Results of Proficiency Test
Crude Oil
November 2011

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1998, the Institute for Interlaboratory Studies organizes a proficiency test for Crude Oil every year. During the annual proficiency testing program 2011/2012, it was decided to continue the round robin for the analysis of Crude Oil. In this interlaboratory study 167 laboratories from 52 different countries have participated. See appendix 2 for the number of participants per country.
In this report, the results of the Crude Oil proficiency test are presented and discussed.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, The Netherlands, was the organiser of this proficiency test. It was decided to send one sample of approx. 1 litre of Crude Oil in a one liter wide-necked bottle to enable use of a large size Ultra Turrax for homogenisation. Analyses for fit-for-use and homogeneity testing were subcontracted to an ISO17025 accredited laboratory. 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 accordance with ISO guide 43 and ILAC-G13-2007, (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies - Protocol for the Organisation, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2).

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

The necessary bulk material was obtained from a local refinery. The approx. 200 litre of Crude Oil was homogenised in a metal drum. After homogenisation, the material was

transferred to 199 subsamples of 1 L wide-neck transparent colourless glass bottles and labelled #11096.
The homogeneity of the subsamples was checked by determination of Density in accordance ASTM D5002:05 and Water in accordance with ASTM D4377:06 on 10 stratified randomly selected samples.

	Density @ 15 °C in kg/L	Water in %M/M
Sample #11096-1	0.91516	0.42
Sample #11096-2	0.91426	0.42
Sample #11096-3	0.91494	0.43
Sample #11096-4	0.91492	0.41
Sample #11096-5	0.91493	0.41
Sample #11096-6	0.91493	0.43
Sample #11096-7	0.91491	0.43
Sample #11096-8	0.91494	0.42
Sample #11096-9	0.91494	0.43
Sample #11096-10	0.91495	0.41

Table 1: Homogeneity test results of subsamples #11096

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

	Density @ 15 °C in kg/L	Water in %M/M
observed repeatability	0.00021	0.025
reference method	ASTM D5002:05	ASTM D4377:06
0.3*R(reference method)	0.00113	0.025

Table 2: Repeatabilities on subsamples #11096

The calculated repeatabilities were less than 0.3 times the respective reproducibilities of the reference methods. Therefore, homogeneity of the subsamples #11096 was assumed.

To each of the participating laboratories one bottle of 1 L (labelled #11096) was sent on October 19, 2011. Because of the fact that it was not possible to get brown coloured wide-neck glass bottles, the (clear glass) bottles were packed in red plastics bags. In the letter of instructions, all participants were asked to shield the samples from light before analysis.

2.5 STABILITY OF THE SAMPLES

The stability of Crude Oil packed in the clear glass bottles with red plastic bag was checked. The material has been found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were requested to determine Total Acid Number, BSW, Density @ 15°C, API Gravity, Light ends (C1-C6), Pour Point (Upper and Lower), Salt as NaCl, Sediment (ASTM D4807 and D473), Total Sulphur, Total Mercury, Kinematic Viscosity @ 40°C and

Water. To get comparable results a detailed report form, on which the units and the standard methods were printed, was sent together with each sample. In addition, a letter of instructions and a SDS were added to the package.

3 RESULTS

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

Directly after deadline, a reminder fax was sent to those laboratories that 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 raw data of these tests (no reanalysis). Additional or corrected results are used for data analysis and 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 'i.i.s. 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 with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

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

3.2 GRAPHICS

In order to visualize 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 “x”. 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 3; nr.13 and 14)

3.3 Z-SCORES

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

The z-scores were calculated in accordance with:

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

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

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

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

4 EVALUATION

In this proficiency test, some serious sample dispatch problems were encountered during the execution. The samples to the participants in Azerbaijan, Côte D’Ivoire, Ecuador, Egypt, Gabon, Georgia, Israel, Jordan, Kazakhstan, Malaysia, Mexico, Nigeria, P.R. of China,

Russia, Sudan, Sultanate of Oman and Ukraine arrived near or after the deadline or did never reach the laboratories at all due to customs clearance and/or transportation problems. In total 132 laboratories submitted 845 numerical results. Observed were 43 statistically outlying results, which is 5.1% of the reported results. In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

Not all original data sets proved to have a normal distribution. For BSW, Density, API Gravity, Salt, Sediment ASTM D 473 (%V/V) and Water non-Gaussian distributions were found and therefore the statistical evaluation for these determinations should be used with care. In this section, the results are discussed per test.

Acid Number (Total): This determination was problematic for a number of laboratories. Eight statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D664:11a.

BSW: 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 D4007:06.

Density: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5002:10. Several participants used ASTM D4052 / IP365, although in the scope of these methods is mentioned that ASTM D5002 is to be used for crude oil (see e.g. §1.3 of ASTM D4052:09).

API Gravity: This determination was not problematic. Two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D287:06.

Light Ends: This determination was problematic. In total six statistical outliers were observed. Only the calculated reproducibility of C6 is after rejection of the statistical outlier, in agreement with the requirements of IP344:04. All other reproducibilites are not in agreement.

Pour Point, Upper (Max.): This determination was very problematic. Six test results were excluded from the calculations as the reported test method ASTM D97 is not suitable for Crude Oil (see the scope of this test method). Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier and the excluded test results is not at all in agreement with the requirements of ASTM D5853A:11. The fact that the Upper Pour Point was very low (<-36ºC) and rounding up to 3 degrees may (partly) explain for the large spread.

Pour Point, Lower (Min): Only three numerical results were reported. All other participants reported a value <-36ºC. Therefore no significant conclusions were drawn.

Salt as NaCl: This determination was very problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM D3230:10 and also not with the more strict requirements of ASTM D6470:10. In the new upcoming version of ASTM D3230, ASTM D6470 will be mentioned as referee method in case of dispute.

Sediment: ASTM D4807 The determination of sediment in accordance with ASTM D 4807:10 was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers does not meet the requirements of ASTM D4807:10. The large spread may be explained by differences in execution of the method: e.g. use of an unheated funnel, a wrong filter or not well rinsing of the filter after filtration.

Sediment: ASTM D473: The determination of sediment in accordance with ASTM D473:07 was not problematic. Only two statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outlier, is in good agreement with the requirements of ASTM D473:07.

Sulphur: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4294:10.

Mercury: The precision requirements of UOP938 (table B3) are extremely strict and as they are 6 – 7 times more strict than the Horwitz estimate, these requirements will not be met easily. Also, the reproducibility of UOP938 is only available for concentrations in µg/**L** and conversion to µg/**kg** will lead to extra uncertainty. Therefore, it was decided to use the Horwitz estimates for evaluation of the test results in this report. This determination appeared to be problematic. No statistical outliers were observed, but the results vary over a wide range (0.74 – 14.85 µg/kg). The calculated reproducibility is not at all in agreement with the strict estimated reproducibility, calculated using the Horwitz equation.

Kin.Visc.@40°C: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D445:11a.

Water: Serious analytical problems have been observed. Six statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM D4377:11. When the data of ASTM D4377, D4928 and D4006 were evaluated separately, none of the calculated reproducibilities were in agreement with the requirements of the respective test method. It is

strongly advised to adhere to the mixing procedure as described in ASTM D4378 and ASTM D4928.

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. The average results per sample, calculated reproducibilities and reproducibilities, derived from literature standards (in casu ASTM standards) are compared in the next table.

Parameter	unit	n	average	2.8 *sd_R	R (lit)
Total Acid Number	mg KOH/g	46	1.59	0.22	0.37
BSW	%V/V	45	0.26	0.34	0.28
Density @ 15°C	kg/m^3	115	915.1	1.5	3.8
API Gravity		61	23.1	0.3	0.5
C1 Light Ends	%M/M	7	0.001	0.002	n.a.
C2 Light Ends	%M/M	12	0.009	0.003	0.004
C3 Light Ends	%M/M	14	0.025	0.009	0.005
C4 Light Ends	%M/M	15	0.090	0.037	0.012
C5 Light Ends	%M/M	13	0.141	0.041	0.015
C6 Light Ends	%M/M	14	0.37	0.36	0.45
Total C1-C6 Light Ends	%M/M	15	0.68	0.55	0.45
Pour Point, Max.	°C	15	-40.4	30.3	18.0
Pour Point, Min.	°C	32	<-36	n.a.	n.a.
Salt as NaCl	mg/kg	63	196	238	146
Sediment (D4807)	%M/M	28	0.032	0.028	0.021
Sediment (D473)	%V/V	69	0.018	0.031	0.038
Total Sulphur	%M/M	94	0.524	0.053	0.048
Total Mercury	µg/kg	7	5.3	16.3	(5.3)
Kinematic Viscosity @ 40°C	mm^2/s	74	41.63	1.34	3.08
Water	%V/V	84	0.376	0.183	0.069

Table 3: Reproducibilities of the tests methods for sample #11096

Without further statistical calculations it can be concluded that for several tests there is a good compliance of the group of participating laboratories with the relevant standards. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF NOVEMBER 2011 WITH PREVIOUS PTS

	November 2011	*November 2010*	*November 2009*	*November 2008*
Number of reporting labs	132	121	103	80
Number of results reported	845	879	695	551
Statistical outliers	43	43	48	31
Percentage outliers	5.1%	4.9%	6.9%	5.6%

Table 4: Comparison with previous proficiency tests

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

Determination	*November 2011*	*November 2010*	*November 2009*	*November 2008*
Total Acid Number	++	++	++	n.e.
BSW	-	--	--	n.e.
Density @15°C	++	++	++	++
API Gravity	++	++	++	++
Light Ends (C1-C6)	+/-	--	++	--
Pour Point, Upper	--	++	n.e.	--
Pour Point, Lower	n.e.	+/-	n.e.	--
Salt as NaCl	--	++	++	+/-
Sediment (D4807)	-	--	--	-
Sediment (D473)	++	++	++	++
Sulphur	-	--	--	+
Mercury	(--)	(--)	(--)	(-)
Kinematic Viscosity @40ºC	++	--	--	++
Water	--	--	--	--

Table 5: Comparison determinations against the standard
Between brackets is a comparison against Horwitz

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

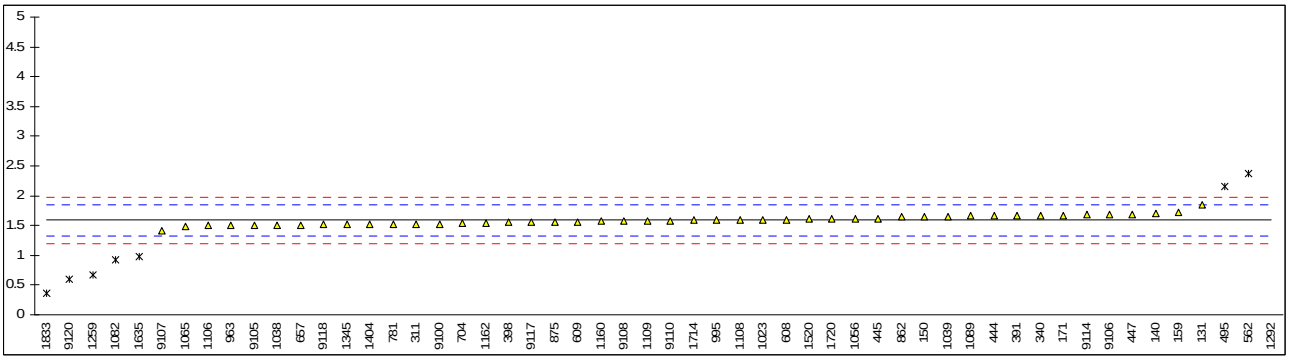
- ++: group performed much better than the standard
- + : group performed better than the standard
- +/-: group performance equals the standard
- - : group performed worse than the standard
- -- : group performed much worse than the standard
- n.e.: not evaluated

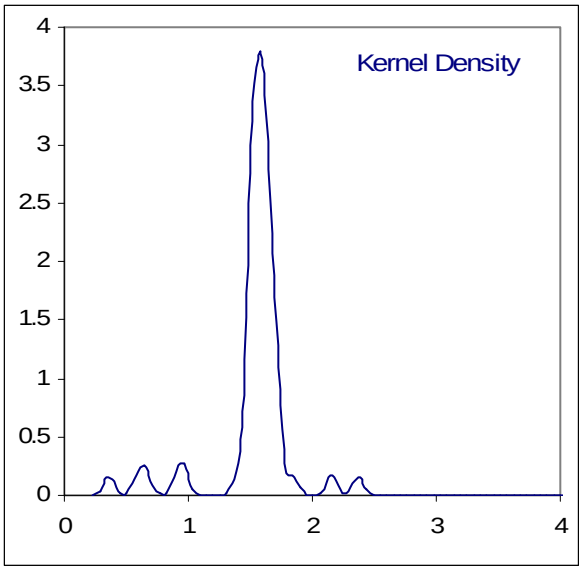
APPENDIX 1

Determination of Acid Number (total) on sample #11096; results in mg KOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081	D664	<0.05	False negative?	<-11.79
90		-----		-----	1082	D664	0.92	G(0.01)	-5.14
92		-----		-----	1089	D664	1.66		0.53
131	D664	1.84		1.91	1106	D664	1.495		-0.74
140	D664	1.697		0.81	1108	D664	1.60		0.07
150	D664	1.649		0.44	1109	D664	1.57		-0.16
154		-----		-----	1160	D664	1.57		-0.16
158		-----		-----	1162	D664	1.548		-0.33
159	D664	1.72		0.99	1225		-----		-----
171	D664	1.67		0.61	1236		-----		-----
180		-----		-----	1248		-----		-----
193		-----		-----	1259	D664	0.6665	G(0.01)	-7.09
195		-----		-----	1287		-----		-----
203		-----		-----	1292	ISO660	13.83	G(0.01)	93.80
225		-----		-----	1335		-----		-----
237		-----		-----	1337		-----		-----
238		-----		-----	1345	D664	1.520		-0.54
273		-----		-----	1357		-----		-----
311	D664	1.53		-0.47	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340	D664	1.67		0.61	1387		-----		-----
375		-----		-----	1403		-----		-----
391	D664	1.664		0.56	1404	D664	1.52		-0.54
398	D664	1.552		-0.30	1412		-----		-----
399		-----		-----	1419		-----		-----
402		-----		-----	1460		-----		-----
441		-----		-----	1510		-----		-----
442		-----		-----	1520	D664	1.61		0.15
444	D664	1.664		0.56	1613		-----		-----
445	D664	1.616		0.19	1616		-----		-----
446		-----		-----	1635	D974	0.974	G(0.01)	-4.73
447	D664	1.692		0.77	1658		-----		-----
463		-----		-----	1714	INH-2384	1.593		0.02
485		-----		-----	1720	D664	1.61		0.15
495	D664	2.159	G(0.05)	4.35	1728		-----		-----
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541	D664	<0.1	False negative?	<-11.41	1811		-----		-----
562	D974	2.369	C,G(0.05)	5.96	1815		-----		-----
593		-----		-----	1833	D664	0.36	G(0.01)	-9.43
602		-----		-----	1842		-----		-----
608	D664	1.603		0.09	1921		-----		-----
609	D664	1.560		-0.24	1922		-----		-----
613		-----		-----	1928		-----		-----
657	D664	1.51		-0.62	1929		-----		-----
663		-----		-----	1930		-----		-----
704	D664	1.536		-0.42	9100	D664	1.530		-0.47
705		-----		-----	9101		-----		-----
732		-----		-----	9102		-----		-----
739		-----		-----	9103		-----		-----
742		-----		-----	9104		-----		-----
750		-----		-----	9105	D664	1.50		-0.70
751		-----		-----	9106	D664	1.68		0.68
752		-----		-----	9107	D664	1.41		-1.39
781	D664	1.53		-0.47	9108	D664	1.57		-0.16
784		-----		-----	9109		-----		-----
862	D664	1.64		0.38	9110	D664	1.58		-0.08
873		-----		-----	9111		-----		-----
874		-----		-----	9112		-----		-----
875	D664	1.56		-0.24	9113		-----		-----
904		-----		-----	9114	D664	1.68		0.68
962		-----		-----	9115		-----		-----
963	D664	1.50		-0.70	9116		-----		-----
974		-----		-----	9117	D664	1.56		-0.24
994		-----		-----	9118	D664	1.517		-0.57
995	D664	1.5973		0.05	9119		-----		-----
996		-----		-----	9120	CTI2602	0.60	G(0.05)	-7.60
1023	D664	1.6		0.07	9141		-----		-----
1038	D664	1.51		-0.62					
1039	D664	1.65		0.45					
1056	D664	1.610	Fr 0.141	0.15					
1065	D664	1.491		-0.77					

normality	OK
n	46
outliers	8
mean (n)	1.591
st.dev. (n)	0.0781
R(calc.)	0.219
R(D664:11a)	0.366





