Results of Proficiency Test
Mono Ethylene Glycol (MEG)
October 2012

Organised by: Institute for Interlaboratory Studies (iis)
Spijkenisse, the Netherlands

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Report: iis12C10

January 2013

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1 INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies organised a proficiency test for the analysis of Mono Ethylene Glycol every year. As part of the annual proficiency test program of 2012/2013, the Institute decided to continue this proficiency test on Mono Ethylene Glycol. In this interlaboratory study 60 laboratories in 23 different countries have participated. See appendix 2 for the number of participants per country. In this report the results of the 2012 proficiency test are presented and discussed.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted. On request of several participants it was decided to send an Off-specification Mono Ethylene Glycol. This is in contrast to previous years in which a high purity MEG-fg was used each time. To get maximum information from this study it was decided to send 2 different samples:

	Bottle type	Tests requested
Sample #12130	1.0 L amber glass bottle	for all regular determinations on MEG
Sample #12131	0.1 L amber glass bottle	for UV transmittance and Water only

table 1: type of samples

The participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in accordance with ISO/IEC 17043:2010, since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

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

2.3 CONFIDENTIALITY STATEMENT

All data 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 80 litre bulk material of MEG polyester grade was obtained from a local production plant. The bulk material was transferred to a precleaned 200 litre drum and spiked with 0.095 mg/kg Chloride. After homogenisation, the batch was transferred to 80 amber glass bottles of 1.0 liter and labelled #12130. The homogeneity of the subsamples was checked by determination of Density in accordance with ASTM D4052:02e1, Chloride in accordance with ASTM E2469:08 and Iron in accordance with ASTM E394:09 on 8 stratified randomly selected samples.

	Density @ 15ºC in kg/l	Chloride in mg/kg	Iron in mg/kg
Sample #12130-1	1.11662	0.08	0.32
Sample #12130-2	1.11662	0.09	0.33
Sample #12130-3	1.11662	0.08	0.33
Sample #12130-4	1.11662	0.08	0.34
Sample #12130-5	1.11662	0.09	0.32
Sample #12130-6	1.11662	0.09	0.35
Sample #12130-7	1.11662	0.09	0.33
Sample #12130-8	1.11662	0.09	0.33

table 2: homogeneity test results of subsamples #12130

The second batch of approx. 30 litre was transferred to a precleaned can. After homogenisation, from the batch 83 amber glass bottles of 100mL were filled. The bottles were closed with special screw caps with Teflon inner layer, and labelled #12131. The homogeneity of the subsamples #12131 was checked by determination of UV-Transmittance without nitrogen sparging at 220, 250, 275 and 350 nm in accordance with ASTM E2193:08 and Water in accordance with ASTM E1064:12 on 8 stratified randomly selected samples.

	UV(220nm) in T%	UV(250nm) in T%	UV(275nm) in T%	UV(350nm) in T%	Water in mg/kg
Sample #12131-1	53.3	78.0	85.2	92.2	870
Sample #12131-2	53.3	78.1	86.0	92.2	910
Sample #12131-3	53.4	78.2	86.0	92.3	980
Sample #12131-4	53.4	78.1	86.0	92.3	840
Sample #12131-5	53.4	78.2	86.0	92.3	860
Sample #12131-6	53.4	78.2	86.0	92.3	880
Sample #12131-7	53.3	78.1	85.9	92.3	870
Sample #12131-8	53.5	78.3	86.0	92.3	890

table 3: homogeneity test results of subsamples #12131

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

	Density	Cl	Iron	UV 220nm	UV 250nm	UV 275nm	UV 350nm	Water
r (observed)	0.00000	0.014	0.028	0.20	0.26	0.11	0.13	120
$0.3xR_{(ASTM\ D4052)}$	0.00015	--	--	--	--	--	--	--
$0.3xR_{(ASTM\ E2469)}$	--	0.028	--	--	--	--	--	--
$0.3xR_{(ASTM\ E394)}$	--	--	0.054	--	--	--	--	--
$0.3xR_{(ASTM\ E2193)}$	--	--	--	2.90	0.62	0.33	0.28	--
$0.3xR_{(ASTM\ E1064)}$	--	--	--	--	--	--	--	220

table 4: homogeneity evaluation of subsamples #12130, #12131

Each calculated repeatability was equal or less than 0.3 times the corresponding reproducibility of the reference method. Therefore, homogeneity of the samples was assumed.

To each of the participating laboratories 2 bottles (1*1.0L bottle labelled as #12130 and 1*100 mL bottle, labelled as #12131), were sent on October 10, 2012.

2.5 STABILITY OF THE SAMPLES

The stability of the Mono Ethylene Glycol, packed in amber glass bottles, was checked. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were requested to determine Acidity as Acetic Acid, Aldehydes as Acetaldehyde, Appearance, Ash, Chloride as Cl, Colour (D5386), Colour Pt/Co (D1209) Density @ 20°C, Diethylene Glycol, Distillation (Initial Boiling Point, 50%recovered and Dry Point), Iron, Purity and Specific Gravity @ 20/20°C on sample #12130.
On sample #12131 was requested to determine UV Transmittance (at 350, 275, 250 and 220 nm) and Water.
To get comparable results a detailed report form, on which the units were prescribed as well as some of the required standards and a letter of instructions were prepared and 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 had not yet reported.
Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the (raw data of the) reported results.
Additional or corrected results have been used for data analysis and original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

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

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…' were not used in the statistical evaluation. First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the conclusions of statistical evaluation should be used with due care.
In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

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

3.2 GRAPHICS

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

3.3 Z-SCORES

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

the spread of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8. The z-scores were calculated according to:

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

The $z_{(target)}$ scores are listed in the result tables in appendix 1.

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.

Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore, the usual interpretation of z-scores is as follows:

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

4 EVALUATION

In this interlaboratory study several problems were encountered with customs clearance or with the courier during dispatch of the samples to participants in Brazil, India and Saudi Arabia.
Six participants did not report any results and another twelve participants reported the results after the final reporting date. Finally, 54 laboratories did report 838 numerical results. Observed were 48 outlying results, which is 5.7%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

In this section, the results are discussed per sample and per test.

Not all data sets proved to have a normal distribution. Not normal distributions were found with the following determinations: Ash, Colour Pt/Co, Colour, Chloride, Density @15ºC, Distillation (50% recovered), Purity and Specific Gravity. For these determinations the statistical evaluation should be used with due care.
Since 2010 a new version of ASTM E202 (and renewed in 2012) was published. Regretfully, the new version is not always clear about the precision data in certain test methods, in those cases the precision data of ASTM E202: 2005 or specific test method was used.
Some of the used reference test methods provide precision data related to a specific concentration. For these tests, the target reproducibility is estimated.

Acidity: This determination was problematic for a number of participants in accordance with ASTM E2679 and/or ASTM D1613. In total four statistical outliers were observed. Only the calculated reproducibility for the ASTM D1613 results after rejection of the statistical outliers is in full agreement with the requirements of the standard. The calculated reproducibility of the ASTM E2679:09 results after rejection of the statistical outlier is not in agreement with the requirements of the standard.

Aldehydes: This determination may be problematic for a number of participants. Seven statistical outliers were observed. As the application range of ASTM E2313:08 is 0.5 – 50 mg/kg (see scope of test method) no significant conclusions were drawn. Four false negative test results and two false positive test results were observed.

Appearance: No analytical problems were observed. Almost all participants agreed about the appearance of sample #12130, which was bright, clear and free of suspended matter. Only one participant reported “fail”.

Ash: Only one statistical outlier (false positive result) was observed. Regretfully, the consensus value is below the application range (0.001 – 0.180 %M/M) of ASTM D482:07. Therefore no significant conclusions were drawn.

Colour Pt/Co: The determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in agreement with the requirements of ASTM D1209:11.

Colour D5386: The determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in agreement with the requirements of ASTM D5386:10.

Chloride: This determination was very problematic. Two statistical outliers and one false negative test results were observed. The calculated reproducibility, after rejection of the statistical outliers, is not at all in agreement with the requirements of ASTM E2469:08a. The average recovery of Chloride (theoretical increment of 0.095 mg Cl/kg) may be good: “less then 144%” (the actual blank Chloride content is unknown).

Density: The determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in agreement with the requirements of ASTM D4052:02e1.

DEG: This determination was problematic at a low level of 52 mg/kg. Two statistical outliers were observed and the calculated reproducibility, after

rejection of the statistical outliers, is at all not in agreement the estimated requirements of ASTM E2409:08.

Distillation: The Initial Boiling Point was problematic. In total five statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are in good agreement with the requirements of ASTM D1078:11 for 50% recovered and Dry Point. The calculated reproducibility of the Initial Boiling Point does not at all meet the requirements of ASTM D1078:11.

Iron: This determination may not be problematic. Five statistical outliers and two false negatives test results were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the estimated requirements of ASTM E1615:08 and ASTM D394:09.

Purity: Regretfully, no reproducibility data for purity are mentioned in ASTM E2409. Therefore no significant conclusions were drawn. However, the reported test results appear to be divided trimodally and the range of reported test results is large: from 99.08 – 99.974%M/M..
Obviously the variety of calculation methods for purity was used. Several laboratories subtracted only water, acidity and DEG (and aldehydes) from 100%, while other laboratories subtracted more items. This may be caused by the use of the ambiguous term “glycol impurity” in ASTM D2409 / E202.

Specific Gravity: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D4052:02e1.

UV: This determination was very problematic. In total eleven statistical outliers were observed. All calculated reproducibilities, after rejection of the statistical outliers, are not in agreement with the requirements of ASTM E2193:08 (unsparged and sparged), except for the calculated reproducibility for UV at 220 nm which is in agreement with the requirements of ASTM E2193:08 (sparged).
Five participants reported to have used nitrogen to purge the sample prior to the measurement of UV and nine other participants reported to have used a 50mm cuvette prior to the measurement of UV.

Water: This determination was problematic for a number of participants. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM E1064:12.

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.)
Acidity as Acetic Acid (E2679)	mg/kg	12	24.8	14.2	12.6
Acidity as Acetic Acid (D1613)	mg/kg	42	28.2	12.7	14.0
Aldehydes as Acetaldehyde	mg/kg	23	247	79	(212)
Appearance		49	pass	--	--
Ash	%M/M	26	0.0005	0.0011	(0.0050)
Colour Pt/Co	---	39	4.8	5.6	7.0
Colour ASTM D5386	---	30	5.6	4.8	5.5
Chloride as Cl	mg/kg	25	0.14	0.25	0.11
Density at 20°C	kg/L	48	1.1132	0.0004	0.0005
Diethylene Glycol	mg/kg	40	51.6	32.8	13.1
Initial Boiling Point	°C	37	193.4	5.6	3.0
50% recovered	°C	37	197.6	0.7	1.4
Dry Point	°C	39	198.1	1.2	2.1
Iron as Fe	mg/kg	37	0.28	0.07	0.30
Purity	%M/M	43	99.598	0.694	unknown
Specific Gravity 20/20°C	---	48	1.1152	0.0004	0.0005
UV Transmittance at 350 nm	%T	46	93.0	2.3	1.2
UV Transmittance at 275 nm	%T	45	86.6	3.7	2.1
UV Transmittance at 250 nm	%T	43	79.2	4.2	1.1
UV Transmittance at 220 nm	%T	42	54.2	4.9	4.1
Water	mg/kg	42	884	149	151

table 5: reproducibilities of samples #12130 and #12131

Results between brackets were below the application range of the method, therefore results should be evaluated with care

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF OCTOBER 2012 WITH PREVIOUS PTS

	October 2012	*October 2011*	*October 2010*	*October 2009*
Number of reporting labs	54	63	62	56
Number of results reported	838	927	907	763
Statistical outliers	48	42	36	36
Percentage outliers	5.7%	4.5%	4.0%	4.7%

table 6: comparison of statistical summary parameters 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:

	October 2012	*October 2011*	*October 2010*	*October 2009*
Acidity as Acetic Acid	- +	--	++	++
Aldehydes as Acetaldehyde	(++)	++	++	++
Ash	(++)	(++)	(++)	(++)
Colour Pt/Co	++	-	++	++
Colour ASTM D5368	+	--	++	++
Chloride as Cl	--	+/-	--	++
Density at 20°C	+	++	++	++
Diethylene Glycol	--	+/-	--	--
Initial Boiling Point	--	++	++	++
50% recovered	++	++	++	++
Dry Point	++	++	++	++
Iron as Fe	++	++	++	++
Purity	--	++	++	++
Specific Gravity 20/20°C	+	++	++	++
UV Transmittance at 350 nm	--	--	++	++
UV Transmittance at 275 nm	--	++	++	++
UV Transmittance at 250 nm	--	--	--	--
UV Transmittance at 220 nm	-	++	+	+/-
Water	+/-	++	++	+

table 7: comparison determinations against the standard

Results between brackets were below the application range of the method, therefore results should be evaluated with care

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

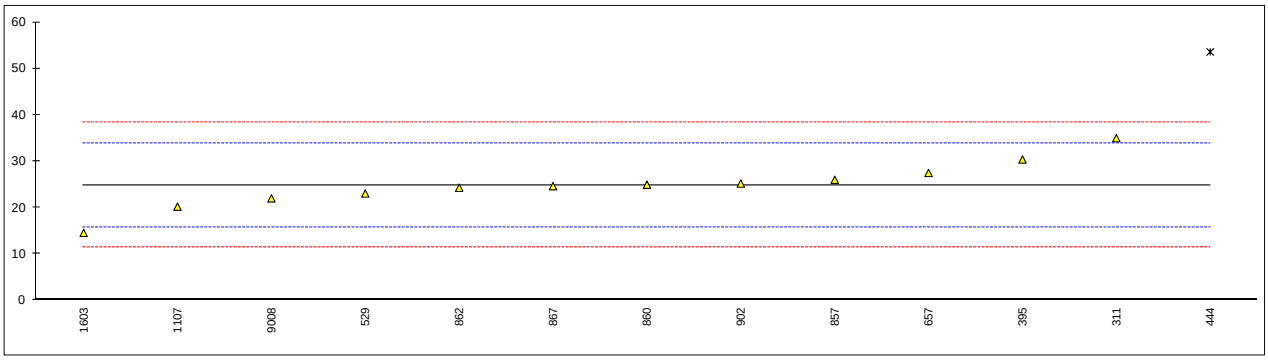
- ++: group performed much better than the standard
- + : group performed better than the standard
- +/-: group performance equals the standard
- - : group performed worse than the standard
- -- : group performed much worse than the standard

