-1.20	
1707	D4530	10.877	C	0.43	First reported 11.877
1710	D4530	10.7		-0.34	
1720	D4530	11.77	C,DG(0.05)	4.31	First reported 8.89
1724	D4530	11.2		1.83	
1728	D4530	10.84		0.27	
1740	ISO10370	10.31		-2.03	
1807	D4530	10.6		-0.77	
1810	D4530	10.30		-2.07	
1811	D4530	11.02		1.05	
1826	D4530	10.8		0.10	
1832		-----		-----	
1833	D4530	11.3		2.27	

1849		-----	-----
1854	D4530	10.7	-0.34
1902	D4530	10.85	0.32
1906		-----	-----
1938		-----	-----
1942	D4530	10.345	-1.88
1948		-----	-----
2129	D4530	10.19	-2.55
2160		-----	-----

		Compare with November 2010 #1094
normality	OK	OK
n	45	50
outliers	4	2
mean (n)	10.777	10.725
st.dev. (n)	0.3106	0.5686
R(calc.)	0.870	0.752
R(D4530:07)	0.645	0.642



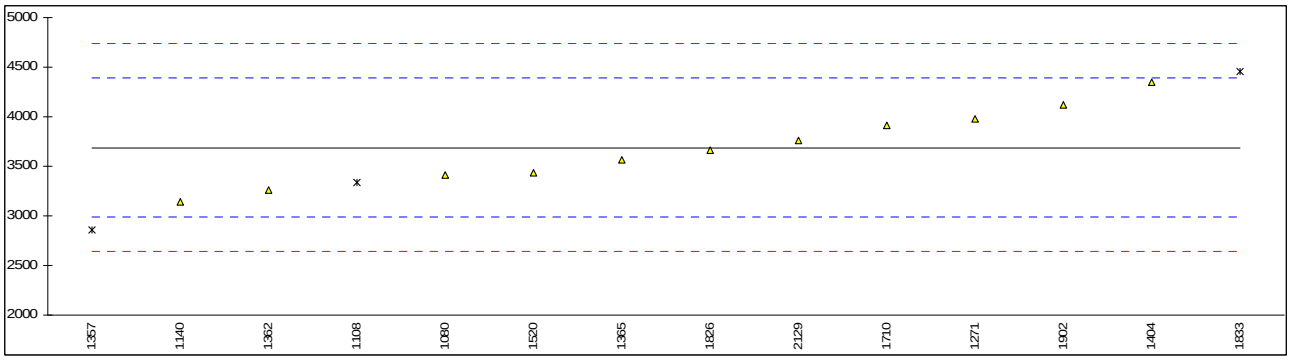


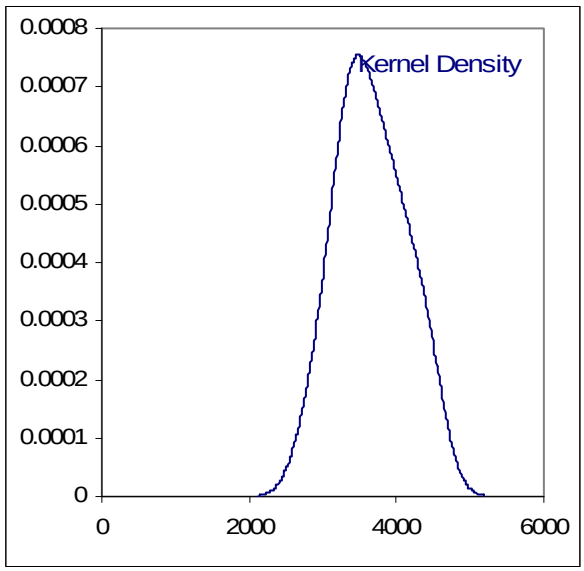
Determination of Nitrogen on sample #11001; results in µg/g

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080	D5762	3413		-0.79	
1081		-----		-----	
1095		-----		-----	
1108	D4629	3340	ex	-0.99	Result excluded as the testmethod is not suitable for Fuel Oil
1126		-----		-----	
1138		-----		-----	
1140	D5762	3137.0		-1.57	
1161		-----		-----	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264		-----		-----	
1271	D3228	3975		0.82	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356		-----		-----	
1357	D4629	2858	C, ex	-2.37	First reported 28.58, Result excluded as the testmethod is not suitable for Fuel Oil
1358		-----		-----	
1362	D3228	3261.95		-1.22	
1363		-----		-----	
1364		-----		-----	
1365	D5762	3560.09		-0.37	
1370		-----		-----	
1378		-----		-----	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	D5762	4345		1.87	
1425		-----		-----	
1428		-----		-----	
1431		-----		-----	
1510		-----		-----	
1520	D5762	3432.7		-0.73	
1613		-----		-----	
1621		-----		-----	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710	D5762	3910		0.63	
1720		-----		-----	
1724		-----		-----	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	D5762	3660		-0.08	
1832		-----		-----	
1833	D4629	4457	ex	2.19	Result excluded as the testmethod is not suitable for Fuel Oil

1849		-----	-----
1854		-----	-----
1902	D5762	4119	1.23
1906		-----	-----
1938		-----	-----
1942		-----	-----
1948		-----	-----
2129	D3228	3760	0.20
2160		-----	-----

		Compare with November 2010 #1094
normality	OK	OK
n	11	20
outliers	0	0
mean (n)	3688.5	3579.6
st.dev. (n)	373.81	261.97
R(calc.)	1046.7	733.5
R(D5762:10)	981.1	952.2





Determination of Total Organic Chlorides on sample #11001; results in mg/kg

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----		-----	
1081	D5808	3.5		-----	
1095		-----		-----	
1108		-----		-----	
1126	EN7425	0.7		-----	
1138		-----		-----	
1140		-----		-----	
1161		-----		-----	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264		-----		-----	
1271	D5808	23.63	G(0.05)	-----	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362	IP510	3.2		-----	
1363		-----		-----	
1364		-----		-----	
1365		-----		-----	
1370		-----		-----	
1378		-----		-----	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404		-----		-----	
1425	in house	<1000		-----	
1428		-----		-----	
1431		-----		-----	
1510		-----		-----	
1520		-----		-----	
1613		-----		-----	
1621		-----		-----	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724		-----		-----	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832		-----		-----	
1833		-----		-----	

1849	-----	-----
1854	-----	-----
1902	-----	-----
1906	-----	-----
1938	-----	-----
1942	-----	-----
1948	-----	-----
2129	-----	-----
2160	-----	-----

		Compare with November 2010 #1094
Normality	n.a.	n.a.
N	3	4
Outliers	1	0
mean (n)	2.5	6.4
st.dev. (n)	n.a.	n.a.
R(calc.)	n.a.	n.a.
R(D6443:10)	n.a.	n.a.

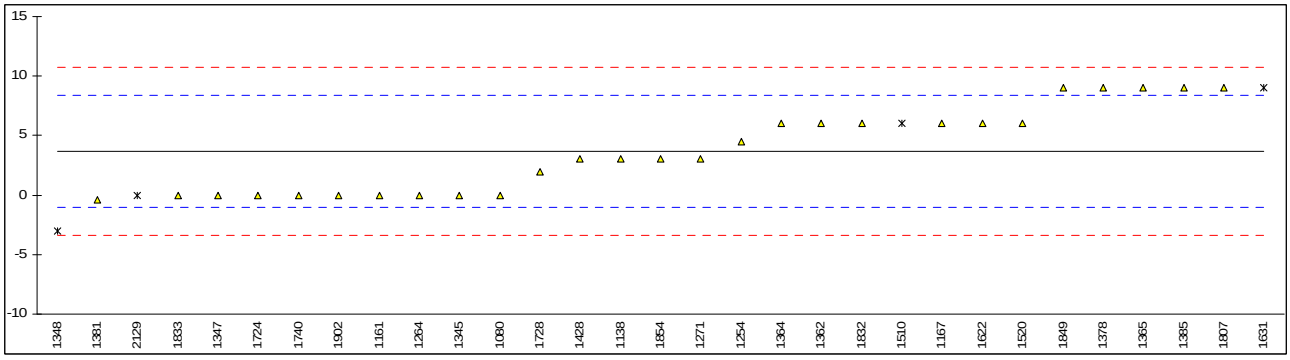
Application range: 10 – 300 mg/kg

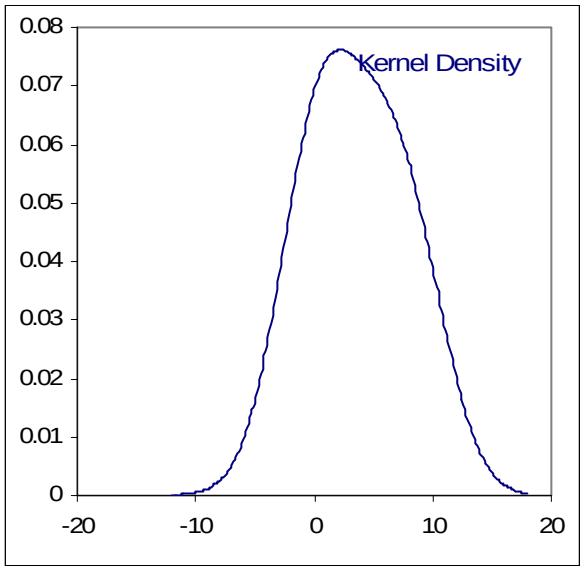
Determination of Pour Point (Lower) on sample #11001; results in ^{o}C

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080	D97	0		-1.56	
1081		-----		-----	
1095		-----		-----	
1108		-----		-----	
1126		-----		-----	
1138	IP15	3		-0.28	
1140		-----		-----	
1161	D97	0		-1.56	
1167	ISO3016	6		0.99	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254	D97	4.5		0.35	
1259		-----		-----	
1264	D97	0		-1.56	
1271	D97	3		-0.28	
1275		-----		-----	
1289		-----		-----	
1345	D97	0		-1.56	
1347	D97	0		-1.56	
1348	D97	-3	G(0.05)	-2.83	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362	D97	6		0.99	
1363		-----		-----	
1364	D97	6		0.99	
1365	D97	9		2.26	
1370		-----		-----	
1378	D97	9		2.26	
1381	ISO3016	-0.4		-1.73	
1383		-----		-----	
1384		-----		-----	
1385	D97	9	C	2.26	First reported 12
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404		-----		-----	
1425		-----		-----	
1428	ISO3016	3		-0.28	
1431		-----		-----	
1510	D97	6	ex	0.99	Result is exluded as reported result for lower PP > upper PP
1520	D97	6		0.99	
1613		-----		-----	
1621		-----		-----	
1622	D97	6		0.99	
1631	D97	9	ex	2.26	Result is exluded as reported result for lower PP > upper PP
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724	D97	0		-1.56	
1728	D97	2		-0.71	
1740	ISO3016	0		-1.56	
1807	D97	9		2.26	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832	ISO3016	6.0		0.99	
1833	D97	0		-1.56	

1849	D97	9		2.26	
1854	D97	3		-0.28	
1902	D97	0		-1.56	
1906		-----		-----	
1938		-----		-----	
1942		-----		-----	
1948		-----		-----	
2129	D97	0	ex	-1.56	Result is exluded as reported result for lower PP > upper PP
2160		-----		-----	

		Compare with November 2010 #1094
normality	not OK	Not OK
n	27	49
outliers	1	0
mean (n)	3.67	1.56
st.dev. (n)	3.495	2.806
R(calc.)	9.79	7.86
R(D97:09)	6.60	6.60



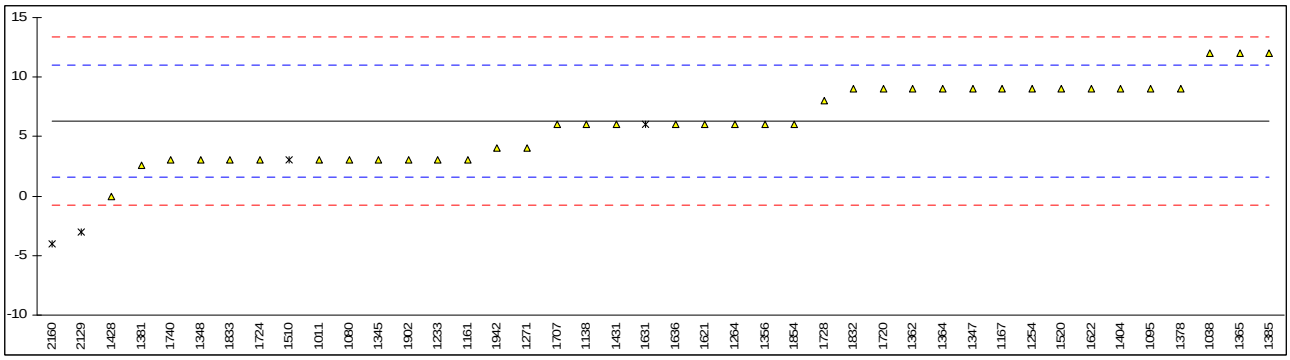


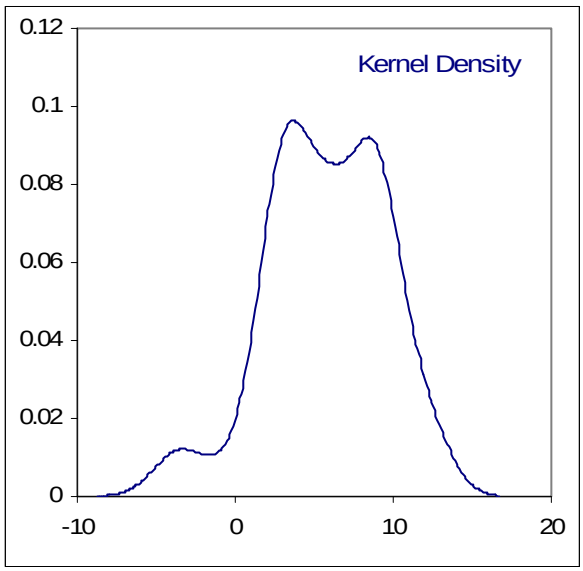
Determination of Pour Point (Upper) on sample #11001; results in ^{o}C

lab	method	value	mark	z(targ)	remarks
1011	D97	3		-1.41	
1013		-----		-----	
1022		-----		-----	
1038	D97	12		2.40	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080	D97	3		-1.41	
1081		-----		-----	
1095	D97	9		1.13	
1108		-----		-----	
1126		-----		-----	
1138	IP15	6		-0.14	
1140		-----		-----	
1161	D97	3		-1.41	
1167	ISO3016	9		1.13	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233	D97	3		-1.41	
1254	D97	9		1.13	
1259		-----		-----	
1264	D97	6		-0.14	
1271	D97	4		-0.99	
1275		-----		-----	
1289		-----		-----	
1345	D97	3		-1.41	
1347	D97	9		1.13	
1348	D97	3		-1.41	
1353		-----		-----	
1356	ISO3016	6		-0.14	
1357		-----		-----	
1358		-----		-----	
1362	D97	9		1.13	
1363		-----		-----	
1364	D97	9		1.13	
1365	D97	12		2.40	
1370		-----		-----	
1378	D97	9		1.13	
1381	ISO3016	2.6		-1.58	
1383		-----		-----	
1384		-----		-----	
1385	D97	12		2.40	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	D97	9		1.13	
1425		-----		-----	
1428	ISO3016	0		-2.69	
1431	D97	6		-0.14	
1510	D97	3	ex	-1.41	Result is exluded as reported result for upper PP < lower PP
1520	D97	9		1.13	
1613		-----		-----	
1621	D97	6		-0.14	
1622	D97	9		1.13	
1631	D97	6	ex	-0.14	Result is exluded as reported result for upper PP < lower PP
1633		-----		-----	
1635		-----		-----	
1636	D97	6		-0.14	
1648		-----		-----	
1650		-----		-----	
1656		-----		-----	
1707	D97	6		-0.14	
1710		-----		-----	
1720	D97	9		1.13	
1724	D97	3		-1.41	
1728	D97	8		0.71	
1740	ISO3016	3		-1.41	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832	ISO3016	9.0		1.13	
1833	D97	3		-1.41	

