Results of Proficiency Test
Crude Oil
November 2014

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Appendices-

1 INTRODUCTION

Since 1998, the Institute for Interlaboratory Studies organizes a proficiency test for Crude Oil every year. During the annual proficiency testing program 2014/2015, it was decided to continue the round robin for the analysis of Crude Oil. In this interlaboratory study 157 laboratories from 53 different countries have participated. See appendix 2 for the number of participants per country.
In this report, the results of the 2014 Crude Oil proficiency test are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

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 diameter high speed shear mixer for homogenisation. Analyses for fit-for-use and homogeneity testing were subcontracted. Participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010, since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie, R007). This PT falls under the accredited scope. 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 was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol can be downloaded from the iis website http://www.iisnl.com.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

The 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 188 subsamples of 1 L wide-neck transparent colourless glass bottles and labelled #14215.
The homogeneity of the subsamples was checked by the determination of Density in accordance ASTM D5002 on 7 stratified randomly selected samples and Water in accordance with ASTM D4377 on 8 stratified randomly selected samples.

	Density @ 15 °C in kg/L	Water in %V/V
Sample #14215-1	0.83304	0.091
Sample #14215-2	0.83312	0.094
Sample #14215-3	0.83213	0.093
Sample #14215-4	0.83248	0.094
Sample #14215-5	0.83290	0.095
Sample #14215-6	0.83272	0.087
Sample #14215-7	0.83283	0.087
Sample #14215-8	---	0.094

Table 1: Homogeneity test results of subsamples #14215

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 %V/V
observed repeatability	0.00096	0.009
reference method	ASTM D5002:13	ASTM D4377:00(2011)
0.3*R (reference method)	0.00103	(0.008)
r (reference method)	(0.0087)	0.011

Table 2: Repeatabilities on subsamples #14215

The calculated repeatability of the density determination was less than 0.3 times the reproducibility of the reference method and the calculated repeatability of the water determination was less than the repeatability of the reference method.
Therefore, homogeneity of the subsamples #14215 was assumed.

Because brown coloured wide-neck glass bottles were not available, 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.

To each of the participating laboratories one bottle of 1 L (labelled #14215) was sent on October 22, 2014.

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 Acid Number, BS&W, Density @ 15°C, API Gravity, Light ends (C1-C6), Pour Point (Maximum), Salt as NaCl, Sediment (ASTM D4807 and D473), Molecular Mass, Sulphur, Mercury, Kinematic Viscosity @ 40°C and Water.
To get comparable results a detailed report form, on which the units were prescribed as well as the required standards and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The detailed report form was also made available for download on the iis website www.iisnl.com.
A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were 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 April 2014 (iis-protocol, version 3.3).
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 a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results 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 and by R(0.05) for the Rosner General ESD test (ref. 15). 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; nos.13 and 14). Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

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:

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

4 EVALUATION

In this proficiency test, some serious sample dispatch problems were encountered during the execution. The samples to the participants in Algeria, Brazil, China, Congo, Egypt, Iraq, Malaysia, Nigeria, Peru, Russia, Saudi Arabia and the Sultanate of Oman arrived near or after the deadline or did never reach the laboratories at all due to customs clearance and/or transportation problems. In total 133 laboratories submitted 985 numerical results. Observed were 44 statistically outlying results, which is 4.5% of the reported results. In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

In the iis PT reports, ASTM methods are referred to with a number (e.g. D2086) and an added designation for the year that the method was adopted or revised (e.g. D2086-08). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D2086-08(2013)). In the results tables of Appendix 1 only the method number and year of adoption or revision e.g. D2086-08 will be used.

Not all original data sets proved to have a normal Gaussian distribution. These are referred to as “not OK” or “suspect”. The statistical evaluation of these data sets should be used with due care.

Acid Number: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in agreement with the requirements of ASTM D664:11a.

API Gravity: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D287:12b.

BS&W: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers, is in full agreement with the requirements of ASTM D4007:11e1.

Density: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5002:13. Several participants used ASTM D4052 / IP365. It must be noted that in the scope of these methods is mentioned that ASTM D5002 is to be used for crude oils (see e.g. §1.3 of ASTM D4052:11).

Kin.Visc.@40°C: This determination was problematic for a number of laboratories. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D445:14e2.

Light Ends: This determination was very problematic. In total nine statistical outliers were observed (4 outliers by lab 1264) and one false negative test result. None of the calculated reproducibilities, after rejection of the statistical outliers, was in agreement with the requirements of IP344:10. It is to be noted that D5134 and D6730 may not be suitable for testing crude oil.

Mercury: This determination may be problematic at the low mercury concentration (< 5 µg/kg). Two statistical outliers were observed, and the results vary over a wide range (0.81 – 36 µg/kg) and one laboratory reported <0.5 µg/kg. Regretfully no target reproducibility is available. ASTM D7623 only gives a repeatability. And UOP938, although used by the majority of the laboratories is not intended to be used on crude oil. Also, the repeatability 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. The calculated reproducibility is not in agreement with the estimated reproducibility, calculated using the Horwitz equation.

Molecular Mass: Only five test results were reported and no precision data could be found in literature. Therefore no significant conclusions were drawn.

Pour Point: This determination was not problematic. Fifteen (!) test results were excluded from the calculations as the reported test method is in principle not suitable for Crude Oils (see the scope of the test method, ASTM D97). After exclusion of these test results, no statistical outliers were observed. The calculated reproducibility, after rejection of the 15 test results, is in full agreement with the requirements of ASTM D5853A:11. When the original data is evaluated (no test results excluded), one statistical outlier was observed. However, after rejection of the statistical outlier, the calculated reproducibility is still in full agreement with the requirements of D5853A:11.

Salt as NaCl: This determination was not problematic. One statistical outlier was observed and one laboratory reported 0 (zero). The calculated reproducibility after rejection of the suspect data, is in good agreement with the requirements of ASTM D3230:13.

Sediment: ASTM D473: No significant conclusions were drawn as the consensus value found was below or near application range of the test method.

Sediment: ASTM D4807 The determination of sediment in accordance with ASTM D4807:05(2012) was problematic. One statistical outlier was observed. However, the calculated reproducibility, after rejection of the statistical outliers, is not in agreement with the requirements of ASTM D4807:05(2012). 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. Also homogenisation of the sample prior to sub sampling, is a critical step in this determination.

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

Water: This determination was problematic. Nine (!) statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4377:00 (2011).
A possible reason for the reported low water concentrations may be insufficient homogenisation of the sample by the respective laboratory prior to sub sampling for analysis. Another reason may be confusion about the reporting unit. In practice %V/V is used mostly, but ASTM D4377 will be reported in %M/M usually, although D4377 explicitly explains how to convert the result into %V/V.

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)
Acid Number (total)	mg KOH/g	60	0.16	0.07	0.16
API Gravity		76	38.3	0.4	0.5
BS&W	%V/V	50	0.06	0.09	0.14
Density @ 15°C	kg/m^3	117	832.7	1.6	3.4
Kinematic Viscosity @ 40°C	mm^2/s	63	3.87	0.28	0.29
C1 Light Ends	%M/M	10	0.0003	0.0011	n.a.
C2 Light Ends	%M/M	19	0.011	0.006	0.004
C3 Light Ends	%M/M	21	0.23	0.06	0.05
C4 Light Ends	%M/M	21	1.31	0.30	0.17
C5 Light Ends	%M/M	20	2.64	0.50	0.27
C6 Light Ends	%M/M	18	3.90	1.35	0.45
Total C1-C6 Light Ends	%M/M	18	8.12	1.44	0.56
Mercury (total)	µg/kg	17	4.2	7.3	4.3
Molecular Mass	g/mol	5	197	9	n.a.
Pour Point, Max.	°C	48	3	15	18
Salt as NaCl	mg/kg	74	25.4	24.8	31.5
Sediment (D473)	%V/V	62	0.010	0.027	(0.035)
Sediment (D4807)	%M/M	38	0.016	0.019	0.015
Total Sulphur	%M/M	96	0.32	0.05	0.04
Water	%V/V	92	0.09	0.05	0.04

Table 3: Reproducibilities of the tests methods for sample #14215

Result between brackets in near the detection limt of the test method

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 2014 WITH PREVIOUS PTS

	November 2014	*November 2013*	*November 2012*	*November 2011*
Number of reporting labs	133	125	121	132
Number of results reported	985	827	860	845
Statistical outliers	44	36	42	43
Percentage outliers	4.5	4.4%	4.9%	5.1%

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 2014*	*November 2013*	*November 2012*	*November 2011*
Acid Number (total)	++	+	++	++
API Gravity	+	+	++	++
BS&W	++	-	++	-
Density @15°C	++	++	++	++
Kinematic Viscosity @40ºC	+/-	--	--	++
Light Ends (C1-C6)	--	--	--	+/-
Mercury (total)	(-)	(--)	(--)	(--)
Molecular Mass	n.e.	n.e.	n.e.	n.e.
Pour Point, max	+	--	+/-	--
Salt as NaCl	+	+	+	--
Sediment (D473)	n.e.	n.e.	++	++
Sediment (D4807)	-	-	--	-
Sulphur	+/-	--	+/-	-
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

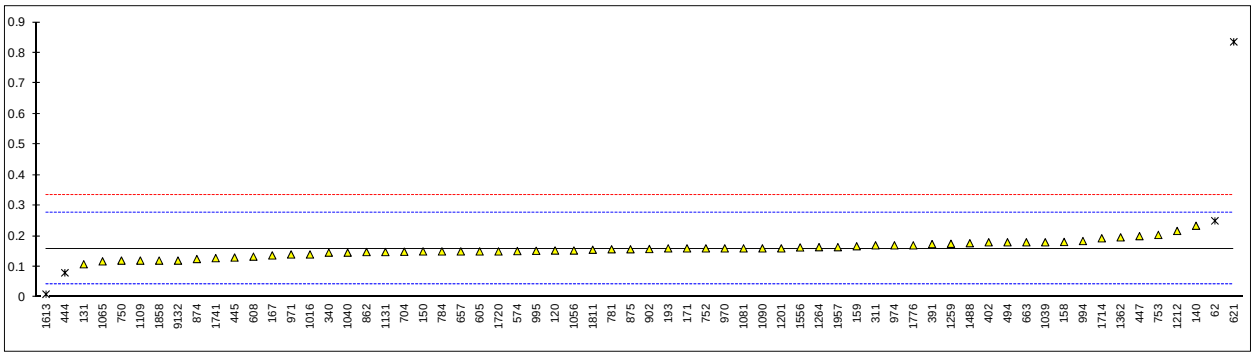
APPENDIX 1

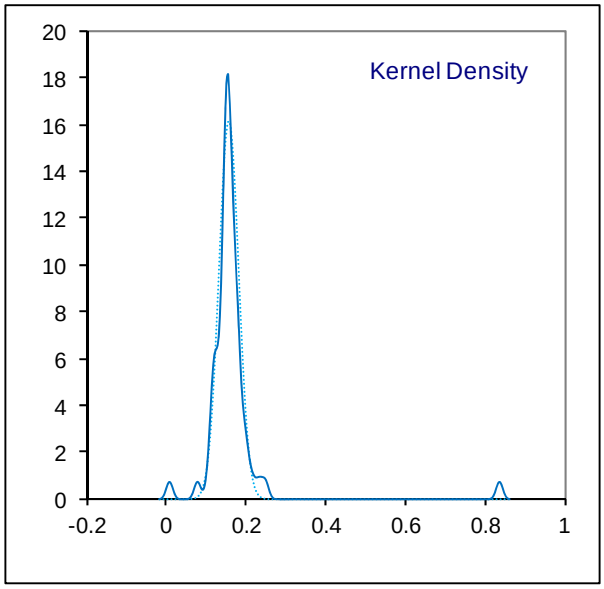
Determination of Acid Number (total) on sample #14215; results in mg KOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D664	0.25	R(0.05)	1.57	995	D664	0.152		-0.11
90		-----		-----	996		-----		-----
92		-----		-----	997		-----		-----
120	D664	0.153		-0.09	998		-----		-----
131	D664	0.108		-0.86	1016	D664	0.14		-0.32
133		-----		-----	1039	D664	0.18		0.37
140	D664	0.234		1.30	1040	ISO6619	0.146		-0.21
150	D664	0.15		-0.14	1056	D664	0.153		-0.09
154		-----		-----	1065	D664	0.1175		-0.70
158	D664	0.181		0.39	1081	D664	0.16		0.03
159	D664	0.167		0.15	1090	D664	0.16		0.03
167	D664	0.137		-0.37	1095		-----		-----
168		-----		-----	1109	D664	0.12		-0.66
171	D664	0.16		0.03	1131	D664	0.148		-0.18
179		-----		-----	1201	D664	0.16		0.03
186		-----		-----	1212	D664	0.217		1.00
193	D664	0.16		0.03	1236		-----		-----
203		-----		-----	1243		-----		-----
225		-----		-----	1248		-----		-----
238		-----		-----	1259	D664	0.1750		0.28
242		-----		-----	1264	D664	0.16400		0.10
273		-----		-----	1272		-----		-----
311	D664	0.17		0.20	1287		-----		-----
314		-----		-----	1340		-----		-----
332		-----		-----	1362	D664	0.196		0.64
333		-----		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340	D664	0.146		-0.21	1412		-----		-----
391	D664	0.174		0.27	1419		-----		-----
398		-----		-----	1488	INH-1752	0.1770		0.32
399		-----		-----	1543		-----		-----
402	D664	0.18		0.37	1556	D664	0.163		0.08
441		-----		-----	1603		-----		-----
442		-----		-----	1613	D664	0.01	R(0.01)	-2.54
444	D664	0.08	R(0.05)	-1.34	1616		-----		-----
445	D664	0.130		-0.49	1654		-----		-----
446		-----		-----	1714		0.193		0.59
447	D664	0.2		0.71	1720	D664	0.15		-0.14
485		-----		-----	1728		-----		-----
494	D664	0.18		0.37	1741	ISO6619	0.128		-0.52
511		-----		-----	1759		-----		-----
529		-----		-----	1776	D664	0.17		0.20
541		-----		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811	D664	0.1555		-0.05
574	D664	0.151		-0.13	1815		-----		-----
593		-----		-----	1842		-----		-----
602		-----		-----	1858	D664	0.12		-0.66
605	D664	0.15		-0.14	1892		-----		-----
606		-----		-----	1930		-----		-----
608	D664	0.133		-0.44	1957	D664	0.164		0.10
609		-----		-----	9050		-----		-----
613		-----		-----	9051		-----		-----
621	D664	0.836	R(0.01)	11.62	9052		-----		-----
657	D664	0.15		-0.14	9057		-----		-----
663	D664	0.180		0.37	9060		-----		-----
704	D664	0.149		-0.16	9063		-----		-----
732		-----		-----	9101		-----		-----
739		-----		-----	9132	D664	0.120		-0.66
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D664	0.12		-0.66	9135		-----		-----
751		-----		-----	9136		-----		-----
752	D664	0.16		0.03	9137		-----		-----
753	D664	0.204		0.78	9138		-----		-----
781	D664	0.157		-0.02	9139		-----		-----
784	D664	0.15		-0.14	9142		-----		-----
862	D664	0.148		-0.18	9143		-----		-----
872		-----		-----	9146		-----		-----
874	D664	0.125		-0.57	9151		-----		-----
875	D664	0.157		-0.02	9152		-----		-----
902	D664	0.158		-0.01	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963		-----		-----	9157		-----		-----
970	D664	0.16		0.03					

971	D664	0.14	-0.32
974	D664	0.17	0.20
993		-----	-----
994	D664	0.184	0.44

normality	OK
n	60
outliers	4
mean (n)	0.1584
st.dev. (n)	0.02467
R(calc.)	0.0691
R(D664:11a)	0.1633