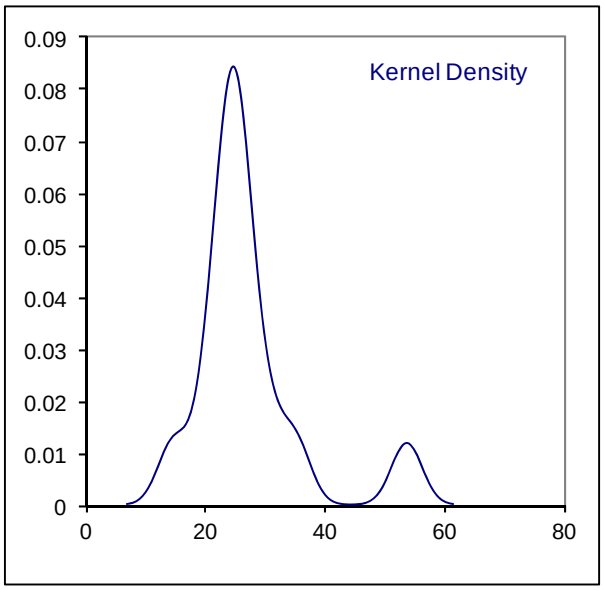
APPENDIX 1

Determination of Acidity as Acetic Acid (E2679) on sample #12130; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150		-----		-----	
169		-----		-----	
171		-----		-----	
173		-----		-----	
174		-----		-----	
311	E2679	35.0		2.27	
322		-----		-----	
323		-----		-----	
343		-----		-----	
347		-----		-----	
395	E2679	30.4		1.25	
396		-----		-----	
398		-----		-----	
444	E2679	53.6	C,G(0.01)	6.42	First reported 1.3
528		-----		-----	
529	E2679	23.053		-0.39	
551		-----		-----	
557		-----		-----	
558		-----		-----	
609		-----		-----	
657	E2679	27.48	C	0.59	First reported 31.5
663		-----		-----	
823		-----		-----	
825		-----		-----	
857	E2679	26.01		0.27	
860	E2679	24.94		0.03	
861		-----		-----	
862	E2679	24.3		-0.11	
865		-----		-----	
867	E2679	24.63		-0.04	
869		-----		-----	
886		-----		-----	
902	E2679	25.2		0.09	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963		-----		-----	
1107	E2679	20.2		-1.03	
1117		-----		-----	
1151		-----		-----	
1169		-----		-----	
1217		-----		-----	
1386		-----		-----	
1467		-----		-----	
1492		-----		-----	
1509		-----		-----	
1515		-----		-----	
1603	in house	14.56		-2.29	
1608		-----		-----	
1623		-----		-----	
1701		-----		-----	
1718		-----		-----	
1823		-----		-----	
1866		-----		-----	
1915		-----		-----	
1954		-----		-----	
7006		-----		-----	
9008	E2679	22		-0.63	
9009		-----		-----	

normality	OK
n	12
outliers	1
mean (n)	24.81
st.dev. (n)	5.058
R(calc.)	14.16
R(E2679:09)	12.56

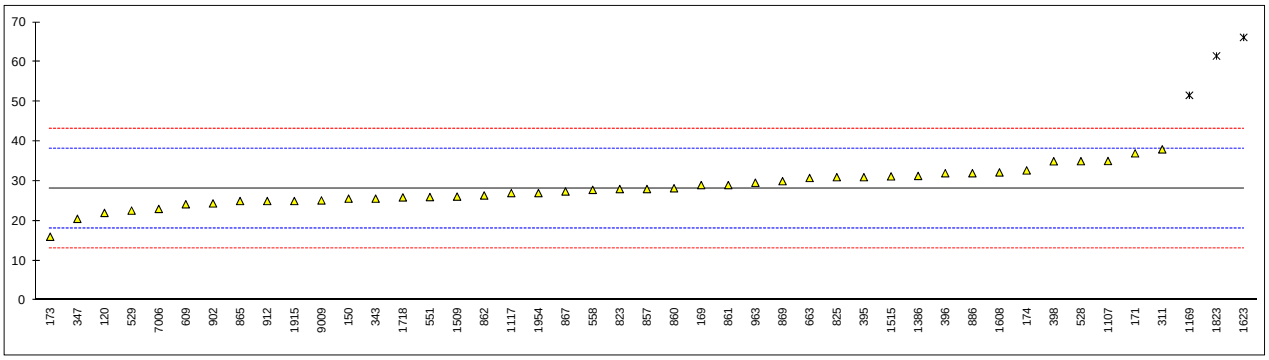

60
50
40
30
20
10
0
1603
1107
9008
529
862
867
860
902
857
657
395
311
444

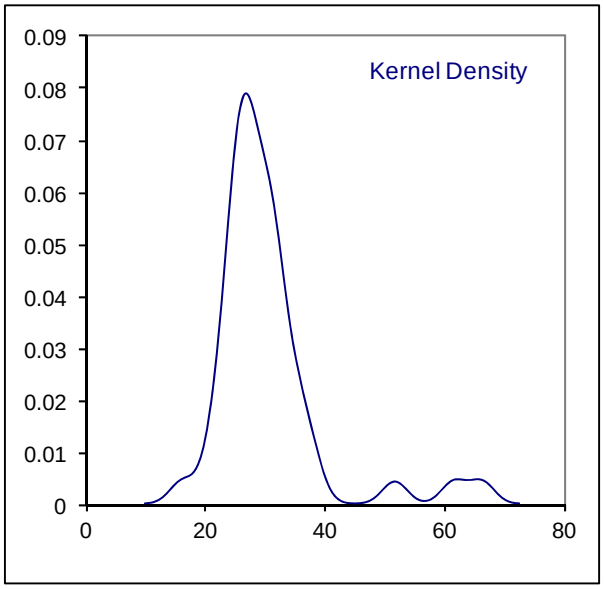

Kernel Density
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
20
40
60
80

Determination of Acidity as Acetic Acid (D1613) on sample #12130; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D1613	22		-1.24	
150	D1613	25.6		-0.52	
169	D1613	29		0.16	
171	D1613	37		1.76	
173	D1613	16	C	-2.44	Reported 0.0016 (unit error, %M/M instead of mg/kg)
174	D1613	32.70	C	0.90	First reported 46
311	D1613	38		1.96	
322		-----		-----	
323		-----		-----	
343	D1613	25.6		-0.52	
347	D1613	20.51		-1.53	
395	D1613	31.0		0.56	
396	D1613	32		0.76	
398	D1613	35		1.36	
444		-----		-----	
528	D1613	35.03		1.37	
529	D1613	22.59		-1.12	
551	D1613	26		-0.44	
557		-----		-----	
558	D1613	27.8		-0.08	
609	D1613	24.17		-0.80	
657		-----		-----	
663	D1613	30.8		0.52	
823	D1613	28		-0.04	
825	D1613	31		0.56	
857	D1613	28.0		-0.04	
860	D1613	28.2		0.00	
861	D1613	29.0		0.16	
862	D1613	26.4		-0.36	
865	D1613	25.0		-0.64	
867	D1613	27.4		-0.16	
869	D1613	30.0		0.36	
886	D1613	32		0.76	
902	D1613	24.4		-0.76	
912	D1613	25		-0.64	
913		-----		-----	
962		-----		-----	
963	D1613	29.6		0.28	
1107	D1613	35.07		1.38	
1117	D1613	27.0		-0.24	
1151		-----		-----	
1169	D1613	51.6	C,G(0.01)	4.68	First reported 42.93
1217		-----		-----	
1386	D1613	31.3		0.62	
1467		-----		-----	
1492		-----		-----	
1509	D1613	26.1	C	-0.42	First reported 14.6
1515	D1613	31.2	C	0.60	First reported 3.12
1603		-----		-----	
1608	D1613	32.2		0.80	
1623	D1613	66.18	C,G(0.01)	7.60	First reported 59.33
1701		-----		-----	
1718	D1613	25.90		-0.46	
1823	D1613	61.5	G(0.01)	6.66	
1866		-----		-----	
1915	D1613	25		-0.64	
1954	D1613	27		-0.24	
7006	D1613	23		-1.04	
9008		-----		-----	
9009	D1613	25.15		-0.61	

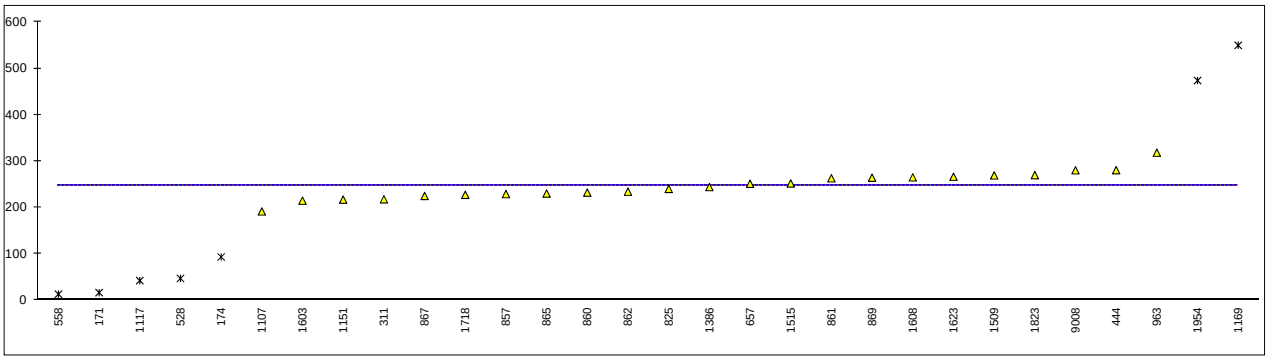
normality	OK
n	42
outliers	3
mean (n)	28.18
st.dev. (n)	4.518
R(calc.)	12.65
R(D1613:12)	14.00

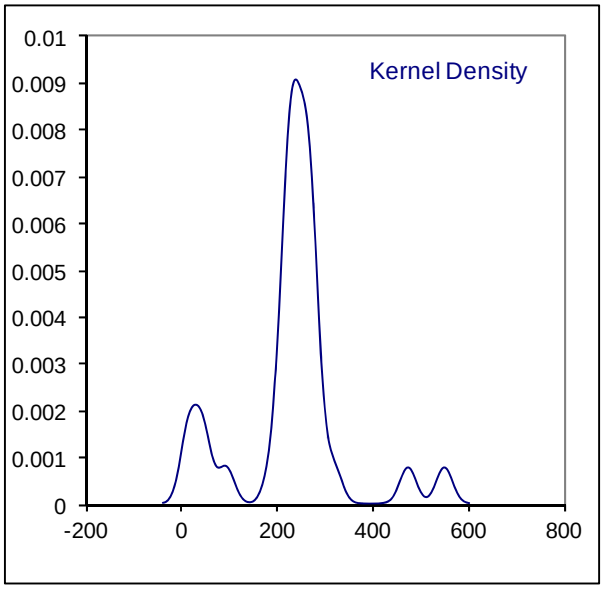

70
60
50
40
30
20
10
0
173 347 120 529 7006 609 902 865 912 1915 9009 150 343 1718 551 1509 862 1117 1954 867 558 823 857 860 169 861 963 869 663 825 395 1515 1386 396 886 1608 174 398 528 1107 171 311 1169 1823 1623


Kernel Density
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
20
40
60
80

Determination of Aldehydes as Acetaldehyde on sample #12130; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150		-----		-----	
169		-----		-----	
171	E2313	16	DG(0.05)	-----	False negative result?
173		-----		-----	
174	E2313	93	G(0.05)	-----	
311	E2313	217.5		-----	
322	E2313	>50		-----	
323	E2313	>50		-----	
343		-----		-----	
347		-----		-----	
395	E2313	>50		-----	
396		-----		-----	
398	E2313	>50		-----	
444	E2313	280.35		-----	
528	INH-86	46.635	DG(0.05)	-----	False negative result?
529		-----		-----	
551		-----		-----	
557		-----		-----	
558	NBR-5769	12.6	DG(0.05)	-----	False negative result?
609		-----		-----	
657	E2313	251		-----	
663		-----		-----	
823		-----		-----	
825	E2313	240		-----	
857	E2313	228.8		-----	
860	E2313	232		-----	
861	E2313	263.0		-----	
862	E2313	234		-----	
865	E2313	230.0		-----	
867	E2313	224.7		-----	
869	E2313	264.1		-----	
886		-----		-----	
902	E2313	>50		-----	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	E2313	318.2		-----	
1107	E2313	191.4		-----	
1117	INH-2812	41.9	DG(0.05)	-----	False negative result?
1151	E2313	216.9		-----	
1169	E2313	550.07	DG(0.05)	-----	False positive result?
1217		-----		-----	
1386	E2313	243.89		-----	
1467		-----		-----	
1492		-----		-----	
1509	E2313	269.17		-----	
1515	E2313	251.76		-----	
1603	in house	214.6		-----	
1608	E2313	265		-----	
1623	INH-012	266.36		-----	
1701		-----		-----	
1718	E2313	227.21		-----	
1823	E2313	269.8		-----	
1866		-----		-----	
1915		-----		-----	
1954	E2313	474	DG(0.05)	-----	False positive result?
7006		-----		-----	
9008	E2313	280.2		-----	
9009		-----		-----	
	normality	OK			
	n	23			
	outliers	7			
	mean (n)	246.95			
	st.dev. (n)	28.172			
	R(calc.)	78.88			
	R(E2313:08)	(212.43)			Application range: 0.5 – 50 mg/kg


600
500
400
300
200
100
0
558
171
1117
528
174
1107
1603
1151
311
867
1718
857
865
860
862
825
1386
657
1515
861
869
1608
1623
1509
1823
9008
444
963
1954
1169


Kernel Density
0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
-200
0
200
400
600
800

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Determination of Appearance on sample #12130;