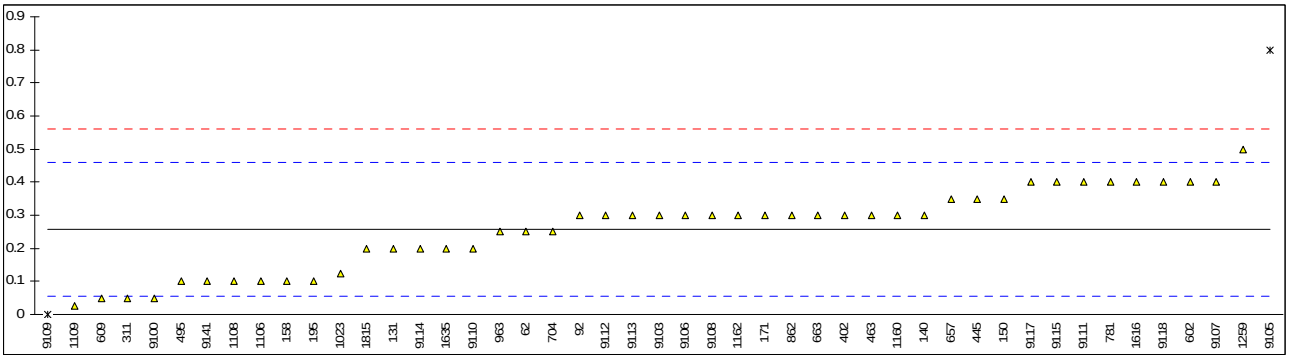
Determination of BSW on sample #11096; results in %V/V

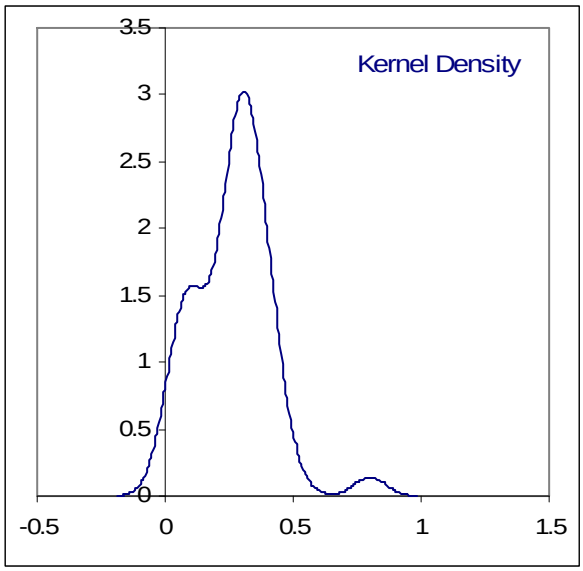
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4007	0.25		-0.08	1081		-----		-----
90		-----		-----	1082		-----		-----
92	D4007	0.30		0.42	1089		-----		-----
131	D4007	0.20		-0.57	1106	D4007	0.10		-1.56
140	D4007	0.30		0.42	1108	D4007	0.10		-1.56
150	D4007	0.350		0.91	1109	D1796	0.025		-2.30
154		-----		-----	1160	D4007	0.30		0.42
158	D4007	0.10		-1.56	1162	D4007	0.30		0.42
159		-----		-----	1225		-----		-----
171	D4007	0.30		0.42	1236		-----		-----
180		-----		-----	1248		-----		-----
193		-----		-----	1259	ISO9030	0.50		2.39
195	D4007	0.10		-1.56	1287		-----		-----
203		-----		-----	1292		-----		-----
225		-----		-----	1335		-----		-----
237		-----		-----	1337		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357		-----		-----
311	D4007	0.05		-2.05	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387		-----		-----
375		-----		-----	1403		-----		-----
391		-----		-----	1404		-----		-----
398		-----		-----	1412		-----		-----
399		-----		-----	1419		-----		-----
402	D4007	0.3		0.42	1460		-----		-----
441		-----		-----	1510		-----		-----
442		-----		-----	1520		-----		-----
444		-----		-----	1613		-----		-----
445	D4007	0.35		0.91	1616	D4007	0.40		1.40
446		-----		-----	1635	D4007	0.20		-0.57
447		-----		-----	1658		-----		-----
463	D4007	0.30		0.42	1714		-----		-----
485		-----		-----	1720		-----		-----
495	D4007	0.10		-1.56	1728		-----		-----
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541		-----		-----	1811		-----		-----
562		-----		-----	1815	in house	0.20		-0.57
593		-----		-----	1833		-----		-----
602	D4007	0.40		1.40	1842		-----		-----
608		-----		-----	1921		-----		-----
609	D4007	0.05		-2.05	1922		-----		-----
613		-----		-----	1928		-----		-----
657	D4007	0.35		0.91	1929		-----		-----
663	D4007	0.30		0.42	1930		-----		-----
704	D4007	0.25		-0.08	9100	D4007	0.050		-2.05
705		-----		-----	9101		-----		-----
732		-----		-----	9102		-----		-----
739		-----		-----	9103	D4007	0.30		0.42
742		-----		-----	9104		-----		-----
750		-----		-----	9105	D4007	0.80	G(0.01)	5.35
751		-----		-----	9106	D4007	0.30		0.42
752		-----		-----	9107	D4007	0.40		1.40
781	D4007	0.40		1.40	9108	D4007	0.30		0.42
784		-----		-----	9109	D4007	0.00	ex	-2.54
862	D4007	0.300		0.42	9110	D4007	0.20		-0.57
873		-----		-----	9111	D4007	0.40		1.40
874		-----		-----	9112	D4007	0.30		0.42
875		-----		-----	9113	D4007	0.30		0.42
904		-----		-----	9114	D4007	0.20		-0.57
962		-----		-----	9115	D4007	0.40		1.40
963	D4007	0.25		-0.08	9116		-----		-----
974		-----		-----	9117	D4007	0.40		1.40
994		-----		-----	9118	D4007	0.40		1.40
995		-----		-----	9119		-----		-----
996		-----		-----	9120		-----		-----
1023	D4007	0.125		-1.31	9141	D4007	0.10		-1.56
1038		-----		-----					
1039		-----		-----					
1056		-----		-----					
1065		-----		-----					

Only D4007:

normality	not OK	not OK
n	45	42
outliers	1	5
mean (n)	0.258	0.259
st.dev. (n)	0.1205	0.1129
R(calc.)	0.337	0.316
R(D4007:06)	0.284	0.284

ex = result excluded, zero not a real result

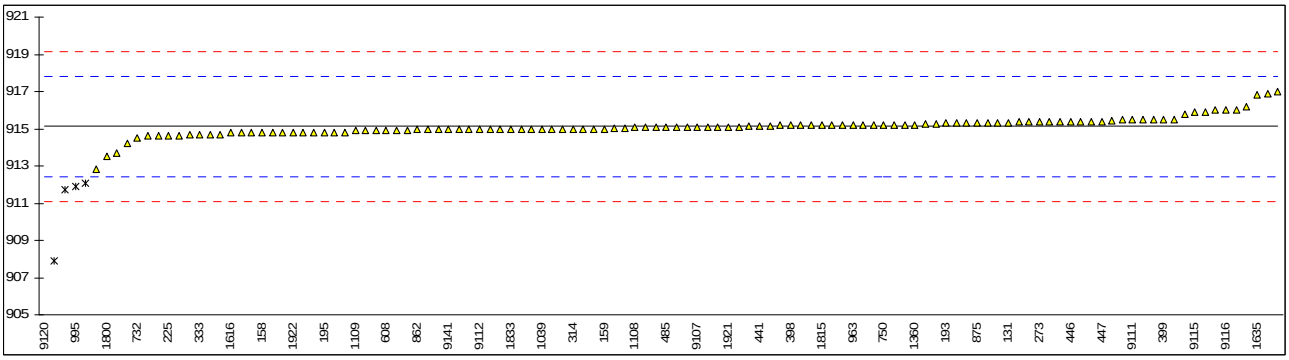


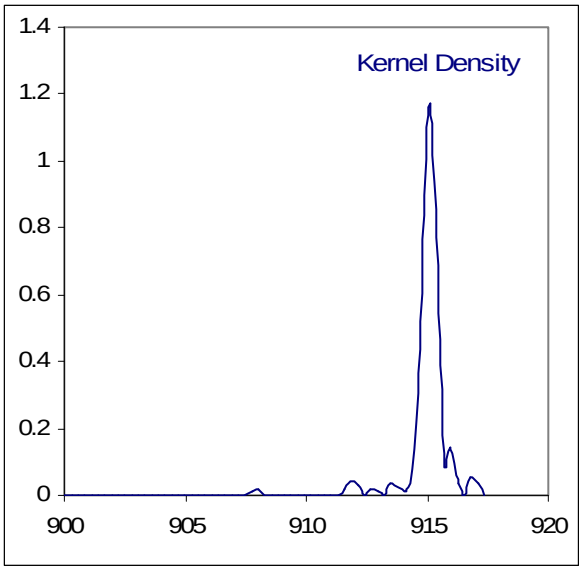


Determination of Density @ 15°C on sample #11096; results in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5002	915.5		0.28	1081	D5002	915.8		0.50
90	D5002	914.9		-0.17	1082	D5002	915.4		0.20
92	D5002	912.8	Fr 0.9128	-1.73	1089	D5002	915.9	Fr 0.9159	0.58
131	D5002	915.3		0.13	1106	D5002	915.0		-0.09
140		-----		-----	1108	D5002	915.06		-0.05
150		-----		-----	1109	D5002	914.9	Fr 0.9149	-0.17
154		-----		-----	1160	D5002	914.8	Fr 0.9148	-0.24
158	D5002	914.8		-0.24	1162		-----		-----
159	D4052	915.0	Fr 0.915	-0.09	1225		-----		-----
171	D5002	916.0	Fr 0.916	0.65	1236	D5002	915.30		0.13
180		-----		-----	1248	D5002Mod.	915.0	Fr 0.9150	-0.09
193	D5002	915.3		0.13	1259	ISO3675	913.7		-1.06
195	D5002	914.8	Fr 0.9148	-0.24	1287		-----		-----
203	D1298	907.9	G(0.01)	-5.37	1292		-----		-----
225	D5002	914.6	Fr 0.9146	-0.39	1335	D5002	915.26		0.10
237		-----		-----	1337		-----		-----
238	D1298	915.5		0.28	1345	D5002	915.0		-0.09
273	D5002	915.4		0.20	1357		-----		-----
311	D5002	914.8		-0.24	1360	D5002	915.2		0.06
314	D5002	915.00		-0.09	1362		-----		-----
333	D5002	914.7		-0.32	1363		-----		-----
334	D5002	915.05		-0.06	1364		-----		-----
335	D5002	914.6		-0.39	1365		-----		-----
340	D5002	915.0		-0.09	1387	D5002(20°C)	911.7	G(0.01)	-2.54
375	D1298	914.7	Fr 0.9147	-0.32	1403		-----		-----
391	D5002	914.9		-0.17	1404	D5002	914.9		-0.17
398	D5002	915.2		0.06	1412	D5002	915.5	Fr 0.9155	0.28
399	D5002	915.5		0.28	1419	EN12185	915.18		0.04
402	D5002	915.2		0.06	1460		-----		-----
441	D4052	915.15		0.02	1510	IP365	915.5		0.28
442		-----		-----	1520	D4052	915.01		-0.09
444	D4052	915.27		0.11	1613	D5002	915.1	Fr 9151	-0.02
445	D5002	915.4		0.20	1616	D5002	914.8		-0.24
446	D5002	915.4		0.20	1635	D1298	916.8		1.24
447	D5002	915.4		0.20	1658		-----		-----
463	D5002	915.20		0.06	1714	D5002	915.17	Fr 0.91517	0.03
485	D5002	915.1		-0.02	1720	D5002	914.6		-0.39
495	D5002	914.6		-0.39	1728	D5002	914.825		-0.22
527		-----		-----	1800	D4052	913.5		-1.21
529		-----		-----	1810	D5002	915.3		0.13
541	D5002	915.1		-0.02	1811	D5002	914.8		-0.24
562	D5002	914.2		-0.69	1815	ISO91	915.2		0.06
593	D5002	916.9		1.32	1833	D5002	915	Fr 0.915	-0.09
602		-----		-----	1842	D4052	915.0	Fr 0.915.0	-0.09
608	D5002	914.9		-0.17	1921	D5002	915.1		-0.02
609	D5002	917.0	Fr 0.917	1.39	1922	D5002	914.8		-0.24
613	D4052	915.12	Fr 0.91512	0.00	1928	D5002	915.1		-0.02
657	D5002	914.7		-0.32	1929	D5002	915.2		0.06
663	D5002	915.2	Fr 0.9152	0.06	1930	ISO2185	914.94	Fr 0.91494	-0.14
704	D5002	915.45		0.24	9100	D5002	914.8		-0.24
705	D1298	915.2		0.06	9101	In house	915.4		0.20
732	D5002	914.5		-0.46	9102		-----		-----
739		-----		-----	9103	ISO2185	915.2		0.06
742	D5002	915.2		0.06	9104	IP365	914.8		-0.24
750	D5002	915.2		0.06	9105	D5002	916.0		0.65
751	D1298	914.8	Fr 0.9148	-0.24	9106	D5002	915.0		-0.09
752	D5002	915.0		-0.09	9107	D5002	915.1		-0.02
781	D5002	915.2		0.06	9108	D5002	914.8		-0.24
784	D5002	915.4		0.20	9109	D5002	915.0		-0.09
862	D5002	914.96		-0.12	9110	D5002	915.4		0.20
873	D5002	915.1		-0.02	9111	D5002	915.5		0.28
874	D5002	915.1		-0.02	9112	D5002	915.0		-0.09
875	D5002	915.3		0.13	9113	D5002	915.38		0.19
904	D5002	912.1	G(0.01)	-2.25	9114	D5002	915.3		0.13
962	D5002	915.0		-0.09	9115	GOST51069	915.9		0.58
963	D5002	915.2		0.06	9116	GOST51069	916.0		0.65
974		-----		-----	9117	D5002	916.2		0.80
994	D5002	914.7	0.9147	-0.32	9118	D5002	915.0		-0.09
995	D5002	911.9	G(0.01)	-2.40	9119	D5002	915.1		-0.02
996		-----		-----	9120	CTI506	847.6	G(0.01)	-50.15
1023	D5002	915.0		-0.09	9141	ISO2185	915.0		-0.09
1038	D5002	915.0		-0.09					
1039	D5002	915.0		-0.09					
1056	D5002	915.3	Fr 0.9153	0.13					
1065	D5002	915.1	Fr 0.9151	-0.02					

normality	not OK
n	115
outliers	5
mean (n)	915.13
st.dev. (n)	0.526
R(calc.)	1.47
R(D5002:10)	3.77