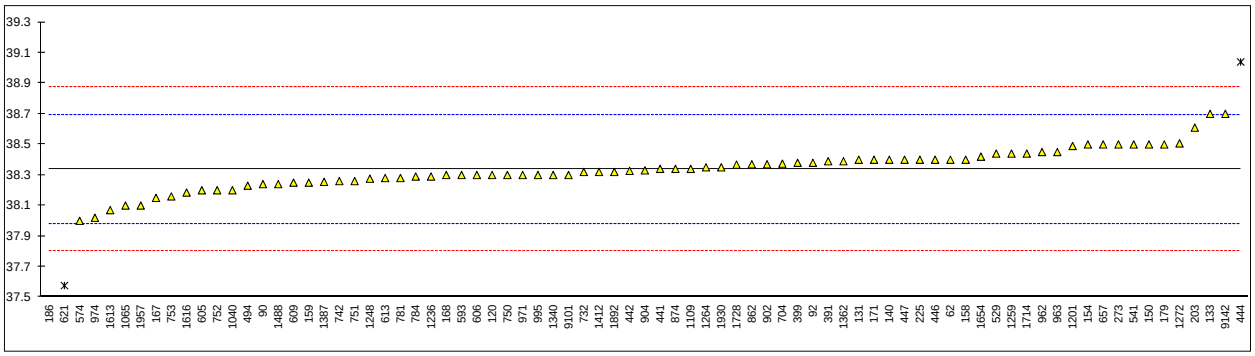
Determination of API Gravity on sample #14215;

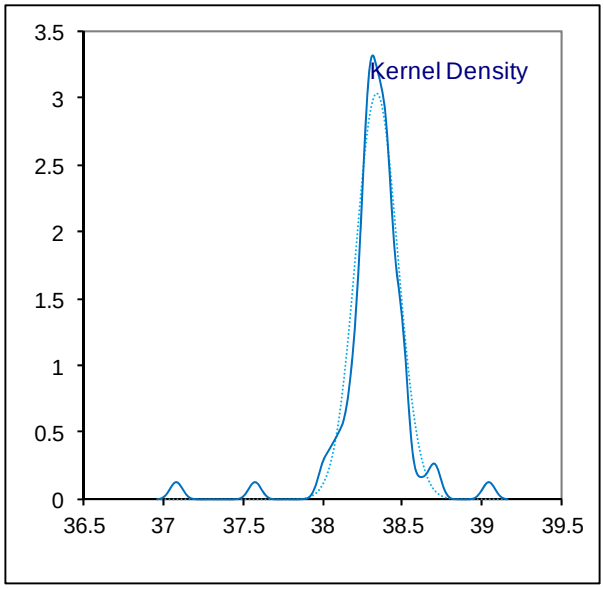
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5002	38.4		0.35	995	D1250	38.3		-0.21
90	D287	38.24		-0.55	996		-----		-----
92	D5002	38.38		0.23	997		-----		-----
120	D4052	38.3		-0.21	998		-----		-----
131	D5002	38.4		0.35	1016		-----		-----
133	D287	38.7		2.03	1039		-----		-----
140	D287	38.4		0.35	1040	D287	38.2		-0.77
150	D287	38.5		0.91	1056		-----		-----
154	D287	38.5		0.91	1065	Calc.	38.1		-1.33
158	D287	38.4		0.35	1081		-----		-----
159	D4052	38.25		-0.49	1090		-----		-----
167	D5002	38.15		-1.05	1095		-----		-----
168	D287	38.3		-0.21	1109	D5002	38.34		0.01
171	D287	38.4		0.35	1131		-----		-----
179	D287	38.5		0.91	1201	D4052	38.49		0.85
186	D4052	37.083	R(0.01)	-7.03	1212		-----		-----
193		-----		-----	1236	D287	38.29		-0.27
203	Calc.	38.61		1.52	1243		-----		-----
225	D287	38.4		0.35	1248	Calc.	38.276		-0.35
238		-----		-----	1259		38.44		0.57
242		-----		-----	1264	D4052	38.35		0.07
273	D287	38.5		0.91	1272	D287	38.507		0.95
311		-----		-----	1287		-----		-----
314		-----		-----	1340	D1298	38.3		-0.21
332		-----		-----	1362		38.39		0.29
333		-----		-----	1387	D287	38.255		-0.47
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340		-----		-----	1412	D1250	38.32		-0.10
391	D287	38.39		0.29	1419		-----		-----
398		-----		-----	1488	Calc.	38.24		-0.55
399	D287	38.38		0.23	1543		-----		-----
402		-----		-----	1556		-----		-----
441	D1298	38.34		0.01	1603		-----		-----
442	D287	38.3271		-0.06	1613	D5002	38.07		-1.50
444	D4052	39.04	C,R(0.01)	3.93	1616	Calc.	38.185		-0.86
445		-----		-----	1654	D4052	38.42		0.46
446	D5002	38.4		0.35	1714	D5002	38.44		0.57
447	D5002	38.4		0.35	1720		-----		-----
485		-----		-----	1728	D287	38.3679		0.17
494	D287	38.23		-0.61	1741		-----		-----
511		-----		-----	1759		-----		-----
529	D287	38.44		0.57	1776		-----		-----
541	D5002	38.5		0.91	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574	D7042	38.0		-1.89	1815		-----		-----
593	D1298	38.3		-0.21	1842		-----		-----
602		-----		-----	1858		-----		-----
605	D1298	38.2		-0.77	1892	D5002	38.32		-0.10
606	D1298	38.3		-0.21	1930	DIN51757	38.35		0.07
608		-----		-----	1957	D5002	38.10		-1.33
609	D5002	38.25		-0.49	9050		-----		-----
613	D5002	38.28		-0.33	9051		-----		-----
621	D1298	37.576	R(0.01)	-4.27	9052		-----		-----
657	D5002	38.5		0.91	9057		-----		-----
663		-----		-----	9060		-----		-----
704	D1250	38.374		0.20	9063		-----		-----
732	D5002	38.32		-0.10	9101	D1298	38.3		-0.21
739		-----		-----	9132		-----		-----
742	D287	38.26		-0.44	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D287	38.30		-0.21	9135		-----		-----
751	Calc.	38.26		-0.44	9136		-----		-----
752	D1250	38.20		-0.77	9137		-----		-----
753	Conv.	38.16		-1.00	9138		-----		-----
781	D1250	38.28		-0.33	9139		-----		-----
784	D287	38.29		-0.27	9142	D1298	38.7		2.03
862	D287	38.37		0.18	9143		-----		-----
872		-----		-----	9146		-----		-----
874	D1250	38.34		0.01	9151		-----		-----
875		-----		-----	9152		-----		-----
902	D5002	38.37		0.18	9154		-----		-----
904	D5002	38.33		-0.05	9155		-----		-----
962	D287	38.45		0.63	9156		-----		-----
963	D5002Calc.	38.45		0.63	9157		-----		-----
970		-----		-----					

971	D5002	38.30	-0.21
974	D1250	38.02	-1.78
993		-----	-----
994		-----	-----

normality	suspect
n	76
outliers	3
mean (n)	38.3380
st.dev. (n)	0.13142
R(calc.)	0.3680
R(D287:12b)	0.5000

lab 444 first reported 39.02



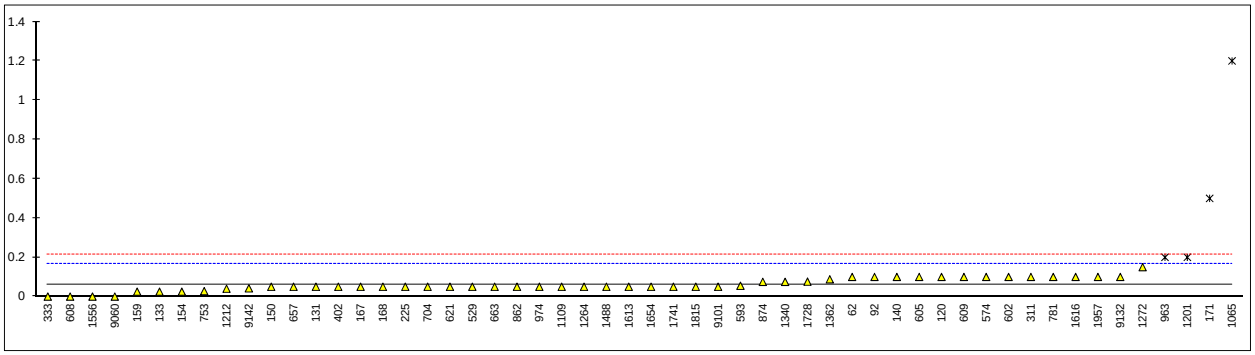


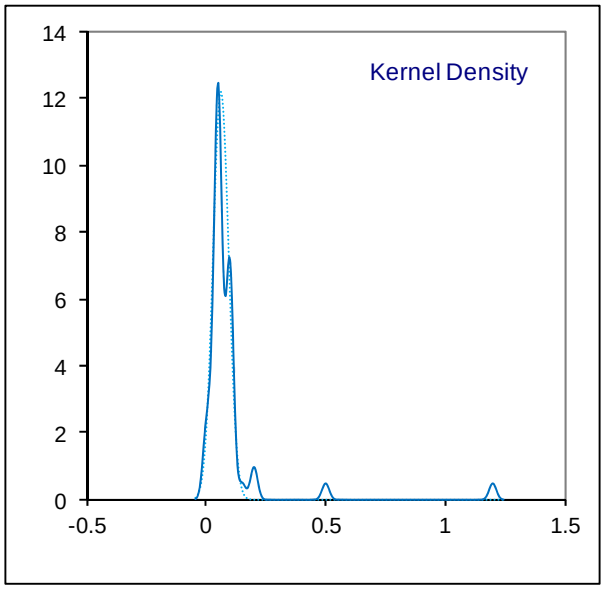
Determination of BS&W on sample #14215; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4007	0.1		0.76	995		-----		-----
90		-----		-----	996		-----		-----
92	D4007	0.10		0.76	997		-----		-----
120	D4007	0.10		0.76	998		-----		-----
131	D4007	0.050		-0.22	1016		-----		-----
133	D4007	0.025		-0.70	1039		-----		-----
140	D4007	0.10		0.76	1040		-----		-----
150	D4007	0.05		-0.22	1056		-----		-----
154	D4007	0.025		-0.70	1065	D4007	1.2	R(0.01)	22.16
158		-----		-----	1081		-----		-----
159	D4007	0.025		-0.70	1090		-----		-----
167	D4007	0.05		-0.22	1095		-----		-----
168	D4007	0.05		-0.22	1109	D4007	0.05		-0.22
171	D4007	0.50	R(0.01)	8.54	1131		-----		-----
179		-----		-----	1201	D1796	0.20	R(0.01)	2.70
186		-----		-----	1212	D4007	0.04		-0.41
193		-----		-----	1236		-----		-----
203		-----		-----	1243		-----		-----
225	D4007	0.05		-0.22	1248		-----		-----
238		-----		-----	1259		-----		-----
242		-----		-----	1264	D4007	0.05		-0.22
273		-----		-----	1272	ISO9030	0.15		1.73
311	D4007	0.10		0.76	1287		-----		-----
314		-----		-----	1340	ISO9030	0.075		0.27
332		-----		-----	1362	D4007	0.088		0.52
333	D4007	0		-1.19	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340		-----		-----	1412		-----		-----
391		-----		-----	1419		-----		-----
398		-----		-----	1488	D4007	0.050		-0.22
399		-----		-----	1543		-----		-----
402	D4007	0.05		-0.22	1556	ISO3734	0		-1.19
441		-----		-----	1603		-----		-----
442		-----		-----	1613	D4007	0.05		-0.22
444		-----		-----	1616	D4007	0.10		0.76
445		-----		-----	1654	D4007	0.05		-0.22
446		-----		-----	1714		-----		-----
447		-----		-----	1720		-----		-----
485		-----		-----	1728	D4006/D473	0.076		0.29
494		-----		-----	1741	ISO9030	0.05		-0.22
511		-----		-----	1759		-----		-----
529	D4007	0.05		-0.22	1776		-----		-----
541		-----		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574	D4007	0.100		0.76	1815	D4007	0.05		-0.22
593	D4006Calc.	0.055		-0.12	1842		-----		-----
602	D4007	0.10		0.76	1858		-----		-----
605	D4007	0.10		0.76	1892	D4007	<0.025		-----
606		-----		-----	1930		-----		-----
608	D4007	0.0		-1.19	1957	D4007	0.1		0.76
609	D4007	0.10		0.76	9050		-----		-----
613		-----		-----	9051		-----		-----
621	D4007	0.05		-0.22	9052		-----		-----
657	D4007	0.05		-0.22	9057		-----		-----
663	D4007	0.05		-0.22	9060	D4007	0		-1.19
704	D4007	0.05		-0.22	9063		-----		-----
732		-----		-----	9101	D4007	0.05		-0.22
739		-----		-----	9132	D4007	0.10		0.76
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750		-----		-----	9135		-----		-----
751		-----		-----	9136		-----		-----
752		-----		-----	9137		-----		-----
753	Calc.	0.0277		-0.65	9138		-----		-----
781	D4007	0.10		0.76	9139		-----		-----
784		-----		-----	9142	D4007	0.042		-0.37
862	D4007	0.050		-0.22	9143		-----		-----
872		-----		-----	9146		-----		-----
874	D4007	0.075		0.27	9151		-----		-----
875		-----		-----	9152	D4007	<0.1		-----
902		-----		-----	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963	D4007	0.20	R(0.01)	2.70	9157		-----		-----
970		-----		-----					

971		-----	-----
974	D4007	0.05	-0.22
993		-----	-----
994		-----	-----

normality	OK
n	50
outliers	4
mean (n)	0.0611
st.dev. (n)	0.03267
R(calc.)	0.0915
R(D4007:11e1)	0.1439





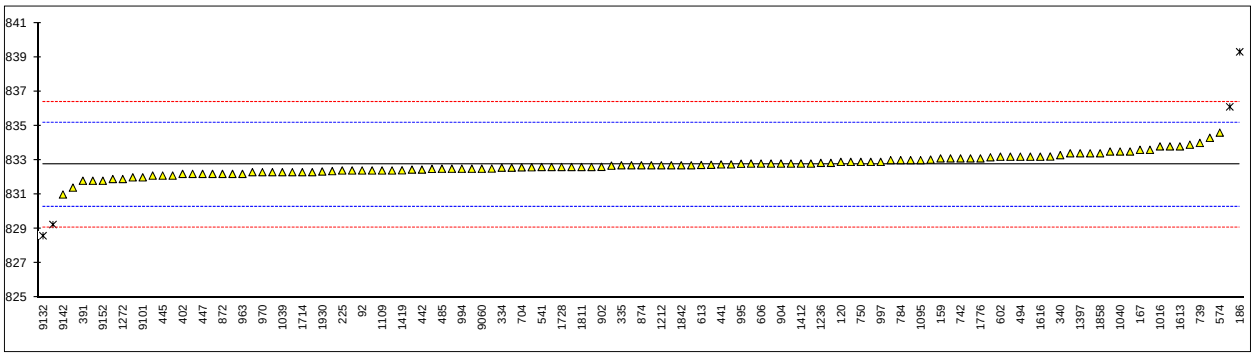
Determination of Density @ 15°C on sample #14215; results in kg/m^3