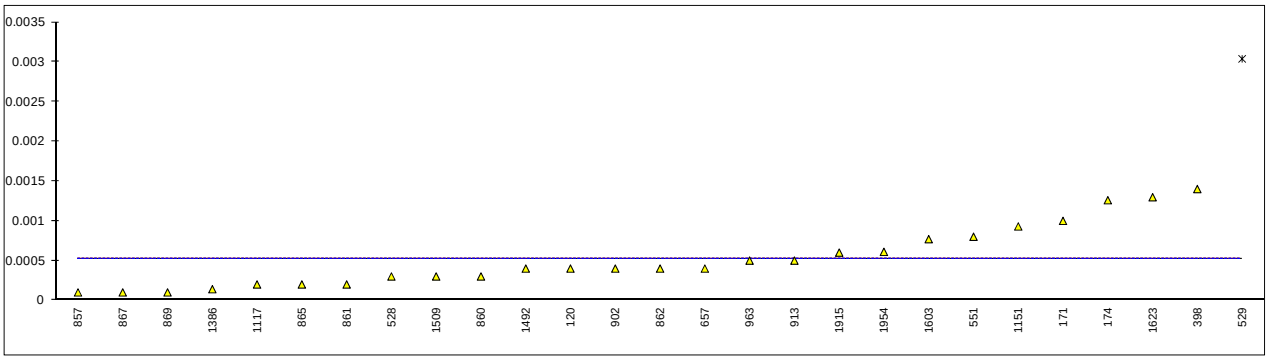
lab	method	value	mark	z(targ)	remarks
120	E2680	Fail		-----	
150	E2680	Pass		-----	
169	E2680	C&B		-----	
171	E2680	C&F		-----	
173	E2680	CFSM		-----	
174	E2680	Pass		-----	
311	E2680	Pass		-----	
322	E2680	Pass		-----	
323	E2680	Pass		-----	
343	E2680	Pass		-----	
347	E2680	Pass		-----	
395	E2680	Pass		-----	
396	E2680	Pass		-----	
398	E2680	Pass		-----	
444	E2680	Pass		-----	
528	E2680	CFSM		-----	
529	E2680	Pass		-----	
551	E2680	Pass		-----	
557		-----		-----	
558	E2680	Pass		-----	
609	E2680	Pass		-----	
657	E2680	Pass		-----	
663	E2680	Pass		-----	
823	E2680	Pass		-----	
825	E2680	Pass		-----	
857	E2680	Pass		-----	
860	E2680	Pass		-----	
861	E2680	Pass		-----	
862	E2680	Pass		-----	
865	E2680	Pass		-----	
867	E2680	Pass		-----	
869	E2680	Pass		-----	
886	E2680	Pass		-----	
902	E2680	Pass		-----	
912	E2680	Pass		-----	
913	E2680	CFFSM		-----	
962		-----		-----	
963	E2680	Pass		-----	
1107	Visual	C&B		-----	
1117	D4176	On-spec		-----	
1151		-----		-----	
1169	D4176	Pass		-----	
1217		-----		-----	
1386	E2680	CFFSM		-----	
1467		-----		-----	
1492		-----		-----	
1509	D4176	CFFSM		-----	
1515	D4176	Pass		-----	
1603	in house	CFP		-----	
1608	D4176	Pass		-----	
1623	D2090	Clear		-----	
1701		-----		-----	
1718	D4176	CFFSM		-----	
1823	E2680	Pass		-----	
1866		-----		-----	
1915	E2680	C&B		-----	
1954	Visual	Clear		-----	
7006		-----		-----	
9008	E2680	Pass		-----	
9009		-----		-----	
	normality	n.a.			
	n	49			
	outliers	1			
	mean (n)	Pass			1 reported fail
	st.dev. (n)	n.a.			
	R(calc.)	n.a.			
	R(E2680:09e1)	n.a.			

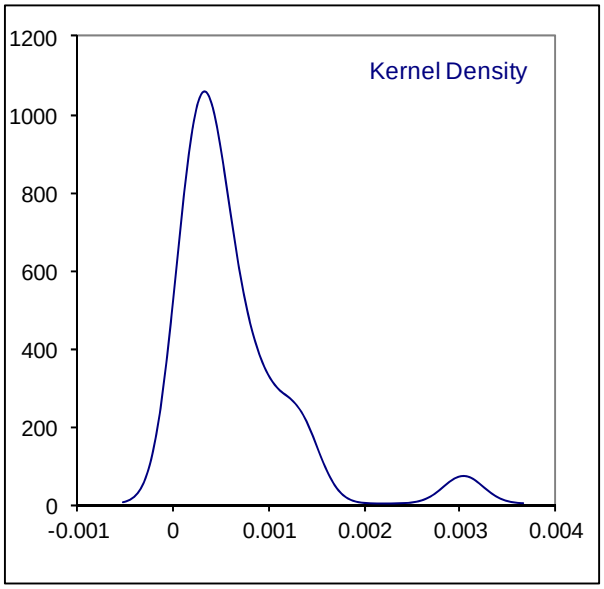
B&C = Bright and clear
C&F = Clear and Free
CFFSM = Clear and free from suspended matter
SF = Suspended Free

Determination of Ash on sample #12130; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D482	0.0004		-----	
150	D482	<0.001		-----	
169	D482	<0.001		-----	
171	D482	0.001		-----	
173	D482	<0.0001		-----	
174	D482	0.00126		-----	
311	D482	<0.01		-----	
322		-----		-----	
323	D482	<0.001		-----	
343	D482	<0.001		-----	
347		-----		-----	
395		-----		-----	
396		-----		-----	
398	D482	0.0014		-----	
444		-----		-----	
528	D482	0.0003		-----	
529	D482	0.003039	G(0.01)	-----	False positive result?
551	D482	0.0008		-----	
557		-----		-----	
558		-----		-----	
609		-----		-----	
657	D482	0.0004		-----	
663	D482	<0.001		-----	
823		-----		-----	
825		-----		-----	
857	D482	0.0001		-----	
860	D482	0.0003		-----	
861	D482	0.0002		-----	
862	D482	0.0004		-----	
865	D482	0.0002		-----	
867	D482	0.0001		-----	
869	D482	0.0001		-----	
886	D482	<0.001		-----	
902	D482	0.0004		-----	
912	D482	<0.001		-----	
913	D482	0.00050		-----	
962		-----		-----	
963	D482	0.0005		-----	
1107	D482	<0.001		-----	
1117	D482	0.0002		-----	
1151	D482	0.00093		-----	
1169		-----		-----	
1217		-----		-----	
1386	D482	0.00014		-----	
1467		-----		-----	
1492	D482	0.0004		-----	
1509	D482	0.0003		-----	
1515		-----		-----	
1603	in house	0.00077		-----	
1608	D482	<0.001		-----	
1623	D482	0.001297		-----	
1701		-----		-----	
1718	D482	<0.001		-----	
1823	D482	<0.0010		-----	
1866		-----		-----	
1915	D482	0.0006		-----	
1954	D482	0.00061		-----	
7006		-----		-----	
9008		-----		-----	
9009		-----		-----	

	normality	not OK	
	n	26	
	outliers	1	
	mean (n)	0.00052	
	st.dev. (n)	0.000384	
	R(calc.)	0.00107	
	R(D482:07)	(0.00500)	Application range 0.001 – 0.180 %M/M

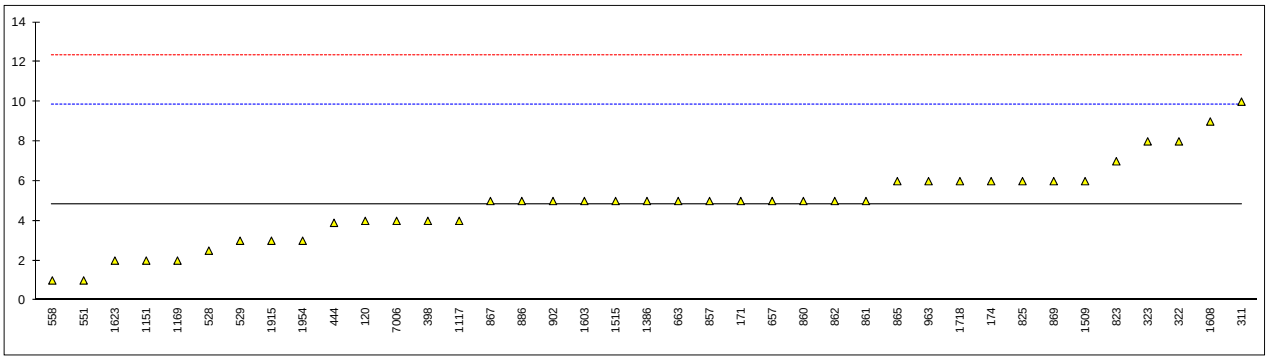

0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
857
867
869
1386
1117
865
861
528
1509
860
1492
120
902
862
657
963
913
1915
1954
1603
551
1151
171
174
1623
398
529

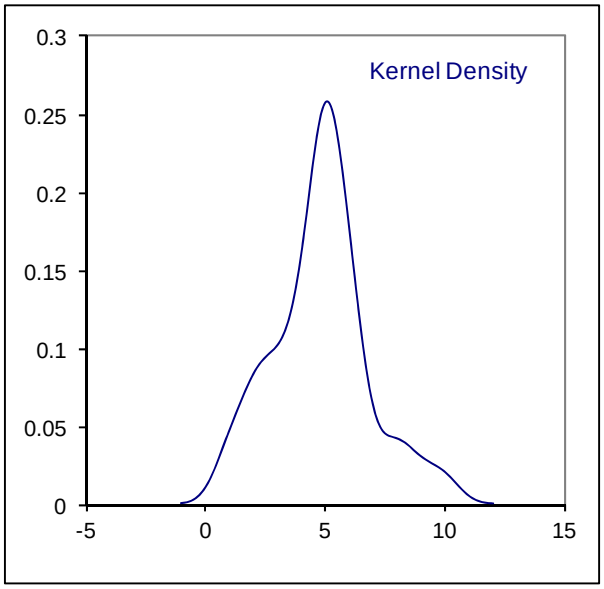

Kernel Density
1200
1000
800
600
400
200
0
-0.001
0
0.001
0.002
0.003
0.004

Determination of Colour Pt/Co on sample #12130;

lab	method	value	mark	z(targ)	remarks
120	D1209	4		-0.33	
150		-----		-----	
169		-----		-----	
171	D1209	5		0.07	
173	D1209	<5		-----	
174	D1209	6		0.47	
311	D1209	10		2.07	
322	D1209	8		1.27	
323	D1209	8		1.27	
343		-----		-----	
347		-----		-----	
395		-----		-----	
396		-----		-----	
398	D1209	4		-0.33	
444	D5386	3.9		-0.37	
528	D1209	2.5		-0.93	
529	D1209	3		-0.73	
551	D1209	1		-1.53	
557		-----		-----	
558	NBR-5769	1		-1.53	
609		-----		-----	
657	D1209	5		0.07	
663	D1209	5		0.07	
823	D1209	7		0.87	
825	D1209	6		0.47	
857	D1209	5		0.07	
860	D1209	5		0.07	
861	D1209	5		0.07	
862	D1209	5		0.07	
865	D1209	6		0.47	
867	D1209	5		0.07	
869	D1209	6		0.47	
886	D1209	5	C	0.07	First reported 10
902	D1209	5		0.07	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	D1209	6		0.47	
1107	D1209	<5		-----	
1117	D1209	4		-0.33	
1151	D1209	2		-1.13	
1169	D1209	2		-1.13	
1217		-----		-----	
1386	D1209	5		0.07	
1467		-----		-----	
1492		-----		-----	
1509	D1209	6		0.47	
1515	D1209	5		0.07	
1603	in house	5		0.07	
1608	D1209	9		1.67	
1623	D1209	2.0		-1.13	
1701		-----		-----	
1718	D1209	6		0.47	
1823		-----		-----	
1866		-----		-----	
1915	D1209	3		-0.73	
1954	D1209	3		-0.73	
7006	D1209	4		-0.33	
9008		-----		-----	
9009		-----		-----	

normality	not OK
n	39
outliers	0
mean (n)	4.8
st.dev. (n)	2.00
R(calc.)	5.6
R(D1209:11)	7.0

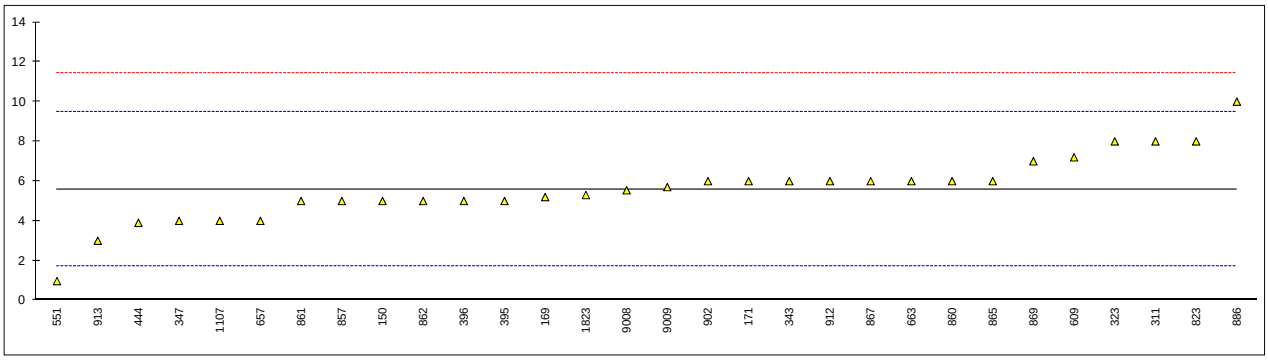

14
12
10
8
6
4
2
0
558
551
1623
1151
1169
528
529
1915
1954
444
120
7006
398
1117
867
886
902
1603
1515
1386
663
857
171
657
860
862
861
865
963
1718
174
825
869
1509
823
323
322
1608
311