1849		-----		-----	
1854	D97	6		-0.14	
1902	D97	3		-1.41	
1906		-----		-----	
1938		-----		-----	
1942	D97	4		-0.99	
1948		-----		-----	
2129	D97	-3	ex	-3.96	Result is exluded as reported result for upper PP < lower PP
2160	D97	-4.0	G(0.05)	-4.38	

		Compare with November 2010 #1094
normality	not OK	Not OK
n	38	64
outliers	1	1
mean (n)	6.33	4.41
st.dev. (n)	3.125	2.562
R(calc.)	8.75	7.17
R(D97:09)	6.60	6.60



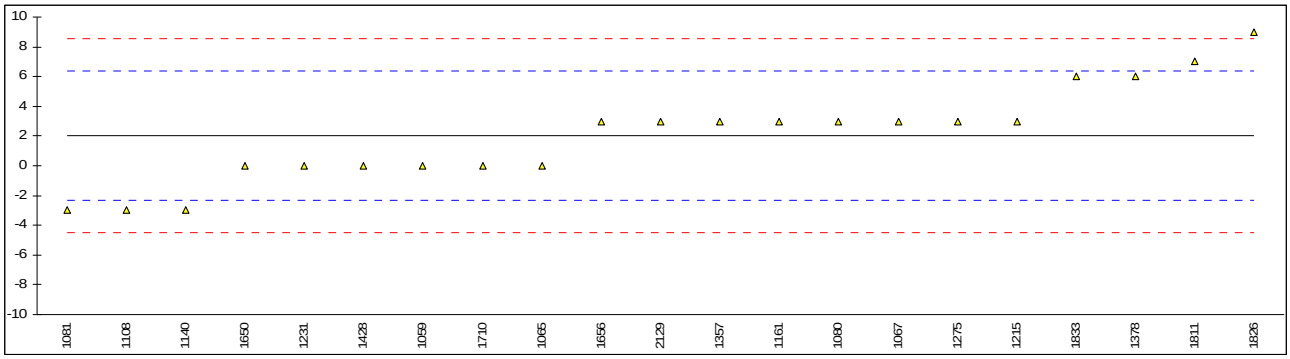


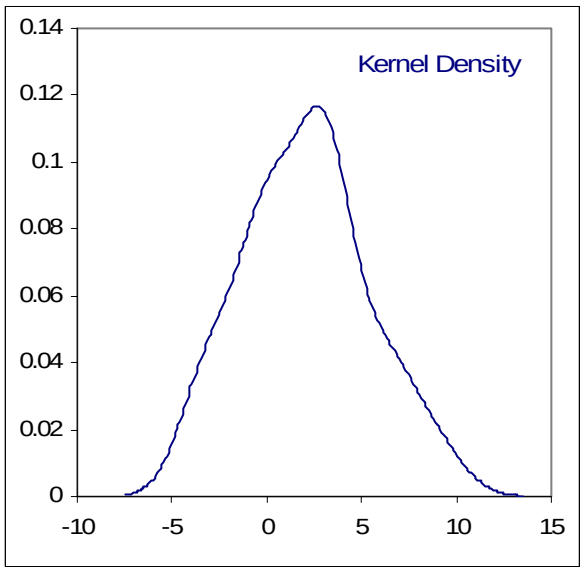
Determination of Pour Point (Automated) on sample #11001; results in °C

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059	ISO3016	0		-0.94	
1062		-----		-----	
1065	D5950	0		-0.94	
1067	D5950	3		0.44	
1080		3		0.44	
1081	D5950	-3		-2.32	
1095		-----		-----	
1108	D5950	-3		-2.32	
1126		-----		-----	
1138		-----		-----	
1140	D5950	-3		-2.32	
1161	D5950	3		0.44	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215	D5950	3		0.44	
1231	D5950	0		-0.94	
1233		-----		-----	
1254		-----		-----	
1259		-----		-----	
1264		-----		-----	
1271		-----		-----	
1275	IP15	3		0.44	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356		-----		-----	
1357	D6749	3.0		0.44	
1358		-----		-----	
1362		-----		-----	
1363		-----		-----	
1364		-----		-----	
1365		-----		-----	
1370		-----		-----	
1378	D97	6		1.81	
1381		-----		-----	
1383		-----		-----	
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404		-----		-----	
1425		-----		-----	
1428	D6749	0		-0.94	
1431		-----		-----	
1510		-----		-----	
1520		-----		-----	
1613		-----		-----	
1621		-----		-----	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650	D5950	0		-0.94	
1656	IP15	3		0.44	
1707		-----		-----	
1710	ISO3016	0.0		-0.94	
1720		-----		-----	
1724		-----		-----	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		7	C	2.27	First reported -7
1826	D5959	9		3.19	
1832		-----		-----	
1833		6		1.81	

1849		-----	-----
1854		-----	-----
1902		-----	-----
1906		-----	-----
1938		-----	-----
1942		-----	-----
1948		-----	-----
2129	D97	3	0.44
2160		-----	-----

		Compare with November 2010 #1094
normality	not OK	OK
n	21	8
outliers	0	0
mean (n)	2.05	1.50
st.dev. (n)	3.263	4.243
R(calc.)	9.14	11.88
R(D5950:07)	6.10	6.10



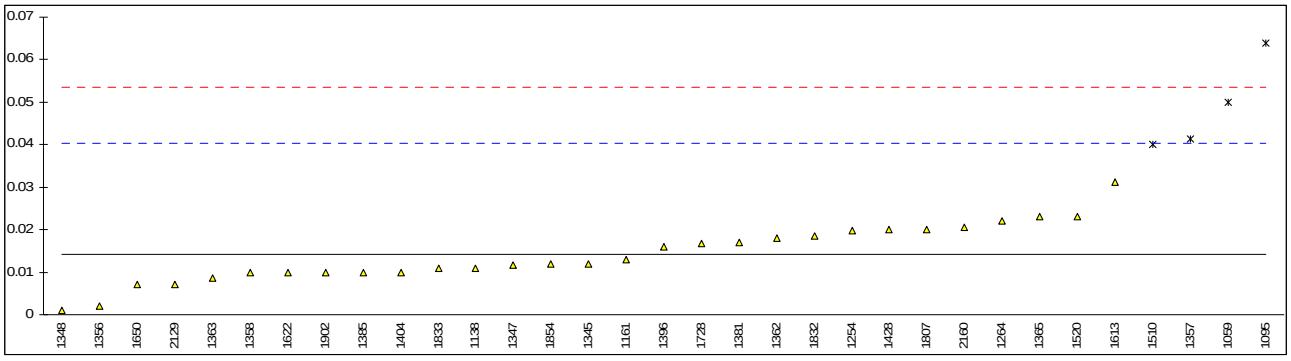


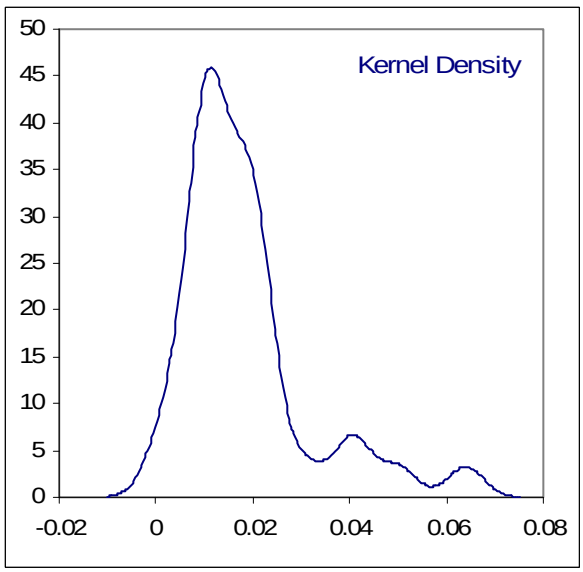
Determination of Sediment by Extraction on sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059	ISO3734	0.05	G(0.05)	2.74	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		-----		-----	
1081		-----		-----	
1095	D473	0.064	C,G(0.01)	3.81	First reported 0.162
1108		-----		-----	
1126		-----		-----	
1138	D473	0.011		-0.25	
1140	IP053	<0.01		<-0.32	
1161	ISO3735	0.013		-0.09	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254	D473	0.0198		0.43	
1259		-----		-----	
1264	D473	0.022		0.60	
1271		-----		-----	
1275		-----		-----	
1289		-----		-----	
1345	D473	0.012		-0.17	
1347	D473	0.0117		-0.19	
1348	D473	0.00099		-1.01	
1353		-----		-----	
1356	ISO10307	0.00215		-0.92	
1357	D473	0.0414	DG(0.01)	2.08	First reported 0.0506
1358	IP53	0.01		-0.32	
1362	D473	0.018		0.29	
1363	D473	0.0087		-0.42	
1364		-----		-----	
1365	D473	0.023		0.67	
1370		-----		-----	
1378		-----		-----	
1381	ISO3735	0.017		0.21	
1383		-----		-----	
1384		-----		-----	
1385	D473	0.01		-0.32	
1392		-----		-----	
1396	IP375	0.016		0.14	
1403		-----		-----	
1404	ISO3735	0.01		-0.32	
1425	in house	<0.1		<6.56	
1428	ISO3735	0.02		0.44	
1431		-----		-----	
1510	D473	0.04	DG(0.01)	1.97	
1520	D473	0.023		0.67	
1613	D473	0.03115		1.29	
1621		-----		-----	
1622	D473	0.01		-0.32	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650	D473	0.007		-0.55	
1656	IP53	<0.01		<-0.30	
1707		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724		-----		-----	
1728	D473	0.0168		0.20	
1740		-----		-----	
1807	D473	0.02		0.44	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832	INH-6370	0.0184		0.32	
1833	D473	0.011		-0.25	

1849		-----	-----
1854	D473	0.012	-0.17
1902	D473	0.010	-0.32
1906		-----	-----
1938		-----	-----
1942		-----	-----
1948		-----	-----
2129	D473	0.007	-0.55
2160	D473	0.02045	0.48

		Compare with November 2010 #1094
normality	OK	OK
n	29	77
outliers	4	1
mean (n)	0.0142	0.0190
st.dev. (n)	0.00674	0.00835
R(calc.)	0.0189	0.0234
R(D473:07)	0.0366	0.0378



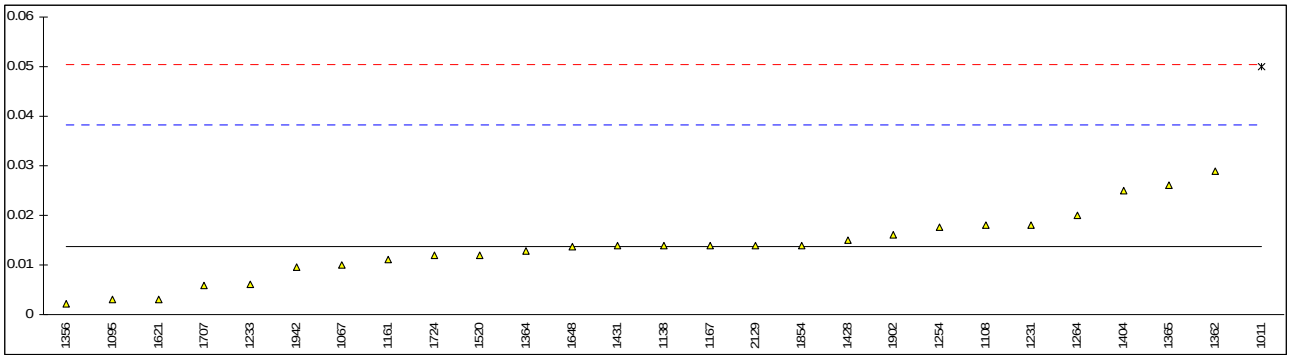


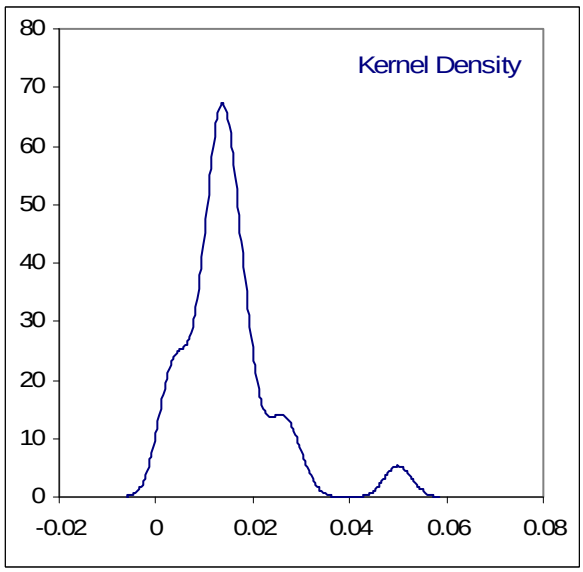
Determination of Total Sediment (Potential) of sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011	IP390	0.05	G(0.01)	2.96	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	IP390	0.01		-0.30	
1080		-----		-----	
1081		-----		-----	
1095	IP390	0.003		-0.87	
1108	IP390	0.018		0.35	
1126		-----		-----	
1138	IP390	0.014		0.03	
1140	IP390	<0.01		<-0.30	
1161	ISO10307	0.011		-0.22	
1167	ISO10307	0.014		0.03	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	D4870	0.018		0.35	
1233	IP390	0.006		-0.62	
1254	IP390	0.0175		0.31	
1259		-----		-----	
1264	IP390	0.02		0.52	
1271		-----		-----	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356	ISO10307	0.0022		-0.93	
1357		-----		-----	
1358		-----		-----	
1362	IP390	0.029		1.25	
1363		-----		-----	
1364	IP390	0.01276		-0.07	
1365	IP390	0.026		1.00	
1370		-----		-----	
1378		-----		-----	
1381		-----		-----	
1383		-----	W	-----	Result withdrawn first reported 0.113459
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	ISO10307	0.025		0.92	
1425		-----		-----	
1428	IP390	0.015		0.11	
1431	IP390	0.014		0.03	
1510		-----		-----	
1520	IP390	0.012		-0.14	
1613		-----		-----	
1621	IP390	0.003		-0.87	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648	IP390	0.0137		0.00	
1650		-----		-----	
1656		-----		-----	
1707	IP390	0.00584		-0.64	
1710		-----		-----	
1720		-----		-----	
1724	IP390	0.0119		-0.14	
1728		-----		-----	
1740		-----		-----	
1807	D4870	<0.01		<-0.32	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832		-----		-----	
1833		-----		-----	