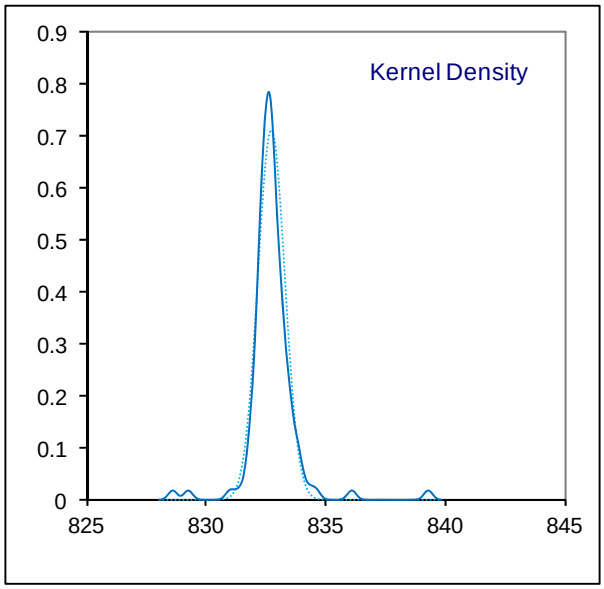
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5002	832.45		-0.23	995	D5002	832.79		0.05
90	D5002	833.2		0.38	996		-----		-----
92	D5002	832.4		-0.27	997	D5002	832.9		0.14
120	D4052	832.9		0.14	998		-----		-----
131	D5002	832.7		-0.02	1016	D4052	833.8		0.87
133		-----		-----	1039	D5002	832.3		-0.35
140		-----		-----	1040	ISO12185	833.5		0.63
150		-----		-----	1056	D5002	833.9		0.96
154		-----		-----	1065	D1298	833.8		0.87
158		-----		-----	1081	D5002	832.8		0.06
159	D5002	833.1	C	0.30	1090	ISO12185	832.10		-0.51
167	D5002	833.6		0.71	1095	D5002	833.0		0.22
168		-----		-----	1109	D5002	832.4		-0.27
171	D5002	832.8		0.06	1131	D5002	832.587		-0.12
179	D5002	831.8	C	-0.76	1201	D4052	832.0		-0.60
186	D4052	839.3	C,R(0.01)	5.36	1212	D5002	832.7		-0.02
193	D4052	832.3		-0.35	1236	D5002	832.84	C	0.09
203	D1298	831.4		-1.08	1243		-----		-----
225	D5002	832.4		-0.27	1248	D5002Mod.	833.03		0.25
238		-----		-----	1259	ISO3675	832.3		-0.35
242		-----		-----	1264	D4052	832.70		-0.02
273	D5002	831.9		-0.68	1272	ISO3675	831.9		-0.68
311	D5002	833.1	C	0.30	1287		-----		-----
314	D5002	832.6		-0.11	1340	ISO3675	833.166		0.36
332	D5002	832.73		0.00	1362	D5002	832.5		-0.19
333	D4052	832.2		-0.43	1387	D5002	833.2	C	0.38
334	D5002	832.56		-0.14	1397	D1298	833.4		0.55
335	D5002	832.7		-0.02	1403		-----		-----
340	D5002	833.29		0.46	1412	D5002	832.8		0.06
391	D5002	831.8		-0.76	1419	EN12185	832.41		-0.26
398	D1298	832.2		-0.43	1488	D1298	832.84		0.09
399	D4052	832.5		-0.19	1543		-----		-----
402	D4052	832.2		-0.43	1556	ISO12185	832.49		-0.20
441	D4052	832.75		0.02	1603	in house	832.68		-0.04
442	IP365	832.45		-0.23	1613	D5002	833.8		0.87
444	D4052	829.25	R(0.01)	-2.84	1616	D4052	833.2		0.38
445	D5002	832.1		-0.51	1654	D4052	832.36		-0.30
446	D5002	832.4		-0.27	1714	D5002	832.30		-0.35
447	D5002	832.2		-0.43	1720		-----		-----
485	D5002	832.5		-0.19	1728	D5002	832.6		-0.11
494	D5002	833.2		0.38	1741	D4052	832.80		0.06
511		-----		-----	1759		-----		-----
529	D5002	832.75		0.02	1776	ISO12185	833.1		0.30
541	D5002	832.6		-0.11	1800	D5002	833.4		0.55
551		-----		-----	1810	D5002	832.6		-0.11
557		-----		-----	1811	D5002	832.6		-0.11
574	D7042	834.6		1.53	1815	ISO12185	833.21		0.39
593	D1298	832.51		-0.18	1842	D4052	832.7		-0.02
602	D1298	833.2		0.38	1858	D5002	833.4		0.55
605	D1298	833.0		0.22	1892	D5002	832.3		-0.35
606	D1298	832.8		0.06	1930	ISO12185	832.34		-0.32
608	D5002	833.5		0.63	1957	D5002	833.5		0.63
609	D5002	832.8		0.06	9050	ISO12185	832.6		-0.11
613	D5002	832.72		-0.01	9051		-----		-----
621	D5002	836.1	R(0.01)	2.75	9052	D5002	832.7		-0.02
657	D5002	832.1		-0.51	9057		-----		-----
663	D5002	832.7		-0.02	9060	D5002	832.5		-0.19
704	D5002	832.58		-0.12	9063	INH-18	832.4		-0.27
732	D5002	832.4		-0.27	9101	D1298	832		-0.60
739	INH-51069	834.0		1.04	9132	D5002	828.6	R(0.01)	-3.37
742	D5002	833.1		0.30	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D5002	832.9		0.14	9135		-----		-----
751	D1298	833.1		0.30	9136		-----		-----
752	D5002	833.4		0.55	9137		-----		-----
753	D5002	833.6		0.71	9138		-----		-----
781	D5002	833.0		0.22	9139		-----		-----
784	D5002	833.0		0.22	9142	D1298	831.0		-1.41
862	D5002	832.56		-0.14	9143		-----		-----
872	D5002	832.2		-0.43	9146		-----		-----
874	D5002	832.7		-0.02	9151		-----		-----
875	D5002	832.9		0.14	9152	D5002	831.8	C	-0.76
902	D5002	832.61		-0.10	9154		-----		-----
904	D5002	832.8		0.06	9155		-----		-----
962	D5002	832.2		-0.43	9156		-----		-----
963	D5002	832.2		-0.43	9157		-----		-----
970	D4052	832.3		-0.35					

971	D5002	832.9	0.14
974	D1298	834.3	1.28
993	D5002	832.3	-0.35
994	D5002	832.5	-0.19

normality	suspect
n	117
outliers	4
mean (n)	832.729
st.dev. (n)	0.5619
R(calc.)	1.573
R(D5002:13)	3.431

lab 159 probably unit error, reported 0.8331 kg/m^3
lab 179 probably unit error, reported 0.8318 kg/m^3
lab 186 probably unit error, reported 0.8393 kg/m^3
lab 311 first reported 883.1
lab 1236 probably unit error, reported 0.83284 kg/m^3
lab 1387 first reported 0.8332
lab 9152 probably unit error, reported 0.8318 kg/m^3





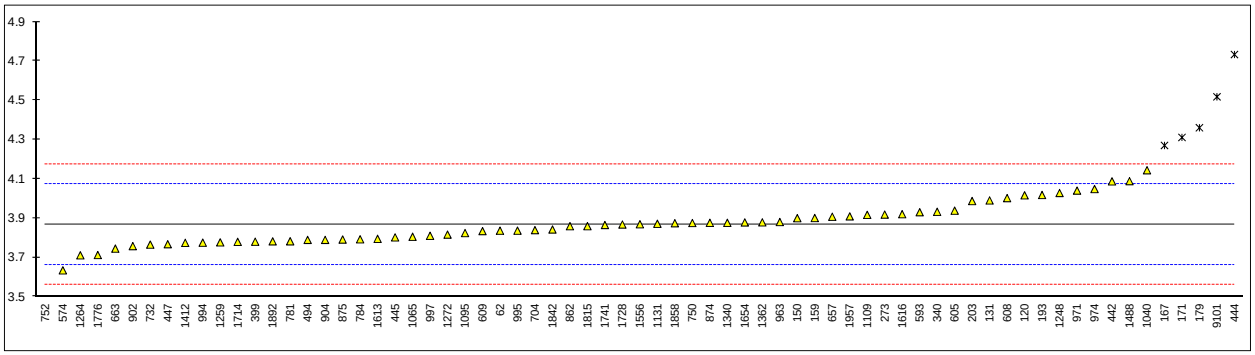
Determination of Kinematic Viscosity @ 40 ºC on sample #14215; results in mm^2/s

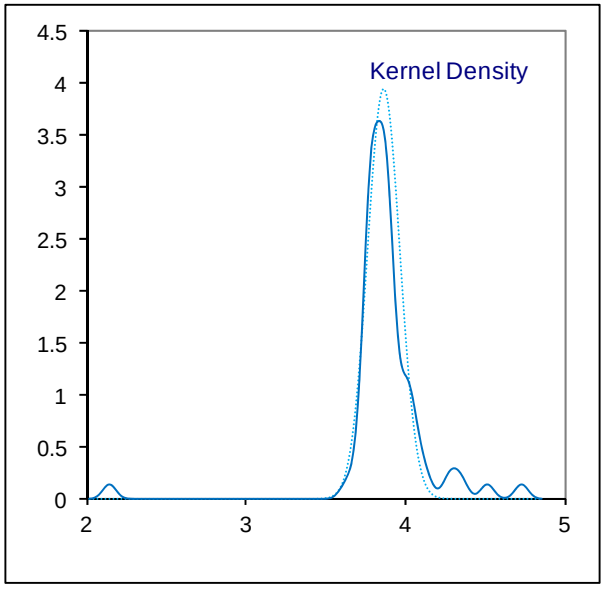
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D445	3.836		-0.31	995	D445	3.8362		-0.31
90		-----		-----	996		-----		-----
92		-----		-----	997	D445	3.810		-0.57
120	D445	4.016		1.45	998		-----		-----
131	D445	3.990		1.19	1016		-----		-----
133		-----		-----	1039		-----		-----
140		-----		-----	1040	DIN51562	4.1438		2.70
150	D445	3.8997		0.31	1056		-----		-----
154		-----		-----	1065	D445	3.805		-0.62
158		-----		-----	1081		-----		-----
159	D445	3.9005		0.32	1090		-----		-----
167	D445	4.27	R(0.05)	3.93	1095	D445	3.824		-0.43
168		-----		-----	1109	D445	3.9166		0.48
171	D445	4.311	R(0.05)	4.33	1131	D445	3.8712		0.03
179	D445	4.36	R(0.05)	4.81	1201		-----		-----
186		-----		-----	1212		-----		-----
193	D445	4.0177		1.46	1236		-----		-----
203	D445	3.987		1.16	1243		-----		-----
225		-----		-----	1248	IP71Mod.	4.028		1.56
238		-----		-----	1259	ISO3104	3.7764		-0.90
242		-----		-----	1264	D445	3.710625		-1.54
273	D445	3.918		0.49	1272	ISO3104	3.8161		-0.51
311		-----		-----	1287		-----		-----
314		-----		-----	1340	ISO3104	3.876		0.08
332		-----		-----	1362	D445	3.8785		0.10
333		-----		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340	D445	3.9322		0.63	1412	D445	3.774		-0.92
391		-----		-----	1419		-----		-----
398		-----		-----	1488	D445	4.08811		2.15
399	D445	3.780		-0.86	1543		-----		-----
402		-----		-----	1556	ISO3104	3.8688		0.01
441		-----		-----	1603		-----		-----
442	IP71	4.0872		2.14	1613	D445	3.7944		-0.72
444	D445	4.733	C,R(0.01)	8.46	1616	D445	3.920		0.51
445	D445	3.802		-0.65	1654	D445	3.8781		0.10
446		-----		-----	1714	D445	3.7792		-0.87
447	D445	3.767		-0.99	1720		-----		-----
485		-----		-----	1728	D445	3.8675		-0.01
494	D445	3.789		-0.77	1741	D445	3.8650		-0.03
511		-----		-----	1759		-----		-----
529		-----		-----	1776	D7042	3.712		-1.53
541		-----		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574	D7042	3.6341		-2.29	1815	ISO3104	3.8590		-0.09
593	D445	3.930		0.61	1842	IP71	3.842		-0.25
602		-----		-----	1858	D445	3.874		0.06
605	D445	3.938		0.68	1892	D7042	3.7817		-0.84
606		-----		-----	1930		-----		-----
608	D445	4.002		1.31	1957	D7042	3.9090		0.40
609	D445	3.834		-0.33	9050		-----		-----
613		-----		-----	9051		-----		-----
621		-----		-----	9052		-----		-----
657	D445	3.907		0.38	9057		-----		-----
663	D445	3.7447		-1.21	9060		-----		-----
704	D445	3.8389		-0.28	9063		-----		-----
732	D445	3.765		-1.01	9101	D445	4.51766	R(0.01)	6.35
739		-----		-----	9132		-----		-----
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D445	3.875		0.07	9135		-----		-----
751		-----		-----	9136		-----		-----
752	D445	2.148	R(0.01)	-16.83	9137		-----		-----
753		-----		-----	9138		-----		-----
781	D445	3.782		-0.84	9139		-----		-----
784	D445	3.792		-0.74	9142		-----		-----
862	D445	3.8588		-0.09	9143		-----		-----
872		-----		-----	9146		-----		-----
874	D445	3.876		0.08	9151		-----		-----
875	D445	3.791		-0.75	9152		-----		-----
902	D445	3.7575		-1.08	9154		-----		-----
904	D445	3.789		-0.77	9155		-----		-----
962		-----		-----	9156		-----		-----
963	D445	3.880		0.12	9157		-----		-----
970		-----		-----					

971	D445	4.040	1.68
974	D445	4.048	1.76
993		-----	-----
994	D445	3.775	-0.91

normality	OK
n	63
outliers	6
mean (n)	3.86802
st.dev. (n)	0.101356
R(calc.)	0.28380
R(D445:14e2)	0.28623

lab 444 first reported 4.3954





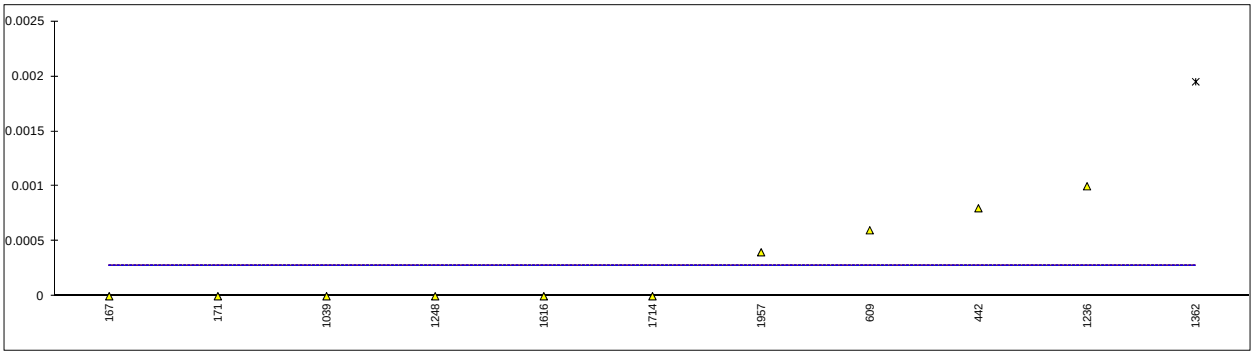
Determination of individual Light ends [C1-C3] on sample #14215; results in%M/M

lab	method	C1	mark	z(targ)	C2	mark	z(targ)	C3	mark	z(targ)
62		-----		-----	-----		-----	-----		-----
90		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
120		-----		-----	-----		-----	-----		-----
131		-----		-----	-----		-----	-----		-----
133		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	IP344	<0.01		-----	0.0111		0.09	0.2348		0.55
154		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
167	D7900	0.00		-----	0.0133		1.53	0.2397		0.84
168		-----		-----	-----		-----	-----		-----
171	IP344	0.00		-----	0.01		-0.63	0.22		-0.33
179		-----		-----	-----		-----	-----		-----
186		-----		-----	-----		-----	-----		-----
193		-----		-----	-----		-----	-----		-----
203		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
242		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311	INH-267	<0.01		-----	0.01		-0.63	0.22		-0.33
314		-----		-----	-----		-----	-----		-----
332		-----		-----	-----		-----	-----		-----
333		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
340		-----		-----	-----		-----	-----		-----
391		-----		-----	-----		-----	-----		-----
398		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
402		-----		-----	-----		-----	-----		-----
441		-----		-----	-----		-----	-----		-----
442	IP344	0.0008		-----	0.0129		1.27	0.2355		0.59
444		-----		-----	-----		-----	-----		-----
445	IP344	<0.001		-----	0.009		-1.29	0.191		-2.05
446		-----		-----	-----		-----	-----		-----
447		-----		-----	-----		-----	-----		-----
485		-----		-----	-----		-----	-----		-----
494		-----		-----	-----		-----	-----		-----
511		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
551		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
574		-----		-----	-----		-----	-----		-----
593		-----		-----	-----		-----	-----		-----
602		-----		-----	-----		-----	-----		-----
605		-----		-----	-----		-----	-----		-----
606		-----		-----	-----		-----	-----		-----
608		<0.01		-----	0.011		0.02	0.224		-0.09
609		0.0006	C	-----	0.0129	C	1.27	0.2398	C	0.85
613		-----		-----	-----		-----	-----		-----
621		-----		-----	-----		-----	-----		-----
657		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
704		-----		-----	-----		-----	-----		-----
732		-----		-----	-----		-----	-----		-----
739		-----		-----	-----		-----	-----		-----
742		-----		-----	-----		-----	-----		-----
749		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
751		-----		-----	-----		-----	-----		-----
752		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
784		-----		-----	-----		-----	-----		-----
862	IP344	<0.01		-----	0.007		-2.60	0.180		-2.70
872		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
902		-----		-----	-----		-----	-----		-----
904		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
970		-----		-----	-----		-----	-----		-----