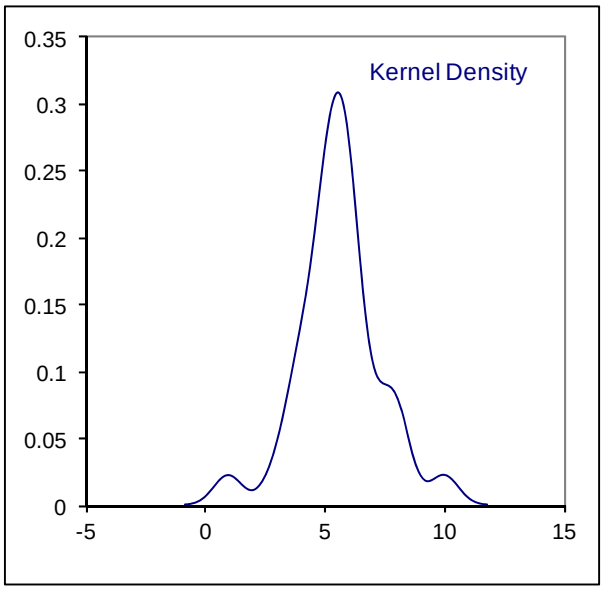

Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
-5
0
5
10
15

Determination of Colour (D5386) on sample #12130;

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150	D5386	5		-0.30	
169	D5386	5.2		-0.20	
171	D5386	6		0.21	
173		-----		-----	
174		-----		-----	
311	D5386	8		1.23	
322		-----		-----	
323	D5386	8		1.23	
343	D5386	6		0.21	
347	D5386	4		-0.82	
395	D5386	5		-0.30	
396	D5386	5		-0.30	
398		-----		-----	
444	D5386	3.9		-0.87	
528		-----		-----	
529		-----		-----	
551	D5386	0.97		-2.37	
557		-----		-----	
558		-----		-----	
609	D5386	7.2		0.82	
657	D5386	4		-0.82	
663	D5386	6		0.21	
823	D5386	8		1.23	
825		-----		-----	
857	D5386	5		-0.30	
860	D5386	6		0.21	
861	D5386	5		-0.30	
862	D5386	5		-0.30	
865	D5386	6		0.21	
867	D5386	6		0.21	
869	D5386	7		0.72	
886	D5386	10		2.26	
902	D5386	6		0.21	
912	D5386	6		0.21	
913	D5386	3		-1.33	
962		-----		-----	
963		-----		-----	
1107	D5386	4		-0.82	
1117		-----		-----	
1151		-----		-----	
1169		-----		-----	
1217		-----		-----	
1386		-----		-----	
1467		-----		-----	
1492		-----		-----	
1509		-----		-----	
1515		-----		-----	
1603		-----		-----	
1608		-----		-----	
1623		-----		-----	
1701		-----		-----	
1718		-----		-----	
1823	D5386	5.3		-0.15	
1866		-----		-----	
1915		-----		-----	
1954		-----		-----	
7006		-----		-----	
9008	D5386	5.54		-0.03	
9009	D5386	5.7		0.05	

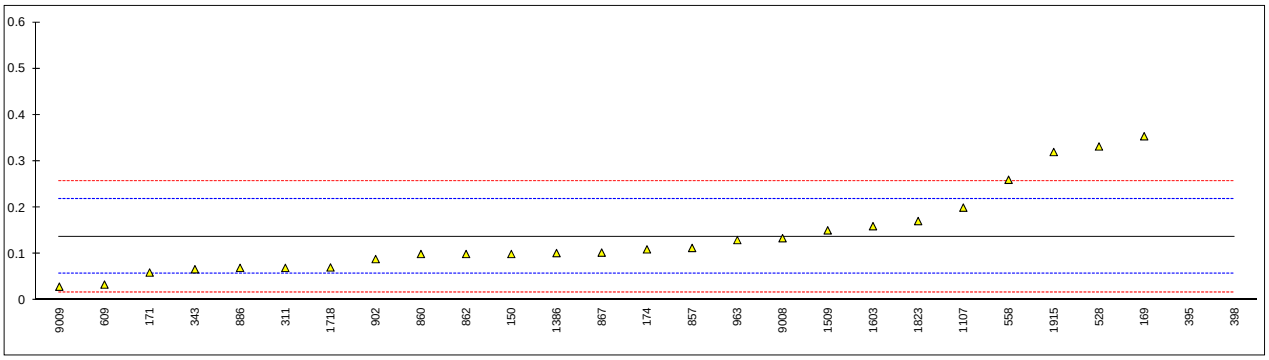
normality	not OK
n	30
outliers	0
mean (n)	5.6
st.dev. (n)	1.70
R(calc.)	4.8
R(D5386:10)	5.5

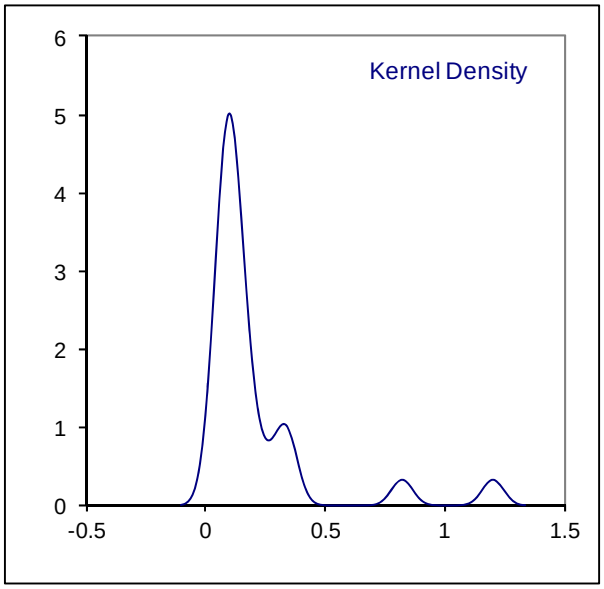

14
12
10
8
6
4
2
0
551
913
444
347
1107
657
861
857
150
862
396
395
169
1823
9008
9009
902
171
343
912
867
663
860
865
869
609
323
311
823
886


Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-5
0
5
10
15

Determination of Chloride as Cl on sample #12130; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	INH-221	<0.5		-----	
150	INH-2367	0.1		-0.93	
169	E2469	0.354		5.40	
171	E2469	0.06		-1.93	
173	INH-221	<0.5		-----	
174	E2469	0.11		-0.68	
311	E2469	0.07		-1.68	
322		-----		-----	
323		-----		-----	
343	E2469	0.067		-1.75	
347		-----		-----	
395	E2469	0.82	G(0.01)	17.02	
396		-----		-----	
398	E2469	1.2	C,G(0.01)	26.50	First reported 0.802
444	E2469	<0.01		<-3.17	False negative result?
528	E2469	0.332		4.86	
529		-----		-----	
551		-----		-----	
557		-----		-----	
558	NBR-7342	0.26		3.06	
609	E2469	0.034		-2.57	
657	INH-0055	<0.5		-----	
663		-----		-----	
823		-----		-----	
825		-----		-----	
857	E2469	0.113		-0.60	
860	IMPCA002	0.1		-0.93	
861		-----		-----	
862	E2469	0.10		-0.93	
865	INH-001	<0.5		-----	
867	E2469	0.103		-0.85	
869		-----		-----	
886	INH-082	0.07		-1.68	
902	E2469	0.089		-1.20	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	E2469	0.13		-0.18	
1107	in house	0.2		1.57	
1117		-----		-----	
1151		-----		-----	
1169	E2901	<0.1		-----	
1217		-----		-----	
1386	E2469	0.102		-0.88	
1467		-----		-----	
1492		-----		-----	
1509	E2469	0.151		0.34	
1515	E2469	<0.05		<-2.17	
1603	in house	0.16		0.57	
1608		-----		-----	
1623		-----		-----	
1701		-----		-----	
1718	E2469	0.071		-1.65	
1823	INH-2901	0.171		0.84	
1866		-----		-----	
1915	E2469	0.32		4.56	
1954	INH-5295	<0.1		-----	
7006		-----		-----	
9008	E2469	0.134		-0.08	
9009	E2469	0.0294	C	-2.69	First reported 235
	normality	not OK			
	n	25			
	outliers	2	Spike:		
	mean (n)	0.137	0.095		Recovery <144%
	st.dev. (n)	0.0904			
	R(calc.)	0.253			
	R(E2469:08a)	0.112			

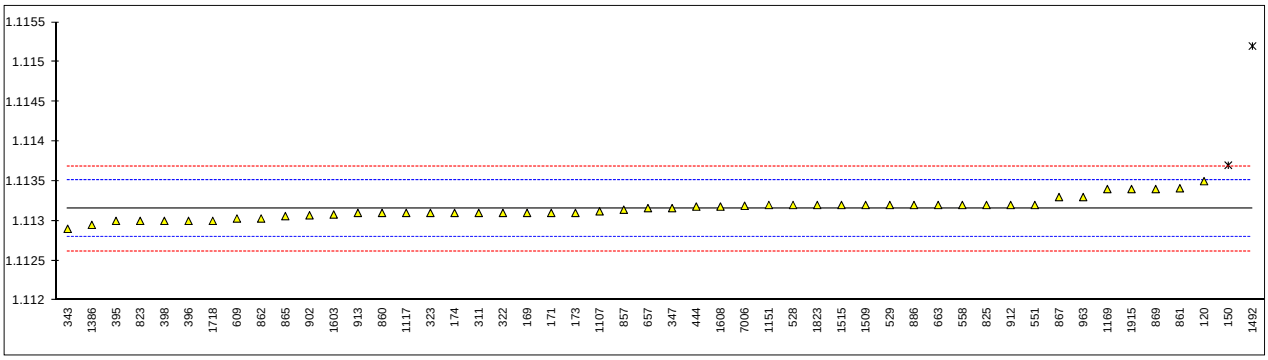

0.6
0.5
0.4
0.3
0.2
0.1
0
9009
609
171
343
886
311
1718
902
860
862
150
1386
867
174
857
963
9008
1509
1603
1823
1107
558
1915
528
169
395
398

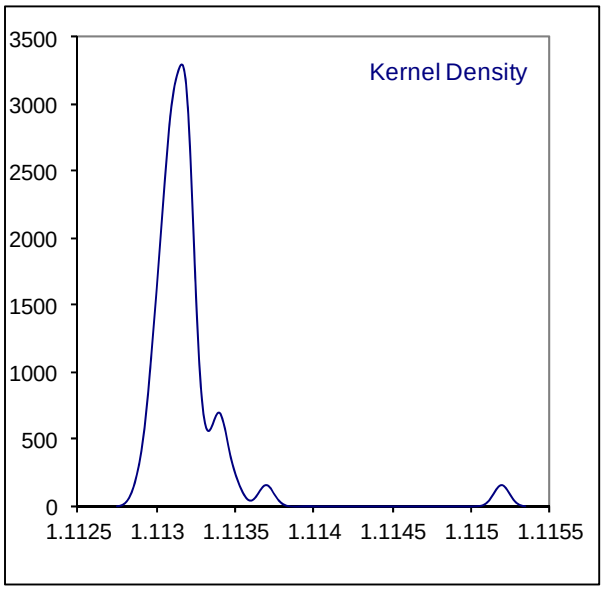

Kernel Density
6
5
4
3
2
1
0
-0.5
0
0.5
1
1.5

Determination of Density at 20 °C on sample #12130; results in kg/L

lab	method	value	mark	z(targ)	remarks
120	D4052	1.1135		1.94	
150	D4052	1.1137	C,G(0.01)	3.06	First reported 1.1124
169	D4052	1.1131		-0.30	
171	D4052	1.1131		-0.30	
173	D4052	1.1131		-0.30	
174	D4052	1.1131		-0.30	
311	D4052	1.1131		-0.30	
322	D4052	1.1131		-0.30	
323	D4052	1.1131		-0.30	
343	D4052	1.1129		-1.42	
347	D4052	1.11316		0.04	
395	D4052	1.1130		-0.86	
396	D4052	1.1130		-0.86	
398	D4052	1.1130		-0.86	
444	D4052	1.11318		0.15	
528	D4052	1.1132	C	0.26	Reported 1.1152 (swiched with Specific Gravity)
529	D4052	1.1132		0.26	
551	D4052	1.1132		0.26	
557		-----		-----	
558	D4052	1.1132		0.26	
609	D4052	1.11303		-0.69	
657	D4052	1.11316		0.04	
663	D4052	1.1132		0.26	
823	D4052	1.1130		-0.86	
825	D4052	1.1132		0.26	
857	D4052	1.11314		-0.08	
860	D4052	1.1131		-0.30	
861	D4052	1.11341		1.44	
862	D4052	1.11303		-0.69	
865	D4052	1.11306		-0.52	
867	D4052	1.1133		0.82	
869	D4052	1.1134		1.38	
886	D4052	1.1132		0.26	
902	D4052	1.11307		-0.47	
912	D4052	1.1132		0.26	
913	D4052	1.1131		-0.30	
962		-----		-----	
963	D4052	1.1133		0.82	
1107	D4052	1.11312		-0.19	
1117	D4052	1.1131		-0.30	
1151	D4052	1.1132		0.26	
1169	D4052	1.1134		1.38	
1217		-----		-----	
1386	D4052	1.11295		-1.14	
1467		-----		-----	
1492	D4052	1.1152	G(0.01)	11.46	
1509	D4052	1.1132		0.26	
1515	D4052	1.1132		0.26	
1603	in house	1.11308		-0.41	
1608	D4052	1.11318		0.15	
1623		-----		-----	
1701		-----		-----	
1718	D4052	1.1130		-0.86	
1823	D4052	1.1132		0.26	
1866		-----		-----	
1915	D4052	1.1134		1.38	
1954		-----		-----	
7006	D4052	1.11319		0.20	
9008		-----		-----	
9009		-----		-----	

normality	not OK
n	48
outliers	2
mean (n)	1.11315
st.dev. (n)	0.000126
R(calc.)	0.00035
R(D4052:02e1)	0.00050