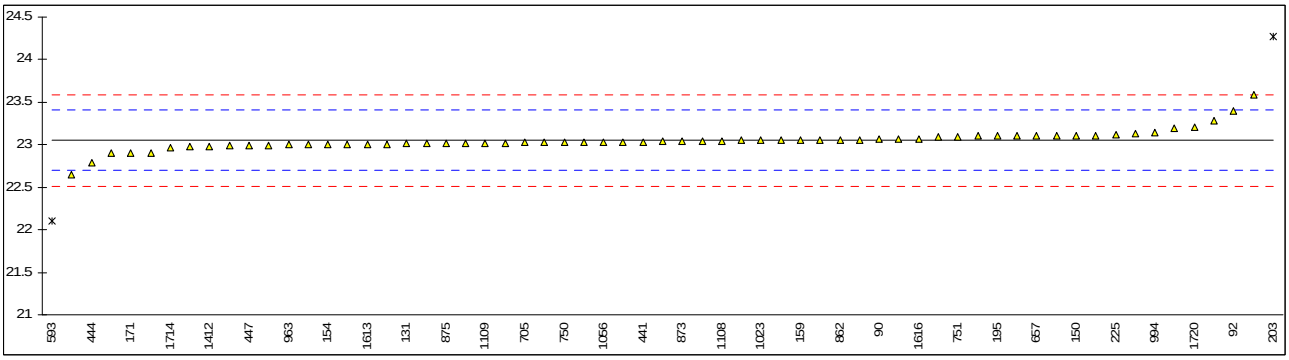


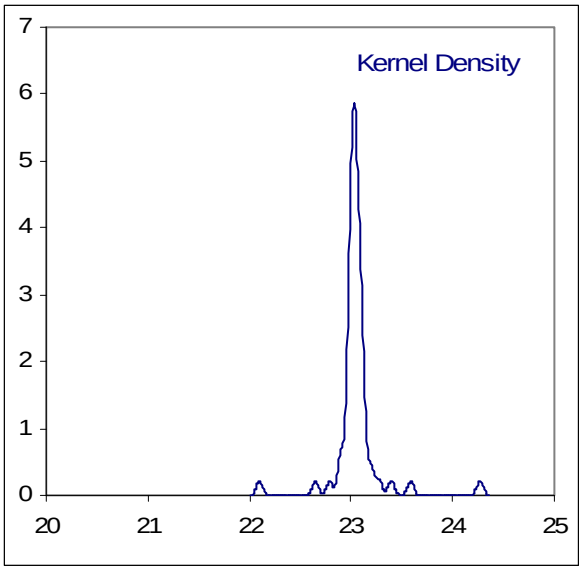


Determination of API Gravity on sample #11096;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081		-----		-----
90	D287	23.07		0.11	1082	in house	22.99		-0.34
92	D1298	23.4		1.96	1089	D287	22.9		-0.84
131	D5002	23.01		-0.23	1106		-----		-----
140	D287	22.9		-0.84	1108	calc	23.04		-0.06
150	D287	23.1		0.28	1109	D287	23.02		-0.17
154	D287	23.0		-0.28	1160		-----		-----
158	D287	23.1		0.28	1162		-----		-----
159	D4052	23.06		0.05	1225		-----		-----
171	D287	22.9		-0.84	1236	D287	23.033		-0.10
180	D287	23.1		0.28	1248	calc	23.06		0.05
193		-----		-----	1259	D287	23.28		1.29
195	D287	23.1		0.28	1287		-----		-----
203	calc.	24.27	G(0.01)	6.83	1292		-----		-----
225	D5002	23.12		0.39	1335		-----		-----
237		-----		-----	1337		-----		-----
238		-----		-----	1345		-----		-----
273	D287	23.0		-0.28	1357		-----		-----
311		-----		-----	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387	D287	23.04		-0.06
375		-----		-----	1403		-----		-----
391	D287	23.07		0.11	1404		-----		-----
398		-----		-----	1412	D1250	22.98		-0.39
399	D287	23.06		0.05	1419		-----		-----
402		-----		-----	1460		-----		-----
441	D1298	23.035		-0.09	1510		-----		-----
442		-----		-----	1520	D4052	23.058		0.04
444	D4052	22.79		-1.46	1613	D287	23.00		-0.28
445		-----		-----	1616	D1298	23.07		0.11
446		-----		-----	1635		-----		-----
447	D287	22.99		-0.34	1658		-----		-----
463	D287	23.02		-0.17	1714	D5002	22.96		-0.51
485		-----		-----	1720	D287	23.21		0.89
495	D287	23.13		0.45	1728	D287	23.0899		0.22
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541	D5002	23.0		-0.28	1811		-----		-----
562	D287	23.2		0.84	1815		-----		-----
593	D1298	22.1	G(0.01)	-5.32	1833	D287	23.1		0.28
602		-----		-----	1842		-----		-----
608		-----		-----	1921		-----		-----
609	D5002	22.65		-2.24	1922		-----		-----
613		-----		-----	1928		-----		-----
657	D5002	23.1		0.28	1929		-----		-----
663		-----		-----	1930	D287	23.02		-0.17
704	D1250	22.975		-0.42	9100		-----		-----
705	D1250	23.027		-0.13	9101		-----		-----
732	Table	23.10		0.28	9102		-----		-----
739		-----		-----	9103		-----		-----
742	D287	23.03		-0.11	9104		-----		-----
750	D287	23.03		-0.11	9105		-----		-----
751	calc	23.09		0.22	9106		-----		-----
752	D1250	23.06		0.05	9107		-----		-----
781	D1250	23.03		-0.11	9108		-----		-----
784	D287	22.99		-0.34	9109		-----		-----
862	D287	23.06		0.05	9110		-----		-----
873	Converted	23.04		-0.06	9111		-----		-----
874	Converted	23.04		-0.06	9112		-----		-----
875	D287	23.01		-0.23	9113		-----		-----
904		-----		-----	9114		-----		-----
962	D287	23.01		-0.23	9115		-----		-----
963	D287	23.0		-0.28	9116		-----		-----
974		-----		-----	9117		-----		-----
994	D1250	23.14		0.50	9118		-----		-----
995	D1250	23.59		3.02	9119		-----		-----
996		-----		-----	9120		-----		-----
1023	D287	23.06		0.05	9141		-----		-----
1038		-----		-----					
1039		-----		-----					
1056	calc	23.03		-0.11					
1065	D287	23.0		-0.28					

normality	not OK
n	61
outliers	2
mean (n)	23.050
st.dev. (n)	0.1230
R(calc.)	0.344
R(D287:06)	0.500





Determination of individual Light ends [C1-C3] on sample #11096; results in%M/M

lab	method	C1	mark	z(targ)	C2	mark	z(targ)	C3	mark	z(targ)
62		-----		-----	-----		-----	-----		-----
90		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
131		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	IP344	<0.01		-----	0.01		0.65	0.04	G(0.01)	8.48
154		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
171	IP344	<0.01		-----	<0.01		<0.65	0.0229		-0.87
180		-----		-----	-----		-----	-----		-----
193		-----		-----	-----		-----	-----		-----
195		-----		-----	-----		-----	-----		-----
203		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311	INH-267	<0.01		-----	<0.01		<0.65	0.02		-2.46
314		-----		-----	-----		-----	-----		-----
333		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
340		-----		-----	-----		-----	-----		-----
375		-----		-----	-----		-----	-----		-----
391		-----		-----	-----		-----	-----		-----
398		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
402		-----		-----	-----		-----	-----		-----
441		-----		-----	-----		-----	-----		-----
442		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	IP344Mod.	<0.01		-----	<0.01		<0.65	0.02		-2.46
446		-----		-----	-----		-----	-----		-----
447		-----		-----	-----		-----	-----		-----
463		-----		-----	-----		-----	-----		-----
485		-----		-----	-----		-----	-----		-----
495	IP344	<0.01		-----	0.01		0.65	0.03		3.01
527		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
562		-----		-----	-----		-----	-----		-----
593		-----		-----	-----		-----	-----		-----
602		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
609	IP344	0.0015		-----	0.0091		-0.06	0.0267		1.21
613		-----		-----	-----		-----	-----		-----
657		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
704		-----		-----	-----		-----	-----		-----
705		-----		-----	-----		-----	-----		-----
732		-----		-----	-----		-----	-----		-----
739		-----		-----	-----		-----	-----		-----
742		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
751		-----		-----	-----		-----	-----		-----
752		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
784		-----		-----	-----		-----	-----		-----
862	IP344	<0.01		-----	0.008		-0.92	0.023		-0.82
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
904		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
996		-----		-----	-----		-----	-----		-----
1023	D5134	0.001		-----	0.01		0.65	0.03		3.01
1038		-----		-----	-----		-----	-----		-----
1039		-----		-----	0.009		-0.14	0.025		0.28
1056		-----		-----	-----		-----	-----		-----
1065	IP344	0.001117		-----	0.008371		-0.63	0.02699		1.37
1081		-----		-----	-----		-----	-----		-----

1082	D5134M	0.0014	-----	0.0076	-1.23	0.0243		-0.11
1089	D5134	0.002	-----	0.009	-0.14	0.025		0.28
1106		-----	-----	-----	-----	-----		-----
1108		-----	-----	-----	-----	-----		-----
1109		-----	-----	-----	-----	-----		-----
1160	IP344Mod.	<0.01	-----	0.01	0.65	0.02		-2.46
1162		-----	-----	-----	-----	-----		-----
1225		-----	-----	-----	-----	-----		-----
1236	D5134	0.001	-----	0.008	-0.92	0.023		-0.82
1248	in house	0.000	-----	0.011	1.43	0.026		0.82
1259		-----	-----	-----	-----	-----		-----
1287		-----	-----	-----	-----	-----		-----
1292		-----	-----	-----	-----	-----		-----
1335		-----	-----	-----	-----	-----		-----
1337		-----	-----	-----	-----	-----		-----
1345		-----	-----	-----	-----	-----		-----
1357		-----	-----	-----	-----	-----		-----
1360		-----	-----	-----	-----	-----		-----
1362		-----	-----	-----	-----	-----		-----
1363		-----	-----	-----	-----	-----		-----
1364		-----	-----	-----	-----	-----		-----
1365		-----	-----	-----	-----	-----		-----
1387		-----	-----	-----	-----	-----		-----
1403		-----	-----	-----	-----	-----		-----
1404		-----	-----	-----	-----	-----		-----
1412		-----	-----	-----	-----	-----		-----
1419		-----	-----	-----	-----	-----		-----
1460		-----	-----	-----	-----	-----		-----
1510		-----	-----	-----	-----	-----		-----
1520		-----	-----	-----	-----	-----		-----
1613		-----	-----	-----	-----	-----		-----
1616	D5134	<0.05	-----	<0.05	-----	<0.05		-----
1635		-----	-----	-----	-----	-----		-----
1658		-----	-----	-----	-----	-----		-----
1714	in house	<0.01	-----	<0.01	<0.65	<0.01	False -	<-7.96
1720		-----	-----	-----	-----	-----		-----
1728		-----	-----	-----	-----	-----		-----
1800		-----	-----	-----	-----	-----		-----
1810		-----	-----	-----	-----	-----		-----
1811		-----	-----	-----	-----	-----		-----
1815		-----	-----	-----	-----	-----		-----
1833		-----	-----	-----	-----	-----		-----
1842		-----	-----	-----	-----	-----		-----
1921		-----	-----	-----	-----	-----		-----
1922		-----	-----	-----	-----	-----		-----
1928		-----	-----	-----	-----	-----		-----
1929		-----	-----	-----	-----	-----		-----
1930		-----	-----	-----	-----	-----		-----
9100		-----	-----	-----	-----	-----		-----
9101		-----	-----	-----	-----	-----		-----
9102		-----	-----	-----	-----	-----		-----
9103		-----	-----	-----	-----	-----		-----
9104		-----	-----	-----	-----	-----		-----
9105		-----	-----	-----	-----	-----		-----
9106		-----	-----	-----	-----	-----		-----
9107		-----	-----	-----	-----	-----		-----
9108		-----	-----	-----	-----	-----		-----
9109		-----	-----	-----	-----	-----		-----
9110		-----	-----	-----	-----	-----		-----
9111		-----	-----	-----	-----	-----		-----
9112		-----	-----	-----	-----	-----		-----
9113		-----	-----	-----	-----	-----		-----
9114		-----	-----	-----	-----	-----		-----
9115		-----	-----	-----	-----	-----		-----
9116		-----	-----	-----	-----	-----		-----
9117		-----	-----	-----	-----	-----		-----
9118		-----	-----	-----	-----	-----		-----
9119		-----	-----	-----	-----	-----		-----
9120		-----	-----	-----	-----	-----		-----
9141		-----	-----	-----	-----	-----		-----
	normality	OK		OK		OK		
	n	7		12		14		
	outliers	0		0		1		
	mean (n)	0.0012		0.0092		0.0245		
	st.dev. (n)	0.00062		0.00105		0.00331		
	R(calc.)	0.0017		0.0029		0.0093		
	R(IP344:04)	n.a.		0.0036		0.0051		

Determination of individual Light ends [C4-C6] on sample #11096; results in%M/M

lab	method	C4	mark	z(targ)	C5	mark	z(targ)	C6	mark	z(targ)
62		-----		-----	-----		-----	-----		-----
90		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
131		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	IP344	0.14	G(0.05)	11.95	0.25	G(0.01)	21.10	0.55		1.13
154		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
171	IP344	0.1184		6.84	0.3161	G(0.01)	33.87	0.4710		0.64
180		-----		-----	-----		-----	-----		-----
193		-----		-----	-----		-----	-----		-----
195		-----		-----	-----		-----	-----		-----
203		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311	INH-267	0.09	Fr 0.04	0.11	0.16		3.72	0.46		0.57
314		-----		-----	-----		-----	-----		-----
333		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
340		-----		-----	-----		-----	-----		-----
375		-----		-----	-----		-----	-----		-----
391		-----		-----	-----		-----	-----		-----
398		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
402		-----		-----	-----		-----	-----		-----
441		-----		-----	-----		-----	-----		-----
442		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	IP344Mod.	0.07		-4.63	0.13	Fr 0.31	-2.08	0.52		0.94
446		-----		-----	-----		-----	-----		-----
447		-----		-----	-----		-----	-----		-----
463		-----		-----	-----		-----	-----		-----
485		-----		-----	-----		-----	-----		-----
495	IP344	0.09		0.11	0.14		-0.14	0.40		0.20
527		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
562		-----		-----	-----		-----	-----		-----
593		-----		-----	-----		-----	-----		-----
602		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
609	IP344	0.0996		2.38	0.1340		-1.30	0.2750		-0.58
613		-----		-----	-----		-----	-----		-----
657		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
704		-----		-----	-----		-----	-----		-----
705		-----		-----	-----		-----	-----		-----
732		-----		-----	-----		-----	-----		-----
739		-----		-----	-----		-----	-----		-----
742		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
751		-----		-----	-----		-----	-----		-----
752		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
784		-----		-----	-----		-----	-----		-----
862	IP344	0.084		-1.31	0.153		2.37	0.399		0.19
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
904		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
996		-----		-----	-----		-----	-----		-----
1023	D5134	0.09		0.11	0.13		-2.08	0.18		-1.17
1038		-----		-----	-----		-----	-----		-----
1039		0.084		-1.31	0.118		-4.39	0.376		0.05
1056		-----		-----	-----		-----	-----		-----
1065	IP344	0.110		4.85	0.613	G(0.01)	91.21	-----		-----
1081		-----		-----	-----		-----	-----		-----