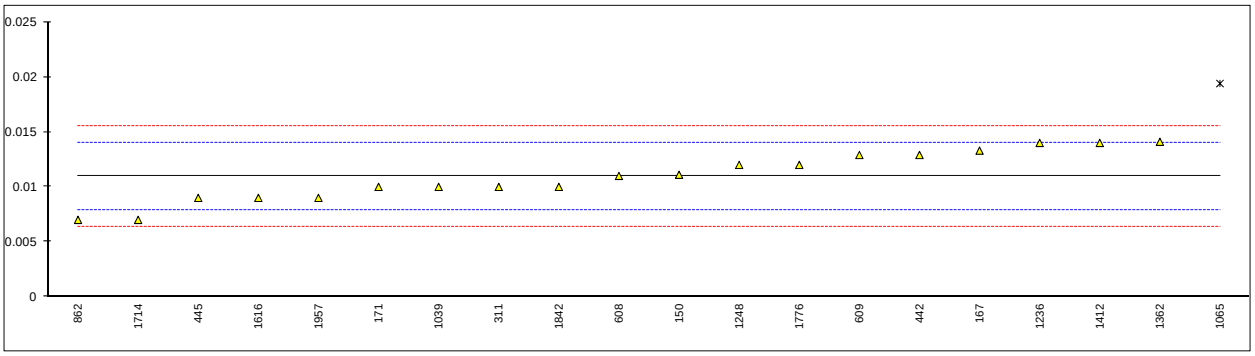
971		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----
993		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
996		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
998		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1039	IP344	0.00		-----	0.01		-0.63	0.23		0.27
1040		-----		-----	-----		-----	-----		-----
1056		-----		-----	-----		-----	-----		-----
1065		<0.001		-----	0.0194	R(0.05)	5.53	0.2673		2.48
1081		-----		-----	-----		-----	-----		-----
1090		-----		-----	-----		-----	-----		-----
1095		-----		-----	-----		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1131		-----		-----	-----		-----	-----		-----
1201		-----		-----	-----		-----	-----		-----
1212		-----		-----	-----		-----	-----		-----
1236	D5134	0.001		-----	0.014		1.99	0.2425		1.01
1243		-----		-----	-----		-----	-----		-----
1248	in house	0.000		-----	0.012		0.68	0.229		0.21
1259		-----		-----	-----		-----	-----		-----
1264	D6730	<0.01		-----	<0.01		-----	<0.01	false-?	<-12.80
1272		-----		-----	-----		-----	-----		-----
1287		-----		-----	-----		-----	-----		-----
1340		-----		-----	-----		-----	-----		-----
1362		0.00195	G(0.05)	-----	0.0141		2.05	0.2444		1.12
1387		-----		-----	-----		-----	-----		-----
1397		-----		-----	-----		-----	-----		-----
1403		-----		-----	-----		-----	-----		-----
1412	IP344	<0.01		-----	0.014		1.99	0.248		1.33
1419		-----		-----	-----		-----	-----		-----
1488		-----		-----	-----		-----	-----		-----
1543		-----		-----	-----		-----	-----		-----
1556	IP344	<0.02		-----	<0.02		-----	0.201		-1.46
1603		-----		-----	-----		-----	-----		-----
1613		-----		-----	-----		-----	-----		-----
1616	in house	0.000		-----	0.009		-1.29	0.211		-0.86
1654		-----		-----	-----		-----	-----		-----
1714		0.00		-----	0.007		-2.60	0.206		-1.16
1720		-----		-----	-----		-----	-----		-----
1728		-----		-----	-----		-----	-----		-----
1741		-----		-----	-----		-----	-----		-----
1759		-----		-----	-----		-----	-----		-----
1776	IP344	<0,010		-----	0.012		0.68	0.249		1.39
1800		-----		-----	-----		-----	-----		-----
1810		-----		-----	-----		-----	-----		-----
1811		-----		-----	-----		-----	-----		-----
1815		-----		-----	-----		-----	-----		-----
1842	IP601	n.d.		-----	0.01		-0.63	0.23		0.27
1858		-----		-----	-----		-----	-----		-----
1892		-----		-----	-----		-----	-----		-----
1930		-----		-----	-----		-----	-----		-----
1957	IP344	0.0004		-----	0.0090		-1.29	0.1931		-1.93
9050		-----		-----	-----		-----	-----		-----
9051		-----		-----	-----		-----	-----		-----
9052		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9060		-----		-----	-----		-----	-----		-----
9063		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9132		-----		-----	-----		-----	-----		-----
9133		-----		-----	-----		-----	-----		-----
9134		-----		-----	-----		-----	-----		-----
9135		-----		-----	-----		-----	-----		-----
9136		-----		-----	-----		-----	-----		-----
9137		-----		-----	-----		-----	-----		-----
9138		-----		-----	-----		-----	-----		-----
9139		-----		-----	-----		-----	-----		-----
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----
9146		-----		-----	-----		-----	-----		-----
9151		-----		-----	-----		-----	-----		-----
9152		-----		-----	-----		-----	-----		-----
9154		-----		-----	-----		-----	-----		-----
9155		-----		-----	-----		-----	-----		-----
9156		-----		-----	-----		-----	-----		-----
9157		-----		-----	-----		-----	-----		-----

normality	OK	OK	OK
n	10	19	21
outliers	1	1	0
mean (n)	0.00028	0.0110	0.2255
st.dev. (n)	0.000391	0.00224	0.02198
R(calc.)	0.00109	0.0063	0.0615
R(IP344:10)	n.a.	0.0043	0.0471

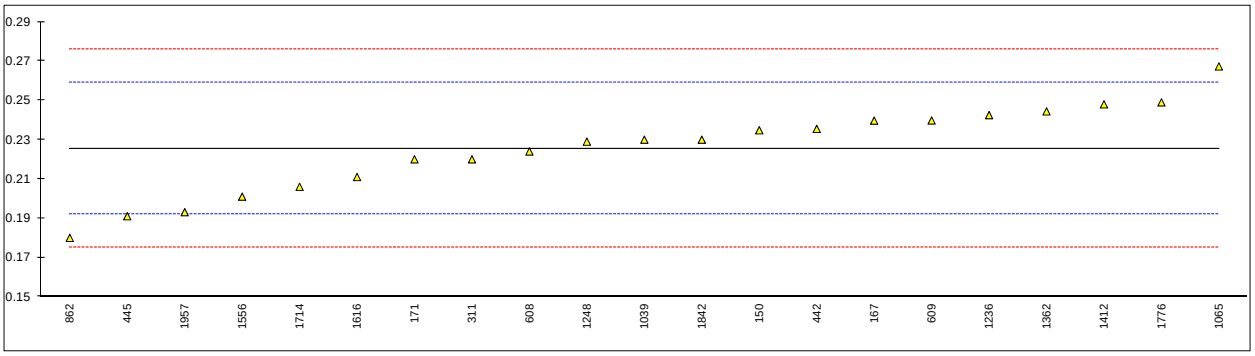
lab 609 first reported 0.0005; 0.0128 & 0.2396 resp.



C1



C2



C3

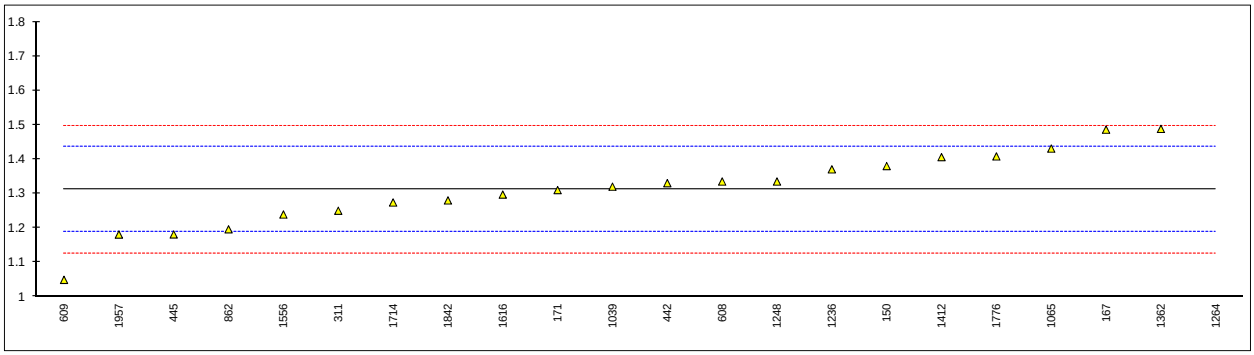
Determination of individual Light ends [C4-C6] on sample #14215; results in%M/M

lab	method	C4	mark	z(targ)	C5	mark	z(targ)	C6	mark	z(targ)
62		-----		-----	-----		-----	-----		-----
90		-----		-----	-----		-----	-----		-----
92		-----		-----	-----		-----	-----		-----
120		-----		-----	-----		-----	-----		-----
131		-----		-----	-----		-----	-----		-----
133		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	IP344	1.3800		1.10	2.7471		1.09	4.2452		2.16
154		-----		-----	-----		-----	-----		-----
158		-----		-----	-----		-----	-----		-----
159		-----		-----	-----		-----	-----		-----
167	D7900	1.4859		2.82	2.8626		2.28	4.3973		3.10
168		-----		-----	-----		-----	-----		-----
171	IP344	1.31		-0.03	2.60		-0.42	4.02		0.75
179		-----		-----	-----		-----	-----		-----
186		-----		-----	-----		-----	-----		-----
193		-----		-----	-----		-----	-----		-----
203		-----		-----	-----		-----	-----		-----
225		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
242		-----		-----	-----		-----	-----		-----
273		-----		-----	-----		-----	-----		-----
311	INH-267	1.25		-1.00	2.50		-1.45	4.11		1.31
314		-----		-----	-----		-----	-----		-----
332		-----		-----	-----		-----	-----		-----
333		-----		-----	-----		-----	-----		-----
334		-----		-----	-----		-----	-----		-----
335		-----		-----	-----		-----	-----		-----
340		-----		-----	-----		-----	-----		-----
391		-----		-----	-----		-----	-----		-----
398		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
402		-----		-----	-----		-----	-----		-----
441		-----		-----	-----		-----	-----		-----
442	IP344	1.3302		0.30	2.6360		-0.05	3.4162		-3.00
444		-----		-----	-----		-----	-----		-----
445	IP344	1.181		-2.11	2.410		-2.38	3.658		-1.50
446		-----		-----	-----		-----	-----		-----
447		-----		-----	-----		-----	-----		-----
485		-----		-----	-----		-----	-----		-----
494		-----		-----	-----		-----	-----		-----
511		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
551		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
574		-----		-----	-----		-----	-----		-----
593		-----		-----	-----		-----	-----		-----
602		-----		-----	-----		-----	-----		-----
605		-----		-----	-----		-----	-----		-----
606		-----		-----	-----		-----	-----		-----
608		1.335		0.38	2.539		-1.05	-----		-----
609		1.0489	C	-4.25	2.5350	C	-1.09	-----		-----
613		-----		-----	-----		-----	-----		-----
621		-----		-----	-----		-----	-----		-----
657		-----		-----	-----		-----	-----		-----
663		-----		-----	-----		-----	-----		-----
704		-----		-----	-----		-----	-----		-----
732		-----		-----	-----		-----	-----		-----
739		-----		-----	-----		-----	-----		-----
742		-----		-----	-----		-----	-----		-----
749		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
751		-----		-----	-----		-----	-----		-----
752		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
781		-----		-----	-----		-----	-----		-----
784		-----		-----	-----		-----	-----		-----
862	IP344	1.196		-1.87	2.477		-1.69	3.626		-1.70
872		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875		-----		-----	-----		-----	-----		-----
902		-----		-----	-----		-----	-----		-----
904		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963		-----		-----	-----		-----	-----		-----
970		-----		-----	-----		-----	-----		-----

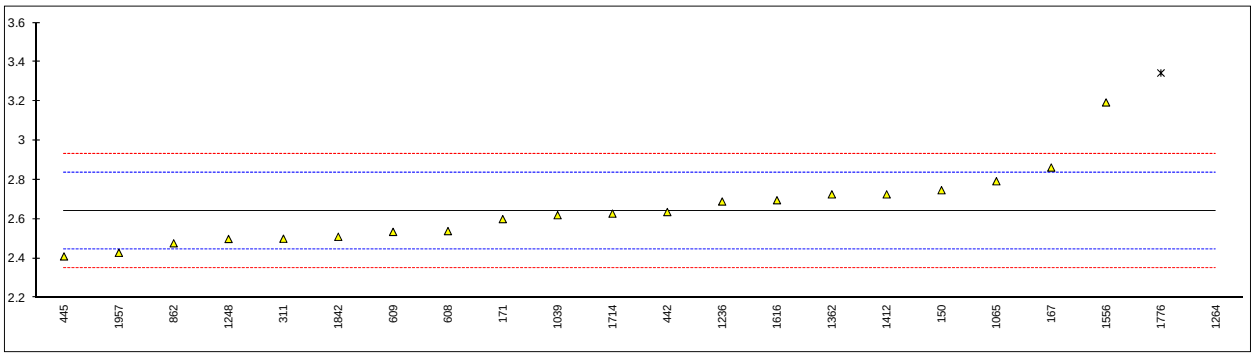
971		-----		-----	-----		-----	-----		-----
974		-----		-----	-----		-----	-----		-----
993		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
996		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
998		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1039	IP344	1.32		0.13	2.62		-0.21	3.86		-0.24
1040		-----		-----	-----		-----	-----		-----
1056		-----		-----	-----		-----	-----		-----
1065		1.4309		1.93	2.7928		1.56	-----		-----
1081		-----		-----	-----		-----	-----		-----
1090		-----		-----	-----		-----	-----		-----
1095		-----		-----	-----		-----	-----		-----
1109		-----		-----	-----		-----	-----		-----
1131		-----		-----	-----		-----	-----		-----
1201		-----		-----	-----		-----	-----		-----
1212		-----		-----	-----		-----	-----		-----
1236	D5134	1.3705		0.95	2.6895		0.50	4.141		1.51
1243		-----		-----	-----		-----	-----		-----
1248	in house	1.335		0.38	2.499		-1.46	3.654		-1.52
1259		-----		-----	-----		-----	-----		-----
1264	D6730	2.975505	R(0.01)	26.91	6.971395	R(0.01)	44.58	18.42733	G(0.01)	90.40
1272		-----		-----	-----		-----	-----		-----
1287		-----		-----	-----		-----	-----		-----
1340		-----		-----	-----		-----	-----		-----
1362		1.4881		2.85	2.7259		0.88	3.1465		-4.68
1387		-----		-----	-----		-----	-----		-----
1397		-----		-----	-----		-----	-----		-----
1403		-----		-----	-----		-----	-----		-----
1412	IP344	1.406		1.52	2.726		0.88	3.397		-3.12
1419		-----		-----	-----		-----	-----		-----
1488		-----		-----	-----		-----	-----		-----
1543		-----		-----	-----		-----	-----		-----
1556	IP344	1.239		-1.18	3.194	C	5.69	3.563	C	-2.09
1603		-----		-----	-----		-----	-----		-----
1613		-----		-----	-----		-----	-----		-----
1616	in house	1.297		-0.24	2.696		0.57	4.286		2.41
1654		-----		-----	-----		-----	-----		-----
1714		1.274		-0.61	2.628		-0.13	4.105		1.28
1720		-----		-----	-----		-----	-----		-----
1728		-----		-----	-----		-----	-----		-----
1741		-----		-----	-----		-----	-----		-----
1759		-----		-----	-----		-----	-----		-----
1776	IP344	1.408		1.56	3.344	R(0.05)	7.24	3.457		-2.75
1800		-----		-----	-----		-----	-----		-----
1810		-----		-----	-----		-----	-----		-----
1811		-----		-----	-----		-----	-----		-----
1815		-----		-----	-----		-----	-----		-----
1842	IP601	1.28		-0.51	2.51		-1.35	5.22		8.22
1858		-----		-----	-----		-----	-----		-----
1892		-----		-----	-----		-----	-----		-----
1930		-----		-----	-----		-----	-----		-----
1957	IP344	1.1807		-2.12	2.4283		-2.19	3.8771		-0.14
9050		-----		-----	-----		-----	-----		-----
9051		-----		-----	-----		-----	-----		-----
9052		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9060		-----		-----	-----		-----	-----		-----
9063		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9132		-----		-----	-----		-----	-----		-----
9133		-----		-----	-----		-----	-----		-----
9134		-----		-----	-----		-----	-----		-----
9135		-----		-----	-----		-----	-----		-----
9136		-----		-----	-----		-----	-----		-----
9137		-----		-----	-----		-----	-----		-----
9138		-----		-----	-----		-----	-----		-----
9139		-----		-----	-----		-----	-----		-----
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----
9146		-----		-----	-----		-----	-----		-----
9151		-----		-----	-----		-----	-----		-----
9152		-----		-----	-----		-----	-----		-----
9154		-----		-----	-----		-----	-----		-----
9155		-----		-----	-----		-----	-----		-----
9156		-----		-----	-----		-----	-----		-----
9157		-----		-----	-----		-----	-----		-----

normality	OK	not OK	not OK
n	21	20	18
outliers	1	2	1
mean (n)	1.3117	2.6408	3.8988
st.dev. (n)	0.10768	0.18001	0.48370
R(calc.)	0.3015	0.5040	1.3544
R(IP344:10)	0.1731	0.2720	0.4500

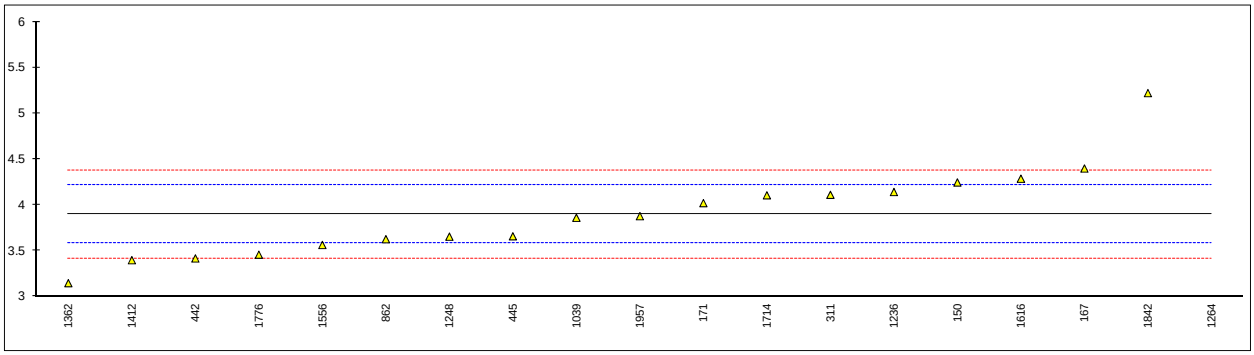
lab 609 first reported 1.0485 & 1.6908 resp.
lab 1556 first reported 2.420 & 1.225 resp.