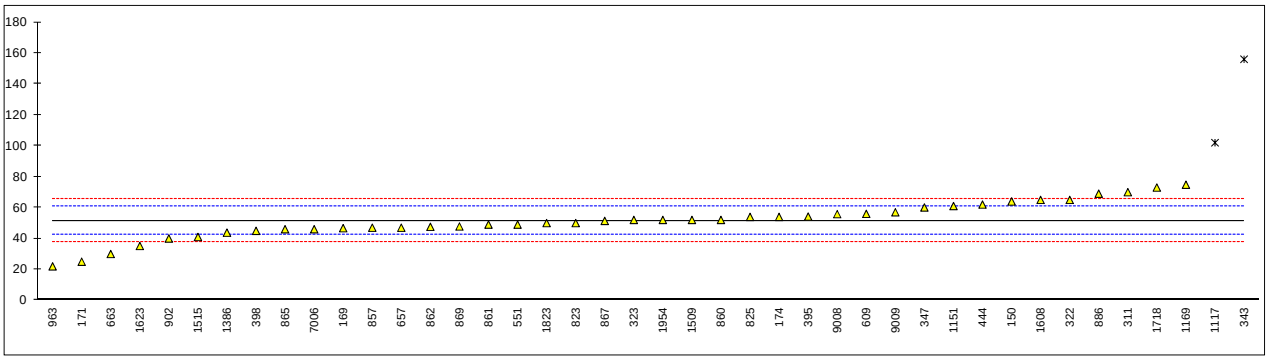

1.1155
1.115
1.1145
1.114
1.1135
1.113
1.1125
1.112
343 1386 395 823 398 396 1718 609 862 865 902 1603 913 860 1117 323 174 311 322 169 171 173 1107 857 657 347 444 1608 7006 1151 528 1823 1515 1509 529 886 663 558 825 912 551 867 963 1169 1915 869 861 120 150 1492

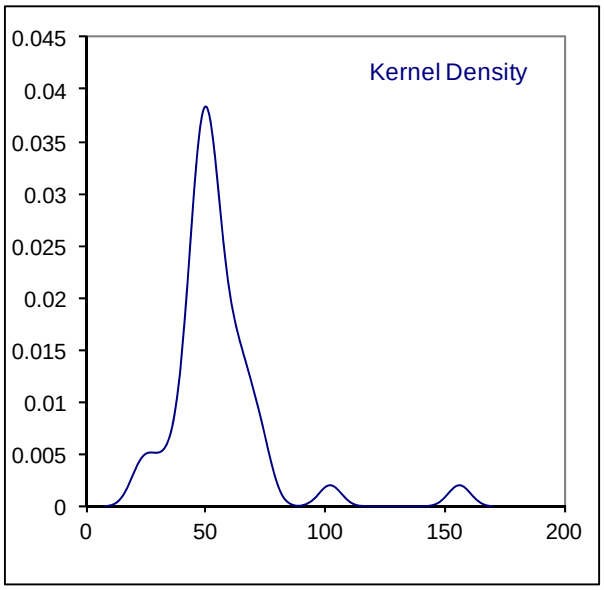

Kernel Density
3500
3000
2500
2000
1500
1000
500
0
1.1125 1.113 1.1135 1.114 1.1145 1.115 1.1155

Determination of Diethylene Glycol on sample #12130; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150	E2409	64		2.66	
169	E2409	46.7		-1.04	
171	E2409	25		-5.67	
173	INH-540	<100	C	-----	Reported <0.01 (unit error? %M/M instead of mg/kg)
174	E2409	54		0.52	
311	E2409	70		3.94	
322	E2409	65		2.87	
323	E2409	52		0.09	
343	E2409	156	C,G(0.01)	22.29	First reported <5
347	E2409	60.1		1.82	
395	E2409	54.24		0.57	
396		-----		-----	
398	E2409	45		-1.40	
444	E2409	62		2.23	
528		-----		-----	
529		-----		-----	
551	E2409	49		-0.55	
557		-----		-----	
558		-----		-----	
609	E2409	56		0.95	
657	E2409	47		-0.97	
663	E2409	30		-4.60	
823	E2409	50		-0.33	
825	E2409	54		0.52	
857	E2409	47		-0.97	
860	E2409	52		0.09	
861	E2409	49		-0.55	
862	E2409	47.6		-0.85	
865	E2409	46		-1.19	
867	E2409	51.4		-0.03	
869	E2409	47.8		-0.80	
886	E2409	69.0		3.72	
902	E2409	40		-2.47	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	E2409	22		-6.31	
1107	in house	<100		-----	
1117	E2409	102	G(0.01)	10.77	
1151	E2409	61		2.01	
1169	E2409	74.8		4.96	
1217		-----		-----	
1386	E2409	43.8		-1.66	
1467		-----		-----	
1492		-----		-----	
1509	E2409	52.0		0.09	
1515	E2409	41	C	-2.25	First reported 2450
1603	in house	<50		-----	
1608	E2409	65		2.87	
1623	E2409	35.18		-3.50	
1701		-----		-----	
1718	E2409	73.0		4.58	
1823	E2409	50		-0.33	
1866		-----		-----	
1915		-----		-----	
1954	E2409	52		0.09	
7006	E2409	46		-1.19	
9008	E2409	55.8		0.90	
9009	E2409	57		1.16	

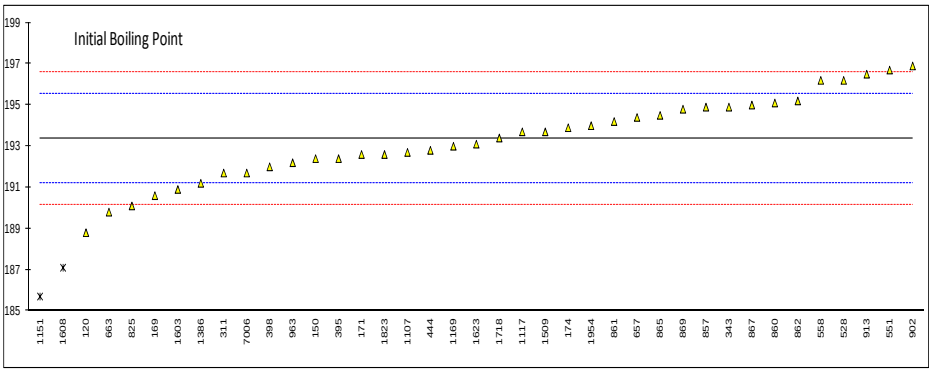
normality	OK
n	40
outliers	2
mean (n)	51.56
st.dev. (n)	11.717
R(calc.)	32.81
R(E2409:08)	13.12

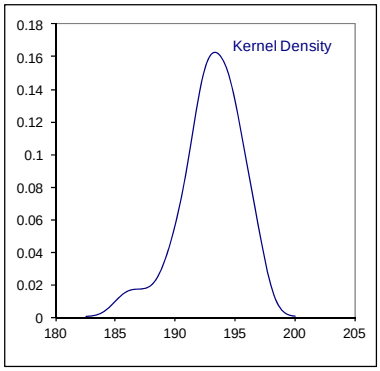

180
160
140
120
100
80
60
40
20
0
963
171
663
1623
902
1515
1386
398
865
7006
169
857
657
862
869
861
551
1823
823
867
323
1954
1509
860
825
174
395
9008
609
9009
347
1151
444
150
1608
322
886
311
1718
1169
1117
343

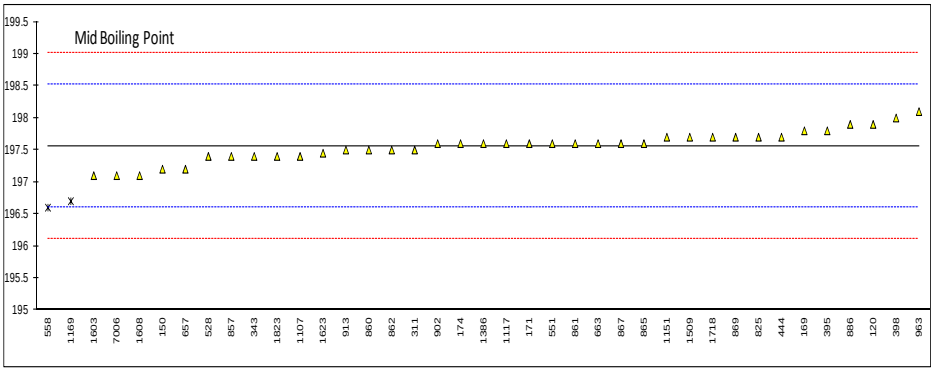

Kernel Density
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0
50
100
150
200

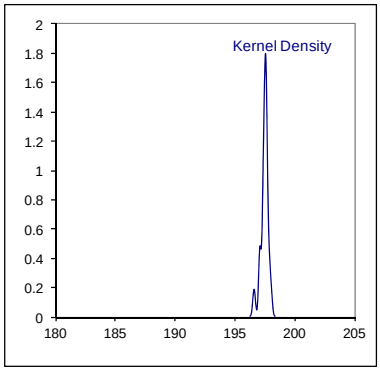
Determination of Distillation: IBP, 50% recovered, Dry Point on sample #12130; results in °C

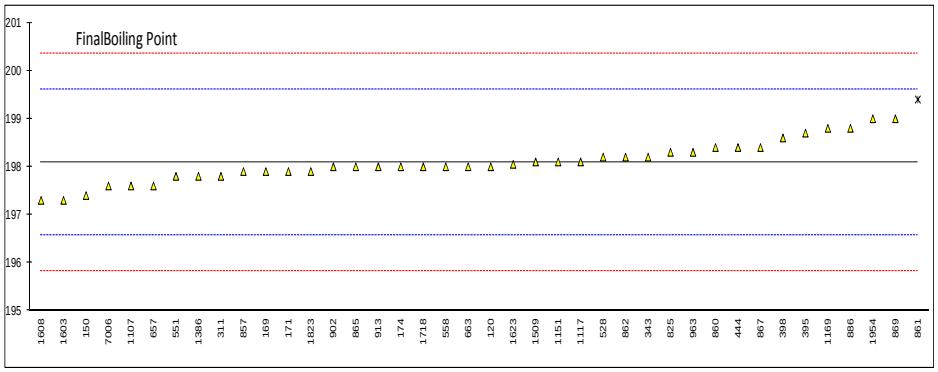
lab	method	IBP	mark	z(targ)	50%	mark	z(targ)	DP	mark	z(targ)	remarks
120	D1078	188.8		-4.24	197.9		0.70	198.0		-0.12	
150	D1078	192.4		-0.90	197.2		-0.75	197.4		-0.91	
169	D1078	190.6		-2.57	197.8		0.49	197.9		-0.25	
171	D1078	192.6		-0.72	197.6		0.08	197.9		-0.25	
173		-----		-----	-----		-----	-----		-----	
174	D1078	193.9		0.49	197.6		0.08	198.0		-0.12	
311	D1078	191.7		-1.55	197.5		-0.13	197.8		-0.38	
322		-----		-----	-----		-----	-----		-----	
323		-----		-----	-----		-----	-----		-----	
343	D1078	194.9		1.42	197.4		-0.34	198.2		0.15	
347		-----		-----	-----		-----	-----		-----	
395	D1078	192.4		-0.90	197.8		0.49	198.7		0.81	
396		-----		-----	-----		-----	-----		-----	
398	D1078	192.0		-1.27	198.0		0.91	198.6		0.68	
444	D1078	192.8		-0.53	197.7		0.28	198.4		0.41	
528	D1078	196.2		2.62	197.4		-0.34	198.2		0.15	
529		-----		-----	-----		-----	-----		-----	
551	D1078	196.7		3.09	197.6		0.08	197.8		-0.38	
557		-----		-----	-----		-----	-----		-----	
558	NBR-7140	196.2		2.62	196.6	DG(0.01)	-2.00	198.0		-0.12	
609		-----		-----	-----		-----	-----		-----	
657	D1078	194.4		0.95	197.2		-0.75	197.6		-0.65	
663	D1078	189.8		-3.32	197.6		0.08	198.0		-0.12	
823		-----		-----	-----		-----	-----		-----	
825	D1078	190.1		-3.04	197.7		0.28	198.3		0.28	
857	D1078	194.9		1.42	197.4		-0.34	197.9		-0.25	
860	D1078	195.1		1.60	197.5		-0.13	198.4		0.41	
861	D1078	194.2		0.77	197.6		0.08	199.4	G(0.05)	1.73	
862	D1078	195.2		1.70	197.5		-0.13	198.2		0.15	
865	D1078	194.5		1.05	197.6		0.08	198.0		-0.12	
867	D1078	195.0		1.51	197.6		0.08	198.4		0.41	
869	D1078	194.8		1.32	197.7		0.28	199.0		1.20	
886		-----		-----	197.9		0.70	198.8		0.94	
902	D1078	196.9		3.27	197.6		0.08	198.0		-0.12	
912		-----		-----	-----		-----	-----		-----	
913	D1078	196.5		2.90	197.5		-0.13	198.0		-0.12	
962		-----		-----	-----		-----	-----		-----	
963	D1078	192.2		-1.09	198.1		1.11	198.3		0.28	
1107	D1078	192.7		-0.62	197.4		-0.34	197.6		-0.65	
1117	D1078	193.7		0.30	197.6		0.08	198.1		0.02	
1151	D1078	185.7	DG(0.05)	-7.12	197.7		0.28	198.1		0.02	
1169	D1078	193.0		-0.35	196.7	DG(0.01)	-1.79	198.8		0.94	
1217		-----		-----	-----		-----	-----		-----	
1386	D1078	191.2		-2.02	197.6		0.08	197.8		-0.38	
1467		-----		-----	-----		-----	-----		-----	
1492		-----		-----	-----		-----	-----		-----	
1509	D1078	193.7		0.30	197.7		0.28	198.1		0.02	
1515		-----		-----	-----		-----	-----		-----	
1603	in house	190.9		-2.30	197.1		-0.96	197.3		-1.04	
1608	D1078	187.1	DG(0.05)	-5.82	197.1		-0.96	197.3		-1.04	
1623	D1078	193.10		-0.25	197.45		-0.24	198.05		-0.05	
1701		-----		-----	-----		-----	-----		-----	
1718	D1078	193.4		0.03	197.7		0.28	198.0		-0.12	
1823	D1078	192.6		-0.72	197.4		-0.34	197.9		-0.25	
1866		-----		-----	-----		-----	-----		-----	
1915		-----		-----	-----		-----	-----		-----	
1954	D1078	194		0.58	-----		-----	199		1.20	
7006	D1078	191.7		-1.55	197.1		-0.96	197.6		-0.65	
9008		-----		-----	-----		-----	-----		-----	
9009		-----		-----	-----		-----	-----		-----	
	normality	OK			not OK			OK			
	n	37			37			39			
	outliers	2			2			1			
	mean (n)	193.37			197.56			198.09			
	st.dev. (n)	2.005			0.236			0.417			
	R(calc.)	5.61			0.66			1.17			
	R(D1078:11)	3.02			1.35			2.12			