1849		-----		-----	
1854	IP390	0.014		0.03	
1902	IP390	0.016		0.19	
1906		-----		-----	
1938		-----		-----	
1942	IP390	0.0096	C	-0.33	First reported 0.096
1948		-----		-----	
2129	IP390	0.014		0.03	
2160		-----		-----	

		Compare with November 2010 #1094
normality	OK	Not OK
n	26	37
outliers	1	3
mean (n)	0.0137	0.0124
st.dev. (n)	0.00675	0.00413
R(calc.)	0.0189	0.0116
R(IP390:04)	0.0344	0.0327



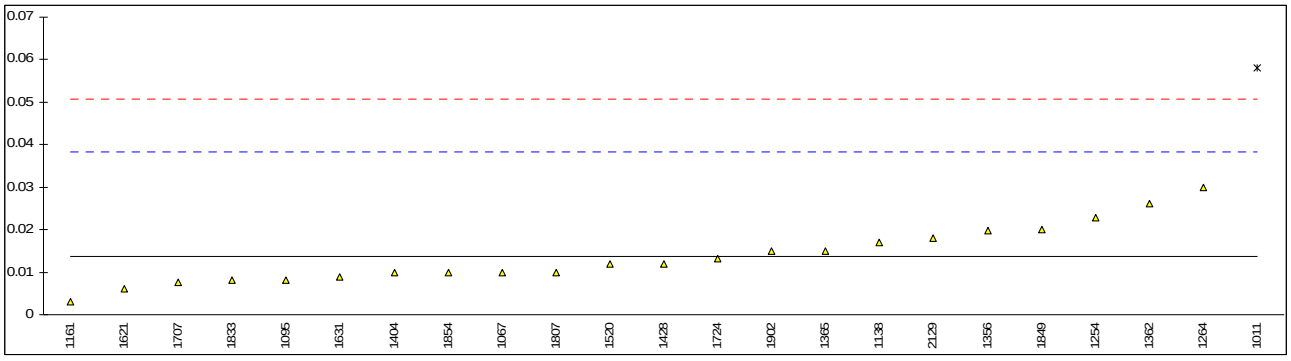


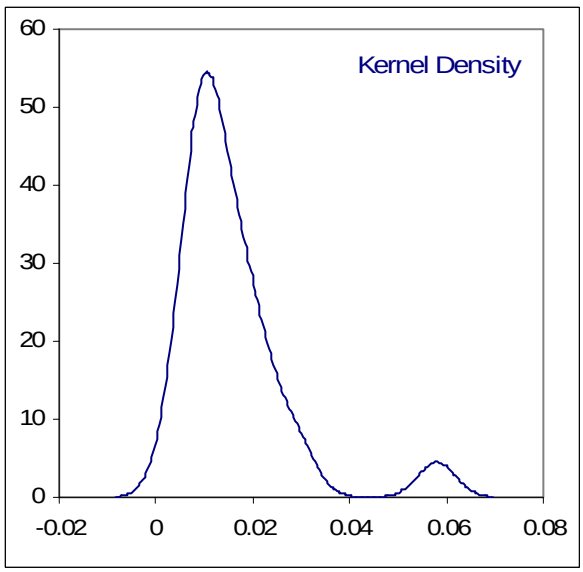
Determination of Total Sediment (Accelerated) of sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011	IP390	0.058	C,G(0.01)	3.60	First reported 0.087
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	IP390	0.01		-0.30	
1080		-----		-----	
1081		-----		-----	
1095	IP390	0.008		-0.47	
1108		-----		-----	
1126		-----		-----	
1138	IP390	0.017		0.27	
1140	IP390	<0		-----	
1161	ISO10307	0.003		-0.87	
1167		-----		-----	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231		-----		-----	
1233		-----		-----	
1254	IP390	0.0227		0.73	
1259		-----		-----	
1264	IP390	0.03		1.32	
1271		-----		-----	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348		-----		-----	
1353		-----		-----	
1356	ISO10307	0.0197		0.48	
1357		-----		-----	
1358		-----		-----	
1362	IP390	0.026		1.00	
1363		-----		-----	
1364		-----		-----	
1365	IP390	0.015		0.10	
1370		-----		-----	
1378		-----		-----	
1381		-----		-----	
1383		-----	W	-----	Result withdrawn first reported 0.113459
1384		-----		-----	
1385		-----		-----	
1392		-----		-----	
1396		-----		-----	
1403		-----		-----	
1404	ISO10307	0.01		-0.30	
1425		-----		-----	
1428	IP390	0.012		-0.14	
1431		-----		-----	
1510		-----		-----	
1520	IP390	0.012		-0.14	
1613		-----		-----	
1621	IP390	0.006		-0.63	
1622		-----		-----	
1631	IP390	0.009		-0.38	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656	IP375	<0.01		<-0.30	
1707	IP390	0.007628		-0.50	
1710		-----		-----	
1720		-----		-----	
1724	IP390	0.0131		-0.05	
1728		-----		-----	
1740		-----		-----	
1807	D4870	0.01		-0.30	
1810		-----		-----	
1811		-----		-----	
1826		-----		-----	
1832		-----		-----	
1833	ISO10307	0.008		-0.47	

1849	IP390	0.02	0.51
1854	IP390	0.010	-0.30
1902	IP390	0.015	0.10
1906		-----	-----
1938		-----	-----
1942		-----	-----
1948		-----	-----
2129	IP390	0.018	0.35
2160		-----	-----

		Compare with November 2010 #1094
normality	OK	OK
n	22	31
outliers	1	3
mean (n)	0.0137	0.0122
st.dev. (n)	0.00678	0.00386
R(calc.)	0.0190	0.0108
R(IP390:04)	0.0345	0.0325



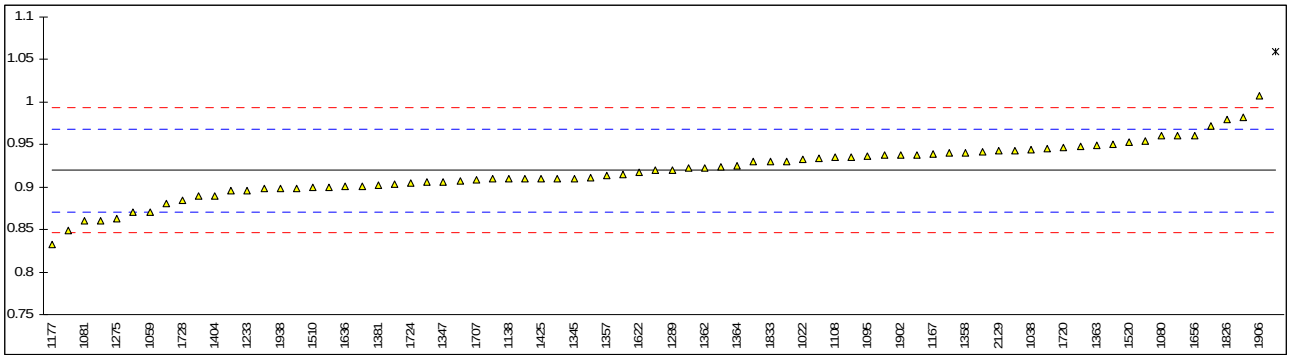


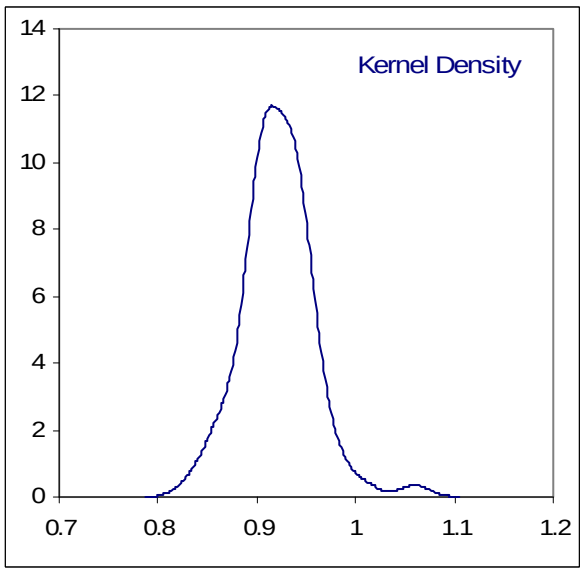
Determination of Total Sulphur on sample #11001; results in %M/M

lab	method	value	mark	z(targ)	remarks
1011	D4294	0.881		-1.57	
1013		-----		-----	
1022	D4294	0.932		0.51	
1038	D4294	0.9434		0.97	
1059	ISO14596	0.87		-2.01	
1062		-----		-----	
1065	IP336	0.92		0.02	
1067		-----		-----	
1080	D4294	0.96		1.65	
1081	D2622	0.86		-2.42	
1095	D4294	0.936		0.67	
1108	D4294	0.935		0.63	
1126	in house	0.94		0.83	
1138	IP336	0.91		-0.39	
1140	IP336	0.95		1.24	
1161	ISO8754	0.87		-2.01	
1167	ISO8754	0.939		0.79	
1177	DIN51900/10304	0.832		-3.56	
1205	ISO14596	0.899		-0.83	
1215	D4294	0.9372		0.72	
1231	D2622	0.9475		1.14	
1233	ISO8754	0.896		-0.96	
1254	D4294	0.9224	C	0.12	First reported 0.09094
1259		-----		-----	
1264	D4294	0.849		-2.87	
1271	D4294	0.898		-0.87	
1275	IP336	0.863		-2.30	
1289	XRF	0.92		0.02	
1345	D4294	0.910		-0.39	
1347	D129	0.9066		-0.53	
1348	D4294	0.896		-0.96	
1353	ISO8754	0.911		-0.35	
1356	ISO8754	0.90		-0.79	
1357	D4294	0.914		-0.22	
1358	IP336	0.94		0.83	
1362	D4294	0.9229		0.14	
1363	D4294	0.9485		1.18	
1364	D4294	0.9254		0.24	
1365	D4294	0.9058		-0.56	
1370	D4294	1.06	C,G(0.01)	5.71	First reported 0.784
1378	D4294	0.903		-0.67	
1381	ISO8754	0.902		-0.71	
1383	IP336	0.9545		1.42	
1384	inh-44	0.942	C	0.91	First reported 1.009
1385	D4294	0.89		-1.20	
1392	D1552	0.934		0.59	
1396		-----		-----	
1403	Turbidimetric	0.972		2.14	
1404	D4294	0.89		-1.20	
1425	in house	0.91		-0.39	
1428	ISO8754	0.91		-0.39	
1431	D4294	0.86		-2.42	
1510	IP336	0.90		-0.79	
1520	D4294	0.9530		1.36	
1613		-----		-----	
1621	D4294	0.938		0.75	
1622	D4294	0.918		-0.06	
1631	D4294	0.91		-0.39	
1633		-----		-----	
1635		-----		-----	
1636	D4294	0.901		-0.75	
1648	D4294	0.982		2.54	
1650	D4294	0.91		-0.39	
1656	IP336	0.96		1.65	
1707	D4294	0.9089		-0.43	
1710	D4294	0.93		0.43	
1720	D4294	0.947		1.12	
1724	IP336	0.905		-0.59	
1728	D4294	0.884		-1.44	
1740	ISO8754	0.93		0.43	
1807	D4294	0.96		1.65	
1810	D4294	0.935		0.63	
1811	D4294	0.915		-0.18	
1826	D4294	0.98		2.46	
1832	ISO8754	0.924		0.18	
1833	D4294	0.93		0.43	

1849	D4294	0.9432	0.96
1854	D4294	0.945	1.04
1902	D4294	0.9373	0.72
1906	D5623	1.008	3.60
1938	D4294	0.899	-0.83
1942	D4294	0.907	-0.51
1948		-----	-----
2129	IP336	0.943	0.96
2160	D4294	0.9015	-0.73

			Compare with November 2010 #1094
	normality	OK	OK
	n	75	87
	outliers	1	0
	mean (n)	0.920	0.930
	st.dev. (n)	0.0315	0.0280
	R(calc.)	0.088	0.078
	R(D4294:10)	0.069	0.069