1082	D5134M	0.0941		1.08	0.1407		-0.01	0.8460	G(0.05)	2.97
1089	D5134	0.090		0.11	0.151		1.98	0.414		0.28
1106		-----		-----	-----		-----	-----		-----
1108		-----		-----	-----		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1160	IP344Mod.	0.08		-2.26	0.17		5.65	0.46		0.57
1162		-----		-----	-----		-----	-----		-----
1225		-----		-----	-----		-----	-----		-----
1236	D5134	0.085		-1.08	0.127		-2.66	0.181		-1.17
1248	in house	0.091		0.35	0.131		-1.88	0.318		-0.32
1259		-----		-----	-----		-----	-----		-----
1287		-----		-----	-----		-----	-----		-----
1292		-----		-----	-----		-----	-----		-----
1335		-----		-----	-----		-----	-----		-----
1337		-----		-----	-----		-----	-----		-----
1345		-----		-----	-----		-----	-----		-----
1357		-----		-----	-----		-----	-----		-----
1360		-----		-----	-----		-----	-----		-----
1362		-----		-----	-----		-----	-----		-----
1363		-----		-----	-----		-----	-----		-----
1364		-----		-----	-----		-----	-----		-----
1365		-----		-----	-----		-----	-----		-----
1387		-----		-----	-----		-----	-----		-----
1403		-----		-----	-----		-----	-----		-----
1404		-----		-----	-----		-----	-----		-----
1412		-----		-----	-----		-----	-----		-----
1419		-----		-----	-----		-----	-----		-----
1460		-----		-----	-----		-----	-----		-----
1510		-----		-----	-----		-----	-----		-----
1520		-----		-----	-----		-----	-----		-----
1613		-----		-----	-----		-----	-----		-----
1616	D5134	0.067		-5.34	0.145		0.82	0.157		-1.32
1635		-----		-----	-----		-----	-----		-----
1658		-----		-----	-----		-----	-----		-----
1714	in house	<0.01	False -	<-18.86	<0.01	False -	<-25.24	<0.01	False -	<-2.23
1720		-----		-----	-----		-----	-----		-----
1728		-----		-----	-----		-----	-----		-----
1800		-----		-----	-----		-----	-----		-----
1810		-----		-----	-----		-----	-----		-----
1811		-----		-----	-----		-----	-----		-----
1815		-----		-----	-----		-----	-----		-----
1833		-----		-----	-----		-----	-----		-----
1842		-----		-----	-----		-----	-----		-----
1921		-----		-----	-----		-----	-----		-----
1922		-----		-----	-----		-----	-----		-----
1928		-----		-----	-----		-----	-----		-----
1929		-----		-----	-----		-----	-----		-----
1930		-----		-----	-----		-----	-----		-----
9100		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9102		-----		-----	-----		-----	-----		-----
9103		-----		-----	-----		-----	-----		-----
9104		-----		-----	-----		-----	-----		-----
9105		-----		-----	-----		-----	-----		-----
9106		-----		-----	-----		-----	-----		-----
9107		-----		-----	-----		-----	-----		-----
9108		-----		-----	-----		-----	-----		-----
9109		-----		-----	-----		-----	-----		-----
9110		-----		-----	-----		-----	-----		-----
9111		-----		-----	-----		-----	-----		-----
9112		-----		-----	-----		-----	-----		-----
9113		-----		-----	-----		-----	-----		-----
9114		-----		-----	-----		-----	-----		-----
9115		-----		-----	-----		-----	-----		-----
9116		-----		-----	-----		-----	-----		-----
9117		-----		-----	-----		-----	-----		-----
9118		-----		-----	-----		-----	-----		-----
9119		-----		-----	-----		-----	-----		-----
9120		-----		-----	-----		-----	-----		-----
9141		-----		-----	-----		-----	-----		-----
	normality	OK			OK			OK		
	n	15			13			14		
	outliers	1			3			1		
	mean (n)	0.0895			0.1407			0.3686		
	st.dev. (n)	0.01320			0.01466			0.12828		
	R(calc.)	0.0370			0.0410			0.3592		
	R(IP344:04)	0.0118			0.0145			0.4500		

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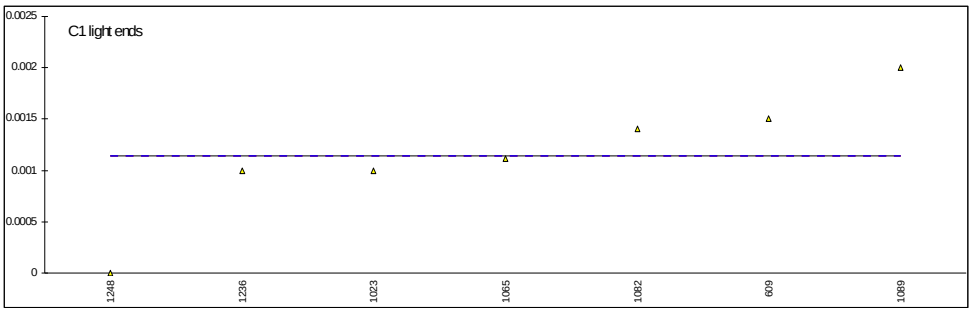
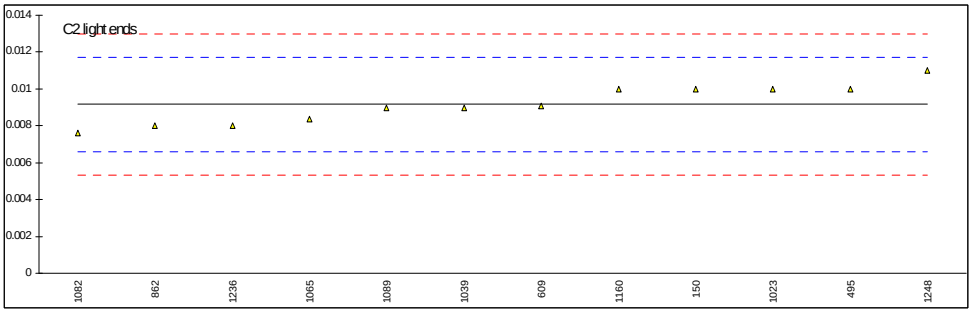
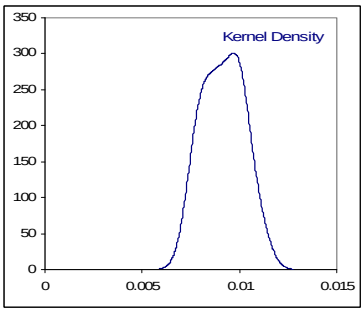
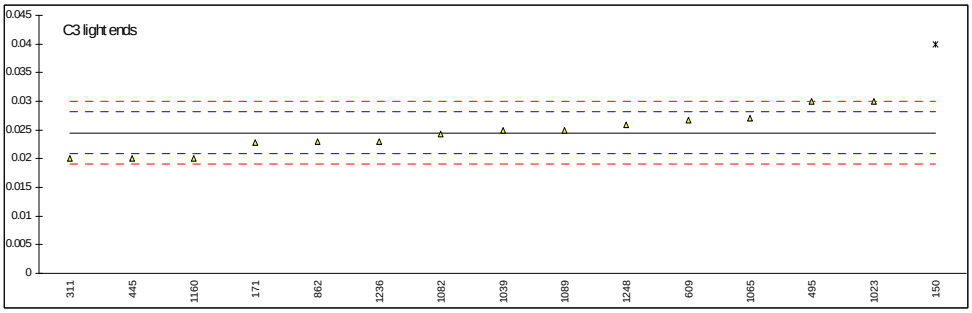
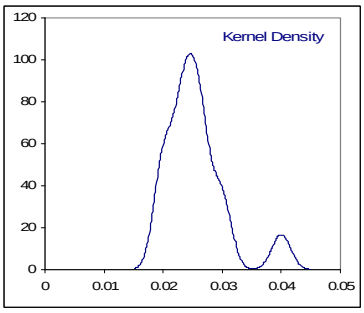
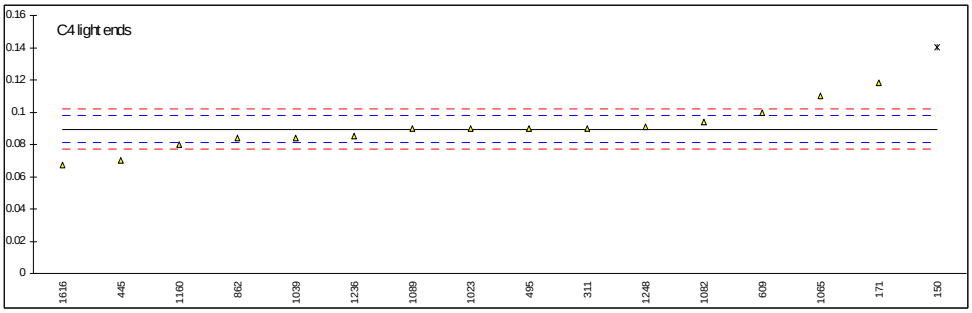

C1 light ends
0.0025
0.002
0.0015
0.001
0.0005
0
1248
1236
1023
1065
1082
609
1089

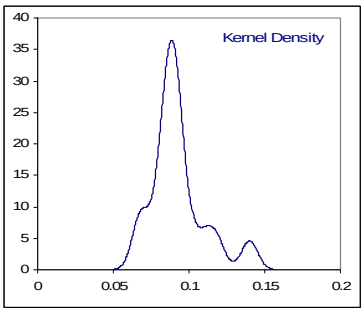

C2 light ends
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
1082
862
1236
1065
1089
1039
609
1160
150
1023
495
1248

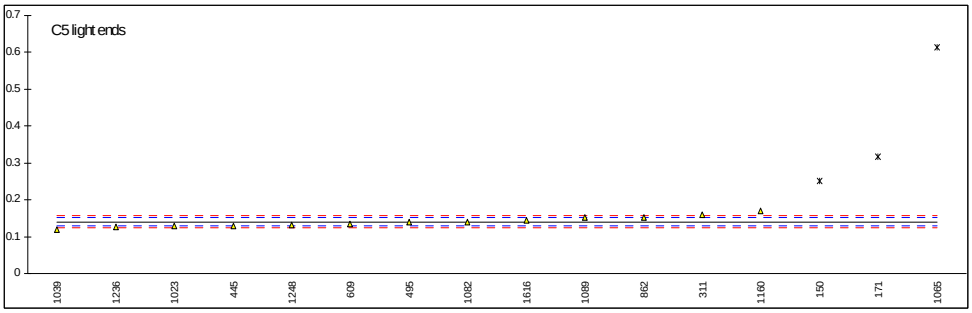

Kernel Density
350
300
250
200
150
100
50
0
0
0.005
0.01
0.015

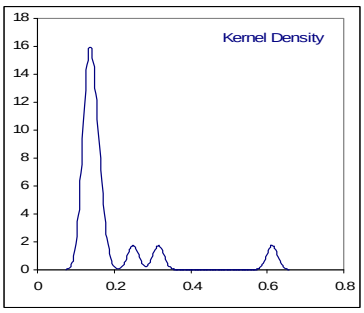

C3 light ends
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
311
445
1160
171
862
1236
1082
1039
1089
1248
609
1065
495
1023
150

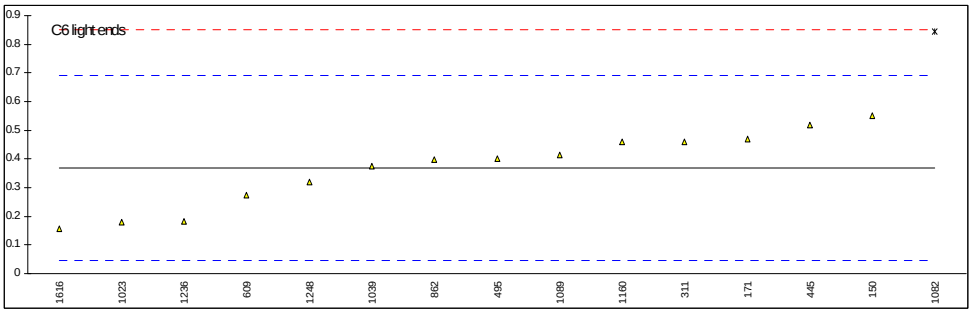

Kernel Density
120
100
80
60
40
20
0
0
0.01
0.02
0.03
0.04
0.05

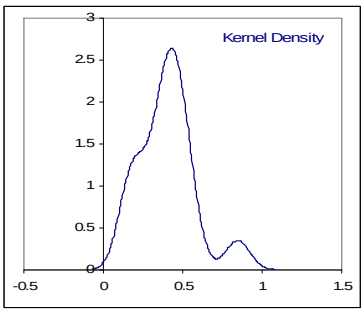

C4 light ends
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1616
445
1160
862
1039
1236
1089
1023
495
311
1248
1082
609
1065
171
150


Kernel Density
40
35
30
25
20
15
10
5
0
0
0.05
0.1
0.15
0.2


C5 light ends
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1039
1236
1023
445
1248
609
495
1082
1616
1089
862
311
1160
150
171
1065


Kernel Density
18
16
14
12
10
8
6
4
2
0
0
0.2
0.4
0.6
0.8

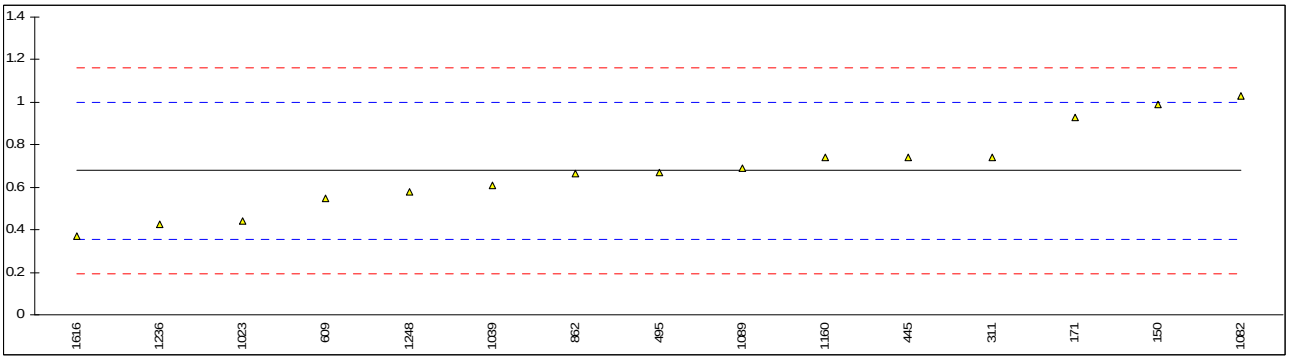

C6 light ends
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1616
1023
1236
609
1248
1039
862
495
1089
1160
311
171
445
150
1082