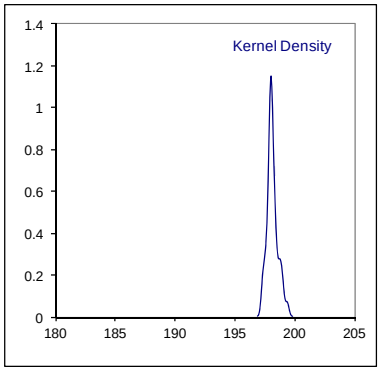

Initial Boiling Point
199
197
195
193
191
189
187
185
1151 1608 120 663 825 169 1603 1386 311 7006 398 963 150 395 171 1823 1107 444 1169 1623 1718 1117 1509 174 1954 861 657 865 869 857 343 867 860 862 558 528 913 551 902


Kernel Density
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
180 185 190 195 200 205


Mid Boiling Point
199.5
199
198.5
198
197.5
197
196.5
196
195.5
195
558 1169 1603 7006 1608 150 657 528 857 343 1823 1107 1623 913 860 862 311 902 174 1386 1117 171 551 861 663 867 865 1151 1509 1718 869 825 444 169 395 886 120 398 963

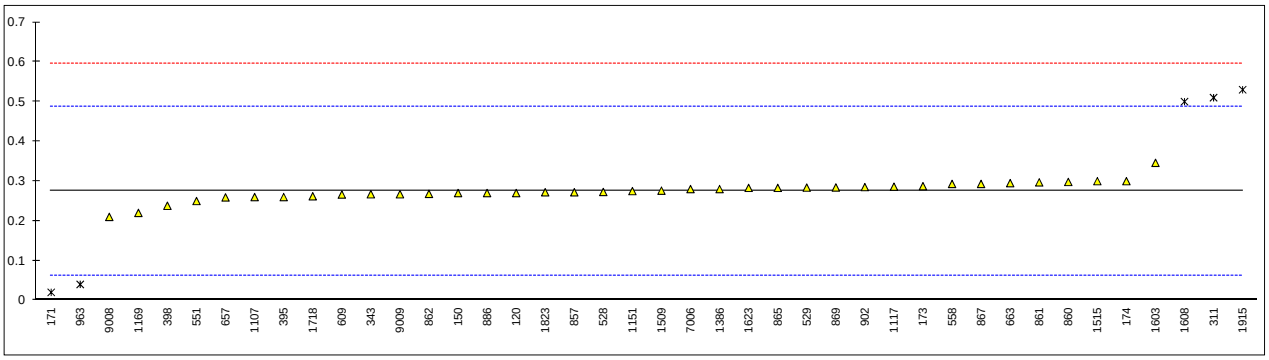

Kernel Density
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
180 185 190 195 200 205

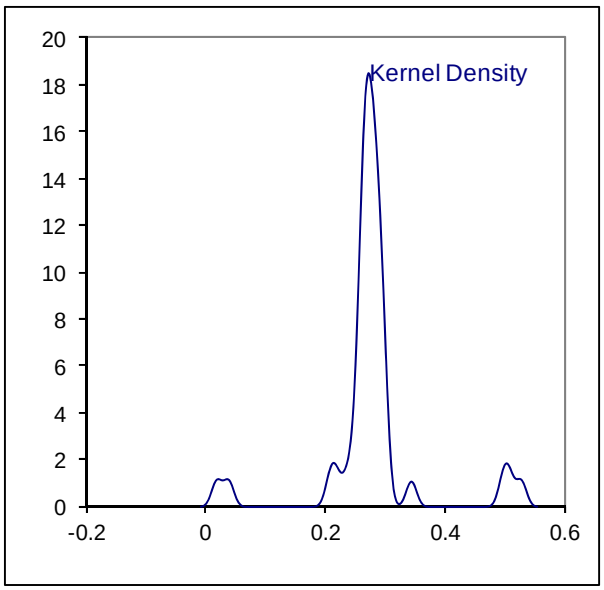

FinalBoiling Point
201
200
199
198
197
196
195
1608 1603 150 7006 1107 657 551 1386 311 857 169 171 1823 902 865 913 174 1718 558 663 120 1623 1509 1151 1117 528 862 343 825 963 860 444 867 398 395 1169 886 1954 869 861


Kernel Density
1.4
1.2
1
0.8
0.6
0.4
0.2
0
180 185 190 195 200 205

Determination of Iron as Fe on sample #12130; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	INH-0290	0.27		-0.05	
150	E202	0.27		-0.05	
169		-----		-----	
171	E1615	0.02	DG(0.01)	-2.40	
173	INH-290	0.2872		0.11	
174	E1615	0.30	C	0.23	First reported 0.11
311	E1615	0.51	DG(0.05)	2.21	
322	E1615	>0.20		-----	
323	E1615	>0.20		-----	
343	E1615	0.267		-0.08	
347		-----		-----	
395	E1615	0.26		-0.14	
396		-----		-----	
398	E1615	0.238		-0.35	
444	E1615	<0.001		<-2.57	False negative?
528	E1615	0.2727		-0.02	
529	E1615	0.2838		0.08	
551	E394	0.25		-0.24	
557		-----		-----	
558	NBR7448	0.293		0.17	
609	E1615	0.2664		-0.08	
657	E1615	0.259		-0.15	
663	E1615	0.295		0.19	
823		-----		-----	
825		-----		-----	
857	E1615	0.272		-0.03	
860	E394	0.298		0.21	
861	E394	0.297		0.21	
862	E1615	0.268		-0.07	
865	E394	0.283		0.07	
867	E1615	0.293		0.17	
869	E1615	0.284		0.08	
886	E202	0.27		-0.05	
902	E1615	0.285		0.09	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	E202	0.04	DG(0.01)	-2.21	
1107	E202	0.26		-0.14	
1117	E394	0.286		0.10	
1151	E1615	0.275		0.00	
1169	E394	0.22		-0.52	
1217		-----		-----	
1386	E394	0.280		0.05	
1467		-----		-----	
1492		-----		-----	
1509	E394	0.276		0.01	
1515	E394	0.30		0.23	
1603	in house	0.346		0.67	
1608	E394	0.50	C,G(0.01)	2.11	First reported 0.54
1623	E202	0.283		0.07	
1701		-----		-----	
1718	E394	0.262		-0.12	
1823	E394	0.272		-0.03	
1866		-----		-----	
1915	E394	0.53	DG(0.05)	2.39	
1954	E394	<0.05		<-2.11	False negative?
7006	E1615	0.28		0.05	
9008	E1615	0.21		-0.61	
9009	E1615	0.267	C	-0.08	First reported 0.533
	normality	OK			
	n	37			
	outliers	5			
	mean (n)	0.2751			
	st.dev. (n)	0.02329			
	R(calc.)	0.0652			
	R(E1615:08)	0.2982			Compare R(E394:09) = 0.1484

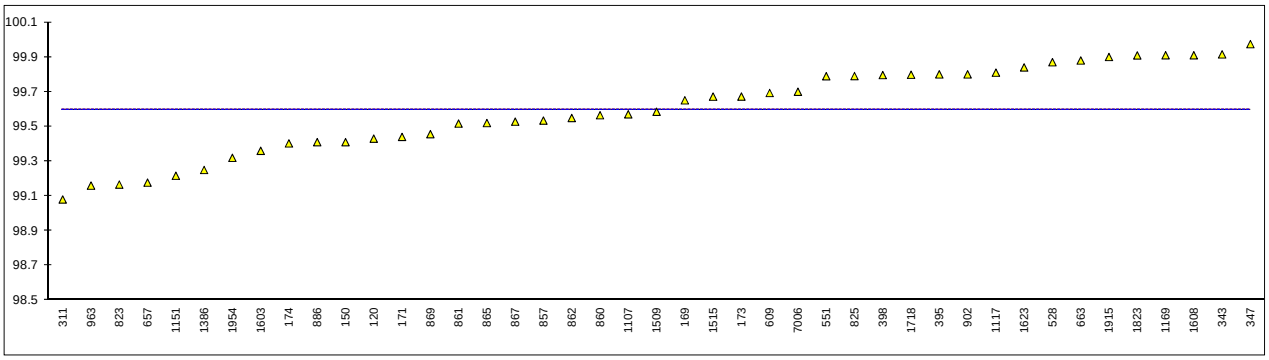

0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
171 963 9008 1169 398 551 657 1107 395 1718 609 343 9009 862 150 886 120 1823 857 528 1151 1509 7006 1386 1623 865 529 869 902 1117 173 558 867 663 861 860 1515 174 1603 1608 311 1915

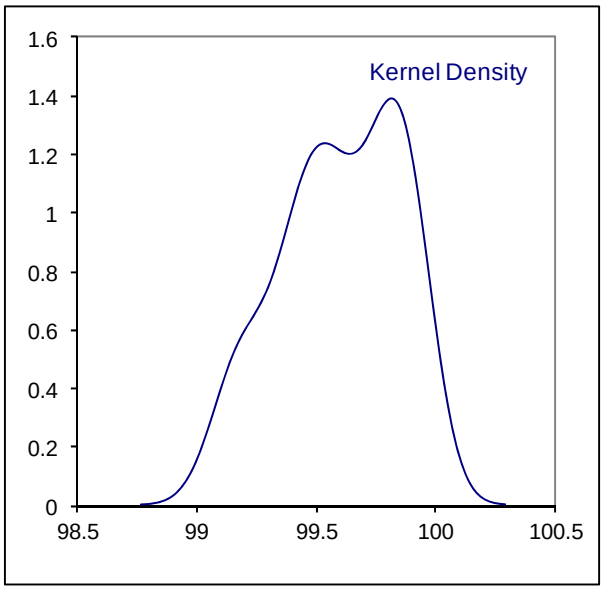

Kernel Density
20
18
16
14
12
10
8
6
4
2
0
-0.2
0
0.2
0.4
0.6

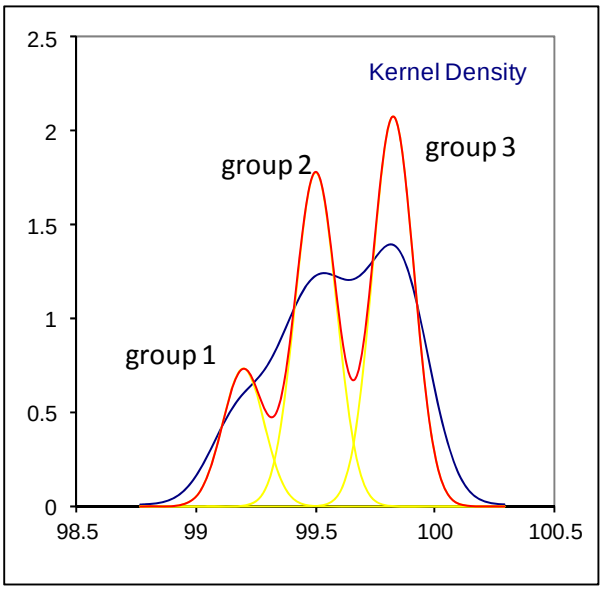
Determination of Purity on sample #12130; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	E202	99.43		-----	
150	E2409	99.41		-----	
169	E202	99.6508		-----	
171	E2409	99.44		-----	
173	INH-540	99.672197		-----	
174	E202	99.403		-----	
311	E2409	99.08		-----	
322	E202	<99.80		-----	
323	E202	<99.80		-----	
343	E202	99.915		-----	
347	E2409	99.974		-----	
395	E202	99.80		-----	
396		-----		-----	
398	E202	99.796		-----	
444		-----		-----	
528	E202	99.87		-----	
529		-----		-----	
551	E2409	99.7893		-----	
557		-----		-----	
558		-----		-----	
609	E2409	99.693		-----	
657	E2409	99.1773		-----	
663	E2409	99.88		-----	
823	E2409	99.166		-----	
825	E202	99.79		-----	
857	E2409	99.534		-----	
860	E202	99.565		-----	
861	E2409	99.517		-----	
862	E202	99.549		-----	
865	E2409	99.520		-----	
867	E202	99.528		-----	
869	E202	99.456		-----	
886	E2409	99.41		-----	
902	E2409	99.80		-----	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	E2409	99.16		-----	
1107	in house	99.57		-----	
1117	E202	99.81		-----	
1151	E202	99.2169		-----	
1169	E2409	99.91		-----	
1217		-----		-----	
1386	E2409	99.250		-----	
1467		-----		-----	
1492		-----		-----	
1509	E2409	99.585		-----	
1515	E2409	99.672		-----	
1603	in house	99.36		-----	
1608	E2409	99.91		-----	
1623	E2409	99.84		-----	
1701		-----		-----	
1718	E2409	99.798		-----	
1823	E2409	99.909		-----	
1866		-----		-----	
1915	E202	99.9		-----	
1954	E2409	99.32		-----	
7006	E202	99.7		-----	
9008		-----		-----	
9009		-----		-----	

			Group 1	Group 2	Group 3
	normality	not OK	OK	OK	not OK
	n	43	7	20	16
	outliers	0	0	0	0
	mean (n)	99.5983	99.1957	99.5332	99.8557
	st.dev. (n)	0.24790	0.07608	0.10616	0.05954
	R(calc.)	0.6941	0.2130	0.2973	0.1667
	R(lit)	unknown	unknown	unknown	unknown


100.1
99.9
99.7
99.5
99.3
99.1
98.9
98.7
98.5
311 963 823 657 1151 1386 1954 1603 174 886 150 120 171 869 861 865 867 857 862 860 1107 1509 169 1515 173 609 7006 551 825 398 1718 395 902 1117 1623 528 663 1915 1823 1169 1608 343 347

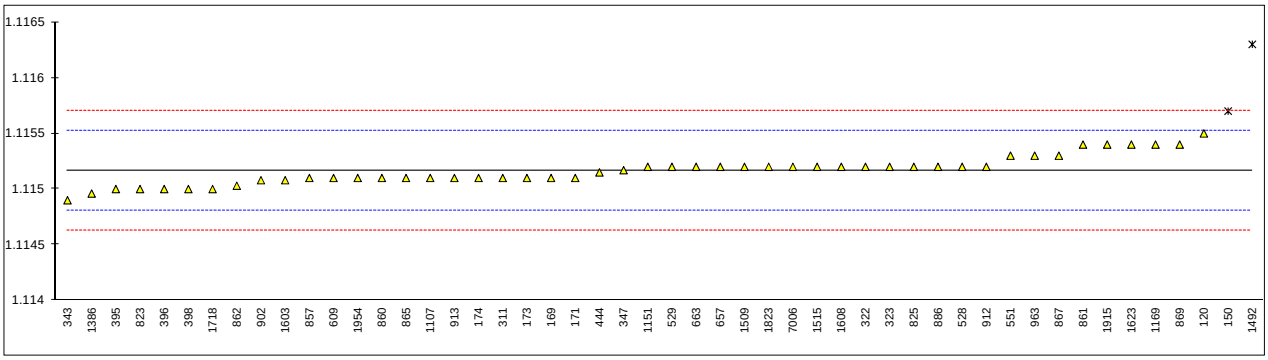

Kernel Density
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
98.5
99
99.5
100
100.5