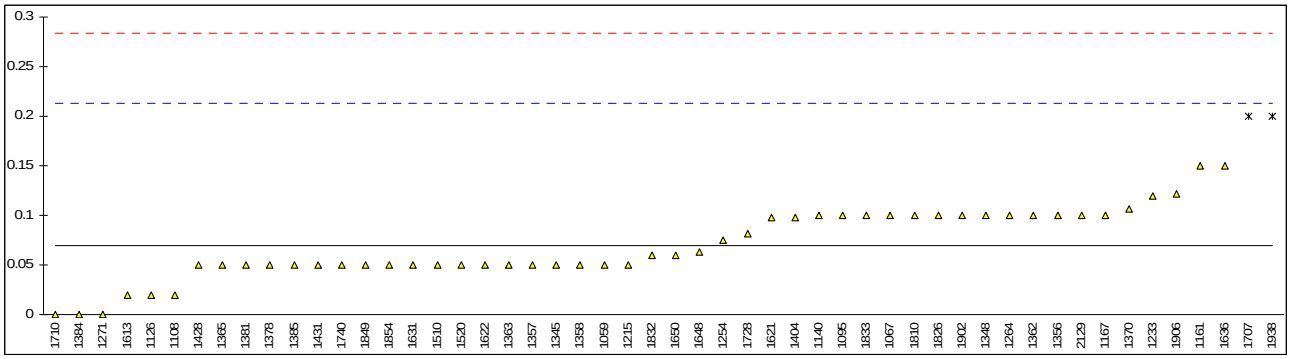


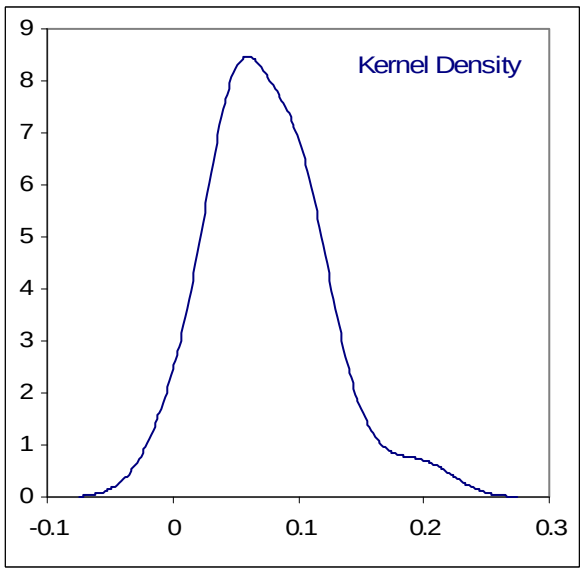
Determination of Water on sample #11001; results in %V/V

lab	method	value	mark	z(targ)	remarks
1011	D95	<0.10		-----	
1013	D95	<0.10		-----	
1022	D95	<0.05		-----	
1038	D95	<0.05		-----	
1059	ISO3733	0.05		-0.28	
1062		-----		-----	
1065		-----		-----	
1067	D95	0.1		0.42	
1080		-----		-----	
1081	D95	<0.05		-----	
1095	D95	0.10		0.42	
1108	D95	0.02		-0.70	
1126	D95	0.02		-0.70	
1138	IP74	<0.05		-----	
1140	IP074	0.1		0.42	
1161	EN1428	0.15		1.12	
1167	EN1428	0.1		0.42	
1177		-----		-----	
1205		-----		-----	
1215	D95	0.05		-0.28	
1231		-----		-----	
1233	ISO3733	0.12		0.70	
1254	D95	0.075		0.07	
1259		-----		-----	
1264	D95	0.1		0.42	
1271	D95	0		-0.98	
1275	IP74	<0.10		-----	
1289		-----		-----	
1345	D95	0.05		-0.28	
1347	D95	<0.1		-----	
1348	D95	0.1		0.42	
1353		-----		-----	
1356	ISO3733	0.10		0.42	
1357	D95	0.05		-0.28	
1358	IP74	0.05		-0.28	
1362	D95	0.100		0.42	
1363	D95	0.05		-0.28	
1364	D95	<0.05		-----	
1365	D95	0.05		-0.28	
1370	D95	0.1066		0.51	
1378	D95	0.05		-0.28	
1381	ISO3733	0.050		-0.28	
1383	IP74	<0.05		-----	
1384	EN3733	0.00		-0.98	
1385	D95	0.05		-0.28	
1392		-----		-----	
1396	IP74	<0.1		-----	
1403		-----		-----	
1404	D95	0.0977		0.39	
1425	in house	<1		-----	
1428	EN1428	0.05		-0.28	
1431	D95	0.05		-0.28	
1510	D95	0.05		-0.28	
1520	D95	0.05		-0.28	
1613	D95	0.02		-0.70	
1621	D95	0.0977		0.39	
1622	D95	0.05		-0.28	
1631	D95	0.05		-0.28	
1633	D95	<0.1		-----	
1635		-----		-----	
1636	D95	0.15		1.12	
1648	D95	0.063		-0.10	
1650	D95	0.06		-0.14	
1656	IP74	<0.05		-----	
1707	D95	0.2	DG(0.05)	1.82	
1710	ISO9029	0		-0.98	
1720		-----		-----	
1724	D95	<0.05		-----	
1728	D95	0.082		0.17	
1740	ISO3733	0.05		-0.28	
1807	D95	<0.05		-----	
1810	D95	0.1		0.42	
1811		-----		-----	
1826	D95	0.10		0.42	
1832	INH-3477	0.06		-0.14	
1833	D95	0.1		0.42	

1849	D95	0.05		-0.28
1854	D95	0.05		-0.28
1902	D95	0.10		0.42
1906	D4377	0.122		0.73
1938	D95	0.2	DG(0.05)	1.82
1942	D95	<0.1		-----
1948		-----		-----
2129	D95	0.10		0.42
2160	INH-124	<0.1		-----

		Compare with November 2010 #1094
normality	not OK	Not OK
n	50	79
outliers	2	2
mean (n)	0.070	0.089
st.dev. (n)	0.0358	0.0339
R(calc.)	0.100	0.095
R(D95:10)	0.200	0.200





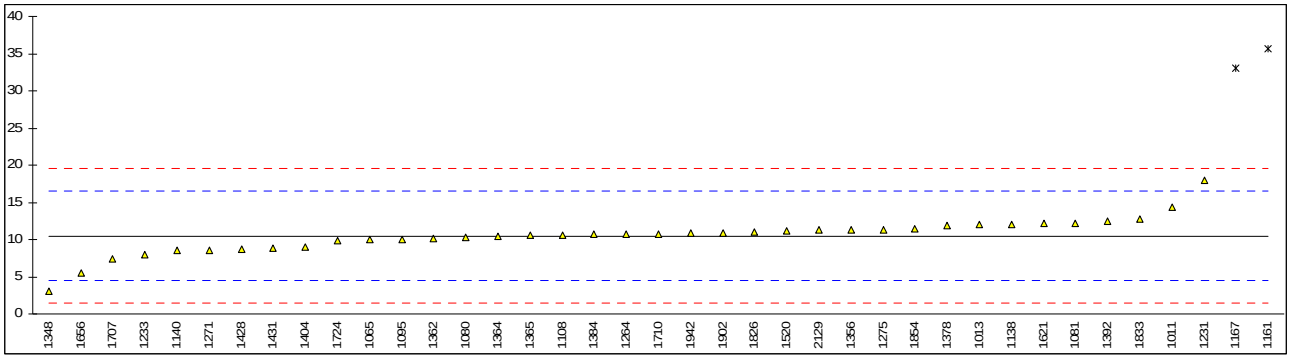
Determination of Nickel on sample #11001; results in mg/kg\

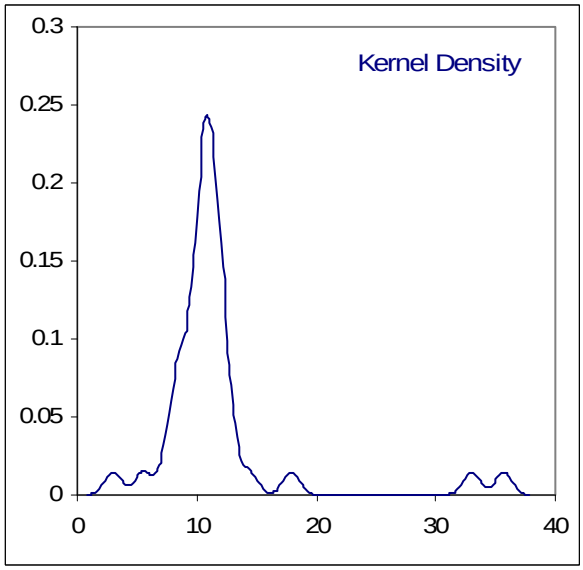
lab	method	value	mark	z(targ)	remarks
1011	D5863B	14.4	C	1.28	First reported 16.9
1013	D5185	12		0.49	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065	EDXRF	10		-0.17	
1067		-----		-----	
1080	D5863	10.3		-0.07	
1081	ICP	12.2		0.56	
1095	IP501	10		-0.17	
1108	D5863	10.6		0.03	
1126		-----		-----	
1138	IP501	12		0.49	
1140	IP501	8.5		-0.66	
1161	EN13131	35.68	G(0.01)	8.29	
1167	IP470	33.0	G(0.01)	7.41	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	D5708	17.9		2.44	
1233	IP501	8		-0.82	
1254		-----		-----	
1259		-----		-----	
1264	IP501	10.75		0.08	
1271	D5184B	8.54	C	-0.65	First reported 4.82
1275	IP501	11.3		0.26	
1289		-----		-----	
1345		-----		-----	
1347		-----		-----	
1348	in house	3		-2.47	
1353		-----		-----	
1356	IP501	11.25		0.25	
1357		-----		-----	
1358		-----		-----	
1362	IP470	10.2		-0.10	
1363		-----		-----	
1364	D5863	10.38		-0.04	
1365	IP470	10.6		0.03	
1370		-----		-----	
1378	IP470	11.87		0.45	
1381		-----		-----	
1383		-----		-----	
1384	INH-04	10.7		0.06	
1385		-----		-----	
1392	inh-hf	12.4		0.62	
1396		-----		-----	
1403		-----		-----	
1404	IP470	9		-0.49	
1425	in house	<100		-----	
1428	IP501	8.7		-0.59	
1431	IP470	8.9		-0.53	
1510		-----		-----	
1520	IP470	11.2		0.23	
1613		-----		-----	
1621	IP501	12.2		0.56	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656	IP501	5.5		-1.65	
1707	IP501	7.4		-1.02	
1710	uop389	10.75		0.08	
1720		-----		-----	
1724	IP501	9.817		-0.23	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	IP501	11		0.16	
1832		-----		-----	
1833	IP501	12.8		0.76	

1849		-----	-----
1854	IP501	11.5	0.33
1902	IP501	10.9	0.13
1906		-----	-----
1938		-----	-----
1942	D5863	10.8195	0.10
1948		-----	-----
2129	IP470	11.239	0.24
2160		-----	-----

		Compare with November 2010 #1094
normality	not OK	OK
n	37	48
outliers	2	2
mean (n)	10.50	11.05
st.dev. (n)	2.410	1.305
R(calc.)	6.75	3.66
R(IP470:05)	8.50	8.75

Compare R(IP501) = 6.13
Compare R(D5863:05-B) = 1.01
Compare R(D5863:05-A) = 4.52
Application range IP470 = 1 – 100 mg/kg



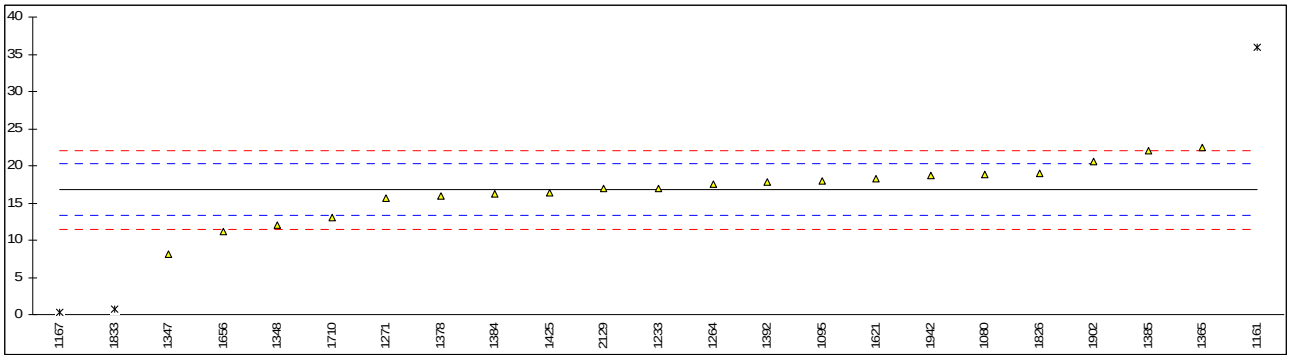


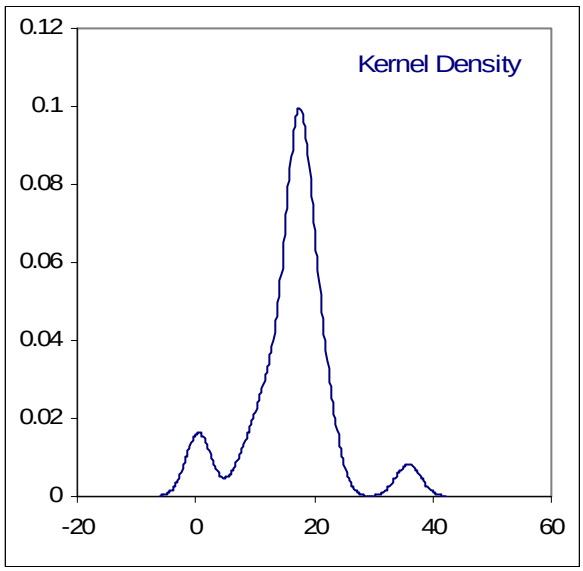
Determination of Potassium on sample #11001; results in mg/kg

lab	method	value	mark	z(targ)	remarks
1011		-----		-----	
1013		-----		-----	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067		-----		-----	
1080		18.9		1.20	
1081		-----		-----	
1095	IP501	18		0.69	
1108		-----		-----	
1126		-----		-----	
1138		-----		-----	
1140		-----		-----	
1161		35.92	G(0.01)	10.89	
1167	IP501	0.3	DG(0.01)	-9.38	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	ICP-AES	nil		-----	
1233	IP501	17		0.12	
1254		-----		-----	
1259		-----		-----	
1264	IP501	17.5		0.41	
1271	D5184B	15.65		-0.65	
1275		-----		-----	
1289		-----		-----	
1345		-----		-----	
1347	in house	8.15		-4.92	
1348	in house	12		-2.72	
1353		-----		-----	
1356		-----		-----	
1357		-----		-----	
1358		-----		-----	
1362		-----		-----	
1363		-----		-----	
1364		-----		-----	
1365	AAS	22.5		3.25	
1370		-----		-----	
1378		15.952		-0.47	
1381		-----		-----	
1383		-----		-----	
1384	INH-04	16.3		-0.28	
1385	in house	22		2.97	
1392	inh-hf	17.8		0.58	
1396		-----		-----	
1403		-----		-----	
1404		-----		-----	
1425	in house	16.36		-0.24	
1428		-----		-----	
1431		-----		-----	
1510		-----		-----	
1520		-----		-----	
1613		-----		-----	
1621	IP501	18.2		0.81	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656	EN14109	11.2		-3.18	
1707		-----		-----	
1710	in house	13		-2.15	
1720		-----		-----	
1724		-----		-----	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	IP501	19		1.26	
1832		-----		-----	
1833		0.74	DG(0.01)	-9.13	

1849		-----	-----
1854		-----	-----
1902	IP501	20.6	2.17
1906		-----	-----
1938		-----	-----
1942	IP470	18.625	1.05
1948		-----	-----
2129	IP470	16.950	0.09
2160		-----	-----

		Compare with November 2010 #1094
normality	OK	OK
n	20	20
outliers	3	3
mean (n)	16.78	14.51
st.dev. (n)	3.537	4.738
R(calc.)	9.90	13.27
R(Horwitz)	4.92	4.35