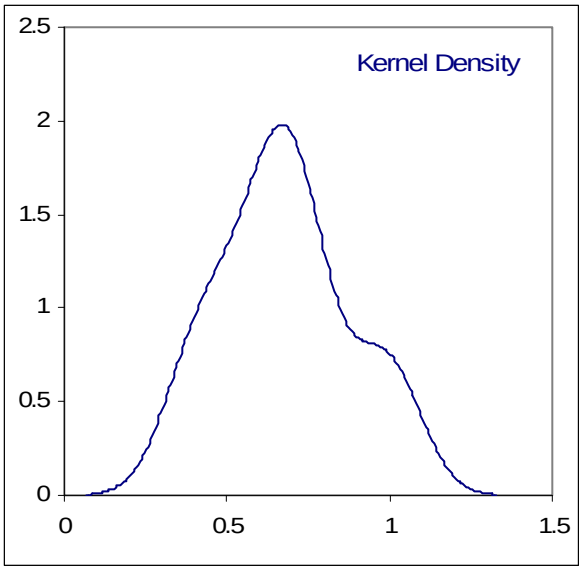

Kernel Density
3
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5

Determination of Total Light ends [C1-C6] on sample #11096; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081		-----		-----
90		-----		-----	1082	D5134M	1.0285	Fr 1.72	2.18
92		-----		-----	1089	D5134	0.691		0.08
131		-----		-----	1106		-----		-----
140		-----		-----	1108		-----		-----
150	IP344	0.99		1.94	1109		-----		-----
154		-----		-----	1160	IP344Mod.	0.74		0.39
158		-----		-----	1162		-----		-----
159		-----		-----	1225		-----		-----
171	IP344	0.9284		1.56	1236	D5134	0.425		-1.57
180		-----		-----	1248	in house	0.576		-0.63
193		-----		-----	1259		-----		-----
195		-----		-----	1287		-----		-----
203		-----		-----	1292		-----		-----
225		-----		-----	1335		-----		-----
237		-----		-----	1337		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357		-----		-----
311	INH-267	0.74		0.39	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387		-----		-----
375		-----		-----	1403		-----		-----
391		-----		-----	1404		-----		-----
398		-----		-----	1412		-----		-----
399		-----		-----	1419		-----		-----
402		-----		-----	1460		-----		-----
441		-----		-----	1510		-----		-----
442		-----		-----	1520		-----		-----
444		-----		-----	1613		-----		-----
445	IP344Mod.	0.74		0.39	1616	D5134	0.369		-1.92
446		-----		-----	1635		-----		-----
447		-----		-----	1658		-----		-----
463		-----		-----	1714	in house	<0.01	False negative	-4.15
485		-----		-----	1720		-----		-----
495	IP344	0.67		-0.05	1728		-----		-----
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541		-----		-----	1811		-----		-----
562		-----		-----	1815		-----		-----
593		-----		-----	1833		-----		-----
602		-----		-----	1842		-----		-----
608		-----		-----	1921		-----		-----
609	IP344	0.5459		-0.82	1922		-----		-----
613		-----		-----	1928		-----		-----
657		-----		-----	1929		-----		-----
663		-----		-----	1930		-----		-----
704		-----		-----	9100		-----		-----
705		-----		-----	9101		-----		-----
732		-----		-----	9102		-----		-----
739		-----		-----	9103		-----		-----
742		-----		-----	9104		-----		-----
750		-----		-----	9105		-----		-----
751		-----		-----	9106		-----		-----
752		-----		-----	9107		-----		-----
781		-----		-----	9108		-----		-----
784		-----		-----	9109		-----		-----
862	IP344	0.667		-0.07	9110		-----		-----
873		-----		-----	9111		-----		-----
874		-----		-----	9112		-----		-----
875		-----		-----	9113		-----		-----
904		-----		-----	9114		-----		-----
962		-----		-----	9115		-----		-----
963		-----		-----	9116		-----		-----
974		-----		-----	9117		-----		-----
994		-----		-----	9118		-----		-----
995		-----		-----	9119		-----		-----
996		-----		-----	9120		-----		-----
1023	D5134	0.441		-1.47	9141		-----		-----
1038		-----		-----					
1039	INH-07	0.611		-0.41					
1056		-----		-----					
1065		-----		-----					

normality	OK
n	15
outliers	0
mean (n)	0.6775
st.dev. (n)	0.19690
R(calc.)	0.5513
R(IP344:04)	0.4504



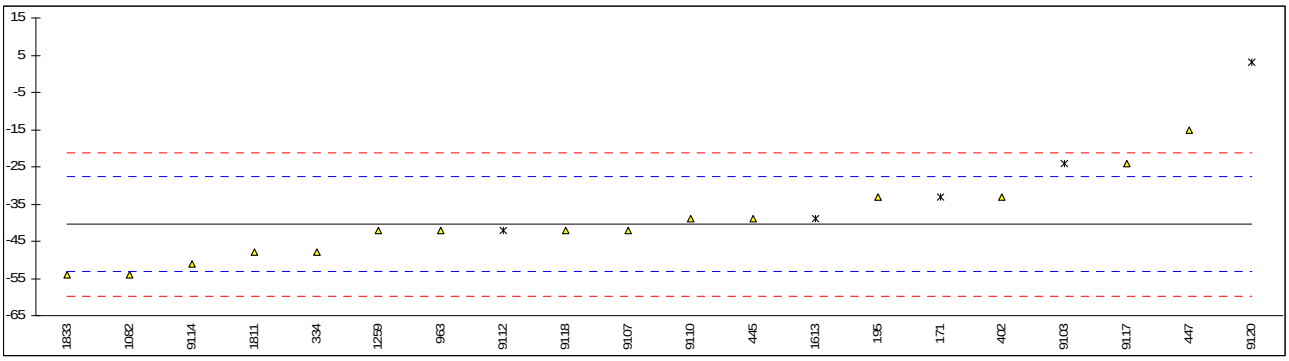


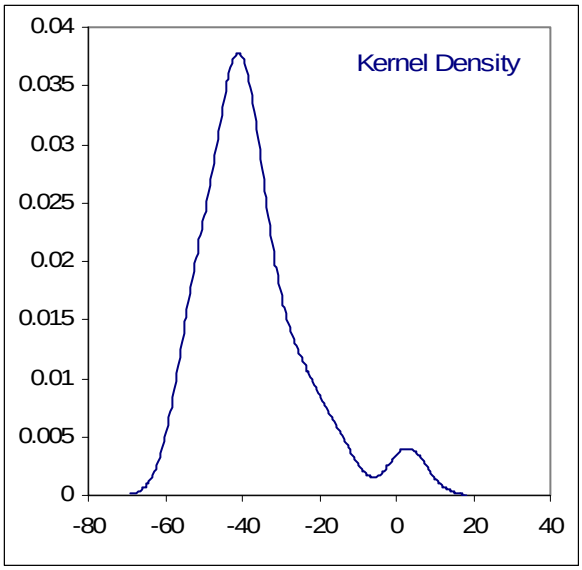
Determination of Pour Point (Maximum) on sample #11096; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081		-----		-----
90		-----		-----	1082	D5853A	-54.0		-2.12
92		-----		-----	1089	D5853A	<-45		-----
131		-----		-----	1106		-----		-----
140		-----		-----	1108		-----		-----
150		-----		-----	1109		-----		-----
154		-----		-----	1160	D5853A	<-36		-----
158		-----		-----	1162	D5853A	<-36		-----
159		-----		-----	1225		-----		-----
171	D97	-33	ex, see §4.1	1.15	1236		-----		-----
180		-----		-----	1248		-----		-----
193		-----		-----	1259	D5853A	-42		-0.25
195	D5853A	-33		1.15	1287		-----		-----
203		-----		-----	1292		-----		-----
225		-----		-----	1335	D5853A	<-36		-----
237		-----		-----	1337		-----		-----
238	D5853A	<-24		-----	1345	D5853A	<-36		-----
273	D5853A	<-21		-----	1357		-----		-----
311	D97	<-39	ex, see §4.1	-----	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334	D5853	-48		-1.18	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387		-----		-----
375		-----		-----	1403		-----		-----
391	D5853A	<-36		-----	1404		-----		-----
398	D5853A	<-36		-----	1412	D5853A	<-36		-----
399	D5853A	<-36		-----	1419		-----		-----
402	D5853A	-33		1.15	1460		-----		-----
441		-----		-----	1510		-----		-----
442		-----		-----	1520		-----		-----
444		-----		-----	1613	D97	-39	ex, see §4.1	0.22
445	D5853A	-39		0.22	1616	D5853A	<-36		-----
446		-----		-----	1635		-----		-----
447	D5853A	-15		3.95	1658		-----		-----
463	D6892	<-42		-----	1714	D5853	<-36		-----
485		-----		-----	1720	D5853A	<-30		-----
495	D5853A	<-30		-----	1728	D5853A	<-36		-----
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541		-----		-----	1811	D5853A	-48		-1.18
562	D97	<-36	ex, see §4.1	-----	1815	D5853A	<-36.0		-----
593		-----		-----	1833	D5853A	-54		-2.12
602		-----		-----	1842	D5853	<-36		-----
608	D5853A	<-36		-----	1921		-----		-----
609		-----		-----	1922		-----		-----
613		-----		-----	1928		-----		-----
657	D5853A	<-36		-----	1929		-----		-----
663	D5853A	<-39		-----	1930		-----		-----
704	D5853A	<-36		-----	9100	D5853A	<-39		-----
705	D5853A	<-36		-----	9101	In house	<-36		-----
732	D5853A	<-36		-----	9102		-----		-----
739		-----		-----	9103	D97	-24	ex, see §4.1	2.55
742		-----		-----	9104		-----		-----
750	D5853A	<-36		-----	9105		-----		-----
751	D5853A	<-36		-----	9106		-----		-----
752		-----		-----	9107	D5853A	-42		-0.25
781	D5853A	<-36		-----	9108	D5853A	<-36		-----
784		-----		-----	9109		-----		-----
862	D5853A	<-36		-----	9110	D5853A	-39		0.22
873		-----		-----	9111		-----		-----
874		-----		-----	9112	D97	-42	ex, see §4.1	-0.25
875		-----		-----	9113	D5853A	<-36		-----
904	D5853A	<-36		-----	9114	D5853A	-51		-1.65
962		-----		-----	9115		-----		-----
963	D5853A	-42		-0.25	9116		-----		-----
974		-----		-----	9117	D5853A	-24		2.55
994	D5853A	<-36		-----	9118	D5853A	-42		-0.25
995	D5853A	<-36		-----	9119		-----		-----
996		-----		-----	9120	D5853A	3	G(0.05)	6.75
1023	D5853A	<-36		-----	9141		-----		-----
1038		-----		-----					
1039		-----		-----					
1056		-----		-----					
1065	D5853A	<-45		-----					

normality	OK
n	15
outliers	1
mean (n)	-40.40
st.dev. (n)	10.809
R(calc.)	30.26
R(D5853A:11)	18.00

ex = result is excluded, method is not intended for Crude Oils





Determination of Pour Point (Minimum) on sample #11096; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081		-----		-----
90		-----		-----	1082		-----		-----
92		-----		-----	1089	D5853B	<-45		-----
131		-----		-----	1106		-----		-----
140		-----		-----	1108		-----		-----
150	D97	<-33	ex, see §4.1	-----	1109		-----		-----
154		-----		-----	1160	D5853B	<-36		-----
158		-----		-----	1162	D5853B	<-36		-----
159		-----		-----	1225		-----		-----
171		-----		-----	1236		-----		-----
180		-----		-----	1248		-----		-----
193		-----		-----	1259		-----		-----
195	D5853B	<-36		-----	1287		-----		-----
203	D5853	<-36		-----	1292		-----		-----
225		-----		-----	1335		-----		-----
237		-----		-----	1337		-----		-----
238	D5853B	<-24		-----	1345	D5853B	<-36		-----
273		-----		-----	1357		-----		-----
311	D97	<-39	ex, see §4.1	-----	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387		-----		-----
375		-----		-----	1403		-----		-----
391	D5853B	<-36		-----	1404		-----		-----
398	D5853B	<-36		-----	1412	D5853B	<-36		-----
399	D5853B	<-36		-----	1419		-----		-----
402	D5853B	-36		-----	1460		-----		-----
441		-----		-----	1510		-----		-----
442		-----		-----	1520		-----		-----
444		-----		-----	1613	D97	-39	ex, see §4.1	-----
445	D5853B	-42		-----	1616	D5853B	<-36		-----
446		-----		-----	1635		-----		-----
447		-----		-----	1658		-----		-----
463		-----		-----	1714	D5853	<-36		-----
485		-----		-----	1720		-----		-----
495	D5853B	<-30		-----	1728	D5853B	<-38		-----
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541		-----		-----	1811		-----		-----
562	D97	<-36	ex, see §4.1	-----	1815	D5853B	<-36.0		-----
593		-----		-----	1833		-----		-----
602		-----		-----	1842	D5853	<-36		-----
608		-----		-----	1921		-----		-----
609		-----		-----	1922		-----		-----
613		-----		-----	1928		-----		-----
657	D5853B	<-36		-----	1929		-----		-----
663		-----		-----	1930		-----		-----
704	D5853B	<-36		-----	9100		-----		-----
705		-----		-----	9101		-----		-----
732		-----		-----	9102		-----		-----
739		-----		-----	9103		-----		-----
742		-----		-----	9104		-----		-----
750		-----		-----	9105		-----		-----
751		-----		-----	9106		-----		-----
752		-----		-----	9107		-----		-----
781	D5853B	<-36		-----	9108		-----		-----
784		-----		-----	9109		-----		-----
862	D5853B	<-36		-----	9110		-----		-----
873		-----		-----	9111		-----		-----
874		-----		-----	9112		-----		-----
875		-----		-----	9113		-----		-----
904	D5853B	<-36		-----	9114		-----		-----
962		-----		-----	9115		-----		-----
963	D5853B	<-42		-----	9116		-----		-----
974		-----		-----	9117		-----		-----
994	D5853B	<-36		-----	9118		-----		-----
995	D5853B	<-36		-----	9119		-----		-----
996		-----		-----	9120		-----		-----
1023	D5853B	<-36		-----	9141		-----		-----
1038		-----		-----					
1039		-----		-----					
1056		-----		-----					
1065		-----		-----					

normality	n.a.
n	32
outliers	n.a.
mean (n)	<-36
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D5853B:11)	n.a.