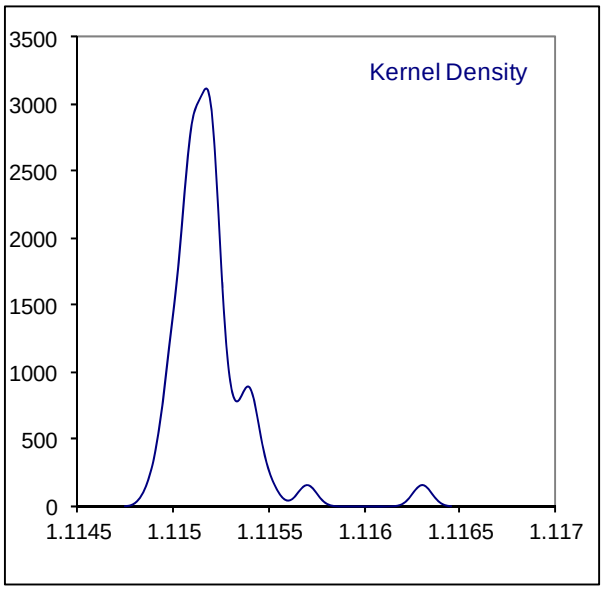

Kernel Density
group 1
group 2
group 3
2.5
2
1.5
1
0.5
0
98.5
99
99.5
100
100.5

Determination of Specific Gravity 20/20°C on sample #12130;

lab	method	Value	mark	z(targ)	remarks
120	D4052	1.1155		1.87	
150	D4052	1.1157	C,G(0.01)	2.99	First reported 0.1144
169	D4052	1.1151		-0.37	
171	D4052	1.1151		-0.37	
173	D4052	1.1151		-0.37	
174	E202	1.1151		-0.37	
311	E202	1.1151		-0.37	
322	E202	1.1152		0.19	
323	E202	1.1152		0.19	
343	D4052	1.1149		-1.49	
347	D4052	1.11517		0.02	
395	E202	1.1150		-0.93	
396	E202	1.1150		-0.93	
398	E202	1.1150		-0.93	
444	D4052	1.11515		-0.09	
528	D4052	1.1152	C	0.19	Reported 1.1132 (switched with density)
529	D4052	1.1152		0.19	
551	D4052	1.1153		0.75	
557		-----		-----	
558		-----		-----	
609	D4052	1.1151		-0.37	
657	D4052	1.1152		0.19	
663	D4052	1.1152		0.19	
823	E202	1.1150		-0.93	
825	E202	1.1152		0.19	
857	D4052	1.1151		-0.37	
860	E202	1.1151		-0.37	
861	D4052	1.1154		1.31	
862	E202	1.11503		-0.76	
865	D4052	1.1151		-0.37	
867	E202	1.1153		0.75	
869	E202	1.1154		1.31	
886	D4052	1.1152		0.19	
902	D4052	1.11508		-0.48	
912	D4052	1.1152		0.19	
913	D4052	1.1151		-0.37	
962		-----		-----	
963	D4052	1.1153		0.75	
1107	D4052	1.1151		-0.37	
1117		-----		-----	
1151	D4052	1.1152		0.19	
1169	D4052	1.1154		1.31	
1217		-----		-----	
1386	D4052	1.11496		-1.15	
1467		-----		-----	
1492	E202	1.1163	G(0.01)	6.35	
1509	D4052	1.1152		0.19	
1515	D4052	1.1152		0.19	
1603	in house	1.11508		-0.48	
1608	D4052	1.1152		0.19	
1623	D891	1.1154		1.31	
1701		-----		-----	
1718	D4052	1.1150		-0.93	
1823	D4052	1.1152		0.19	
1866		-----		-----	
1915	E202	1.1154		1.31	
1954	D4052	1.1151		-0.37	
7006	D4052	1.1152		0.19	
9008		-----		-----	
9009		-----		-----	

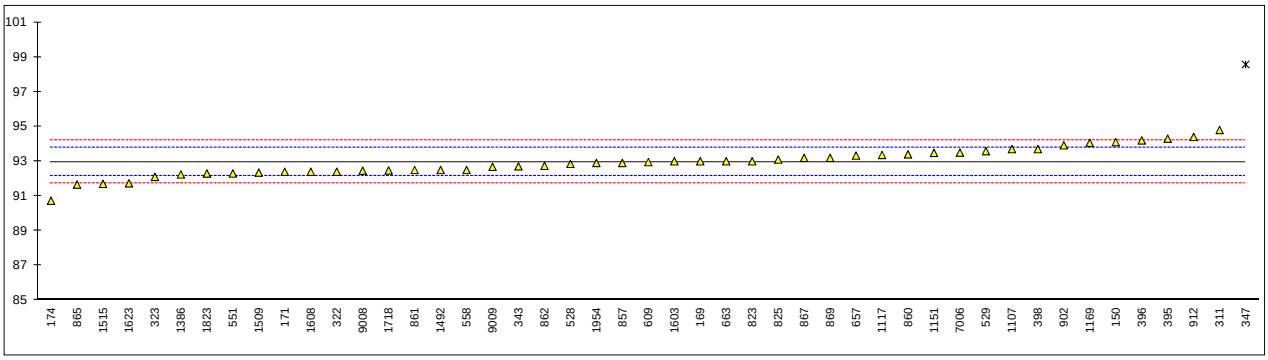
normality	not OK
n	48
outliers	2
mean (n)	1.11517
st.dev. (n)	0.000130
R(calc.)	0.00036
R(D4052:02e1)	0.00050

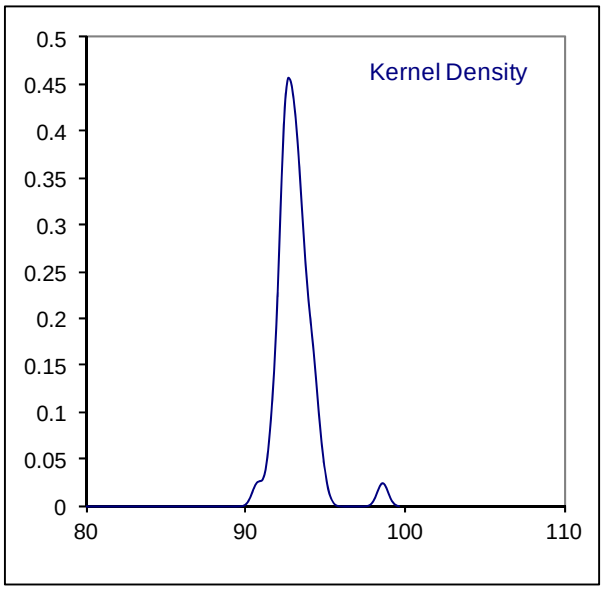

1.1165
1.116
1.1155
1.115
1.1145
1.114
343 1386 395 823 396 398 1718 862 902 1603 857 609 1954 860 865 1107 913 174 311 173 169 171 444 347 1151 529 663 657 1509 1823 7006 1515 1608 322 323 825 886 528 912 551 963 867 861 1915 1623 1169 869 120 150 1492


Kernel Density
3500
3000
2500
2000
1500
1000
500
0
1.1145
1.115
1.1155
1.116
1.1165
1.117

Determination of UV Transmittance at 350 nm on sample #12131; results in %Transmittance

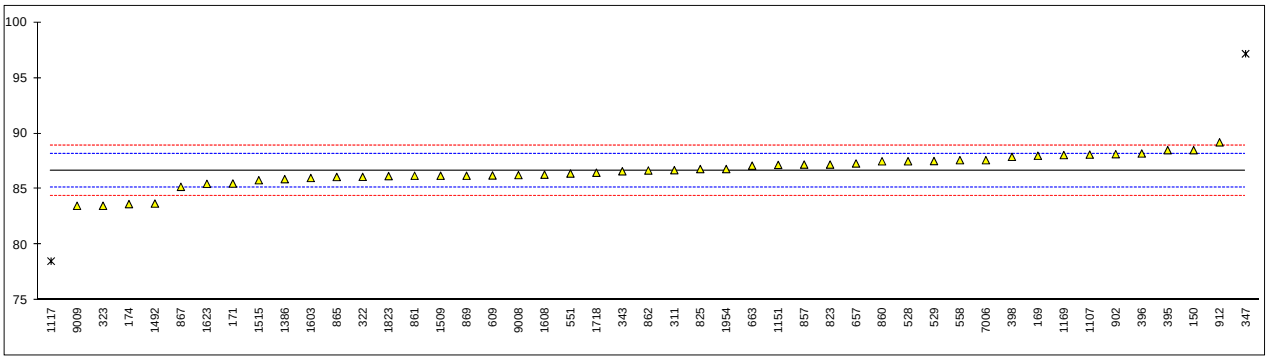
lab	method	value	mark	z(targ)	sparged	Cuvet	remarks
120		-----		-----			
150	E2193	94.1		2.78	--	--	
169	E2193	93.0		0.12	No	10	
171	E2193	92.4		-1.34	No	10	
173		-----		-----			
174	E2193	90.73		-5.39	No	10	
311	E2193	94.8		4.48	No	50	
322	E2193	92.4		-1.34	No	10	
323	E2193	92.1		-2.07	No	10	
343	E2193	92.71		-0.59	No	10	
347	E2193	98.571	G(0.01)	13.63	No	10	
395	E2193	94.3		3.27	No	10	
396	E2193	94.2		3.03	No	10	
398	E2193	93.7		1.81	No	10	
444		-----		-----			
528	E2193	92.85	C	-0.25	--	--	Reported 55.05 (switched with 220nm)
529	E2193	93.583		1.53	--	--	
551	E2193	92.3		-1.58	No	10	
557		-----		-----			
558	E2193	92.5		-1.10	--	--	
609	E2193	92.953		0.00	Yes	10	
657	E2193	93.33		0.92	No	10	
663	E2193	93.0	C	0.12	Yes	10	First reported 64.8
823	E2193	93.0		0.12	No	10	
825	E2193	93.1		0.36	--	--	
857	E2193	92.9		-0.13	No	10	
860	E2193	93.4		1.09	No	10	
861	E2193	92.5		-1.10	No	10	
862	E2193	92.74		-0.52	No	50	
865	E2193	91.66		-3.14	No	10	
867	E2193	93.2		0.60	No	10	
869	E2193	93.2		0.60	No	10	
886		-----		-----			
902	E2193	93.92		2.35	No	10	
912	E2193	94.4		3.51	No	10	
913		-----		-----			
962		-----		-----			
963		-----		-----			
1107	E2193	93.7		1.81	No	10	
1117	E2193	93.36		0.99	No	50	
1151	E2193	93.48		1.28	No	10	
1169	E2193	94.06		2.69	Yes	50	
1217		-----		-----			
1386	E2193	92.242		-1.72	Yes	10	
1467		-----		-----			
1492	E2193	92.50		-1.10	Yes	10	
1509	E2193	92.35		-1.46	No	50	
1515	E2193	91.7		-3.04	No	50	
1603	E2193	93		0.12	No	10	
1608	E2193	92.4		-1.34	No	50	
1623	E2193	91.73		-2.97	No	10	
1701		-----		-----			
1718	E2193	92.47		-1.17	No	50	
1823	E2193	92.293		-1.60	No	50	
1866		-----		-----			
1915		-----		-----			
1954	E2193	92.9		-0.13	--	--	
7006	E2193	93.5		1.33	No	10	
9008	E2193	92.46		-1.19	No	10	
9009	E2193	92.683		-0.65	No	10	
	normality	OK					
	n	46					
	outliers	1					
	mean (n)	92.95					
	st.dev. (n)	0.809					
	R(calc.)	2.26					
	R(E2193:08)	1.15	unsparged				Compare R(E2193: sparged) = 0.94

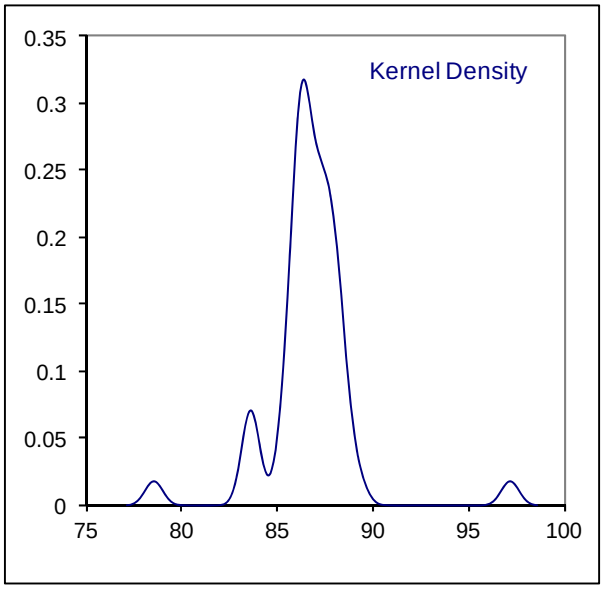

101
99
97
95
93
91
89
87
85
174
865
1515
1623
323
1386
1823
551
1509
171
1608
322
9008
1718
861
1492
558
9009
343
862
528
1954
857
609
1603
169
663
823
825
867
869
657
1117
860
1151
7006
529
1107
398
902
1169
150
396
395
912
311
347


Kernel Density
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
80
90
100
110

Determination of UV Transmittance at 275 nm on sample #12131; results in %Transmittance