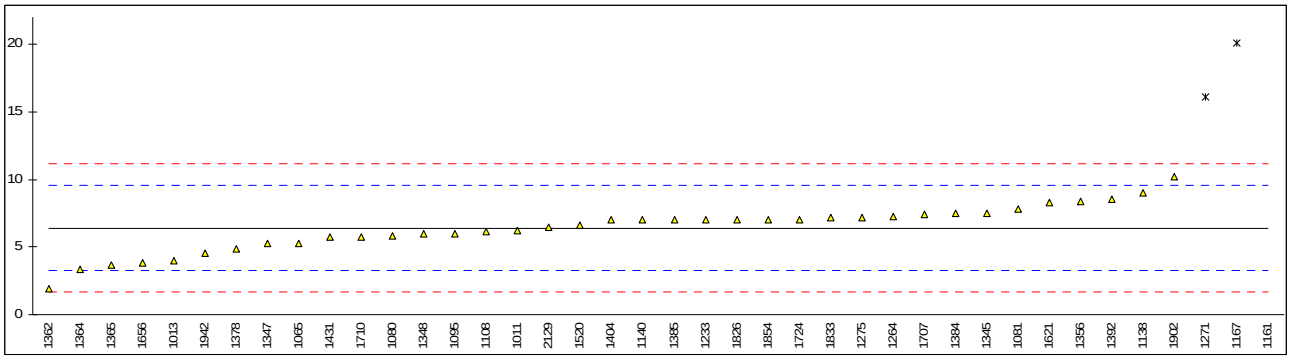
Determination of Sodium on sample #11001; results in mg/kg

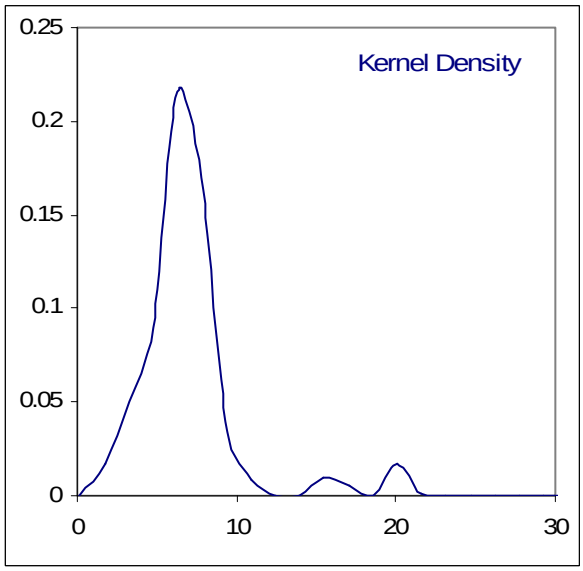
lab	method	value	mark	z(targ)	remarks
1011	D5863B	6.22		-0.11	
1013	D5185	4		-1.52	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065	In house	5.3		-0.69	
1067		-----		-----	
1080	D5863	5.8		-0.38	
1081	ICP	7.8		0.89	
1095	IP501	6		-0.25	
1108	D5863	6.1		-0.19	
1126		-----		-----	
1138	IP501	9		1.65	
1140	IP501	7.0		0.38	
1161	D5863	388.88	G(0.01)	242.71	
1167	IP501	20.1	G(0.01)	8.70	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	D5708	nil		-----	
1233	IP501	7		0.38	
1254		-----		-----	
1259		-----		-----	
1264	IP501	7.25		0.54	
1271	D5863	16.13	C,G(0.01)	6.18	First reported 42.15
1275	IP501	7.2		0.51	
1289		-----		-----	
1345	D5863B	7.51		0.71	
1347	in house	5.24		-0.73	
1348	in house	6		-0.25	
1353		-----		-----	
1356	IP501	8.402		1.27	
1357		-----		-----	
1358		-----		-----	
1362	D5863B	1.9		-2.85	
1363		-----		-----	
1364	D5863	3.37		-1.92	
1365	D5863B	3.7		-1.71	
1370		-----		-----	
1378	D5863	4.9		-0.95	
1381		-----		-----	
1383		-----		-----	
1384	INH-04	7.47		0.68	
1385	in house	7		0.38	
1392	INH-HF	8.52		1.35	
1396		-----		-----	
1403		-----		-----	
1404	IP470	7		0.38	
1425	in house	<150		-----	
1428		-----		-----	
1431	D5863	5.7		-0.44	
1510		-----		-----	
1520	IP470	6.6		0.13	
1613		-----		-----	
1621	IP501	8.3		1.21	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656	EN14108	3.8		-1.65	
1707	IP501	7.4		0.64	
1710	uop389	5.72		-0.43	
1720		-----		-----	
1724	IP501	7.025		0.40	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	IP501	7		0.38	
1832		-----		-----	
1833	D5863	7.16		0.49	

1849		-----		-----	
1854	IP501	7.0		0.38	
1902	IP501	10.2	C	2.41	First reported 11.6
1906		-----		-----	
1938		-----		-----	
1942	D5863	4.534		-1.18	
1948		-----		-----	
2129	IP470	6.488		0.06	
2160		-----		-----	

		Compare with November 2010 #1094
normality	not OK	OK
n	37	54
outliers	3	4
mean (n)	6.39	5.94
st.dev. (n)	1.687	1.809
R(calc.)	4.72	5.07
R(D5863:05-B)	4.41	4.10

Compare R(IP501) = 2.96
Compare R(IP470) = 3.97
Application range D5863 = 1 – 20 mg/kg





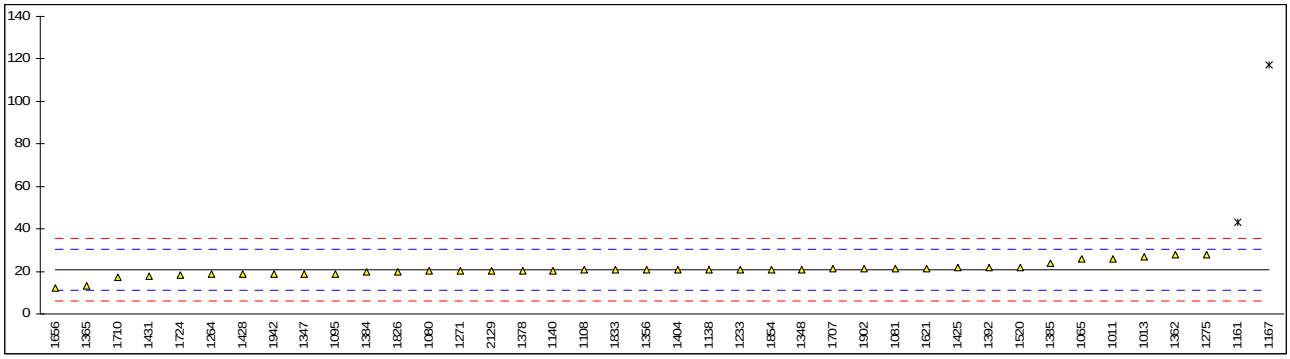
Determination of Vanadium on sample #11001; results in mg/kg

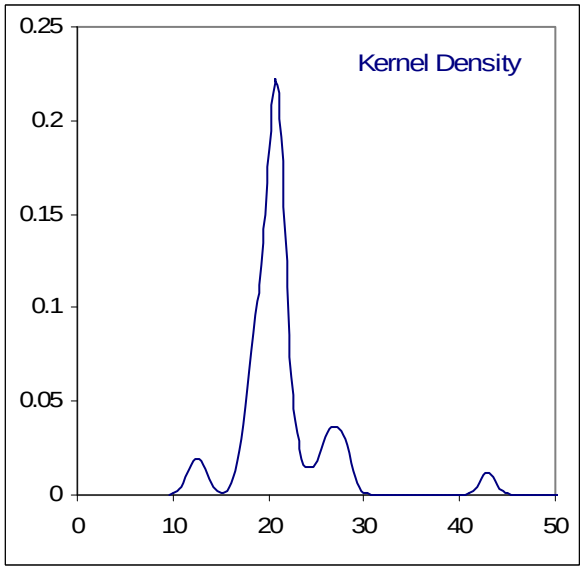
lab	method	value	mark	z(targ)	remarks
1011	D5863B	26.1		1.09	
1013	D5185	27		1.27	
1022		-----		-----	
1038		-----		-----	
1059		-----		-----	
1062		-----		-----	
1065	EDXRF	26		1.07	
1067		-----		-----	
1080	D5863	20.2		-0.13	
1081	ICP	21.3		0.10	
1095	IP501	19		-0.37	
1108	D5863	20.7		-0.02	
1126		-----		-----	
1138	IP501	21		0.04	
1140	IP501	20.5		-0.07	
1161	EN13131	43.02	G(0.01)	4.57	
1167	IP501	117	G(0.01)	19.78	
1177		-----		-----	
1205		-----		-----	
1215		-----		-----	
1231	D5708	nil		-----	
1233	IP501	21		0.04	
1254		-----		-----	
1259		-----		-----	
1264	IP501	18.7		-0.44	
1271	D5863	20.22		-0.12	
1275	IP501	28.1		1.50	
1289		-----		-----	
1345		-----		-----	
1347	in house	18.89		-0.40	
1348	in house	21		0.04	
1353		-----		-----	
1356	IP501	20.88		0.01	
1357		-----		-----	
1358		-----		-----	
1362	D5863B	27.9		1.46	
1363		-----		-----	
1364		-----		-----	
1365	D5863B	13.1		-1.59	
1370		-----		-----	
1378	IP288	20.25		-0.12	
1381		-----		-----	
1383		-----		-----	
1384	INH-04	20.0		-0.17	
1385	in house	24		0.65	
1392	INH-HF	21.8		0.20	
1396		-----		-----	
1403		-----		-----	
1404	IP470	21		0.04	
1425	in house	21.76		0.19	
1428	IP501	18.8		-0.42	
1431	D5863	17.9		-0.60	
1510		-----		-----	
1520	IP470	22.0		0.24	
1613		-----		-----	
1621	IP501	21.4		0.12	
1622		-----		-----	
1631		-----		-----	
1633		-----		-----	
1635		-----		-----	
1636		-----		-----	
1648		-----		-----	
1650		-----		-----	
1656	IP501	12.0		-1.81	
1707	IP501	21.1		0.06	
1710	uop389	17.11		-0.76	
1720		-----		-----	
1724	IP501	18.33		-0.51	
1728		-----		-----	
1740		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1826	IP501	20		-0.17	
1832		-----		-----	
1833	D5863	20.85		0.01	

1849		-----	-----
1854	IP501	21.0	0.04
1902	IP501	21.2	0.08
1906		-----	-----
1938		-----	-----
1942	D5863	18.828	-0.41
1948		-----	-----
2129	IP470	20.240	-0.12
2160		-----	-----

		Compare with November 2010 #1094
normality	not OK	Not OK
n	38	56
outliers	2	2
mean (n)	20.82	19.92
st.dev. (n)	3.282	2.446
R(calc.)	9.19	6.85
R(D5863:05-B)	(13.61)	(13.14)

Compare R(IP501) = 10.38
Compare R(IP470) = 14.88
Compare R(D5863:05-A) = 5.07
Application range D5863 = 50 – 500 mg/kg

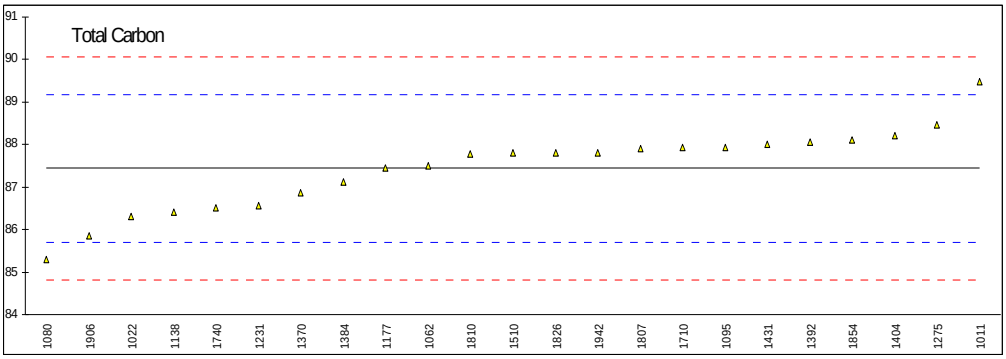


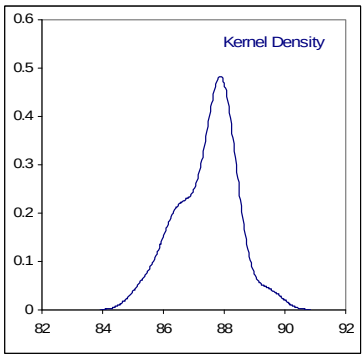


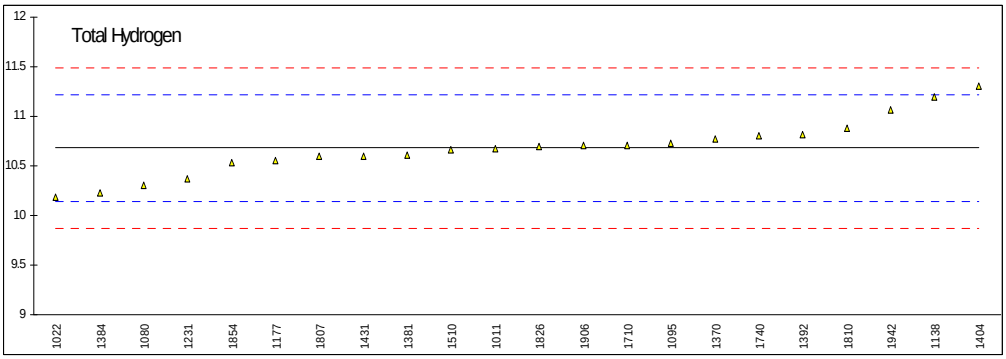
Determination of Total Carbon, Hydrogen and Nitrogen on sample #11001; results in %M/M