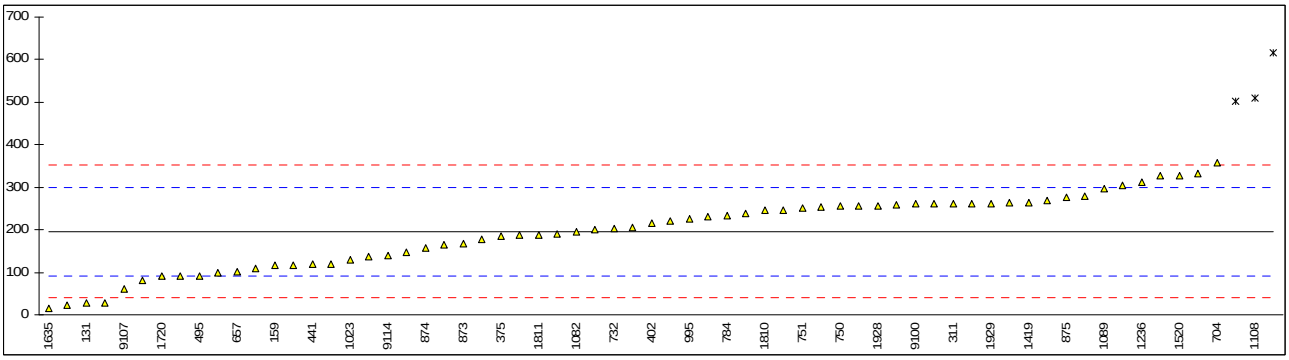
ex = result is excluded, method is not intended for Crude Oils

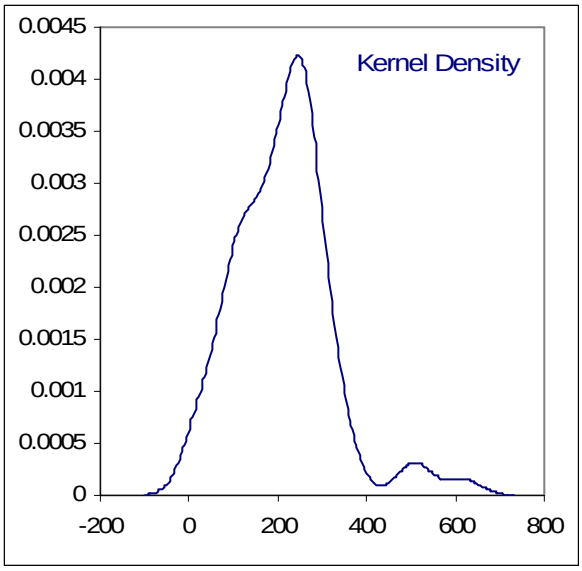
Determination of Salt as NaCl on sample #11096; results in mg/kg

lab	method	value	mark	z(targ)
62		-----		-----
90		-----		-----
92		-----		-----
131	D3230	27		-3.25
140		-----		-----
150	D3230	177		-0.37
154		-----		-----
158		-----		-----
159	D3230	115.4		-1.55
171	D3230	137.2		-1.13
180		-----		-----
193		-----		-----
195		-----		-----
203		-----		-----
225		-----		-----
237		-----		-----
238		-----		-----
273		-----		-----
311	D3230	260		1.22
314		-----		-----
333		-----		-----
334		-----		-----
335		-----		-----
340	D3230	239		0.82
375	D3230	185.36		-0.21
391		-----		-----
398	D3230	255.4		1.14
399		-----		-----
402	D3230	215.79		0.38
441	IP265	119.1		-1.48
442		-----		-----
444	IP265	205.0		0.17
445	IP265	91		-2.02
446		-----		-----
447		-----		-----
463		-----		-----
485		-----		-----
495	D3230	92.3		-2.00
527		-----		-----
529		-----		-----
541		-----		-----
562		-----		-----
593	D3230	97.79		-1.89
602		-----		-----
608	D3230	332.4		2.62
609		-----		-----
613		-----		-----
657	IP265	101.6		-1.82
663		-----		-----
704	D3230	358.3		3.11
705		-----		-----
732	INH-21534	202.44		0.12
739		-----		-----
742	D3230	246		0.96
750	D3230	255		1.13
751	D3230	251.064		1.05
752		-----		-----
781	D3230	258		1.19
784	D3230	232.6		0.70
862	D3230	166.1		-0.58
873	D3230	168		-0.54
874	D3230	156		-0.77
875	INH-21534	276		1.53
904		-----		-----
962		-----		-----
963		-----		-----
974		-----		-----
994		-----		-----
995	D3230	225.57		0.56
996		-----		-----
1023	D3230	129.5		-1.28
1038		-----		-----
1039	D3230	270		1.42
1056	D3230	186.6		-0.18
1065	D3230	327		2.51
1081	in house	190.8		-0.10
1082	D3230	195		-0.02
1089	D3230	295.7		1.91
1106		-----		-----
1108	D3230	510	DG(0.01)	6.03
1109		-----		-----
1160		-----		-----
1162		-----		-----
1225		-----		-----
1236	D3230	311.146		2.21
1248		-----		-----
1259	D3230	503.4	DG(0.01)	5.90
1287		-----		-----
1292		-----		-----
1335		-----		-----
1337		-----		-----
1345	D3230	254.6		1.12
1357		-----		-----
1360	INH-6560	264.46		1.31
1362		-----		-----
1363		-----		-----
1364		-----		-----
1365		-----		-----
1387		-----		-----
1403		-----		-----
1404	D3230	22		-3.35
1412		-----		-----
1419	in house	265		1.32
1460		-----		-----
1510		-----		-----
1520	D3230	328.0		2.53
1613	D3230	81.7		-2.20
1616	D3230	616.7	G(0.01)	8.08
1635	D3230	16.2		-3.46
1658		-----		-----
1714	D6470	304.267		2.08
1720	D6470	90.5		-2.03
1728	in house	29		-3.21
1800		-----		-----
1810	D3230	246		0.96
1811	D3230	188.4		-0.15
1815	D3230	278.7		1.58
1833	D3230	117.5		-1.51
1842		-----		-----
1921		-----		-----
1922		-----		-----
1928	INH-656030	256.63		1.16
1929	INH-656030	260.7		1.24
1930	DIN51576	146.62		-0.95
9100	D6470	260		1.22
9101	In house	220		0.46
9102	in house	200		0.07
9103		-----		-----
9104		-----		-----
9105	D6470	230		0.65
9106	in house	120		-1.46
9107	D6470	60		-2.62
9108		-----		-----
9109		-----		-----
9110	D3230	110		-1.66
9111	D6470	260		1.22
9112		-----		-----
9113		-----		-----
9114	D3230	140		-1.08
9115	GOST21534	260		1.22
9116		-----		-----
9117		-----		-----
9118		-----		-----
9119		-----		-----
9120		-----		-----
9141		-----		-----

Only D3230 data

normality	not OK		OK
n	63		40
outliers	3		3
mean (n)	196.23		198.73
st.dev. (n)	84.882		88.465
R(calc.)	237.67		247.70
R(D3230:08)	145.77	Compare R(D6470:10) = 21.92	147.16



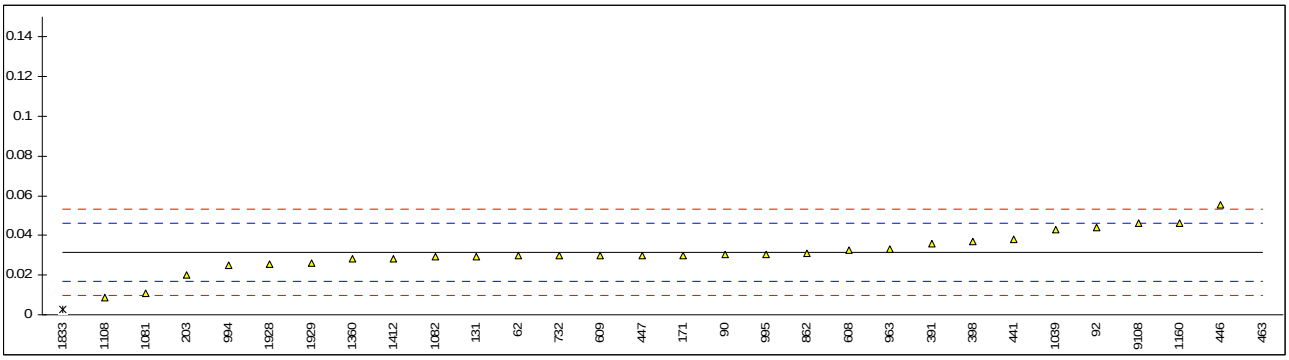


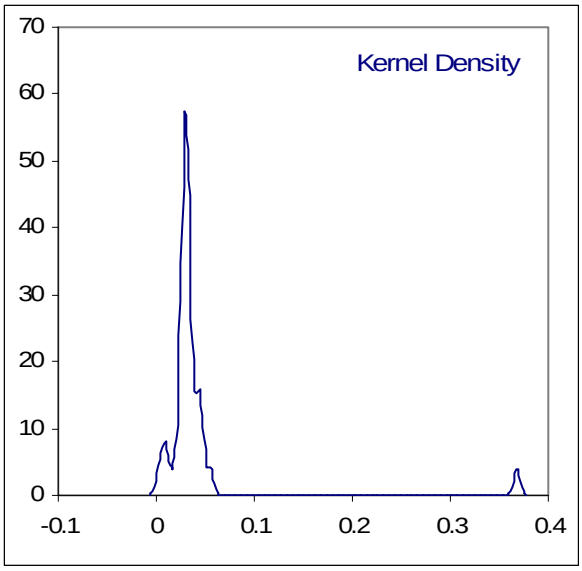
Determination of Sediment ASTM D4807 on sample #11096; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4807	0.0299		-0.22	1081	in house	0.011		-2.76
90	D4807	0.0304		-0.16	1082	D4807	0.02929		-0.30
92	D4807	0.044		1.67	1089		-----		-----
131	D4807	0.0295		-0.28	1106		-----		-----
140		-----		-----	1108	D4807	0.0086		-3.08
150		-----		-----	1109		-----		-----
154		-----		-----	1160	D4807	0.046		1.93
158		-----		-----	1162		-----		-----
159		-----		-----	1225		-----		-----
171	D4807	0.030		-0.21	1236		-----		-----
180		-----		-----	1248		-----		-----
193		-----		-----	1259		-----		-----
195		-----		-----	1287		-----		-----
203	D4807	0.020		-1.55	1292		-----		-----
225		-----		-----	1335		-----		-----
237		-----		-----	1337		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357		-----		-----
311		-----		-----	1360	INH-6560	0.0280		-0.48
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387		-----		-----
375		-----		-----	1403		-----		-----
391	D4807	0.036		0.59	1404		-----		-----
398	D4807	0.037		0.73	1412	D4807	0.02803		-0.47
399		-----		-----	1419		-----		-----
402		-----		-----	1460		-----		-----
441	D4807	0.038		0.86	1510		-----		-----
442		-----		-----	1520		-----		-----
444		-----		-----	1613		-----		-----
445		-----		-----	1616		-----		-----
446	D4807	0.0552		3.17	1635		-----		-----
447	D4807	0.030		-0.21	1658		-----		-----
463	IP143	0.3680	G(0.01)	45.09	1714		-----		-----
485		-----		-----	1720		-----		-----
495		-----		-----	1728		-----		-----
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541		-----		-----	1811		-----		-----
562		-----		-----	1815		-----		-----
593		-----		-----	1833	D4807	0.0029	G(0.01)	-3.84
602		-----		-----	1842		-----		-----
608	D4807	0.0327		0.15	1921		-----		-----
609	D4807	0.03		-0.21	1922		-----		-----
613		-----		-----	1928	INH-6560	0.0254		-0.83
657		-----		-----	1929	INH-6560	0.026		-0.75
663		-----		-----	1930		-----		-----
704		-----		-----	9100		-----		-----
705		-----		-----	9101		-----		-----
732	D4807	0.030		-0.21	9102		-----		-----
739		-----		-----	9103		-----		-----
742		-----		-----	9104		-----		-----
750		-----		-----	9105		-----		-----
751		-----		-----	9106		-----		-----
752		-----		-----	9107		-----		-----
781		-----		-----	9108	D4807	0.046		1.93
784		-----		-----	9109		-----		-----
862	D4807	0.031		-0.08	9110		-----		-----
873		-----		-----	9111		-----		-----
874		-----		-----	9112		-----		-----
875		-----		-----	9113		-----		-----
904		-----		-----	9114		-----		-----
962		-----		-----	9115		-----		-----
963	D4807	0.0333		0.23	9116		-----		-----
974		-----		-----	9117		-----		-----
994	D4807	0.025		-0.88	9118		-----		-----
995	D4807	0.03064		-0.12	9119		-----		-----
996		-----		-----	9120		-----		-----
1023		-----		-----	9141		-----		-----
1038		-----		-----					
1039	D4807	0.0428		1.51					
1056		-----		-----					
1065		-----		-----					

Only D4807 data:

normality	OK	OK
n	28	24
outliers	2	2
mean (n)	0.0316	0.0331
st.dev. (n)	0.00981	0.00942
R(calc.)	0.0275	0.0264
R(D4807:10)	0.0209	0.0214



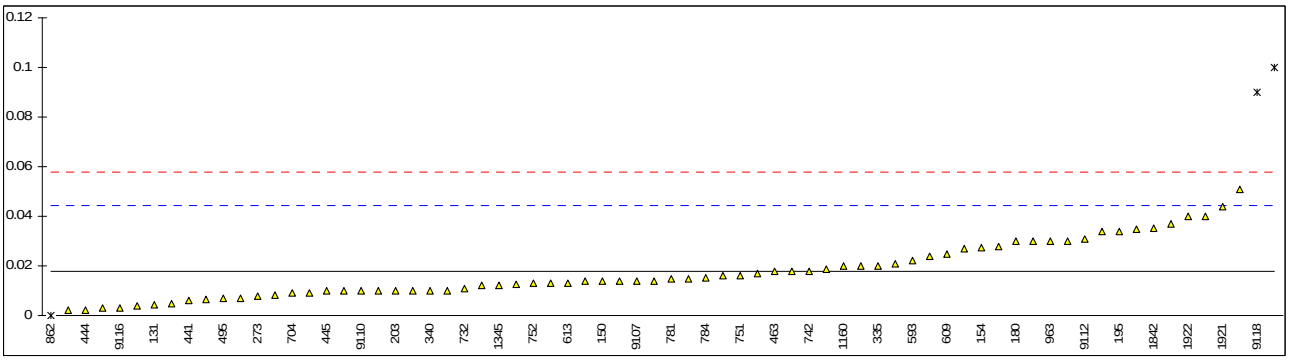


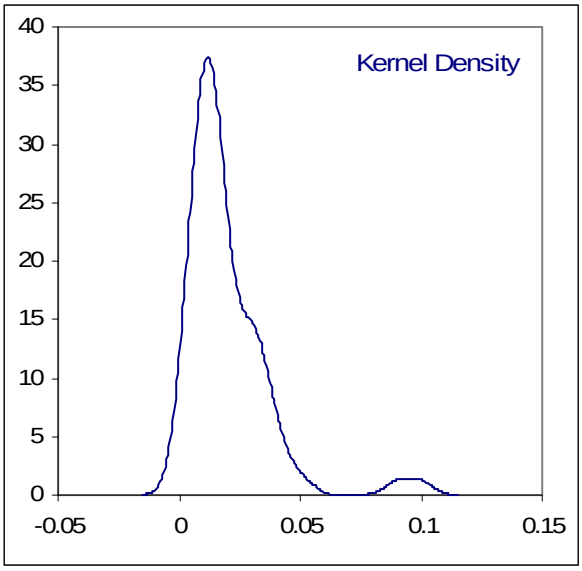
Determination of Sediment ASTM D473 on sample #11096; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081		-----		-----
90		-----		-----	1082		-----		-----
92		-----		-----	1089	D473	0.005		-0.95
131	D473	0.0045		-0.99	1106		-----		-----
140	D473	0.028		0.77	1108		-----		-----
150	D473	0.014		-0.28	1109	D473	0.012		-0.43
154	D473	0.0275		0.73	1160	D473	0.02		0.17
158	D473	0.01		-0.58	1162	D473	0.024		0.47
159	D473	0.021		0.25	1225		-----		-----
171	D473	0.01		-0.58	1236		-----		-----
180	D473	0.0299		0.91	1248		-----		-----
193	D473	0.037		1.44	1259		-----		-----
195	D473	0.034		1.22	1287	D473	0.027		0.69
203	D473	0.01		-0.58	1292		-----		-----
225	D473	0.004		-1.02	1335	D473	0.0064		-0.84
237		-----		-----	1337		-----		-----
238	D473	0.013		-0.35	1345	D473	0.012		-0.43
273	D473	0.0077		-0.75	1357		-----		-----
311	D473	<0.01		-----	1360		-----		-----
314		-----		-----	1362		-----		-----
333		-----		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335	D473	0.02		0.17	1365		-----		-----
340	D473	0.01		-0.58	1387		-----		-----
375	D473	0.0081		-0.72	1403		-----		-----
391	D473	0.01		-0.58	1404		-----		-----
398	D473	0.009		-0.65	1412		-----		-----
399		-----		-----	1419		-----		-----
402	D473	0.018		0.02	1460		-----		-----
441	D473	0.006		-0.87	1510	D473	0.03		0.92
442		-----		-----	1520		-----		-----
444	D473	0.002		-1.17	1613	D473	0.0339		1.21
445	D473	0.01		-0.58	1616	D473	0.003		-1.10
446		-----		-----	1635	D473	0.03		0.92
447		-----		-----	1658		-----		-----
463	D473	0.0178		0.01	1714	D473	0.0348		1.28
485	D473	0.014		-0.28	1720		-----		-----
495	D473	0.007		-0.80	1728	D473	0.0188		0.08
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541	D473	0.04	Fr 0.119	1.66	1811		-----		-----
562		-----		-----	1815		-----		-----
593	D473	0.022		0.32	1833	D473	0.1	G(0.01)	6.14
602		-----		-----	1842	D473	0.035		1.29
608		-----		-----	1921	D473	0.044		1.96
609	D473	0.0249		0.54	1922	D473	0.04		1.66
613	D473	0.013		-0.35	1928		-----		-----
657	D473	0.007		-0.80	1929		-----		-----
663		-----		-----	1930		-----		-----
704	D473	0.009		-0.65	9100		-----		-----
705	D473	0.014		-0.28	9101		-----		-----
732	D473	0.011		-0.50	9102		-----		-----
739		-----		-----	9103		-----		-----
742	D473	0.018		0.02	9104		-----		-----
750	D473	0.015		-0.20	9105		-----		-----
751	D473	0.016		-0.13	9106	in house	0.051		2.49
752	D473	0.013		-0.35	9107	D473	0.014		-0.28
781	D473	0.015		-0.20	9108		-----		-----
784	D473	0.0151		-0.19	9109		-----		-----
862	D473	0	ex	-1.32	9110	D473	0.010		-0.58
873	D473	0.017		-0.05	9111		-----		-----
874	D473	0.016		-0.13	9112	D473	0.031		0.99
875	D473	0.0137		-0.30	9113		-----		-----
904		-----		-----	9114	D473	<0.02		-----
962		-----		-----	9115	GOST6370	0.002		-1.17
963	D473	0.03		0.92	9116	GOST6370	0.003		-1.10
974		-----		-----	9117	D473	0.02		0.17
994	D473	0.010		-0.58	9118	D473	0.09	G(0.01)	5.40
995	D473	0.0125		-0.39	9119		-----		-----
996		-----		-----	9120		-----		-----
1023		-----		-----	9141		-----		-----
1038		-----		-----					
1039		-----		-----					
1056		-----		-----					
1065		-----		-----					