C4



C5



C6

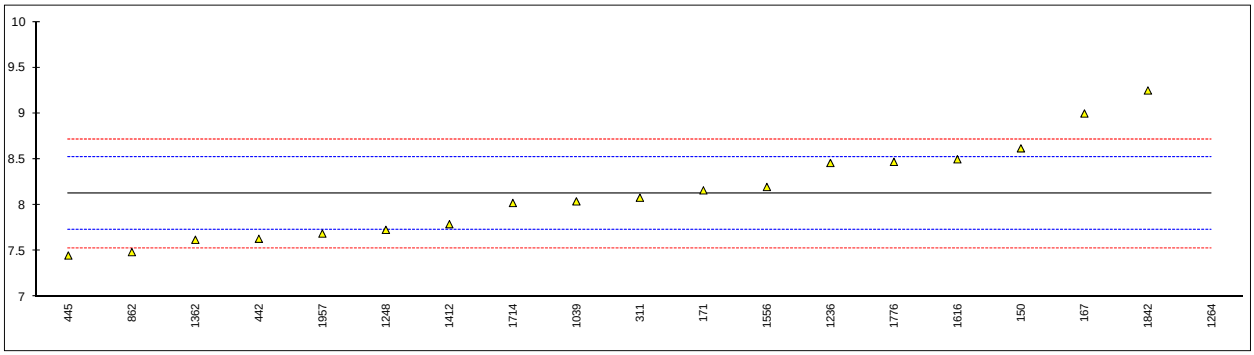
Determination of Total Light ends [C1-C6] on sample #14215; results in %M/M

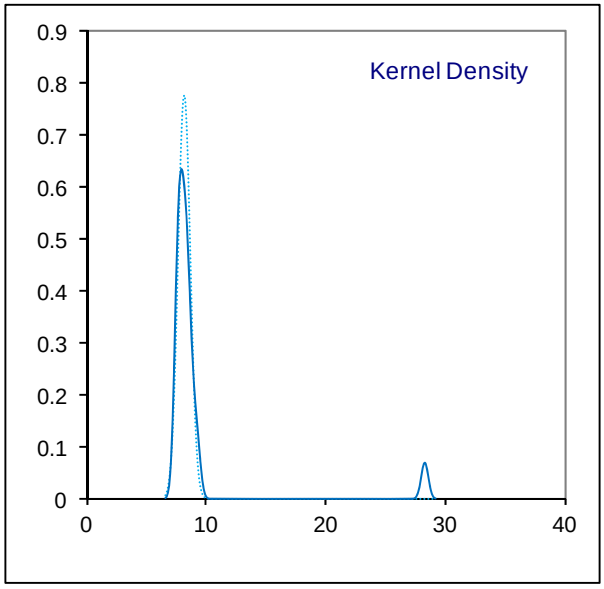
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	995		-----		-----
90		-----		-----	996		-----		-----
92		-----		-----	997		-----		-----
120		-----		-----	998		-----		-----
131		-----		-----	1016		-----		-----
133		-----		-----	1039	IP344	8.04		-0.41
140		-----		-----	1040		-----		-----
150	IP344	8.6185		2.50	1056		-----		-----
154		-----		-----	1065		-----		-----
158		-----		-----	1081		-----		-----
159		-----		-----	1090		-----		-----
167	D7900	8.9988		4.42	1095		-----		-----
168		-----		-----	1109		-----		-----
171	IP344	8.16		0.19	1131		-----		-----
179		-----		-----	1201		-----		-----
186		-----		-----	1212		-----		-----
193		-----		-----	1236	D5134	8.4585		1.70
203		-----		-----	1243		-----		-----
225		-----		-----	1248	in house	7.729		-1.98
238		-----		-----	1259		-----		-----
242		-----		-----	1264	D6730	28.37423	G(0.01)	102.06
273		-----		-----	1272		-----		-----
311	INH-267	8.08		-0.21	1287		-----		-----
314		-----		-----	1340		-----		-----
332		-----		-----	1362		7.6209		-2.52
333		-----		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340		-----		-----	1412	IP344	7.791		-1.67
391		-----		-----	1419		-----		-----
398		-----		-----	1488		-----		-----
399		-----		-----	1543		-----		-----
402		-----		-----	1556	IP344	8.197	C	0.38
441		-----		-----	1603		-----		-----
442	IP344	7.6316		-2.47	1613		-----		-----
444		-----		-----	1616	in house	8.499		1.90
445	IP344	7.449		-3.39	1654		-----		-----
446		-----		-----	1714		8.022		-0.50
447		-----		-----	1720		-----		-----
485		-----		-----	1728		-----		-----
494		-----		-----	1741		-----		-----
511		-----		-----	1759		-----		-----
529		-----		-----	1776	IP344	8.471		1.76
541		-----		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574		-----		-----	1815		-----		-----
593		-----		-----	1842	IP601	9.25		5.69
602		-----		-----	1858		-----		-----
605		-----		-----	1892		-----		-----
606		-----		-----	1930		-----		-----
608		-----		-----	1957	IP344	7.6886		-2.18
609		-----		-----	9050		-----		-----
613		-----		-----	9051		-----		-----
621		-----		-----	9052		-----		-----
657		-----		-----	9057		-----		-----
663		-----		-----	9060		-----		-----
704		-----		-----	9063		-----		-----
732		-----		-----	9101		-----		-----
739		-----		-----	9132		-----		-----
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750		-----		-----	9135		-----		-----
751		-----		-----	9136		-----		-----
752		-----		-----	9137		-----		-----
753		-----		-----	9138		-----		-----
781		-----		-----	9139		-----		-----
784		-----		-----	9142		-----		-----
862	IP344	7.486		-3.20	9143		-----		-----
872		-----		-----	9146		-----		-----
874		-----		-----	9151		-----		-----
875		-----		-----	9152		-----		-----
902		-----		-----	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963		-----		-----	9157		-----		-----
970		-----		-----					

971	-----	-----
974	-----	-----
993	-----	-----
994	-----	-----

normality	OK
n	18
outliers	1
mean (n)	8.1217
st.dev. (n)	0.51400
R(calc.)	1.4392
R(IP344:10)	0.5556

lab 1556 first reported 5.085





Determination of Total Mercury on sample #14215; results in µg/kg

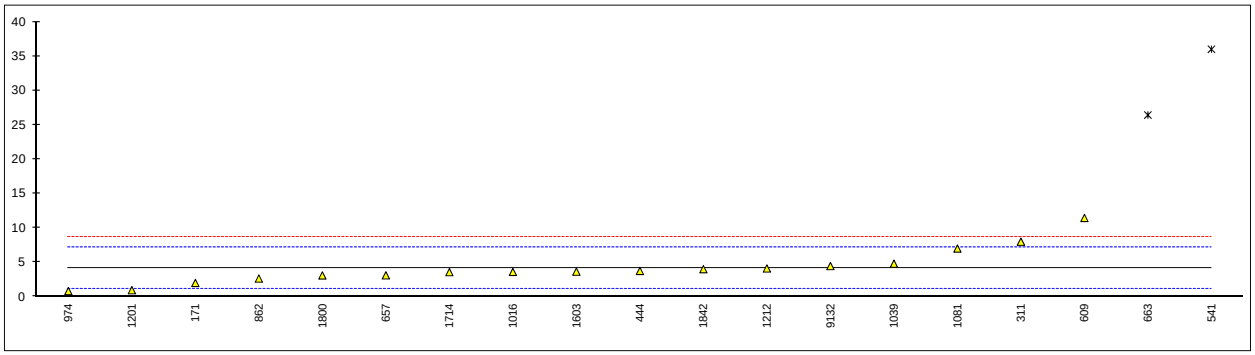
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	995		-----		-----
90		-----		-----	996		-----		-----
92		-----		-----	997		-----		-----
120		-----		-----	998		-----		-----
131		-----		-----	1016	UOP938	3.605		-0.37
133		-----		-----	1039	UOP938	4.8		0.41
140		-----		-----	1040		-----		-----
150		-----		-----	1056		-----		-----
154		-----		-----	1065		-----		-----
158		-----		-----	1081	D7623	7		1.86
159		-----		-----	1090		-----		-----
167		-----		-----	1095		-----		-----
168		-----		-----	1109		-----		-----
171	UOP938	2.00		-1.43	1131		-----		-----
179		-----		-----	1201		0.945		-2.12
186		-----		-----	1212	INH-80	4.1		-0.05
193		-----		-----	1236		-----		-----
203		-----		-----	1243		-----		-----
225		-----		-----	1248		-----		-----
238		-----		-----	1259		-----		-----
242		-----		-----	1264		-----		-----
273		-----		-----	1272		-----		-----
311	D7623	8		2.51	1287		-----		-----
314		-----		-----	1340		-----		-----
332		-----		-----	1362		-----		-----
333		-----		-----	1387		-----		-----
334		-----		-----	1397	in house	<0.5		<-2.41
335		-----		-----	1403		-----		-----
340		-----		-----	1412		-----		-----
391		-----		-----	1419		-----		-----
398		-----		-----	1488		-----		-----
399		-----		-----	1543		-----		-----
402		-----		-----	1556		-----		-----
441		-----		-----	1603	in house	3.64		-0.35
442		-----		-----	1613		-----		-----
444	UOP938	3.744		-0.28	1616		-----		-----
445		-----		-----	1654		-----		-----
446		-----		-----	1714	UOP938	3.57		-0.40
447		-----		-----	1720		-----		-----
485		-----		-----	1728		-----		-----
494		-----		-----	1741		-----		-----
511		-----		-----	1759		-----		-----
529		-----		-----	1776		-----		-----
541	UOP938	36	G(0.01)	20.89	1800	D7623	3.09		-0.71
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574		-----		-----	1815		-----		-----
593		-----		-----	1842	UOP938	4.0		-0.11
602		-----		-----	1858		-----		-----
605		-----		-----	1892		-----		-----
606		-----		-----	1930		-----		-----
608		-----		-----	1957		-----		-----
609	UOP938	11.455	C	4.78	9050		-----		-----
613		-----		-----	9051		-----		-----
621		-----		-----	9052		-----		-----
657	UOP938	3.1		-0.70	9057		-----		-----
663	UOP938	26.43	G(0.01)	14.61	9060		-----		-----
704		-----		-----	9063		-----		-----
732		-----		-----	9101		-----		-----
739		-----		-----	9132	UOP938	4.45		0.18
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750		-----		-----	9135		-----		-----
751		-----		-----	9136		-----		-----
752		-----		-----	9137		-----		-----
753		-----		-----	9138		-----		-----
781		-----		-----	9139		-----		-----
784		-----		-----	9142		-----		-----
862	UOP938	2.64		-1.01	9143		-----		-----
872		-----		-----	9146		-----		-----
874		-----		-----	9151		-----		-----
875		-----		-----	9152		-----		-----
902		-----		-----	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963		-----		-----	9157		-----		-----
970		-----		-----					

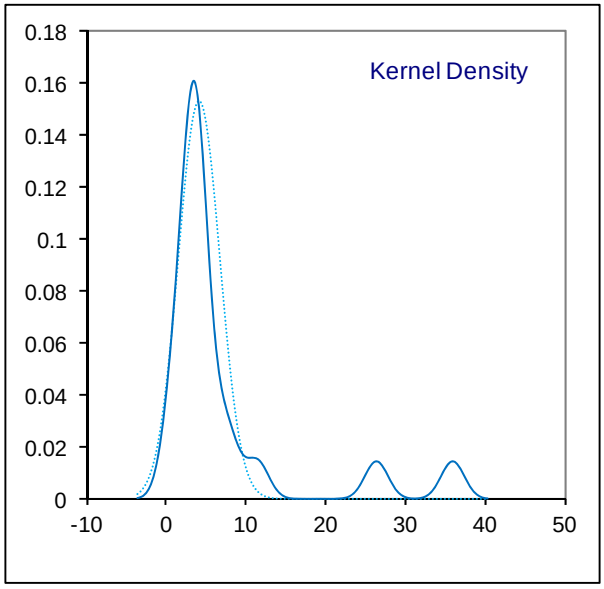
971		-----	-----
974	UOP938	0.81	-2.21
993		-----	-----
994		-----	-----

normality	not OK
n	17
outliers	2
mean (n)	4.1735
st.dev. (n)	2.60349
R(calc.)	7.2898
R(Horwitz)	4.2651

Compare R(D7623) = 3.0482 or R(UOP938) = 2.5644

lab 609 first reported 27.5005





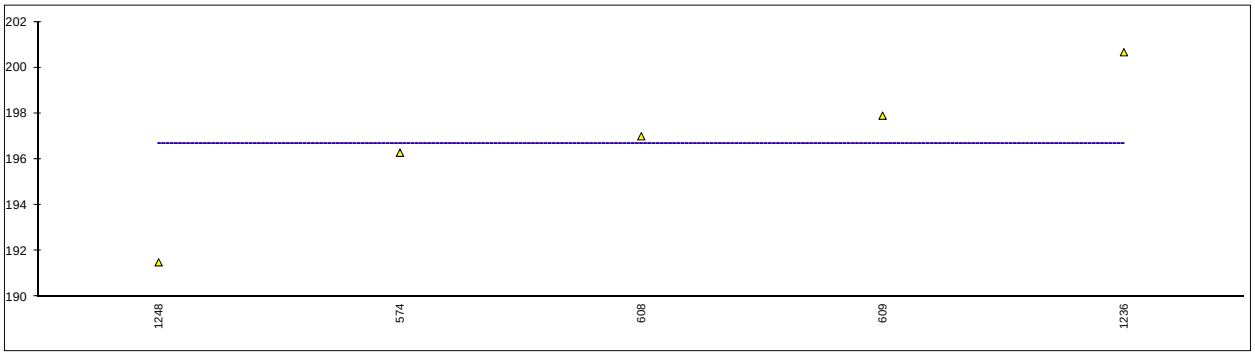
Determination of Molecular Mass, Average on sample #14215; results in g/mol