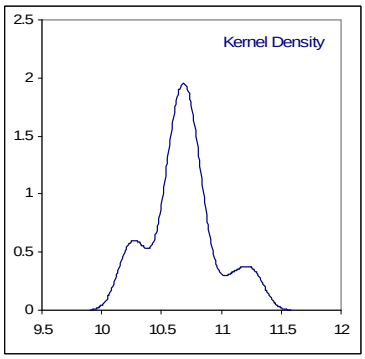
lab	method	Tot.Carbon	mark	z(targ)	Tot.Hydrogen	mark	z(targ)	Tot.Nitrogen	mark	z(targ)	remarks
1011	D5291	89.47		2.32	10.67		-0.04	0.407		-0.20	
1013		-----		-----	-----		-----	-----		-----	
1022	D5291	86.31		-1.29	10.18		-1.85	0.43		-0.05	
1038		-----		-----	-----		-----	-----		-----	
1059		-----		-----	-----		-----	-----		-----	
1062	D5291	87.5		0.07	-----		-----	-----		-----	
1065		-----		-----	-----		-----	-----		-----	
1067		-----		-----	-----		-----	-----		-----	
1080	D5291	85.3		-2.45	10.3		-1.41	0.3		-0.87	
1081		-----		-----	-----		-----	-----		-----	
1095	D5291	87.93		0.56	10.73		0.18	0.41		-0.18	
1108		-----		-----	-----		-----	-----		-----	
1126		-----		-----	-----		-----	-----		-----	
1138	D5291	86.40		-1.19	11.20		1.92	0.49		0.32	
1140		-----		-----	-----		-----	-----		-----	
1161		-----		-----	-----		-----	-----		-----	
1167		-----		-----	-----		-----	-----		-----	
1177	D5291	87.45	C	0.01	10.55		-0.48	-----		-----	Fr 86.84
1205		-----		-----	-----		-----	-----		-----	
1215		-----		-----	-----		-----	-----		-----	
1231	D5291	86.557		-1.01	10.3715		-1.15	0.3332		-0.66	
1233		-----		-----	-----		-----	-----		-----	
1254		-----		-----	-----		-----	-----		-----	
1259		-----		-----	-----		-----	-----		-----	
1264		-----		-----	-----		-----	-----		-----	
1271		-----		-----	-----		-----	-----		-----	
1275	in house	88.47		1.18	-----		-----	-----		-----	
1289		-----		-----	-----		-----	-----		-----	
1345		-----		-----	-----		-----	-----		-----	
1347		-----		-----	-----		-----	-----		-----	
1348		-----		-----	-----		-----	-----		-----	
1353		-----		-----	-----		-----	-----		-----	
1356		-----		-----	-----		-----	-----		-----	
1357		-----		-----	-----		-----	-----		-----	
1358		-----		-----	-----		-----	-----		-----	
1362		-----		-----	-----		-----	-----		-----	
1363		-----		-----	-----		-----	-----		-----	
1364		-----		-----	-----		-----	-----		-----	
1365		-----		-----	-----		-----	-----		-----	
1370	D5291	86.869		-0.65	10.772		0.34	0.471		0.20	
1378		-----		-----	-----		-----	-----		-----	
1381		-----		-----	10.608		-0.27	-----		-----	
1383		-----		-----	-----		-----	-----		-----	
1384	inh-44	87.12		-0.37	10.23		-1.67	0.34		-0.62	
1385		-----		-----	-----		-----	-----		-----	
1392	D5291	88.047		0.70	10.81		0.48	0.410		-0.18	
1396		-----		-----	-----		-----	-----		-----	
1403		-----		-----	-----		-----	-----		-----	
1404	D5291	88.2		0.87	11.3		2.29	<0.75		-----	
1425		-----		-----	-----		-----	-----		-----	
1428		-----		-----	-----		-----	-----		-----	
1431	D5291	88.0		0.64	10.60		-0.30	0.54		0.64	
1510	D5291	87.80		0.41	10.66		-0.08	0.44		0.01	
1520		-----		-----	-----		-----	-----		-----	
1613		-----		-----	-----		-----	-----		-----	
1621		-----		-----	-----		-----	-----		-----	
1622		-----		-----	-----		-----	-----		-----	
1631		-----		-----	-----		-----	-----		-----	
1633		-----		-----	-----		-----	-----		-----	
1635		-----		-----	-----		-----	-----		-----	
1636		-----		-----	-----		-----	-----		-----	
1648		-----		-----	-----		-----	-----		-----	
1650		-----		-----	-----		-----	-----		-----	
1656		-----		-----	-----		-----	-----		-----	
1707		-----		-----	-----		-----	-----		-----	
1710	D5291	87.92		0.55	10.71		0.11	0.396		-0.27	
1720		-----		-----	-----		-----	-----		-----	
1724		-----		-----	-----		-----	-----		-----	
1728		-----		-----	-----		-----	-----		-----	
1740	D5291	86.5		-1.07	10.8		0.44	0.55		0.70	
1807	D5291	87.91		0.54	10.6		-0.30	0.36236		-0.48	
1810	D5291	87.78	C	0.39	10.88		0.74	-----	C	-----	Fr --, 87.78
1811		-----		-----	-----		-----	-----		-----	
1826	D5291	87.8		0.41	10.7		0.07	0.5		0.39	
1832		-----		-----	-----		-----	-----		-----	
1833		-----		-----	-----		-----	-----		-----	

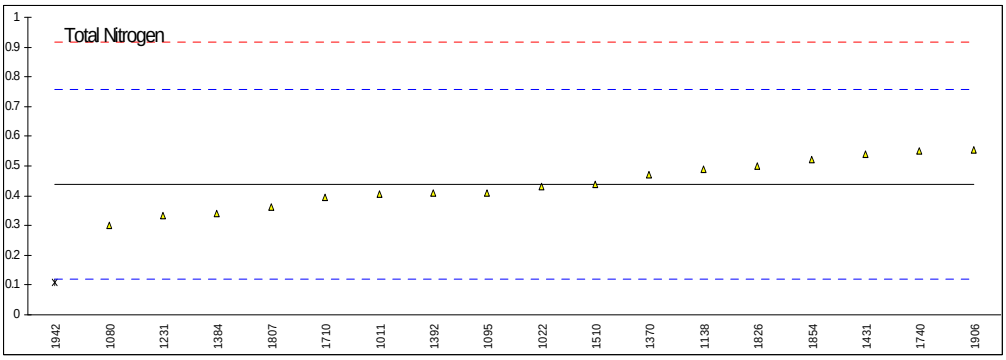
1849		-----		-----	-----		-----	-----		-----	
1854	D5291	88.1		0.76	10.53		-0.56	0.52		0.51	
1902		-----		-----	-----		-----	-----		-----	
1906	D5291	85.855		-1.81	10.709		0.10	0.554		0.73	
1938		-----		-----	-----		-----	-----		-----	
1942	D5291	87.81		0.42	11.07		1.44	0.11	G(0.05)	-2.06	
1948		-----		-----	-----		-----	-----		-----	
2129		-----		-----	-----		-----	-----		-----	
2160		-----		-----	-----		-----	-----		-----	
			Comp. 2010			Comp. 2010			Comp. 2010		
	normality	not OK	OK		OK	OK		OK	OK		
	n	23	5		22	7		17	5		
	outliers	0	1		0	0		1	1		
	mean (n)	87.44	87.27		10.68	10.82		0.44	0.41		
	st.dev. (n)	0.945	0.331		0.280	0.266		0.079	0.022		
	R(calc.)	2.64	0.93		0.78	0.74		0.22	0.06		
	R(D5291:10)	2.45	2.44		0.76	0.76		0.45	0.45		

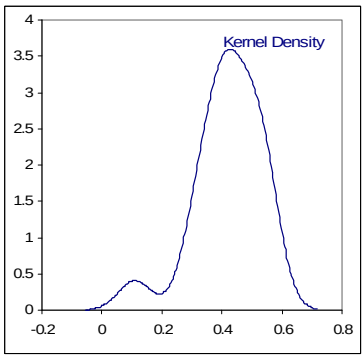












Distillation according to ASTM D1160 on sample #11001, results in °C

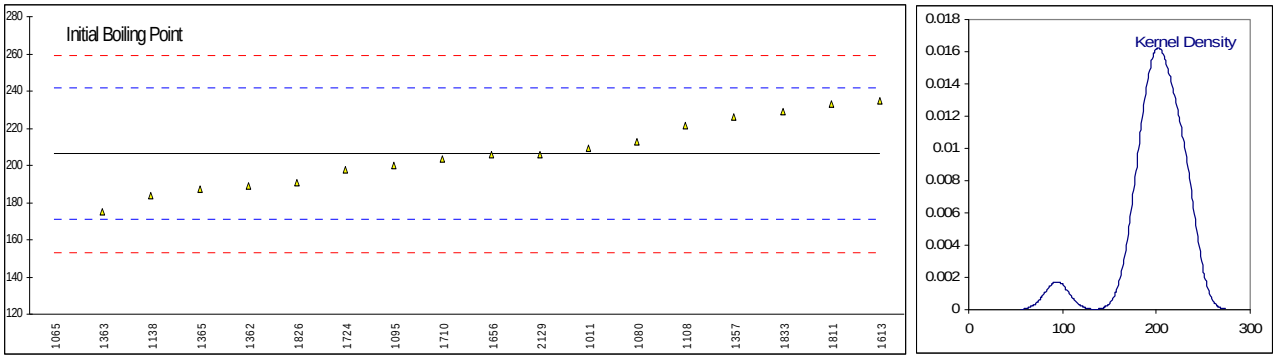
lab	method	IBP	5%	10%	20%	30%	40%	50%	FBP
1011	D1160	209.2	274.1	324.1	397.7	428.6	465.7	518.0	525.8
1013		-----	-----	-----	-----	-----	-----	-----	-----
1022		-----	-----	-----	-----	-----	-----	-----	-----
1038		-----	-----	-----	-----	-----	-----	-----	-----
1059		-----	-----	-----	-----	-----	-----	-----	-----
1062		-----	-----	-----	-----	-----	-----	-----	-----
1065	D1160	***94***	285	355	405	444	474.5	517	-----
1067		-----	-----	-----	-----	-----	-----	-----	-----
1080	D1160	212.5	283.0	333.3	395.3	440.6	480.9	522.4	528.1
1081		-----	-----	-----	-----	-----	-----	-----	-----
1095	D1160	200	275	342	400	444	483	521	521
1108	D1160	221.4	263.9	***314.9***	***380.4***	439.4	482.0	-----	522.4
1126		-----	-----	-----	-----	-----	-----	-----	-----
1138	D1160	184	271	330	389	438	480	515	520
1140		-----	-----	-----	-----	-----	-----	-----	-----
1161		-----	-----	-----	-----	-----	-----	-----	-----
1167		-----	-----	-----	-----	-----	-----	-----	-----
1177		-----	-----	-----	-----	-----	-----	-----	-----
1205		-----	-----	-----	-----	-----	-----	-----	-----
1215		-----	-----	-----	-----	-----	-----	-----	-----
1231		-----	-----	-----	-----	-----	-----	-----	-----
1233		-----	-----	-----	-----	-----	-----	-----	-----
1254		-----	-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----	-----
1264		-----	-----	-----	-----	-----	-----	-----	-----
1271		-----	-----	-----	-----	-----	-----	-----	-----
1275		-----	-----	-----	-----	-----	-----	-----	-----
1289		-----	-----	-----	-----	-----	-----	-----	-----
1345		-----	-----	-----	-----	-----	-----	-----	-----
1347		-----	-----	-----	-----	-----	-----	-----	-----
1348		-----	-----	-----	-----	-----	-----	-----	-----
1353		-----	-----	-----	-----	-----	-----	-----	-----
1356		-----	-----	-----	-----	-----	-----	-----	-----
1357	D1160	225.9	269.2	334.7	389.1	438.7	480.9	522.3	534.8
1358		-----	-----	-----	-----	-----	-----	-----	-----
1362	D1160	189	275	339	405	444	479	-----	***490***
1363	D1160	175	266	336	398	438	479	-----	506
1364		-----	-----	-----	-----	-----	-----	-----	-----
1365	D1160	187	276	335	407	449	479	-----	-----
1370		-----	-----	-----	-----	-----	-----	-----	-----
1378		-----	269.7	328.6	388.6	427.9	464.4	***497***	558
1381		-----	-----	-----	-----	-----	-----	-----	-----
1383		-----	-----	-----	-----	-----	-----	-----	-----
1384		-----	-----	-----	-----	-----	-----	-----	-----
1385		-----	-----	-----	-----	-----	-----	-----	-----
1392		-----	-----	-----	-----	-----	-----	-----	-----
1396		-----	-----	-----	-----	-----	-----	-----	-----
1403		-----	-----	-----	-----	-----	-----	-----	-----
1404		-----	-----	-----	-----	-----	-----	-----	-----
1425		-----	-----	-----	-----	-----	-----	-----	-----
1428		-----	-----	-----	-----	-----	-----	-----	-----
1431		-----	-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----	-----
1520		-----	-----	-----	-----	-----	-----	-----	-----
1613	D1160	234.6	281.6	336.2	406.9	447.5	479.4	-----	518.1
1621		-----	-----	-----	-----	-----	-----	-----	-----
1622		-----	-----	-----	-----	-----	-----	-----	-----
1631		-----	-----	-----	-----	-----	-----	-----	-----
1633		-----	-----	-----	-----	-----	-----	-----	-----
1635		-----	-----	-----	-----	-----	-----	-----	-----
1636		-----	-----	-----	-----	-----	-----	-----	-----
1648		-----	-----	-----	-----	-----	-----	-----	-----
1650		-----	-----	-----	-----	-----	-----	-----	-----
1656	D1160	205.7	297.7	347.2	405.0	446.2	484.5	525.3	547.8
1707		-----	-----	-----	-----	-----	-----	-----	-----
1710	D1160	203.5	292.0	342.5	404.0	445.5	485.8	529.8	552.3
1720		-----	-----	-----	-----	-----	-----	-----	-----
1724	D1160	197.9	286.3	343.9	409.4	449.3	487.7	522.0	527.5
1728		-----	-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----	-----
1807		-----	-----	-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----	-----	-----
1811	D7169	233	296	341	399	***412***	***430***	***495***	-----
1826	D1160	191	274	336	405	447	485	-----	510
1832		-----	-----	-----	-----	-----	-----	-----	-----
1833	D1160	228.9	***322.5***	364.6	415.8	455.0	494.4	***540.0***	559.9
1849		-----	-----	-----	-----	-----	-----	-----	-----
1854		-----	-----	-----	-----	-----	-----	-----	-----

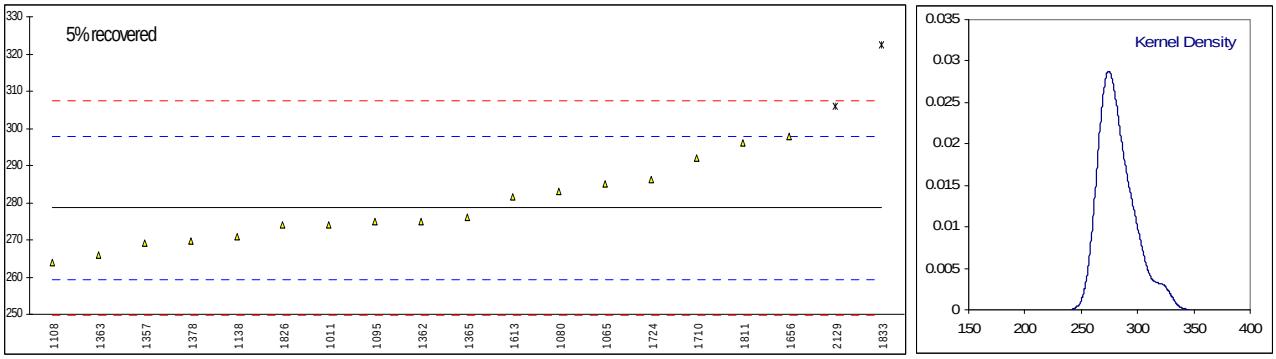
1902		-----	-----	-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----	-----	-----
1938		-----	-----	-----	-----	-----	-----	-----	-----
1942		-----	-----	-----	-----	-----	-----	-----	-----
1948		-----	-----	-----	-----	-----	-----	-----	-----
2129	D1160	206	***306***	361	420	459	496	525	527
2160		-----	-----	-----	-----	-----	-----	-----	-----
	normality	OK	OK	OK	OK	OK	not OK	OK	not OK
	n	17	17	18	18	18	18	10	15
	outliers	1	2	1	1	1	1	3	1
	mean (n)	206.15	278.56	340.56	402.21	443.43	481.18	521.78	530.58
	st.dev. (n)	18.001	10.155	10.770	8.625	7.862	7.943	4.365	16.697
	R(calc.)	50.40	28.43	30.16	24.15	22.01	22.24	12.22	46.75
	R(D1160:06)	49.45	26.83	21.97	18.18	16.32	16.27	12.56	26.89