normality	not OK
n	69
outliers	2
mean (n)	0.0177
st.dev. (n)	0.01122
R(calc.)	0.0314
R(D473:07)	0.0375

ex = result excluded zero is not a real result

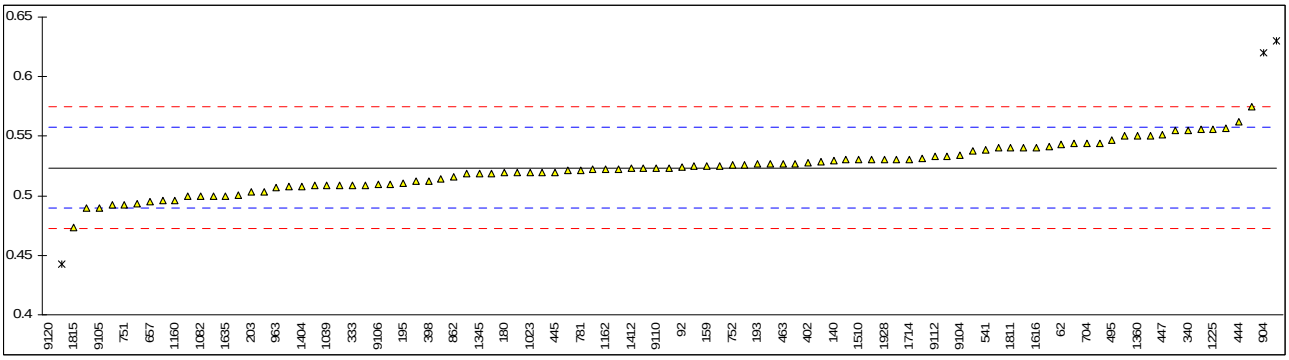


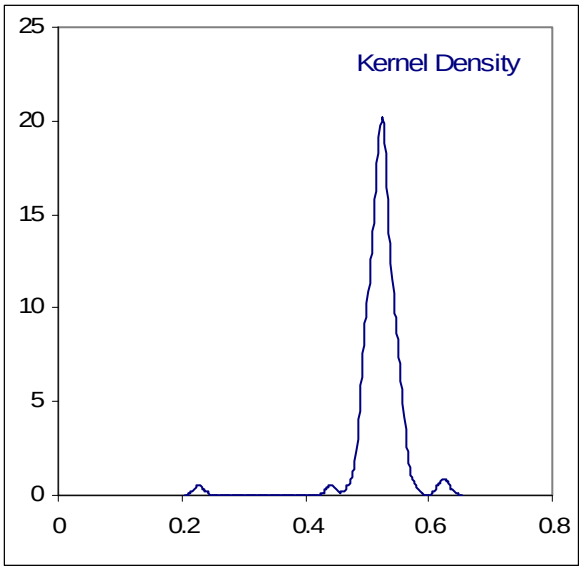


Determination of Total Sulphur on sample #11096; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4294	0.5433		1.16	1081	D2622	0.51		-0.79
90	D4294	0.5227		-0.05	1082	D4294	0.500		-1.37
92	D4294	0.5245		0.06	1089		-----		-----
131	D4294	0.523		-0.03	1106		-----		-----
140	D4294	0.5294		0.35	1108	D4294	0.557		1.96
150	D4294	0.544		1.20	1109	D4294	0.4934		-1.76
154	D4294	0.5035		-1.17	1160	D4294	0.496		-1.61
158	D4294	0.5438		1.19	1162	D4294	0.5226		-0.05
159	D4294	0.5250		0.09	1225	D4294	0.556		1.90
171	D4294	0.5078		-0.92	1236		-----		-----
180	D4294	0.51965		-0.22	1248		-----		-----
193	D4294	0.5268		0.19	1259	ISO8754	0.63	G(0.01)	6.23
195	D4294	0.51012		-0.78	1287		-----		-----
203	D4294	0.503		-1.20	1292		-----		-----
225		-----		-----	1335	D4294	0.5138		-0.57
237		-----		-----	1337	D4294	0.509		-0.85
238		-----		-----	1345	D4294	0.519		-0.26
273	D4294	0.5		-1.37	1357		-----		-----
311	D4294	0.519		-0.26	1360	ISO8754	0.55		1.55
314		-----		-----	1362		-----		-----
333	D2622	0.509		-0.85	1363		-----		-----
334	D4294	0.5007		-1.33	1364		-----		-----
335		-----		-----	1365		-----		-----
340	D4294	0.555		1.84	1387		-----		-----
375	D4294	0.55		1.55	1403	in house	0.541		1.02
391	D4294	0.526		0.15	1404	ISO8754	0.508		-0.91
398	D4294	0.512		-0.67	1412	D4294	0.523		-0.03
399	D4294	0.527		0.21	1419		-----		-----
402	D4294	0.528		0.26	1460		-----		-----
441	IP336	0.5285		0.29	1510	D4294	0.53		0.38
442		-----		-----	1520	D4294	0.5557		1.88
444	IP336	0.562		2.25	1613	D4294	0.523		-0.03
445	D2622	0.520		-0.20	1616	D4294	0.540		0.97
446		-----		-----	1635	D4294	0.50		-1.37
447	IP336	0.551		1.61	1658		-----		-----
463	D4294	0.527		0.21	1714	D2622	0.530		0.38
485		-----		-----	1720	D4294	0.509		-0.85
495	D4294	0.547		1.38	1728	D4294	0.555		1.84
527		-----		-----	1800		-----		-----
529		-----		-----	1810	D4294	0.575		3.01
541	D4294	0.539		0.91	1811	D4294	0.54		0.97
562	D4294	0.5336	Fr 0.4433	0.59	1815	D7039	0.473		-2.95
593	D4294	0.5220		-0.09	1833	D4294	0.53		0.38
602		-----		-----	1842	D4294	0.492		-1.84
608	D4294	0.4423	G(0.05)	-4.75	1921		-----		-----
609	D4294	0.53		0.38	1922		-----		-----
613		-----		-----	1928	ISO8754	0.53		0.38
657	D4294	0.495		-1.67	1929	ISO8754	0.55		1.55
663		-----		-----	1930		-----		-----
704	D4294	0.5440		1.20	9100	D2622	0.519		-0.26
705		-----		-----	9101		-----		-----
732	D4294	0.540		0.97	9102		-----		-----
739		-----		-----	9103		-----		-----
742	D4294	0.540		0.97	9104	IP336	0.534		0.61
750	D4294	0.538		0.85	9105	D2622	0.49		-1.96
751	D4294	0.492		-1.84	9106	D4294	0.51		-0.79
752	D4294	0.526		0.15	9107	D4294	0.512		-0.67
781	D4294	0.521		-0.15	9108	D4294	0.496		-1.61
784	D4294	0.520		-0.20	9109		-----		-----
862	D4294	0.516		-0.44	9110	D4294	0.523		-0.03
873	D4294	0.527		0.21	9111		-----		-----
874	D4294	0.530		0.38	9112	D4294	0.533		0.56
875	D4294	0.520		-0.20	9113		-----		-----
904	D4294	0.62	G(0.01)	5.64	9114	D2622	0.521		-0.15
962		-----		-----	9115		-----		-----
963	D4294	0.507		-0.96	9116	GOST6370	0.50		-1.37
974		-----		-----	9117		-----		-----
994	D4294	0.525		0.09	9118		-----		-----
995	D4294	0.525		0.09	9119		-----		-----
996		-----		-----	9120	D2622	0.228	G(0.01)	-17.28
1023	IP336	0.52		-0.20	9141		-----		-----
1038	D4294	0.531		0.44					
1039	D2622	0.509		-0.85					
1056	D7343	0.509		-0.85					
1065	D4294	0.49		-1.96					

normality	OK
n	94
outliers	4
mean (n)	0.5235
st.dev. (n)	0.01897
R(calc.)	0.0532
R(D4294:10)	0.0479

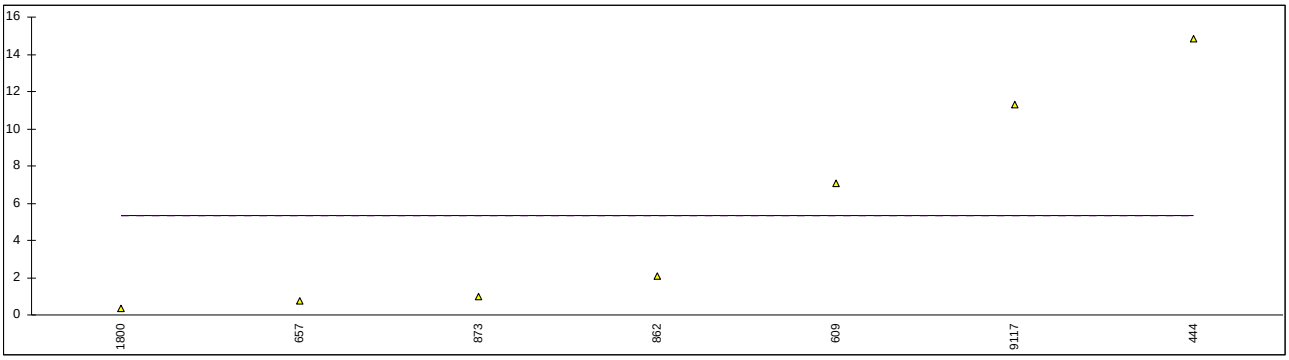




Determination of Total Mercury on sample #11096; results in µg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1081	in house	<1		-----
90		-----		-----	1082		-----		-----
92		-----		-----	1089	UOP938	<1		-----
131		-----		-----	1106		-----		-----
140		-----		-----	1108		-----		-----
150		-----		-----	1109		-----		-----
154		-----		-----	1160		-----		-----
158		-----		-----	1162		-----		-----
159		-----		-----	1225		-----		-----
171		-----		-----	1236		-----		-----
180		-----		-----	1248		-----		-----
193		-----		-----	1259		-----		-----
195		-----		-----	1287		-----		-----
203		-----		-----	1292		-----		-----
225		-----		-----	1335		-----		-----
237		-----		-----	1337		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357		-----		-----
311		-----		-----	1360		-----		-----
314		-----		-----	1362		-----		-----
333	EPA7473	<1		-----	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340		-----		-----	1387		-----		-----
375		-----		-----	1403		-----		-----
391		-----		-----	1404		-----		-----
398		-----		-----	1412		-----		-----
399		-----		-----	1419		-----		-----
402		-----		-----	1460		-----		-----
441		-----		-----	1510		-----		-----
442		-----		-----	1520		-----		-----
444	UOP938	14.85		-----	1613		-----		-----
445		-----		-----	1616		-----		-----
446		-----		-----	1635		-----		-----
447		-----		-----	1658		-----		-----
463		-----		-----	1714		-----		-----
485		-----		-----	1720		-----		-----
495		-----		-----	1728		-----		-----
527		-----		-----	1800	D7623Mod.	0.3415		-----
529		-----		-----	1810		-----		-----
541		-----		-----	1811		-----		-----
562		-----		-----	1815		-----		-----
593		-----		-----	1833		-----		-----
602		-----		-----	1842	UOP938	<1		-----
608		-----		-----	1921		-----		-----
609	UOP938	7.0587		-----	1922		-----		-----
613		-----		-----	1928		-----		-----
657	UOP938	0.74		-----	1929		-----		-----
663		-----		-----	1930		-----		-----
704		-----		-----	9100		-----		-----
705		-----		-----	9101	In house	<16		-----
732		-----		-----	9102		-----		-----
739		-----		-----	9103		-----		-----
742		-----		-----	9104		-----		-----
750		-----		-----	9105		-----		-----
751		-----		-----	9106		-----		-----
752		-----		-----	9107		-----		-----
781		-----		-----	9108		-----		-----
784		-----		-----	9109		-----		-----
862	UOP938	2.1		-----	9110		-----		-----
873	UOP938	1.00		-----	9111		-----		-----
874		-----		-----	9112		-----		-----
875		-----		-----	9113		-----		-----
904		-----		-----	9114		-----		-----
962		-----		-----	9115		-----		-----
963		-----		-----	9116		-----		-----
974		-----		-----	9117	UOP938	11.29		-----
994		-----		-----	9118		-----		-----
995		-----		-----	9119		-----		-----
996		-----		-----	9120		-----		-----
1023		-----		-----	9141		-----		-----
1038		-----		-----					
1039	UOP938	<1		-----					
1056		-----		-----					
1065		-----		-----					

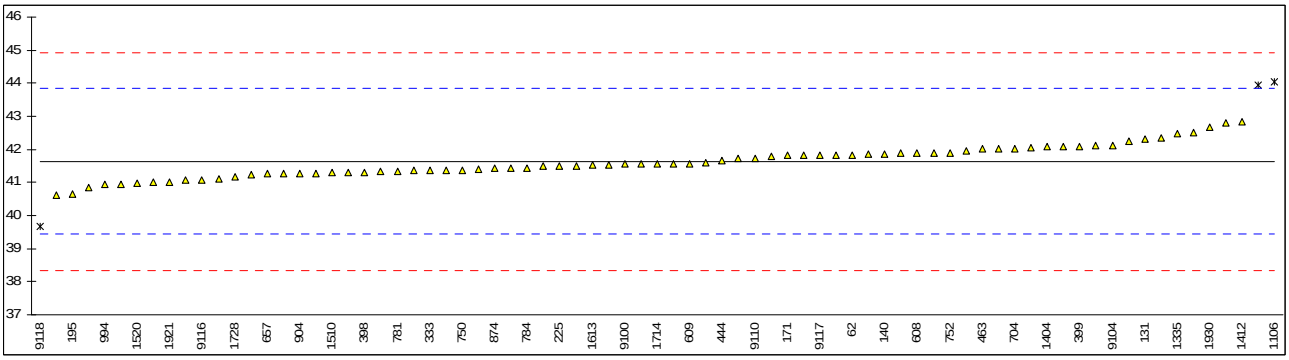
normality	OK	
n	7	
outliers	0	
mean (n)	5.34	
st.dev. (n)	5.835	
R(calc.)	16.34	
R(Horwitz)	5.26	Compare R(UOP938:10) = 0.50