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	995		-----		-----
90		-----		-----	996		-----		-----
92		-----		-----	997		-----		-----
120		-----		-----	998		-----		-----
131		-----		-----	1016		-----		-----
133		-----		-----	1039		-----		-----
140		-----		-----	1040		-----		-----
150		-----		-----	1056		-----		-----
154		-----		-----	1065		-----		-----
158		-----		-----	1081		-----		-----
159		-----		-----	1090		-----		-----
167		-----		-----	1095		-----		-----
168		-----		-----	1109		-----		-----
171		-----		-----	1131		-----		-----
179		-----		-----	1201		-----		-----
186		-----		-----	1212		-----		-----
193		-----		-----	1236	in house	200.67		-----
203		-----		-----	1243		-----		-----
225		-----		-----	1248	in house *	191.5		-----
238		-----		-----	1259		-----		-----
242		-----		-----	1264		-----		-----
273		-----		-----	1272		-----		-----
311		-----		-----	1287		-----		-----
314		-----		-----	1340		-----		-----
332		-----		-----	1362		-----		-----
333		-----		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340		-----		-----	1412		-----		-----
391		-----		-----	1419		-----		-----
398		-----		-----	1488		-----		-----
399		-----		-----	1543		-----		-----
402		-----		-----	1556		-----		-----
441		-----		-----	1603		-----		-----
442		-----		-----	1613		-----		-----
444		-----		-----	1616		-----		-----
445		-----		-----	1654		-----		-----
446		-----		-----	1714		-----		-----
447		-----		-----	1720		-----		-----
485		-----		-----	1728		-----		-----
494		-----		-----	1741		-----		-----
511		-----		-----	1759		-----		-----
529		-----		-----	1776		-----		-----
541		-----		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574	D2503	196.28		-----	1815		-----		-----
593		-----		-----	1842		-----		-----
602		-----		-----	1858		-----		-----
605		-----		-----	1892		-----		-----
606		-----		-----	1930		-----		-----
608	in house *	197		-----	1957		-----		-----
609	INH-006	197.9		-----	9050		-----		-----
613		-----		-----	9051		-----		-----
621		-----		-----	9052		-----		-----
657		-----		-----	9057		-----		-----
663		-----		-----	9060		-----		-----
704		-----		-----	9063		-----		-----
732		-----		-----	9101		-----		-----
739		-----		-----	9132		-----		-----
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750		-----		-----	9135		-----		-----
751		-----		-----	9136		-----		-----
752		-----		-----	9137		-----		-----
753		-----		-----	9138		-----		-----
781		-----		-----	9139		-----		-----
784		-----		-----	9142		-----		-----
862		-----		-----	9143		-----		-----
872		-----		-----	9146		-----		-----
874		-----		-----	9151		-----		-----
875		-----		-----	9152		-----		-----
902		-----		-----	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963		-----		-----	9157		-----		-----
970		-----		-----					

971	-----	-----
974	-----	-----
993	-----	-----
994	-----	-----

normality	unknown
n	5
outliers	0
mean (n)	196.67
st.dev. (n)	3.336
R(calc.)	9.340
R(lit.)	n.a.

* labs 608 and 1248 reported to have used in-house methods based on Freezing Point depression



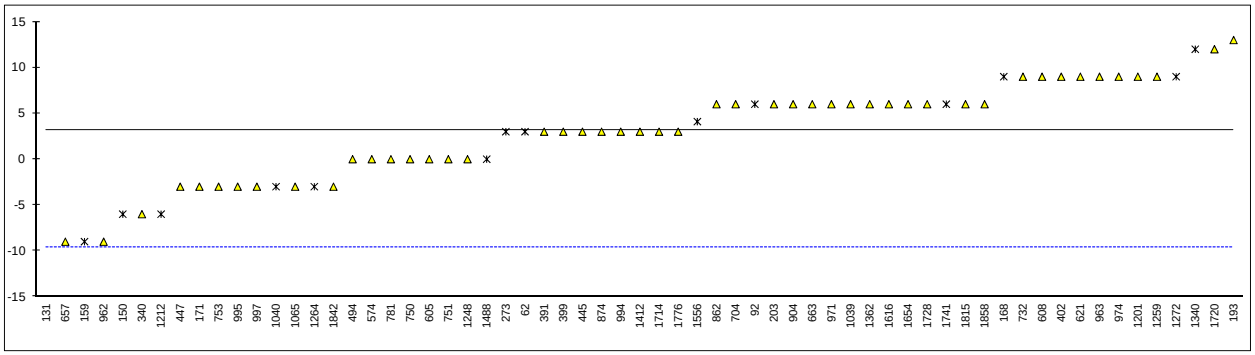
Determination of Pour Point (Maximum) on sample #14215; results in °C

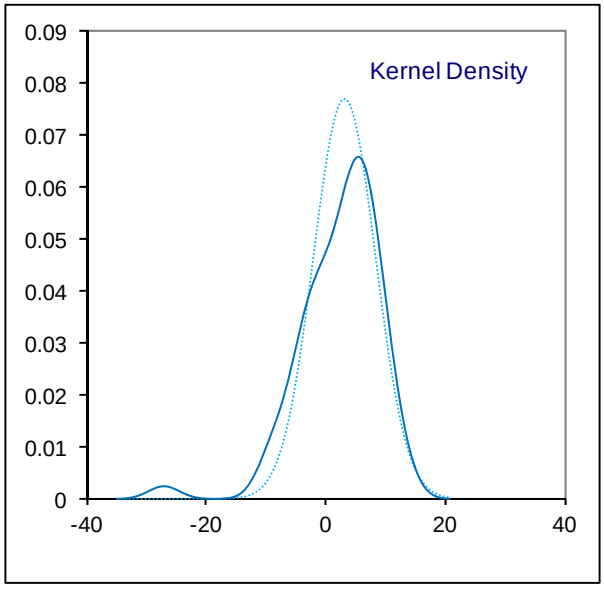
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D97	3	ex, see §4.1	-0.03	995	D5853-A	-3		-0.97
90		-----		-----	996		-----		-----
92	D97	6	ex, see §4.1	0.43	997	D5853-A	-3		-0.97
120		-----		-----	998		-----		-----
131	D97	-27	ex, C	-4.70	1016		-----		-----
133		-----		-----	1039	D5853-A	6		0.43
140		-----		-----	1040	ISO3016	-3	ex, see §4.1	-0.97
150	D97	-6.0	ex, see §4.1	-1.43	1056		-----		-----
154		-----		-----	1065	D5950	-3		-0.97
158		-----		-----	1081		-----		-----
159	D97	-9	ex, see §4.1	-1.90	1090		-----		-----
167		-----		-----	1095		-----		-----
168	D97	9	ex, see §4.1	0.90	1109		-----		-----
171	D5853-A	-3.0		-0.97	1131		-----		-----
179		-----		-----	1201	D5853-A	9		0.90
186		-----		-----	1212	D97	-6	ex, see §4.1	-1.43
193	D5853-A	13.0		1.52	1236		-----		-----
203	D5853	6		0.43	1243		-----		-----
225		-----		-----	1248	IP441	0		-0.50
238		-----		-----	1259	D5853-A	9		0.90
242		-----		-----	1264	D97	-3	ex, see §4.1	-0.97
273	D97	3	ex, see §4.1	-0.03	1272	ISO3016	9.0	ex, see §4.1	0.90
311		-----		-----	1287		-----		-----
314		-----		-----	1340	ISO3016	12	ex, see §4.1	1.37
332		-----		-----	1362	D5853-A	6		0.43
333		-----		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340	D5853-A	-6		-1.43	1412	D5853-A	3		-0.03
391	D5853-A	3		-0.03	1419		-----		-----
398		-----		-----	1488	ISO3016	0	ex, see §4.1	-0.50
399	D5853-A	3		-0.03	1543		-----		-----
402	D5853-A	9		0.90	1556	ISO3016	4.1	ex, see §4.1	0.14
441		-----		-----	1603		-----		-----
442		-----		-----	1613	D97	<-24	ex, see §4.1	<-4.23
444		-----		-----	1616	D5853-A	6		0.43
445	D5853-A	3		-0.03	1654	D5853-A	6		0.43
446		-----		-----	1714	D5853-A	3		-0.03
447	D5853-A	-3		-0.97	1720	D5853-A	12.0		1.37
485		-----		-----	1728	D5853-A	6		0.43
494	D5853-A	0		-0.50	1741	ISO3016	6	ex, see §4.1	0.43
511		-----		-----	1759		-----		-----
529		-----		-----	1776	D5853-A	3.0		-0.03
541		-----		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574	D5853-A	0		-0.50	1815	D5853-A	6.0		0.43
593		-----		-----	1842	D5853-A	-3		-0.97
602		-----		-----	1858	D5853-A	6		0.43
605	D5853-A	0		-0.50	1892		-----		-----
606		-----		-----	1930		-----		-----
608	D5853-A	9		0.90	1957		-----		-----
609		-----		-----	9050		-----		-----
613		-----		-----	9051		-----		-----
621	D5853-A	9.0		0.90	9052		-----		-----
657	D5853-A	-9		-1.90	9057		-----		-----
663	D5853-A	6		0.43	9060		-----		-----
704	D5853-A	6		0.43	9063		-----		-----
732	D5853-A	9		0.90	9101		-----		-----
739		-----		-----	9132		-----		-----
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D5853	0		-0.50	9135		-----		-----
751	D5853-A	0		-0.50	9136		-----		-----
752		-----		-----	9137		-----		-----
753	D5853-A	-3		-0.97	9138		-----		-----
781	D5853-A	0		-0.50	9139		-----		-----
784		-----		-----	9142		-----		-----
862	D5853-A	6		0.43	9143		-----		-----
872		-----		-----	9146		-----		-----
874	D5853-A	3		-0.03	9151		-----		-----
875		-----		-----	9152		-----		-----
902		-----		-----	9154		-----		-----
904	D5853-A	6		0.43	9155		-----		-----
962	D5853-A	-9		-1.90	9156		-----		-----
963	D5853-A	9		0.90	9157		-----		-----
970		-----		-----					

971	D5853-A	6		0.43
974	D5853-A	9		0.90
993		-----		-----
994	D5853-A	3		-0.03

			for all test results:
	normality	OK	OK
	n	48	62
	outliers	0	+15 excl. 1
	mean (n)	3.2083	2.8887
	st.dev. (n)	5.19393	5.47489
	R(calc.)	14.5430	15.3297
	R(D5853A:11)	18.0000	18.0000

lab 131 first reported -24





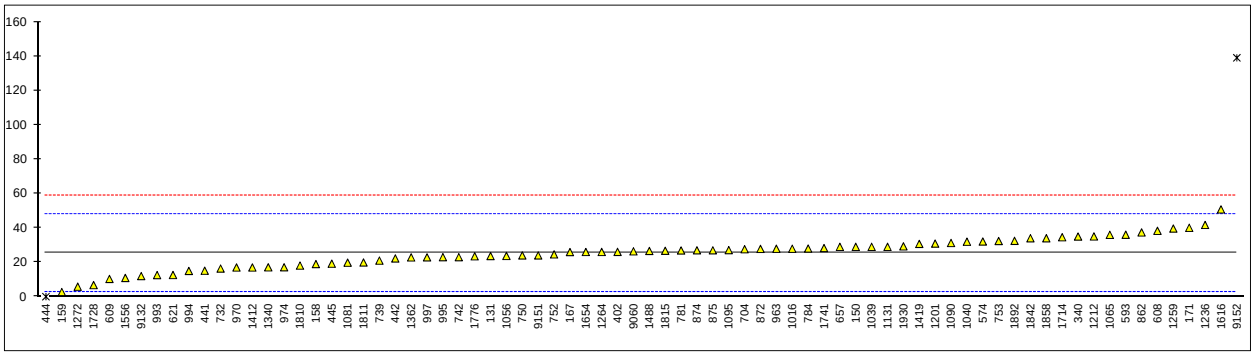
Determination of Salt as NaCl on sample #14215; results in mg/kg

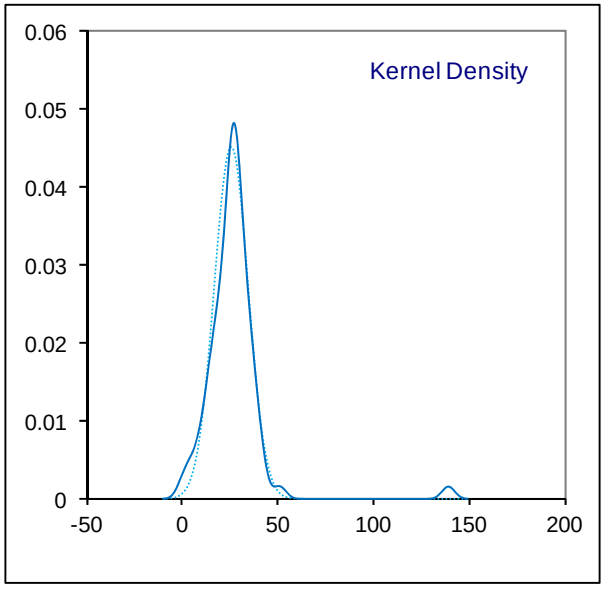
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	995	D3230	23.0		-0.22
90		-----		-----	996		-----		-----
92		-----		-----	997	D3230	22.9		-0.23
120		-----		-----	998		-----		-----
131	D3230	23.64		-0.16	1016	D3230	27.9		0.22
133		-----		-----	1039	D3230	29		0.32
140		-----		-----	1040	DIN51576	32		0.58
150	D3230	29.0		0.32	1056	D3230	23.7		-0.15
154		-----		-----	1065	D3230	36		0.94
158	D3230	18.99		-0.57	1081	in house	19.8		-0.50
159	D3230	2.7		-2.02	1090	D3230	31.25		0.52
167	D3230	25.96		0.05	1095	D3230	27.1		0.15
168		-----		-----	1109		-----		-----
171	D3230	40.08		1.30	1131	D3230	29		0.32
179		-----		-----	1201	D3230	30.9		0.49
186		-----		-----	1212	D3230	35.07		0.86
193		-----		-----	1236	D3230	41.743		1.45
203		-----		-----	1243		-----		-----
225		-----		-----	1248		-----		-----
238		-----		-----	1259	D3230	39.6492		1.26
242		-----		-----	1264	D3230	26.03		0.05
273		-----		-----	1272	D3230	5.8		-1.75
311	D3230	<3	false-?	<-1.99	1287		-----		-----
314		-----		-----	1340	UOP22	17.089		-0.74
332		-----		-----	1362	D3230	22.85		-0.23
333		-----		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335		-----		-----	1403		-----		-----
340	D3230	35		0.85	1412	D3230	17.0		-0.75
391		-----		-----	1419	in house	30.7		0.47
398		-----		-----	1488	INH-5502	26.6	C	0.10
399		-----		-----	1543		-----		-----
402	D3230	26.07		0.06	1556	D3230	10.9		-1.29
441	IP265	15.1		-0.92	1603		-----		-----
442	IP265	22.2527		-0.28	1613		-----		-----
444	IP265	0	ex	-2.26	1616	D3230	50.78		2.25
445	IP265	19.2	mg/l	-0.55	1654	D3230	26.0		0.05
446		-----		-----	1714		34.6		0.82
447		-----		-----	1720		-----		-----
485		-----		-----	1728	in house	6.75		-1.66
494		-----		-----	1741	D3230	28.3		0.26
511		-----		-----	1759		-----		-----
529		-----		-----	1776	D3230	23.5		-0.17
541		-----		-----	1800		-----		-----
551		-----		-----	1810	D3230	18.1		-0.65
557		-----		-----	1811	D3230	19.92		-0.49
574	D3230	32.1		0.59	1815	D3230	26.71		0.11
593	D3230	36.05		0.94	1842	IP265	34		0.76
602		-----		-----	1858	D3230	34		0.76
605		-----		-----	1892	D3230	32.5		0.63
606		-----		-----	1930	DIN51576	29.3		0.34
608	D3230	38.33		1.15	1957		-----		-----
609	D3230	10.33		-1.34	9050		-----		-----
613		-----		-----	9051		-----		-----
621	D3230	12.62		-1.14	9052		-----		-----
657	IP265	29		0.32	9057		-----		-----
663		-----		-----	9060	D3230	26.4		0.09
704	D3230	27.6		0.19	9063		-----		-----
732	INH-21534	16.37		-0.81	9101		-----		-----
739	INH-21534	21		-0.39	9132	D3230	12		-1.19
742	D3230	23		-0.22	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D3230	24		-0.13	9135		-----		-----
751		-----		-----	9136		-----		-----
752	D3230	24.60		-0.07	9137		-----		-----
753	D3230	32.4		0.62	9138		-----		-----
781	D3230	26.88		0.13	9139		-----		-----
784	D3230	28		0.23	9142		-----		-----
862	D3230	37.4		1.06	9143		-----		-----
872	D3230	27.8		0.21	9146		-----		-----
874	D3230	27		0.14	9151	D3230	24		-0.13
875	D3230	27		0.14	9152	in house	139	R(0.01)	10.10
902		-----		-----	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963	D3230	27.9		0.22	9157		-----		-----
970	D3230	17.0		-0.75					