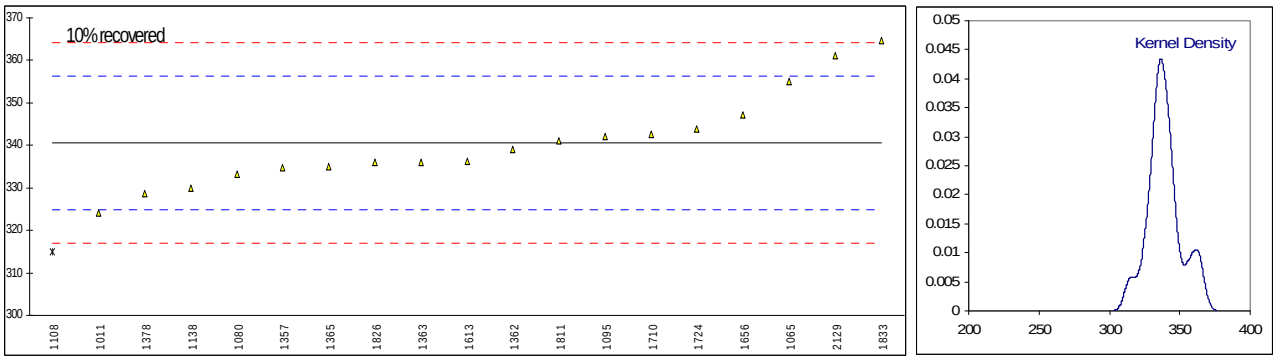
Compare with November 2010 #1094

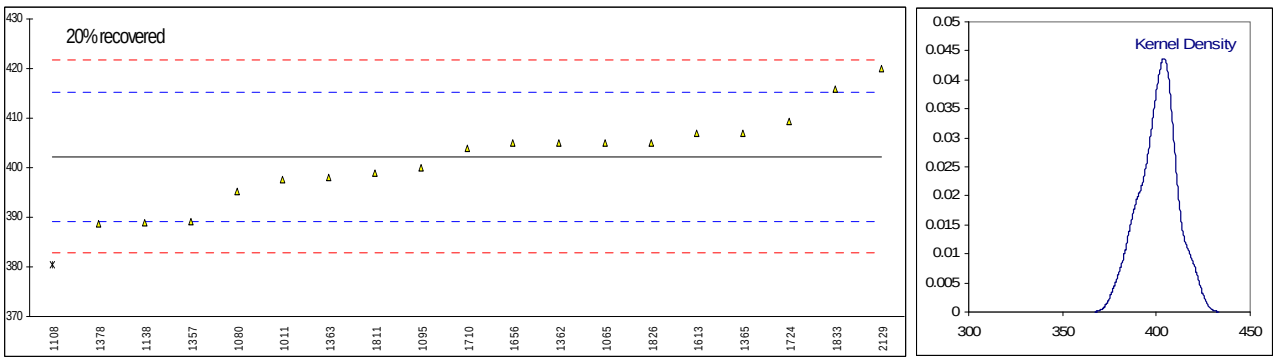
normality	OK	OK	OK	OK	OK	OK	OK	OK
n	12	12	12	12	12	11	7	8
outliers	1	0	1	2	2	2	0	1
mean (n)	198.65	279.32	338.63	402.10	443.60	484.80	512.92	518.04
st.dev. (n)	10.291	9.379	10.471	6.1498	6.2327	5.3407	7.5220	7.0427
R(calc.)	28.81	26.26	29.32	17.22	17.45	14.95	21.06	19.72
R(D1160:06)	49.45	27.39	21.99	18.42	16.63	15.47	10.83	26.89

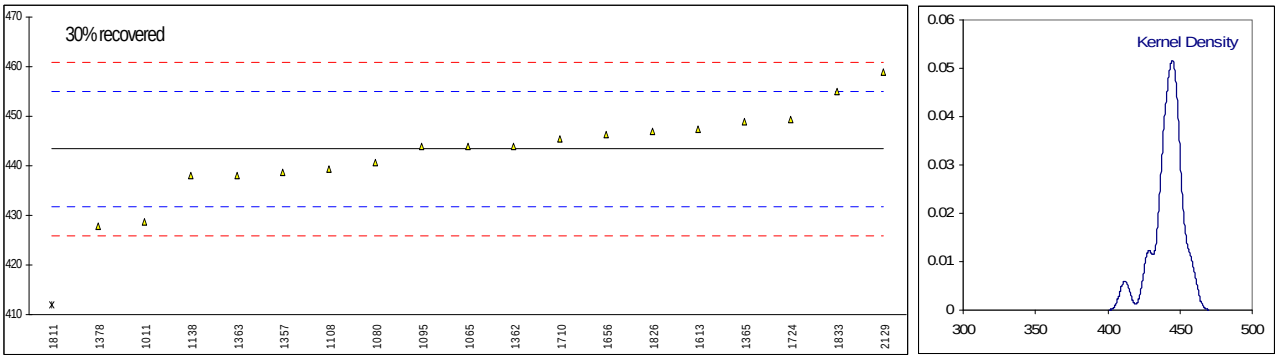
Bold, Italic and underlined results are marked as outliers according to Grubb's outliers test
Italic and underlined results are marked as excluded results.

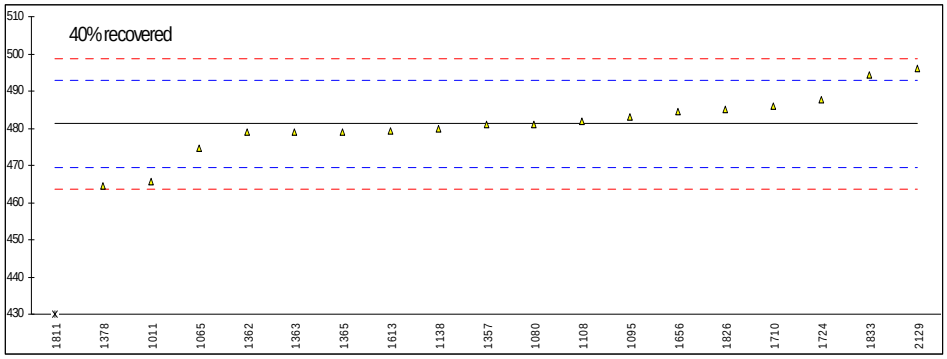

Initial Boiling Point
Kernel Density

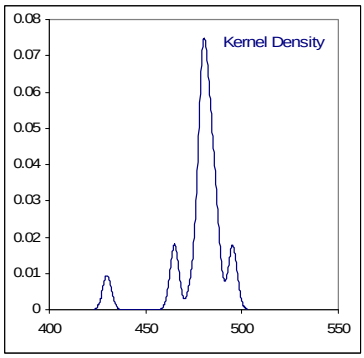

5% recovered
Kernel Density

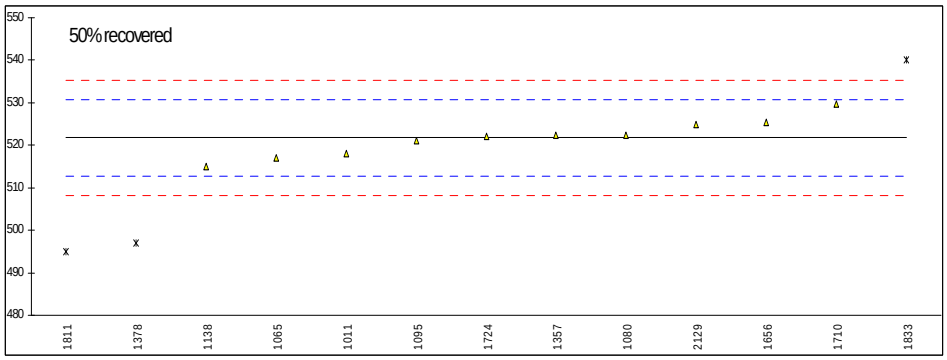

10% recovered
Kernel Density

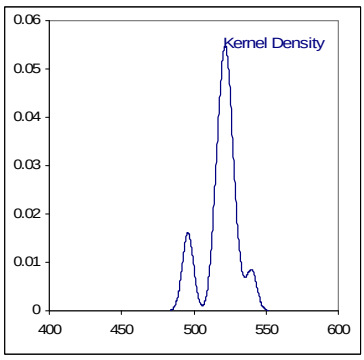

20% recovered
Kernel Density

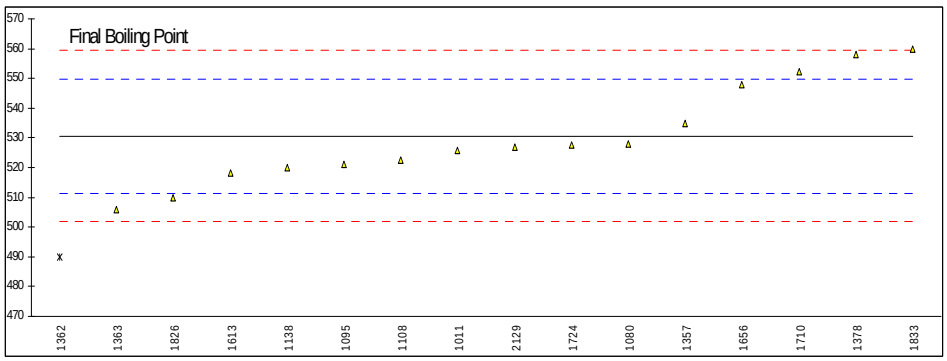

30% recovered
Kernel Density

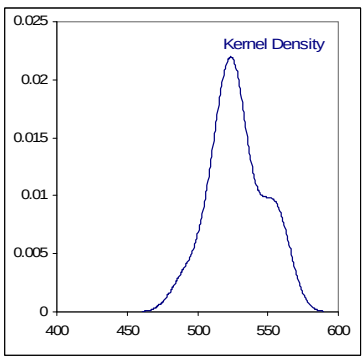

40% recovered
510
500
490
480
470
460
450
440
430
1811
1378
1011
1065
1362
1363
1365
1613
1138
1357
1080
1108
1095
1656
1826
1710
1724
1833
2129


Kernel Density
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
400
450
500
550


50% recovered
550
540
530
520
510
500
490
480
1811
1378
1138
1065
1011
1095
1724
1357
1080
2129
1656
1710
1833


Kernel Density
0.06
0.05
0.04
0.03
0.02
0.01
0
400
450
500
550
600

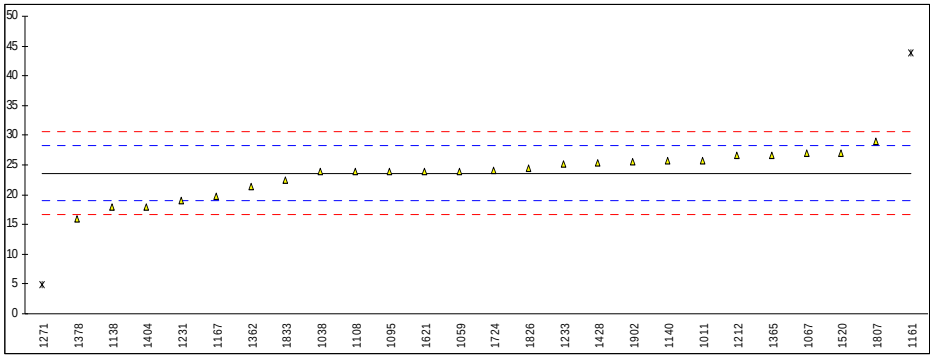

Final Boiling Point
570
560
550
540
530
520
510
500
490
480
470
1362
1363
1826
1613
1138
1095
1108
1011
2129
1724
1080
1357
1656
1710
1378
1833

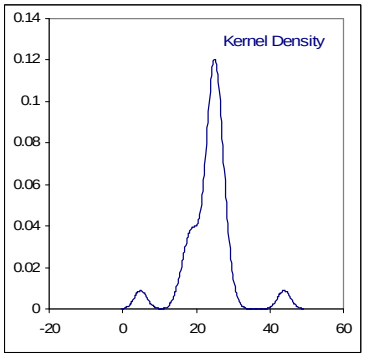

Kernel Density
0.025
0.02
0.015
0.01
0.005
0
400
450
500
550
600

Determination of Aluminium on sample #11002; results in mg/kg

lab	method	value	mark	z(targ)	remarks
541		-----		-----	
1011	IP377	25.7		0.90	
1038	IP377	24		0.17	
1059	In house	24		0.17	
1067	IP501	27		1.46	
1095	ISO10478	24		0.17	
1108	D5184B	24.0		0.17	
1138	IP501	18		-2.42	
1140	IP501	25.7		0.90	
1161	ISO10478	43.89	ex	8.74	Result excluded as ratio Al : Si is not approx. 1
1167	D5184B	19.8		-1.64	
1212	IP470	26.6		1.29	
1231	D5184B	19		-1.99	
1233	IP501	25.2		0.69	
1271	AAS	4.90	C,ex	-8.07	First reported 9.81, result excluded as ratio Al : Si is not approx. 1
1345		-----		-----	
1362	IP470	21.3		-1.00	
1365	D5184B	26.6		1.29	
1378	D5184B	15.87		-3.34	
1404	IP470	18		-2.42	
1428	IP501	25.4		0.77	
1510		-----		-----	
1520	IP470	27.0		1.46	
1621	ISO10478	24.0		0.17	
1724	IP501	24.04		0.18	
1807	D5184A	29		2.32	
1826	D5184A	24.5		0.38	
1833	IP501	22.46		-0.50	
1902	IP501	25.5		0.81	
					Compare with November 2010 #1095
	normality	not OK			OK
	n	24			53
	outliers	0			1
	mean (n)	23.61			25.32
	st.dev. (n)	3.330			2.919
	R(calc.)	9.32			8.17
	R(D5184-AAS)	6.49			6.88 Compare R(IP470) = 6.56
	R(D5184-ICP)	7.96			8.53 Compare R(IP501) = 7.96