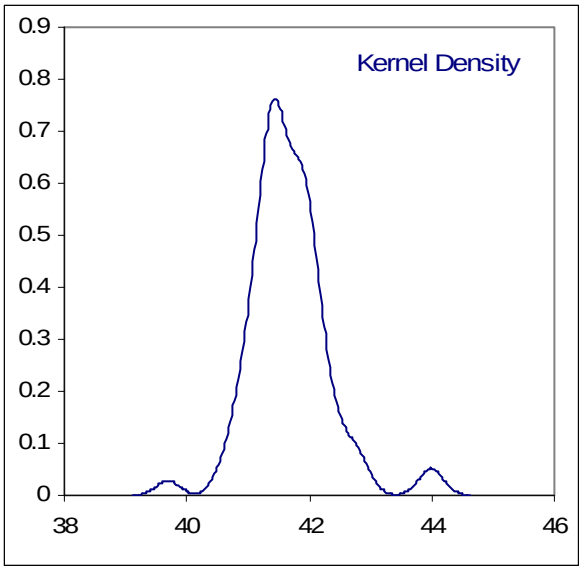


Determination of Kinematic Viscosity @ 40 ºC on sample #11096; results in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D445	41.841		0.19	1081		-----		-----
90		-----		-----	1082	D445	41.276		-0.32
92		-----		-----	1089		-----		-----
131	D445	42.30		0.61	1106	D445	44.04	G(0.01)	2.19
140	D445	41.854		0.20	1108	D445	41.72		0.08
150	D445	41.88		0.23	1109	D445	41.7987		0.15
154		-----		-----	1160	D445	42.09		0.42
158	D445	42.81		1.07	1162	D445	42.248		0.56
159		-----		-----	1225	D445	41.349		-0.26
171	D445	41.84		0.19	1236		-----		-----
180		-----		-----	1248	IP71(mod)	41.238		-0.36
193		-----		-----	1259	D445	41.512		-0.11
195	D445	40.65		-0.89	1287		-----		-----
203	D445	40.63		-0.91	1292		-----		-----
225	D445	41.50		-0.12	1335	D445	42.4675		0.76
237		-----		-----	1337		-----		-----
238		-----		-----	1345	D445	41.60		-0.03
273		-----		-----	1357		-----		-----
311	D445	41.55		-0.07	1360		-----		-----
314		-----		-----	1362		-----		-----
333	D445	41.36		-0.25	1363		-----		-----
334		-----		-----	1364		-----		-----
335		-----		-----	1365		-----		-----
340	D445	42.039		0.37	1387		-----		-----
375		-----		-----	1403		-----		-----
391		-----		-----	1404	D445	42.08		0.41
398	D445	41.319		-0.28	1412	D445	42.85		1.11
399	D445	42.101		0.43	1419		-----		-----
402		-----		-----	1460		-----		-----
441		-----		-----	1510	D445	41.30		-0.30
442		-----		-----	1520	D445	40.980		-0.59
444	D445	41.675		0.04	1613	D445	41.534		-0.09
445	D445	41.36		-0.25	1616	D445	41.088		-0.49
446		-----		-----	1635	D445	41.12		-0.47
447		-----		-----	1658		-----		-----
463	D445	42.014		0.35	1714	D445	41.5529		-0.07
485		-----		-----	1720	D7042	41.544		-0.08
495	D445	42.343		0.65	1728	D445	41.17		-0.42
527		-----		-----	1800		-----		-----
529		-----		-----	1810		-----		-----
541	D7042	41.56		-0.07	1811		-----		-----
562	D445	41.852		0.20	1815	ISO3104	41.354		-0.25
593	D445	42.50		0.79	1833	D445	41.0		-0.57
602		-----		-----	1842		-----		-----
608	D445	41.90		0.24	1921	D445	41.01		-0.57
609	D445	41.58		-0.05	1922	D445	40.93		-0.64
613		-----		-----	1928		-----		-----
657	D445	41.27		-0.33	1929		-----		-----
663	D445	41.84		0.19	1930	DIN51562	42.67		0.94
704	D445	42.032		0.36	9100	D445	41.55		-0.07
705		-----		-----	9101		-----		-----
732		-----		-----	9102		-----		-----
739		-----		-----	9103	D7042	41.96		0.30
742		-----		-----	9104	IP71	42.135		0.46
750	D445	41.38		-0.23	9105		-----		-----
751		-----		-----	9106	D445	41.400		-0.21
752	D445	41.90		0.24	9107	D445	41.307		-0.30
781	D445	41.352		-0.25	9108		-----		-----
784	D445	41.45		-0.17	9109		-----		-----
862	D445	43.940	G(0.01)	2.10	9110	D445	41.74		0.10
873		-----		-----	9111		-----		-----
874	D445	41.43		-0.18	9112		-----		-----
875		-----		-----	9113	D445	41.84		0.19
904	D445	41.28		-0.32	9114	D445	41.45		-0.17
962		-----		-----	9115		-----		-----
963	D445	42.03		0.36	9116	GOST33	41.09		-0.49
974		-----		-----	9117	D445	41.84		0.19
994	D445	40.93		-0.64	9118	D445	39.69	G(0.05)	-1.77
995	D445	41.50		-0.12	9119		-----		-----
996		-----		-----	9120		-----		-----
1023	D445	42.11		0.43	9141		-----		-----
1038	D445	41.90		0.24					
1039		-----		-----					
1056	D445	41.285		-0.32					
1065	D445	40.85		-0.71					

normality	OK
n	74
outliers	3
mean (n)	41.632
st.dev. (n)	0.4788
R(calc.)	1.341
R(D445:11a)	3.081



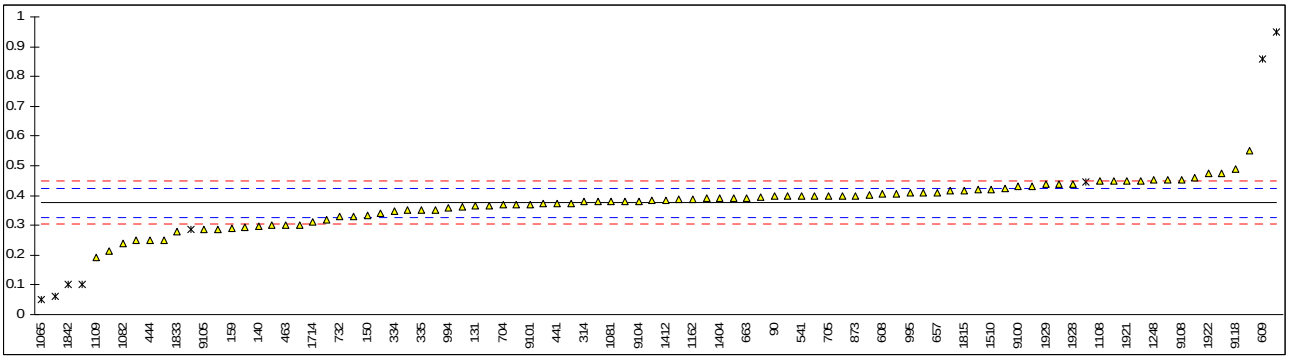


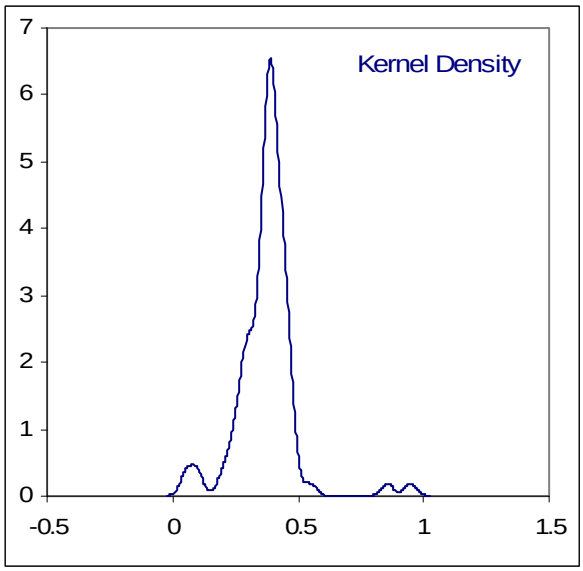
Determination of Water on sample #11096; results in %V/V

lab	method	value	mark	z(targ)
62		-----		-----
90	D4928	0.397		0.84
92	D4377	0.408		1.29
131	D4928	0.3649		-0.47
140	D4928	0.2986		-3.17
150	D4377	0.335		-1.69
154		-----		-----
158	D4377	0.33		-1.89
159	D4377	0.2913		-3.47
171	D4377	0.3928		0.67
180	D4006	0.550		7.09
193		-----		-----
195		-----		-----
203	D4928	0.10	G(0.01)	-11.28
225		-----		-----
237		-----		-----
238		-----		-----
273	D4928	0.395		0.76
311	D4377	0.43		2.19
314	D4928	0.3791		0.11
333		-----		-----
334	D4377	0.348		-1.16
335	D4377	0.35		-1.07
340		-----		-----
375		-----		-----
391	D4377	0.444	ex (rep. M/M%)	2.76
398	D4377	0.402		1.05
399		-----		-----
402	ISO760	0.286	ex (rep. M/M%)	-3.69
441	D4928	0.375		-0.05
442		-----		-----
444	D95	0.25		-5.16
445		-----		-----
446	D4928	0.386		0.39
447	IP386	0.292		-3.44
463	D95	0.3		-3.12
485	D4377	0.3616		-0.60
495	D4377	0.288		-3.61
527		-----		-----
529		-----		-----
541	D4006	0.4		0.97
562		-----		-----
593	D4006	0.950	G(0.01)	23.42
602		-----		-----
608	D4377	0.4069		1.25
609	D4377	0.857	G(0.01)	19.62
613	D4928	0.3972		0.85
657	D4377	0.41		1.37
663	D4928	0.393		0.68
704	D4377	0.369		-0.30
705	D4006	0.400		0.97
732	INH-2477	0.33		-1.89
739		-----		-----
742		-----		-----
750		-----		-----
751	D4006	0.450		3.01
752	D4006	0.475		4.03
781		-----		-----
784		-----		-----
862	D4377	0.4070		1.25
873	D4006	0.400		0.97
874	D4006	0.375		-0.05
875		-----		-----
904	D4928	0.06	G(0.05)	-12.91
962		-----		-----
963	D4377	0.423		1.91
974		-----		-----
994	D4006	0.36		-0.67
995	D6304	0.408		1.29
996		-----		-----
1023		-----		-----
1038		-----		-----
1039	D4928	0.38		0.15
1056	D4928	0.318		-2.38
1065	D95	0.05	G(0.05)	-13.32
1081	ISO12937	0.38		0.15
1082	D4377	0.2396		-5.58
1089	D4377	0.366		-0.42
1106		-----		-----
1108	D4377	0.45		3.01
1109	D6304	0.193		-7.48
1160	IP386	0.454		3.17
1162	D4377	0.388		0.48
1225		-----		-----
1236	D4928	0.352		-0.99
1248	D4928Mod	0.453		3.13
1259	D4006	0.250		-5.16
1287		-----		-----
1292		-----		-----
1335	D4377	0.34		-1.48
1337		-----		-----
1345	D4928	0.39		0.56
1357		-----		-----
1360	D4377	0.42		1.78
1362		-----		-----
1363		-----		-----
1364		-----		-----
1365		-----		-----
1387		-----		-----
1403		-----		-----
1404	ISO6296	0.3903		0.57
1412	D4928	0.3845		0.33
1419	ISO9029	0.350		-1.07
1460		-----		-----
1510	IP386	0.42		1.78
1520		-----		-----
1613		-----		-----
1616		-----		-----
1635		-----		-----
1658		-----		-----
1714	D4006	0.3125		-2.61
1720		-----		-----
1728	D4377	0.415		1.58
1800	D4377	0.3845		0.33
1810	D4377	0.45		3.01
1811	D4377	0.46		3.42
1815	ISO10337	0.4158		1.61
1833	D4377	0.28		-3.93
1842	D95	0.1	G(0.05)	-11.28
1921	D4006	0.450		3.01
1922	D4006	0.475	Fr 0.250	4.03
1928	D4377	0.44		2.60
1929	D4377	0.44		2.60
1930	DIN51777	0.2137		-6.64
9100	D4377	0.43		2.19
9101	In house	0.37		-0.26
9102	In house	0.37		-0.26
9103		-----		-----
9104	IP386	0.381		0.19
9105	D4928	0.288		-3.61
9106		-----		-----
9107		-----		-----
9108	IP386	0.454		3.17
9109	D4928	0.25		-5.16
9110	D4006	0.30		-3.12
9111		-----		-----
9112		-----		-----
9113	D4006	0.30		-3.12
9114	D4006	0.375		-0.05
9115	GOST2477	0.40		0.97
9116	D4006	0.44		2.60
9117	D4006	0.40		0.97
9118	D4006	0.49		4.64
9119	APCLAM256	0.38		0.15
9120		-----		-----
9141		-----		-----

Only D4377 Only D4928 Only D4006

normality	not OK	OK	not OK	OK
n	84	30	17	18
outliers	6	1	2	1
mean (n)	0.3763	0.3819	0.3648	0.4001
st.dev. (n)	0.06540	0.05620	0.04962	0.07725
R(calc.)	0.1831	0.1574	0.1389	0.2163
R(D4377:11)	0.0686	0.0689	0.0572	0.1100





APPENDIX 2

Number of participants per country

1 lab in ARGENTINA
3 labs in AUSTRALIA
2 labs in AZERBAIJAN
1 lab in BAHAMAS
1 lab in BELARUS REPUBLIC
1 lab in BULGARIA
6 labs in CANADA
1 lab in CHILE
1 lab in CÔTE D'IVOIRE
2 labs in CROATIA
2 labs in CZECH REPUBLIC
1 lab in ECUADOR
1 lab in EGYPT
1 lab in ESTONIA
1 lab in FINLAND
5 labs in FRANCE
1 lab in GABON
2 labs in GEORGIA
2 labs in GERMANY
1 lab in GREECE
1 lab in ISRAEL
4 labs in ITALY
1 lab in JORDAN
1 lab in KAZAKHSTAN
1 lab in LATVIA
5 labs in MALAYSIA
2 labs in MEXICO
2 labs in NEGARA BRUNEI DARUSSALAM
10 labs in NIGERIA
5 labs in NORWAY
9 labs in OMAN
6 labs in P.R. of CHINA
2 labs in POLAND
1 lab in QATAR
2 labs in ROMANIA
17 labs in RUSSIA
3 labs in SAUDI ARABIA
1 lab in SINGAPORE
4 labs in SLOVAKIA
1 lab in SOUTH AFRICA
1 lab in SOUTH KOREA
1 lab in SUDAN
2 labs in SWEDEN
1 lab in THAILAND
7 labs in THE NETHERLANDS
2 labs in TURKEY
1 lab in TURKMENISTAN
1 lab in U.A.E.
1 lab in U.S. VIRGIN ISLANDS
16 labs in U.S.A.
2 labs in UKRAINE
16 labs in UNITED KINGDOM

APPENDIX 3

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
E	= error in calculations
U	= reported in different unit
W	= withdrawn on request participant
ex	= excluded from calculations
n.a.	= not applicable
n.d.	= not determined
SDS	= Safety data Sheet

Literature

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

13 Analytical Methods Committee Technical brief, No4 February 2001.

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