971		-----		-----
974	D3230	17.1		-0.74
993	D3230	12.57		-1.14
994	D3230	14.96		-0.93

normality	OK	
n	74	
outliers	1	+1 excl.
mean (n)	25.430	
st.dev. (n)	8.8490	
R(calc.)	24.777	
R(D3230:13)	31.485	

lab 1488 first reported 153.8





Determination of Sediment (Extraction method) ASTM D473 on sample #14215; results in %V/V

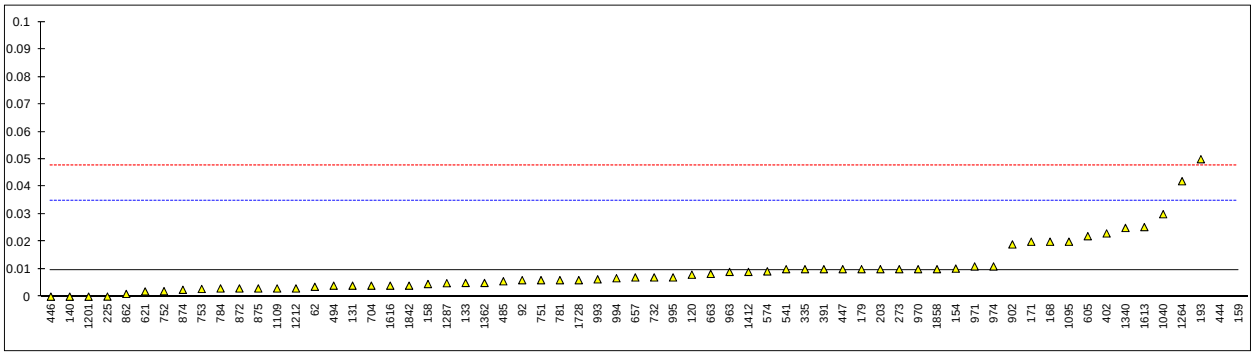
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D473	0.0036		-----	995	D473	0.007		-----
90		-----		-----	996		-----		-----
92	D473	0.006		-----	997		-----		-----
120	D473	0.008		-----	998		-----		-----
131	D473	0.004		-----	1016		-----		-----
133	D473	0.005		-----	1039		-----		-----
140	D473	0.00		-----	1040	ISO3735	0.03		-----
150	D473	<0.01		-----	1056		-----		-----
154	D473	0.0102		-----	1065		-----		-----
158	D473	0.0046		-----	1081		-----		-----
159	D473	1.8118	R(0.01)	-----	1090		-----		-----
167		-----		-----	1095	D473	0.02	in %M/M	-----
168	D473	0.02		-----	1109	D473	0.003		-----
171	D473	0.02		-----	1131		-----		-----
179	D473	0.01		-----	1201	D473	0.00		-----
186		-----		-----	1212	D473	0.003		-----
193	D473	0.05		-----	1236		-----		-----
203	D473	0.01		-----	1243		-----		-----
225	D473	0.00004		-----	1248		-----		-----
238		-----		-----	1259		-----		-----
242		-----		-----	1264	D473	0.042		-----
273	D473	0.01		-----	1272		-----		-----
311	D473	<0.01		-----	1287	D473	0.0049		-----
314		-----		-----	1340	ISO9030	0.025		-----
332	D473	<0.01		-----	1362	D473	0.0050		-----
333	D473	<0.01		-----	1387		-----		-----
334		-----		-----	1397		-----		-----
335	D473	0.01		-----	1403		-----		-----
340	D473	<0.01		-----	1412	D473	0.009		-----
391	D473	0.01		-----	1419		-----		-----
398		-----		-----	1488		-----		-----
399	D473	<0.01		-----	1543		-----		-----
402	D473	0.023		-----	1556	ISO3735	<0.01		-----
441		-----		-----	1603		-----		-----
442		-----		-----	1613	D473	0.0253		-----
444	D473	1.582	C,R(0.01)	-----	1616	D473	0.004		-----
445	D473	<0.01		-----	1654		-----		-----
446	D473	0		-----	1714		-----		-----
447	D473	0.01		-----	1720		-----		-----
485	D473	0.0056		-----	1728	D473	0.006		-----
494	D473	0.004		-----	1741		-----		-----
511		-----		-----	1759		-----		-----
529		-----		-----	1776		-----		-----
541	D473	0.01		-----	1800		-----		-----
551		-----		-----	1810		-----		-----
557		-----		-----	1811		-----		-----
574	D473	0.0092		-----	1815	ISO3735	<0.004		-----
593		-----		-----	1842	D473	0.004		-----
602		-----		-----	1858	D473	0.01		-----
605	D473	0.022		-----	1892		-----		-----
606		-----		-----	1930		-----		-----
608	D473	<0.01		-----	1957		-----		-----
609		-----		-----	9050		-----		-----
613		-----		-----	9051		-----		-----
621	D473	0.0019		-----	9052		-----		-----
657	D473	0.007		-----	9057		-----		-----
663	D473	0.0083		-----	9060		-----		-----
704	D473	0.004		-----	9063		-----		-----
732	D473	0.007		-----	9101		-----		-----
739		-----		-----	9132		-----		-----
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750		-----		-----	9135		-----		-----
751	D473	0.006		-----	9136		-----		-----
752	D473	0.002		-----	9137		-----		-----
753	D473	0.0028		-----	9138		-----		-----
781	D473	0.006		-----	9139		-----		-----
784	D473	0.003		-----	9142		-----		-----
862	D473	0.001		-----	9143		-----		-----
872	D473	0.003		-----	9146		-----		-----
874	D473	0.0025		-----	9151		-----		-----
875	D473	0.003		-----	9152		-----		-----
902	D473	0.019		-----	9154		-----		-----
904	D473	<0.01		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963	D473	0.009		-----	9157		-----		-----
970	D473	0.01		-----					

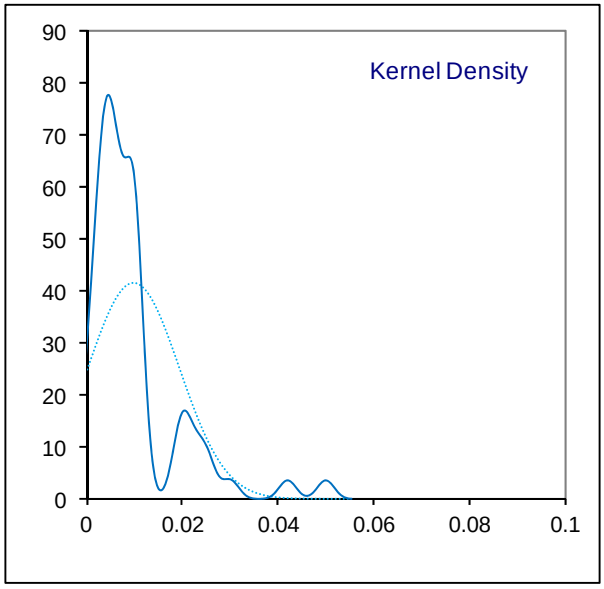
971	D473	0.011	-----
974	D473	0.011	-----
993	D473	0.0063	-----
994	D473	0.0067	-----

normality	not OK
n	62
outliers	2
mean (n)	0.00958
st.dev. (n)	0.009583
R(calc.)	0.02683
R(D473:07)	(0.03544)

Application range precision data: 0.01 – 0.4 %M/M

lab 444 first reported 0.594





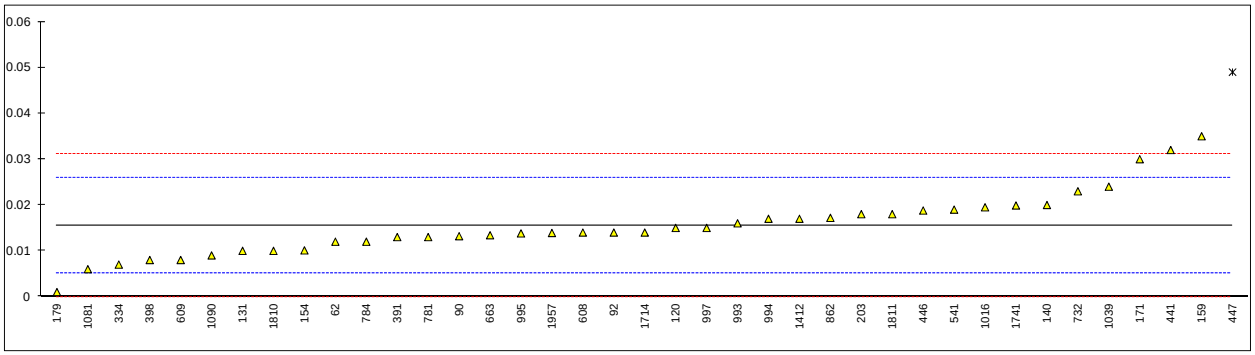
Determination of Sediment (Membrane filtration) ASTM D4807 on sample #14215; results in %M/M

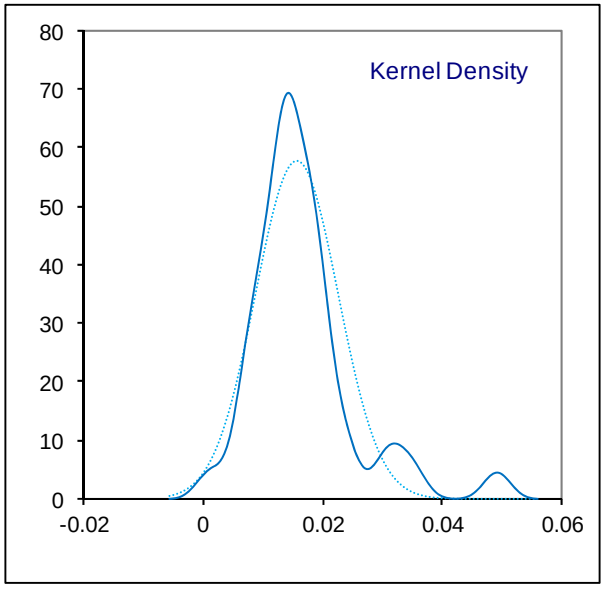
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4807	0.012		-0.67	995	D4807	0.0138		-0.33
90	D4807	0.0132		-0.44	996		-----		-----
92	D4807	0.014		-0.29	997	D4807	0.015		-0.10
120	D4807	0.015		-0.10	998		-----		-----
131	D4807	0.010		-1.06	1016	D4807	0.0195		0.76
133		-----		-----	1039	D4807	0.024		1.62
140	D4807	0.02	C	0.86	1040		-----		-----
150		-----		-----	1056		-----		-----
154	D4807	0.0101		-1.04	1065		-----		-----
158		-----		-----	1081	in house	0.006		-1.82
159	D4807	0.035		3.72	1090	D4807	0.009		-1.25
167		-----		-----	1095		-----		-----
168		-----		-----	1109		-----		-----
171	D4807	0.03		2.77	1131		-----		-----
179	D4807	0.001		-2.78	1201		-----		-----
186		-----		-----	1212		-----		-----
193		-----		-----	1236		-----		-----
203	D4807	0.018		0.47	1243		-----		-----
225		-----		-----	1248		-----		-----
238		-----		-----	1259		-----		-----
242		-----		-----	1264		-----		-----
273		-----		-----	1272		-----		-----
311		-----		-----	1287		-----		-----
314		-----		-----	1340		-----		-----
332		-----		-----	1362		-----		-----
333		-----		-----	1387		-----		-----
334	D4807	0.007		-1.63	1397		-----		-----
335		-----		-----	1403		-----		-----
340		-----		-----	1412	D4807	0.017		0.28
391	D4807	0.013		-0.48	1419		-----		-----
398	D4807	0.008		-1.44	1488		-----		-----
399		-----		-----	1543		-----		-----
402		-----		-----	1556		-----		-----
441	D4807	0.032		3.15	1603		-----		-----
442		-----		-----	1613		-----		-----
444		-----		-----	1616		-----		-----
445		-----		-----	1654		-----		-----
446	D4807	0.0188		0.63	1714	D4807	0.014		-0.29
447	D4807	0.049	R(0.01)	6.40	1720		-----		-----
485		-----		-----	1728		-----		-----
494		-----		-----	1741	D4807	0.0199		0.84
511		-----		-----	1759		-----		-----
529		-----		-----	1776		-----		-----
541	D4807	0.019		0.66	1800		-----		-----
551		-----		-----	1810	D4807	0.01		-1.06
557		-----		-----	1811	D4807	0.018		0.47
574		-----		-----	1815		-----		-----
593		-----		-----	1842		-----		-----
602		-----		-----	1858		-----		-----
605		-----		-----	1892		-----		-----
606		-----		-----	1930		-----		-----
608	D4807	0.014		-0.29	1957	D4807	0.0139		-0.31
609	D4807	0.008		-1.44	9050		-----		-----
613		-----		-----	9051		-----		-----
621		-----		-----	9052		-----		-----
657		-----		-----	9057		-----		-----
663	D4807	0.0134		-0.41	9060		-----		-----
704		-----		-----	9063		-----		-----
732	D4807	0.023		1.43	9101		-----		-----
739		-----		-----	9132		-----		-----
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750		-----		-----	9135		-----		-----
751		-----		-----	9136		-----		-----
752		-----		-----	9137		-----		-----
753		-----		-----	9138		-----		-----
781	D4807	0.013		-0.48	9139		-----		-----
784	D4807	0.012		-0.67	9142		-----		-----
862	D4807	0.0172		0.32	9143		-----		-----
872		-----		-----	9146		-----		-----
874		-----		-----	9151		-----		-----
875		-----		-----	9152		-----		-----
902		-----		-----	9154		-----		-----
904		-----		-----	9155		-----		-----
962		-----		-----	9156		-----		-----
963		-----		-----	9157		-----		-----
970		-----		-----					

971		-----	-----
974		-----	-----
993	D4807	0.016	0.09
994	D4807	0.017	0.28

normality	suspect
n	38
outliers	1
mean (n)	0.0155
st.dev. (n)	0.00691
R(calc.)	0.0194
R(D4807:05)	0.0147

lab 140 first reported 0.044





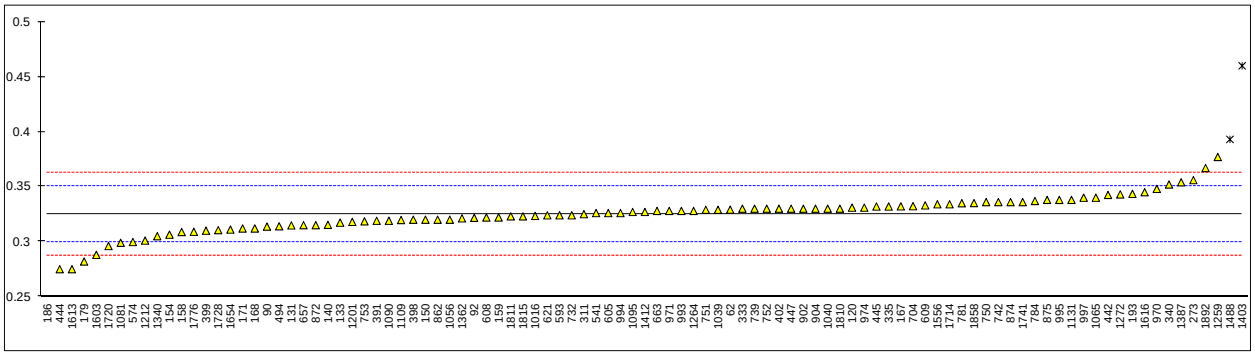
Determination of Total Sulphur on sample #14215; results in %M/M