Method A = ICP, Method B = AAS

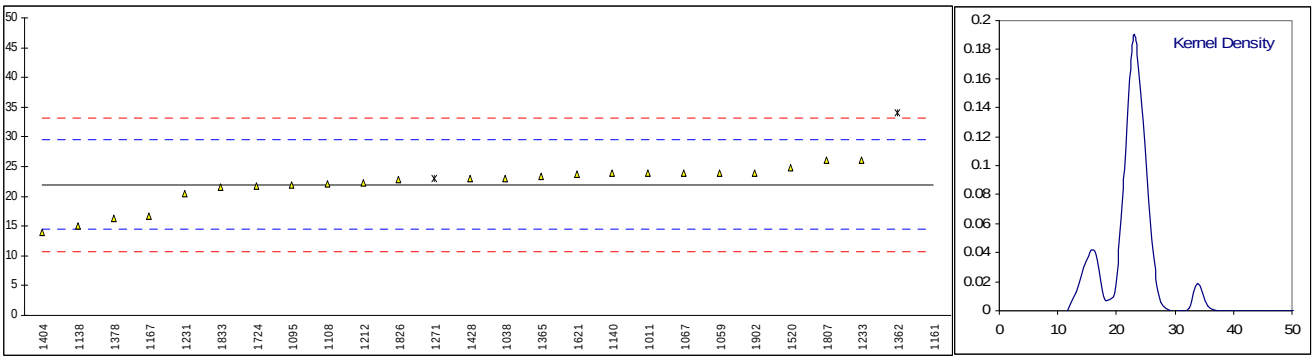




Determination of Silicon on sample #11002; results in mg/kg

lab	method	value	mark	z(targ)	remarks
541		-----		-----	
1011	IP377	23.9		0.52	
1038	IP377	23		0.28	
1059	In house	24		0.55	
1067	IP501	24		0.55	
1095	ISO10478	22		0.02	
1108	D5184B	22.1		0.04	
1138	IP501	15		-1.85	
1140	IP501	23.9		0.52	
1161	ISO10478	417.1	ex	105.51	Result excluded as ratio Al : Si is not approx. 1
1167	D5184B	16.7		-1.40	
1212	IP470	22.2		0.07	
1231	D5184B	20.5		-0.39	
1233	IP501	26.1		1.11	
1271	AAS	22.97	ex	0.27	Result excluded as ratio Al : Si is not approx.1
1345		-----		-----	
1362	IP470	34.1	G(0.01)	3.25	
1365	D5184B	23.3		0.36	
1378	D5184B	16.38		-1.49	
1404	IP470	14		-2.12	
1428	IP501	23		0.28	
1510		-----		-----	
1520	IP470	24.8		0.76	
1621	ISO10478	23.7		0.47	
1724	IP501	21.79		-0.04	
1807	D5184A	26		1.08	
1826	D5184A	22.8		0.23	
1833	IP501	21.5		-0.12	
1902	IP501	24		0.55	
					Compare with November 2010 #1095
	normality	not OK			OK
	n	23			50
	outliers	1			3
	mean (n)	21.94			23.86
	st.dev. (n)	3.319			2.748
	R(calc.)	9.292			7.69
	R(D5184-AAS)	10.49			11.21 Compare R(IP470) = 10.99
	R(D5184-ICP)	7.29			7.92 Compare R(IP501) = 7.28

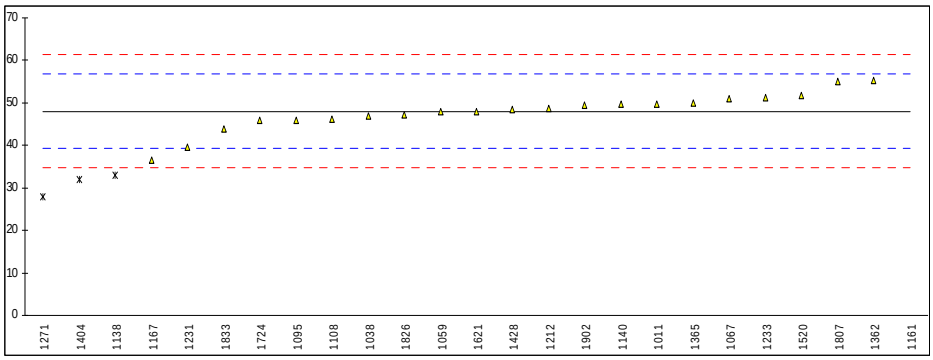
Method A = ICP, Method B = AAS

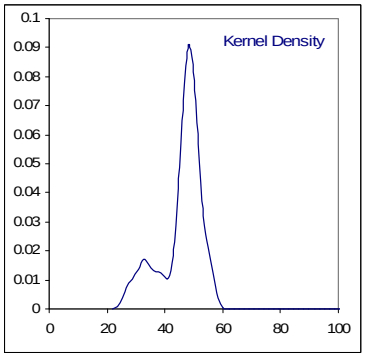


Determination of Total Aluminium/Silicon on sample #11002; results in mg/kg

lab	method	value	mark	z(targ)	remarks
541		-----		-----	
1011	IP377	49.6		0.36	
1038	IP377	47		-0.23	
1059	In house	48		-0.01	
1067	IP501	51		0.68	
1095	ISO10478	46		-0.46	
1108	D5184B	46.1		-0.44	
1138	IP501(calc.)	33	G(0.05)	-3.41	
1140	IP501	49.6		0.36	
1161	ISO10478	460.1	ex	93.46	Result excluded as ratio Al : Si is not approx. 1
1167	D5184B	36.5		-2.61	
1212	IP470	48.8		0.18	
1231	D5184B	39.5		-1.93	
1233	IP501	51.3		0.74	
1271	AAS	27.87	C,ex	-4.57	First reported 32.78, result excluded as ratio Al : Si is not approx. 1
1345		-----		-----	
1362	IP470	55.4		1.67	
1365	D5184B	49.9		0.43	
1378		-----		-----	
1404	IP470	32	G(0.05)	-3.63	
1428	IP501	48.4		0.09	
1510		-----		-----	
1520	IP470	51.8		0.86	
1621	ISO10478	48		-0.01	
1724	IP501	45.83		-0.50	
1807	D5184A	55		1.58	
1826	D5184A	47.3		-0.16	
1833	IP501	43.96		-0.92	
1902	IP501	49.5		0.33	
					Compare with November 2010 #1095
	normality	OK			OK
	n	21			49
	outliers	2			3
	mean (n)	48.02			49.07
	st.dev. (n)	4.385			4.593
	R(calc.)	12.28			12.86
	R(D5184-AAS)	12.35			13.15 Compare R(IP470) = 12.82
	R(D5184-ICP)	10.80			11.64 Compare R(IP501) = 10.80

Method A = ICP, Method B = AAS





APPENDIX 2

Z-scores Distillation according to ASTM D1160 on sample #11001

lab	method	IBP	5%	10%	20%	30%	40%	50%	FBP
1011	D1160	0.17	-0.46	-2.09	-0.69	-2.54	-2.66	-0.84	-0.50
1013		-----	-----	-----	-----	-----	-----	-----	-----
1022		-----	-----	-----	-----	-----	-----	-----	-----
1038		-----	-----	-----	-----	-----	-----	-----	-----
1059		-----	-----	-----	-----	-----	-----	-----	-----
1062		-----	-----	-----	-----	-----	-----	-----	-----
1065	D1160	-6.35	0.67	1.83	0.43	0.10	-1.15	-1.06	-----
1067		-----	-----	-----	-----	-----	-----	-----	-----
1080	D1160	0.36	0.46	-0.92	-1.06	-0.49	-0.05	0.14	-0.26
1081		-----	-----	-----	-----	-----	-----	-----	-----
1095	D1160	-0.35	-0.37	0.18	-0.34	0.10	0.31	-0.17	-1.00
1108	D1160	0.86	-1.52	-3.26	-3.36	-0.69	0.14	-----	-0.85
1126		-----	-----	-----	-----	-----	-----	-----	-----
1138	D1160	-1.25	-0.79	-1.34	-2.03	-0.93	-0.20	-1.50	-1.10
1140		-----	-----	-----	-----	-----	-----	-----	-----
1161		-----	-----	-----	-----	-----	-----	-----	-----
1167		-----	-----	-----	-----	-----	-----	-----	-----
1177		-----	-----	-----	-----	-----	-----	-----	-----
1205		-----	-----	-----	-----	-----	-----	-----	-----
1215		-----	-----	-----	-----	-----	-----	-----	-----
1231		-----	-----	-----	-----	-----	-----	-----	-----
1233		-----	-----	-----	-----	-----	-----	-----	-----
1254		-----	-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----	-----
1264		-----	-----	-----	-----	-----	-----	-----	-----
1271		-----	-----	-----	-----	-----	-----	-----	-----
1275		-----	-----	-----	-----	-----	-----	-----	-----
1289		-----	-----	-----	-----	-----	-----	-----	-----
1345		-----	-----	-----	-----	-----	-----	-----	-----
1347		-----	-----	-----	-----	-----	-----	-----	-----
1348		-----	-----	-----	-----	-----	-----	-----	-----
1353		-----	-----	-----	-----	-----	-----	-----	-----
1356		-----	-----	-----	-----	-----	-----	-----	-----
1357	D1160	1.12	-0.97	-0.74	-2.02	-0.81	-0.05	0.12	0.44
1358		-----	-----	-----	-----	-----	-----	-----	-----
1362	D1160	-0.97	-0.37	-0.20	0.43	0.10	-0.37	-----	-4.22
1363	D1160	-1.76	-1.31	-0.58	-0.65	-0.93	-0.37	-----	-2.56
1364		-----	-----	-----	-----	-----	-----	-----	-----
1365	D1160	-1.08	-0.27	-0.71	0.74	0.96	-0.37	-----	-----
1370		-----	-----	-----	-----	-----	-----	-----	-----
1378		-----	-0.92	-1.52	-2.10	-2.66	-2.89	-5.50	2.85
1381		-----	-----	-----	-----	-----	-----	-----	-----
1383		-----	-----	-----	-----	-----	-----	-----	-----
1384		-----	-----	-----	-----	-----	-----	-----	-----
1385		-----	-----	-----	-----	-----	-----	-----	-----
1392		-----	-----	-----	-----	-----	-----	-----	-----
1396		-----	-----	-----	-----	-----	-----	-----	-----
1403		-----	-----	-----	-----	-----	-----	-----	-----
1404		-----	-----	-----	-----	-----	-----	-----	-----
1425		-----	-----	-----	-----	-----	-----	-----	-----
1428		-----	-----	-----	-----	-----	-----	-----	-----
1431		-----	-----	-----	-----	-----	-----	-----	-----
1510		-----	-----	-----	-----	-----	-----	-----	-----
1520		-----	-----	-----	-----	-----	-----	-----	-----
1613	D1160	1.61	0.32	-0.55	0.72	0.70	-0.31	-----	-1.30
1621		-----	-----	-----	-----	-----	-----	-----	-----
1622		-----	-----	-----	-----	-----	-----	-----	-----
1631		-----	-----	-----	-----	-----	-----	-----	-----
1633		-----	-----	-----	-----	-----	-----	-----	-----
1635		-----	-----	-----	-----	-----	-----	-----	-----
1636		-----	-----	-----	-----	-----	-----	-----	-----
1648		-----	-----	-----	-----	-----	-----	-----	-----
1650		-----	-----	-----	-----	-----	-----	-----	-----
1656	D1160	-0.03	1.99	0.84	0.43	0.48	0.57	0.78	1.79
1707		-----	-----	-----	-----	-----	-----	-----	-----
1710	D1160	-0.15	1.40	0.25	0.28	0.36	0.80	1.78	2.26
1720		-----	-----	-----	-----	-----	-----	-----	-----
1724	D1160	-0.47	0.80	0.42	1.11	1.01	1.12	0.05	-0.32
1728		-----	-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----	-----
1807		-----	-----	-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----	-----	-----
1811	D7169	1.52	1.81	0.06	-0.49	-5.39	-8.81	-5.94	-----
1826	D1160	-0.86	-0.47	-0.58	0.43	0.61	0.66	-----	-2.14
1832		-----	-----	-----	-----	-----	-----	-----	-----
1833	D1160	1.29	4.57	3.05	2.09	1.99	2.28	4.04	3.05

1849		-----	-----	-----	-----	-----	-----	-----	-----
1854		-----	-----	-----	-----	-----	-----	-----	-----
1902		-----	-----	-----	-----	-----	-----	-----	-----
1906		-----	-----	-----	-----	-----	-----	-----	-----
1938		-----	-----	-----	-----	-----	-----	-----	-----
1942		-----	-----	-----	-----	-----	-----	-----	-----
1948		-----	-----	-----	-----	-----	-----	-----	-----
2129	D1160	-0.01	2.85	2.59	2.74	2.67	2.55	0.71	-0.37
2160		-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX 3

List of number of participants per country

1	laboratory in AUSTRALIA
3	laboratories in BELGIUM
1	laboratory in BOSNIA and HERZEGOVINA
2	laboratories in CROATIA
2	laboratories in CZECH REPUBLIC
1	laboratory in DENMARK
2	laboratories in ESTONIA
1	laboratory in FRANCE
1	laboratory in GEORGIA
1	laboratory in GERMANY
9	laboratories in GREECE
1	laboratory in HONG KONG
2	laboratories in HUNGARY
1	laboratory in INDONESIA
1	laboratory in ISRAEL
1	laboratory in JORDAN
2	laboratories in LATVIA
3	laboratories in LEBANON
1	laboratory in POLAND
3	laboratories in PORTUGAL
2	laboratories in REPUBLIC OF MACEDONIA
1	laboratory in ROMANIA
4	laboratories in RUSSIA
1	laboratory in SINGAPORE
1	laboratory in SLOVAKIA
1	laboratory in SLOVENIA
2	laboratories in SPAIN
1	laboratory in SUDAN
1	laboratory in SULTANATE OF OMAN
1	laboratory in SWEDEN
2	laboratories in THAILAND
4	laboratories in THE NETHERLANDS
11	laboratories in TURKEY
2	laboratories in U.A.E.
12	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	= error in calculations
n.a.	= not applicable

Literature:

1 i.i.s. Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010
2 ASTM E178-02
3 ASTM E1301-03
4 ISO 5725-86
5 ISO 5725, parts 1-6, 1994
6 ISO 13528:05
7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
9 IP 367/84
10 DIN 38402 T41/42
11 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
12 J.N. Miller, Analyst, 118, 455, (1993)
13 Analytical Methods Committee Technical brief, No 4.January 2001
14 The Royal Society of Chemistry 2002, Analyst, 2002, 127, page 1359-1364, P.J. Lowthian and M. Thompson. (see http://www.rsc.org/suppdata/an/b2/b205600n/)