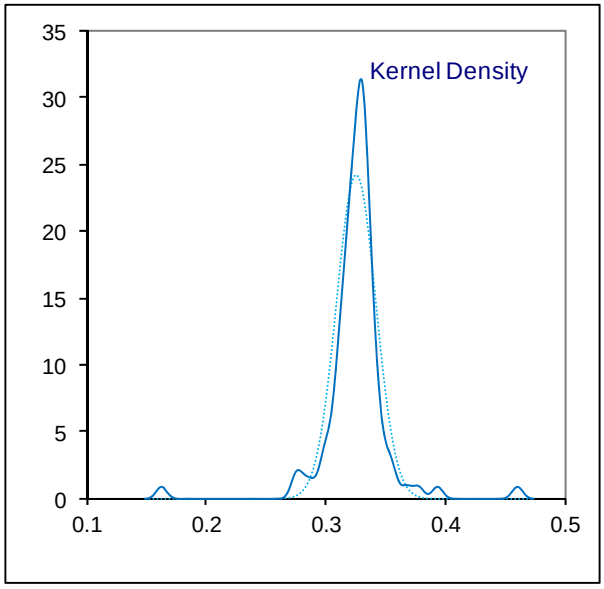
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4294	0.32911		0.33	995	D4294	0.338		1.03
90	D4294	0.3137		-0.90	996		-----		-----
92	D4294	0.3217		-0.26	997	D4294	0.34		1.19
120	D4294	0.331		0.48	998		-----		-----
131	D4294	0.3148		-0.81	1016	D2622	0.3234		-0.13
133	D4294	0.3173		-0.61	1039	D2622	0.329		0.32
140	D4294	0.3153		-0.77	1040	ISO8754	0.33		0.40
150	D4294	0.320		-0.40	1056	IP336	0.32		-0.40
154	D4294	0.3064		-1.48	1065	IP336	0.34		1.19
158	D4294	0.30878		-1.29	1081	D4294	0.299		-2.07
159	D4294	0.32204		-0.23	1090	D4294	0.319		-0.48
167	D4294	0.3321		0.57	1095	D4294	0.327		0.16
168	D4294	0.312		-1.03	1109	D4294	0.3197		-0.42
171	D4294	0.312		-1.03	1131	D4294	0.338		1.03
179	D4294	0.282		-3.42	1201	ISO8754	0.318		-0.56
186	D4294	0.1622	R(0.01)	-12.95	1212	D4294	0.301		-1.91
193	D4294	0.3435		1.47	1236		-----		-----
203		-----		-----	1243		-----		-----
225		-----		-----	1248		-----		-----
238		-----		-----	1259	D4294	0.377		4.14
242		-----		-----	1264	D4294	0.328		0.24
273	D4294	0.356	C	2.47	1272	ISO8754	0.343		1.43
311	D4294	0.325		0.00	1287		-----		-----
314		-----		-----	1340	ISO8754	0.305		-1.59
332		-----		-----	1362	D4294	0.3212		-0.30
333	D2622	0.330		0.40	1387	D4294	0.354		2.31
334		-----		-----	1397		-----		-----
335	D4294	0.332		0.56	1403	in house	0.4599	R(0.01)	10.73
340	D4294	0.352		2.15	1412	D4294	0.327		0.16
391	D4294	0.319		-0.48	1419		-----		-----
398	ISO8754	0.320		-0.40	1488	D4294	0.393	R(0.01)	5.41
399	D4294	0.31		-1.19	1543		-----		-----
402	D4294	0.330		0.40	1556	ISO8754	0.334		0.72
441		-----		-----	1603	in house	0.288		-2.94
442	IP336	0.3425		1.39	1613	D1551	0.275		-3.98
444	IP336	0.275		-3.98	1616	D4294	0.345		1.59
445	D2622	0.332		0.56	1654	ISO8754	0.311		-1.11
446		-----		-----	1714	D4294	0.334		0.72
447	IP336	0.33		0.40	1720	D4294	0.296		-2.31
485		-----		-----	1728	D4294	0.3105		-1.15
494	D4294	0.314		-0.87	1741	ISO8754	0.336		0.88
511		-----		-----	1759		-----		-----
529		-----		-----	1776	ISO8754	0.309		-1.27
541	D4294	0.326		0.08	1800		-----		-----
551		-----		-----	1810	D4294	0.33		0.40
557		-----		-----	1811	D4294	0.323		-0.16
574	D4294	0.2997		-2.01	1815	D7039	0.323		-0.16
593	D4294	0.3240		-0.08	1842		-----		-----
602		-----		-----	1858	D4294	0.3351		0.80
605	D4294	0.326		0.08	1892	D4294	0.367		3.34
606		-----		-----	1930		-----		-----
608	D4294	0.322		-0.24	1957		-----		-----
609	D4294	0.333		0.64	9050		-----		-----
613		-----		-----	9051		-----		-----
621	D4294	0.324		-0.08	9052		-----		-----
657	D4294	0.315		-0.79	9057		-----		-----
663	D4294	0.328		0.24	9060		-----		-----
704	D4294	0.3323		0.58	9063		-----		-----
732	D4294	0.324		-0.08	9101		-----		-----
739	D4294	0.33		0.40	9132		-----		-----
742	D4294	0.336		0.88	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D4294	0.336		0.88	9135		-----		-----
751	D4294	0.329		0.32	9136		-----		-----
752	D4294	0.330		0.40	9137		-----		-----
753	D4294	0.3185		-0.52	9138		-----		-----
781	D4294	0.335		0.80	9139		-----		-----
784	D4294	0.337		0.96	9142		-----		-----
862	D4294	0.320		-0.40	9143		-----		-----
872	D4294	0.315		-0.79	9146		-----		-----
874	D4294	0.336		0.88	9151		-----		-----
875	D4294	0.338		1.03	9152		-----		-----
902	D4294	0.33		0.40	9154		-----		-----
904	D4294	0.33		0.40	9155		-----		-----
962		-----		-----	9156		-----		-----
963		-----		-----	9157		-----		-----
970	D4294	0.348		1.83					

971	D4294	0.328	0.24
974	D4294	0.331	0.48
993	D4294	0.328	0.24
994	D4294	0.326	0.08

normality	not OK
n	96
outliers	3
mean (n)	0.32499
st.dev. (n)	0.016463
R(calc.)	0.04610
R(D4294:10)	0.03521

lab 273 first reported 0.656





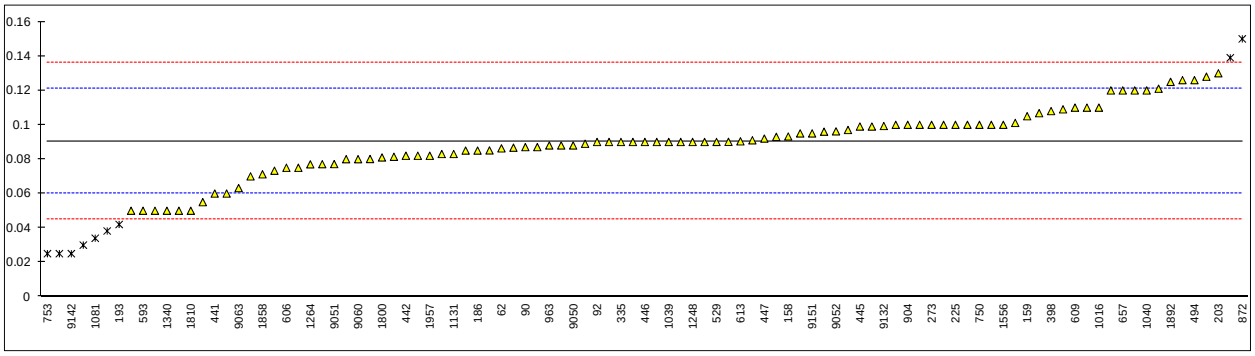
Determination of Water on sample #14215; results in %V/V

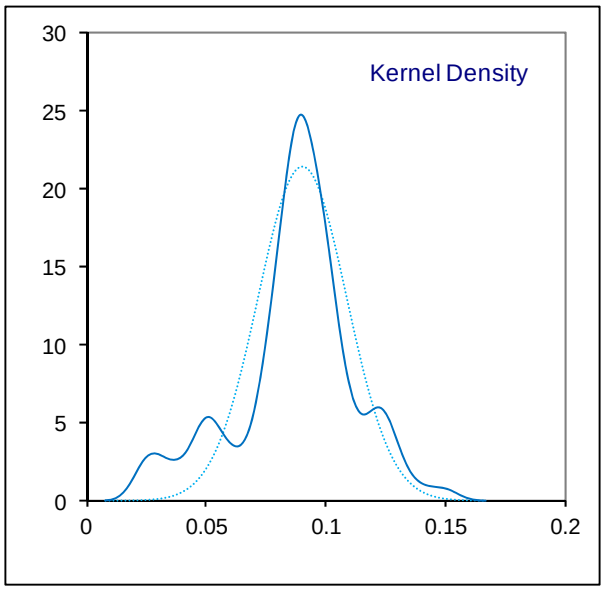
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D6304	0.0863		-0.27	995	D4928	0.082		-0.55
90	D4928	0.087		-0.22	996		-----		-----
92	D4377	0.09		-0.03	997	D4377	0.10		0.63
120		-----		-----	998		-----		-----
131	D4928	0.0382	R(0.01)	-3.43	1016	D4377	0.11		1.29
133	D4928	0.0550		-2.32	1039	D4377	0.09		-0.03
140	D4928	0.08		-0.68	1040	DIN51777	0.12		1.94
150	D4928	0.091		0.04	1056	D4928	0.09		-0.03
154		-----		-----	1065	D4006	0.05		-2.65
158	D4377	0.0932		0.18	1081	ISO12937	0.034	R(0.01)	-3.70
159	D4377	0.105		0.96	1090	D4928	0.083		-0.49
167		-----		-----	1095		-----	W	-----
168		-----		-----	1109		-----		-----
171	D4377	0.10		0.63	1131	INH-2477	0.083		-0.49
179		-----		-----	1201	D4377	0.097		0.43
186	D4006	0.085		-0.35	1212	IP386	0.0771		-0.87
193	D4928	0.042	R(0.01)	-3.18	1236	D4928	0.139	R(0.01)	3.19
203	D4928	0.13		2.60	1243		-----		-----
225	D4006	0.100		0.63	1248	D4377Mod.	0.090		-0.03
238		-----		-----	1259	D4377	0.121		2.01
242		-----		-----	1264	D4377	0.077		-0.88
273	D4928	0.10		0.63	1272		-----		-----
311	D4928	0.10		0.63	1287		-----		-----
314	D4928	0.09		-0.03	1340	ISO9029	0.05		-2.65
332	D4377	0.106775		1.08	1362	D4377	0.0814		-0.59
333		-----		-----	1387		-----		-----
334	D4377	0.09		-0.03	1397		-----		-----
335	D4377	0.090		-0.03	1403		-----		-----
340	D4377	0.126		2.34	1412	D4928	0.09		-0.03
391	D4377	0.10		0.63	1419		-----		-----
398	D4928	0.108		1.16	1488	D6304	0.087		-0.22
399		-----		-----	1543		-----		-----
402		-----		-----	1556	D6304	0.10		0.63
441	D4928	0.06		-2.00	1603	in house	0.096		0.37
442	IP386	0.082		-0.55	1613	D95	<0.05		-----
444	D4377	0.0750		-1.01	1616	D4006	<0.05		-----
445	D4928	0.099		0.57	1654		-----		-----
446	D4928	0.090		-0.03	1714	D4006	0.05		-2.65
447	IP386	0.092		0.11	1720		-----		-----
485	D4377	0.1011		0.70	1728	D4006	0.07		-1.34
494	D4377	0.126		2.34	1741	ISO6296	0.0801		-0.68
511		-----		-----	1759		-----		-----
529	D4377	0.09003		-0.02	1776	D6304	0.128		2.47
541	D4928	0.10		0.63	1800	D4928	0.081		-0.62
551		-----		-----	1810	D4377	0.05		-2.65
557		-----		-----	1811	D4377	0.099		0.57
574	D4377	0.120		1.94	1815	ISO10337	0.0851		-0.35
593	D4006	0.050		-2.65	1842	IP386	0.0867		-0.24
602		-----		-----	1858	D4377	0.0712		-1.26
605		-----		-----	1892	E203	0.125	C	2.27
606	D4928	0.075		-1.01	1930	DIN51777	0.093		0.17
608	D4377	0.09		-0.03	1957	D4377	0.082		-0.55
609	D4377	0.11		1.29	9050	IP386	0.088		-0.16
613	D4928	0.0904		0.00	9051	IP386	0.07713		-0.87
621		-----		-----	9052	IP386	0.0962		0.38
657	D4377	0.12		1.94	9057	in house	0.095		0.30
663		-----		-----	9060	D4928	0.08		-0.68
704	D4377	0.0733		-1.12	9063	INH-18	0.0632		-1.79
732	D6304	0.085		-0.35	9101	D4006	0.025	R(0.01)	-4.29
739	INH-2477	0.03	R(0.01)	-3.97	9132	D4928	0.0993		0.59
742		-----		-----	9133		-----		-----
749		-----		-----	9134		-----		-----
750	D4377	0.10		0.63	9135		-----		-----
751		-----		-----	9136		-----		-----
752	D4006	0.050		-2.65	9137		-----		-----
753	D4006	0.025	R(0.01)	-4.29	9138		-----		-----
781	D4377	0.089		-0.09	9139		-----		-----
784		-----		-----	9142	D4006	0.025	R(0.01)	-4.29
862		-----		-----	9143		-----		-----
872	D4006	0.15	R(0.01)	3.91	9146		-----		-----
874		-----		-----	9151	D4377	0.095		0.30
875		-----		-----	9152	D4377	0.06		-2.00
902		-----		-----	9154		-----		-----
904	D4928	0.10		0.63	9155		-----		-----
962		-----		-----	9156		-----		-----
963	D4928	0.088		-0.16	9157		-----		-----
970	D4377	0.12		1.94					

971	D4928	0.109	1.22
974	D4928	0.11	1.29
993	D4928	0.0901	-0.02
994	D4928	0.088	-0.16

normality	OK
n	92
outliers	9
mean (n)	0.0904
st.dev. (n)	0.01863
R(calc.)	0.0522
R(D4377:00)	0.0426

lab 1095 first reported 0.75
lab 1741 also reported 0.05 using ISO9029
lab 1892 first reported 0.1514 %M/M





APPENDIX 2

Number of participants per country

1 lab in	AFGHANISTAN
1 lab in	ARGENTINA
2 labs in	AUSTRALIA
3 labs in	AZERBAIJAN
1 lab in	BOSNIA and HERZEGOVINA
2 labs in	BRAZIL
1 lab in	BULGARIA
3 labs in	CANADA
2 labs in	CHINA, People's Republic
1 lab in	COLOMBIA
1 lab in	CONGO Brazzaville
1 lab in	COTE D'IVOIRE
2 labs in	CROATIA
2 labs in	CZECH REPUBLIC
1 lab in	ECUADOR
1 lab in	EGYPT
5 labs in	FRANCE
2 labs in	GEORGIA
5 labs in	GERMANY
1 lab in	INDONESIA
1 lab in	IRAQ
1 lab in	ISRAEL
4 labs in	ITALY
1 lab in	JORDAN
1 lab in	KAZAKHSTAN
1 lab in	LITHUANIA
6 labs in	MALAYSIA
1 lab in	MEXICO
8 labs in	NETHERLANDS
4 labs in	NIGERIA
4 labs in	NORWAY
13 labs in	OMAN
1 lab in	PERU
2 labs in	POLAND
1 lab in	PORTUGAL
1 lab in	QATAR
2 labs in	ROMANIA
14 labs in	RUSSIAN FEDERATION
2 labs in	SAUDI ARABIA
3 labs in	SERBIA
1 lab in	SINGAPORE
1 lab in	SLOVAKIA
1 lab in	SOUTH AFRICA
1 lab in	ST. LUCIA - WEST INDIES
2 labs in	SUDAN
4 labs in	SWEDEN
1 lab in	THAILAND
3 labs in	TURKEY
1 lab in	TURKMENISTAN
1 lab in	UKRAINE
3 labs in	UNITED ARAB EMIRATES
13 labs in	UNITED KINGDOM
14 labs in	UNITED STATES OF AMERICA

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
R(0.01)	= outlier in Rosner outlier test
R(0.05)	= straggler in Rosner outlier test
E	= error in calculations
U	= reported in different unit
W	= withdrawn on request participant
ex	= excluded from calculations
fr.	= first reported
n.a.	= not applicable
n.d.	= not determined
SDS	= Safety data Sheet

Literature

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3 ASTM E1301-03

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

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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/).

15 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), pp. 165-172, (1983)