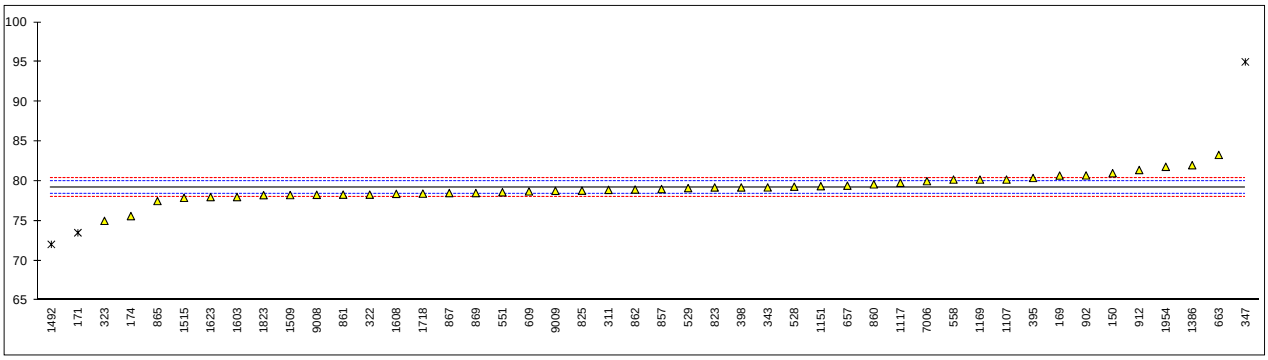
lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150	E2193	88.5		2.48	
169	E2193	88.0		1.81	
171	E2193	85.5		-1.51	
173		-----		-----	
174	E2193	83.65		-3.97	
311	E2193	86.7		0.08	
322	E2193	86.1		-0.71	
323	E2193	83.5		-4.17	
343	E2193	86.60		-0.05	
347	E2193	97.162	G(0.01)	14.00	
395	E2193	88.5		2.48	
396	E2193	88.2		2.08	
398	E2193	87.9		1.68	
444		-----		-----	
528	E2193	87.50	C	1.15	Reported 79.30 (switched with 250nm)
529	E2193	87.52		1.17	
551	E2193	86.4		-0.32	
557		-----		-----	
558	E2193	87.6		1.28	
609	E2193	86.227		-0.55	
657	E2193	87.30		0.88	
663	E2193	87.1	C	0.62	First reported 83.3
823	E2193	87.2		0.75	
825	E2193	86.8		0.22	
857	E2193	87.2		0.75	
860	E2193	87.5		1.15	
861	E2193	86.2		-0.58	
862	E2193	86.67		0.04	
865	E2193	86.09		-0.73	
867	E2193	85.2		-1.91	
869	E2193	86.2		-0.58	
886		-----		-----	
902	E2193	88.14		2.00	
912	E2193	89.2		3.41	
913		-----		-----	
962		-----		-----	
963		-----		-----	
1107	E2193	88.1		1.95	
1117	E2193	78.52	G(0.01)	-10.80	
1151	E2193	87.17		0.71	
1169	E2193	88.06		1.89	
1217		-----		-----	
1386	E2193	85.896		-0.99	
1467		-----		-----	
1492	E2193	83.70		-3.91	
1509	E2193	86.20		-0.58	
1515	E2193	85.8		-1.11	
1603	E2193	86		-0.85	
1608	E2193	86.3		-0.45	
1623	E2193	85.47		-1.55	
1701		-----		-----	
1718	E2193	86.47		-0.22	
1823	E2193	86.166		-0.63	
1866		-----		-----	
1915		-----		-----	
1954	E2193	86.8		0.22	
7006	E2193	87.6		1.28	
9008	E2193	86.26		-0.50	
9009	E2193	83.499		-4.17	
	normality	OK			
	n	45			
	outliers	2			
	mean (n)	86.64			
	st.dev. (n)	1.324			
	R(calc.)	3.71			
	R(E2193:08)	2.11	unsparged		Compare R(E2193: sparged) = 1.10

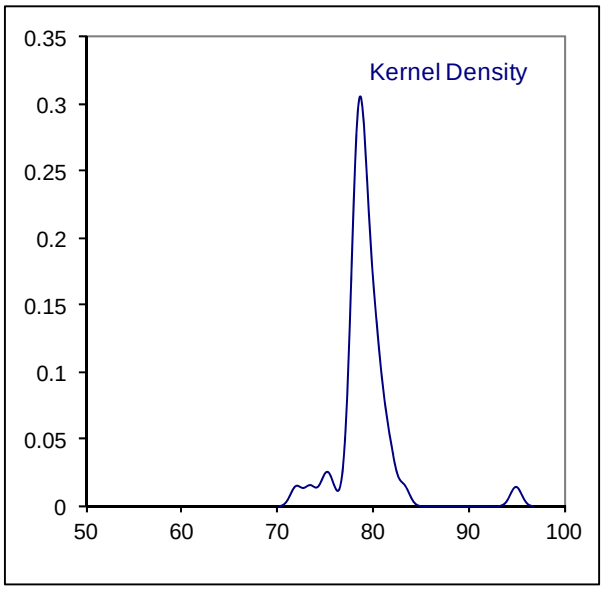

100
95
90
85
80
75
1117
9009
323
174
1492
867
1623
171
1515
1386
1603
865
322
1823
861
1509
869
609
9008
1608
551
1718
343
862
311
825
1954
663
1151
857
823
657
860
528
529
558
7006
398
169
1169
1107
902
396
395
150
912
347


Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
75
80
85
90
95
100

Determination of UV Transmittance at 250 nm on sample #12131; results in %Transmittance

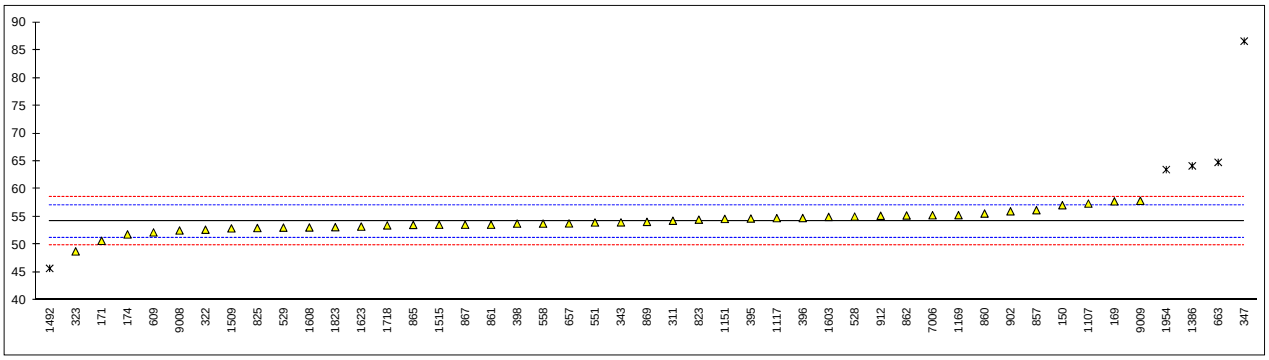
lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150	E2193	81.0		4.61	
169	E2193	80.7		3.84	
171	E2193	73.5	G(0.05)	-14.45	
173		-----		-----	
174	E2193	75.60		-9.11	
311	E2193	78.9		-0.73	
322	E2193	78.3		-2.25	
323	E2193	75.0		-10.64	
343	E2193	79.21		0.06	
347	E2193	95.005	G(0.01)	40.19	
395	E2193	80.4		3.08	
396	E2193	-----		-----	
398	E2193	79.2		0.03	
444		-----		-----	
528	E2193	79.30	C	0.29	Reported 87.50 (switched with 275nm)
529	E2193	79.117		-0.18	
551	E2193	78.6		-1.49	
557		-----		-----	
558	E2193	80.2		2.57	
609	E2193	78.706		-1.22	
657	E2193	79.43		0.62	
663	E2193	83.3	C	10.45	First reported 87.1
823	E2193	79.2		0.03	
825	E2193	78.8		-0.98	
857	E2193	79.0		-0.47	
860	E2193	79.6		1.05	
861	E2193	78.3		-2.25	
862	E2193	78.94		-0.63	
865	E2193	77.50		-4.29	
867	E2193	78.5		-1.75	
869	E2193	78.5		-1.75	
886		-----		-----	
902	E2193	80.72		3.90	
912	E2193	81.4		5.62	
913		-----		-----	
962		-----		-----	
963		-----		-----	
1107	E2193	80.2		2.57	
1117	E2193	79.79		1.53	
1151	E2193	79.36		0.44	
1169	E2193	80.20		2.57	
1217		-----		-----	
1386	E2193	82.002		7.15	
1467		-----		-----	
1492	E2193	72.04	G(0.05)	-18.16	
1509	E2193	78.25		-2.38	
1515	E2193	77.9		-3.27	
1603	E2193	78		-3.02	
1608	E2193	78.4		-2.00	
1623	E2193	77.99		-3.04	
1701		-----		-----	
1718	E2193	78.43		-1.92	
1823	E2193	78.234		-2.42	
1866		-----		-----	
1915		-----		-----	
1954	E2193	81.8		6.64	
7006	E2193	80.0		2.07	
9008	E2193	78.28		-2.30	
9009	E2193	78.775		-1.05	
	normality	OK			
	n	43			
	outliers	3			
	mean (n)	79.19			
	st.dev. (n)	1.508			
	R(calc.)	4.22			
	R(E2193:08)	1.10	unsparged		Compare R(E2193: sparged) = 2.06

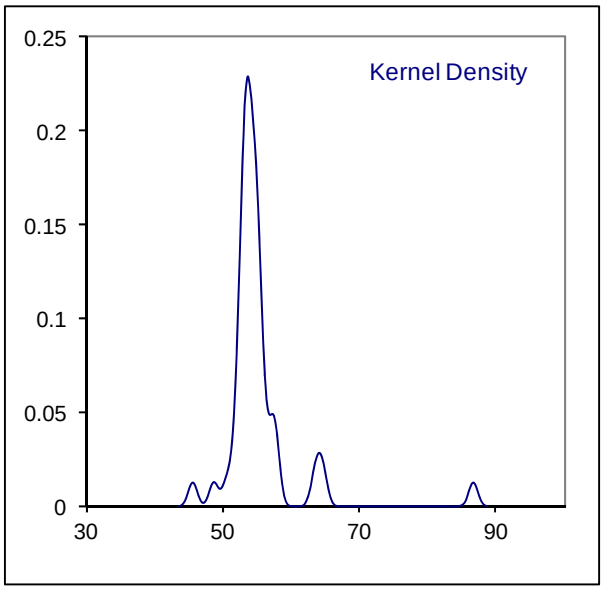

100
95
90
85
80
75
70
65
1492 171 323 174 865 1515 1623 1603 1823 1509 9008 861 322 1608 1718 867 869 551 609 9009 825 311 862 857 529 823 398 343 528 1151 657 860 1117 7006 558 1169 1107 395 169 902 150 912 1954 1386 663 347


Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
50 60 70 80 90 100

Determination of UV Transmittance at 220 nm on sample #12131; results in %Transmittance

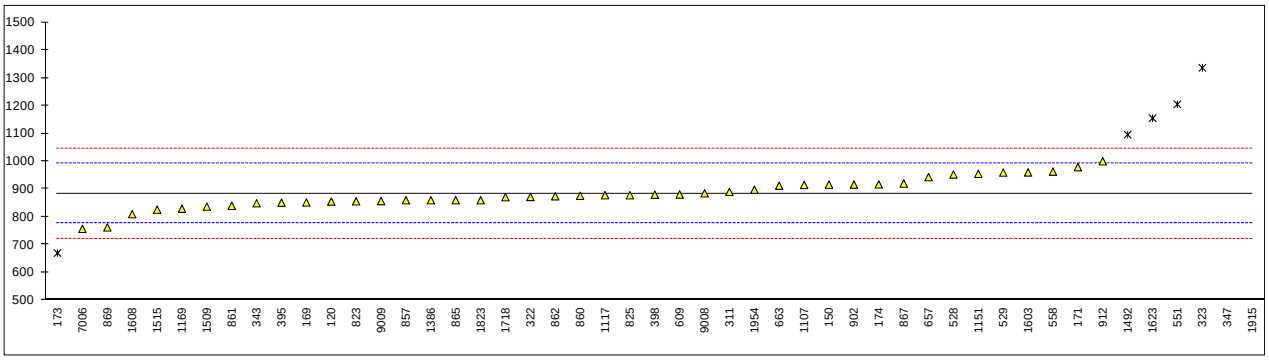
lab	method	value	mark	z(targ)	remarks
120		-----		-----	
150	E2193	57.1		2.02	
169	E2193	57.8		2.50	
171	E2193	50.7		-2.41	
173		-----		-----	
174	E2193	51.85		-1.61	
311	E2193	54.3		0.08	
322	E2193	52.7		-1.02	
323	E2193	48.8		-3.72	
343	E2193	54.01		-0.12	
347	E2193	86.596	G(0.01)	22.43	
395	E2193	54.7		0.36	
396	E2193	54.8		0.43	
398	E2193	53.8	C	-0.26	First reported 93.8
444		-----		-----	
528	E2193	55.05	C	0.60	Reported 92.85 (switched with 350nm)
529	E2193	53.063		-0.77	
551	E2193	54.0		-0.12	
557		-----		-----	
558	E2193	53.8		-0.26	
609	E2193	52.218		-1.36	
657	E2193	53.83		-0.24	
663	E2193	64.8	DG(0.01)	7.35	First reported 93.0
823	E2193	54.5		0.22	
825	E2193	53.0		-0.82	
857	E2193	56.2		1.40	
860	E2193	55.6		0.98	
861	E2193	53.6		-0.40	
862	E2193	55.26		0.75	
865	E2193	53.55		-0.44	
867	E2193	53.6		-0.40	
869	E2193	54.1		-0.06	
886		-----		-----	
902	E2193	56.01		1.27	
912	E2193	55.2		0.71	
913		-----		-----	
962		-----		-----	
963		-----		-----	
1107	E2193	57.4		2.23	
1117	E2193	54.78		0.42	
1151	E2193	54.64		0.32	
1169	E2193	55.31		0.78	
1217		-----		-----	
1386	E2193	64.167	DG(0.01)	6.91	
1467		-----		-----	
1492	E2193	45.74	G(0.05)	-5.84	
1509	E2193	52.94		-0.86	
1515	E2193	53.6		-0.40	
1603	E2193	55		0.57	
1608	E2193	53.1		-0.75	
1623	E2193	53.26		-0.64	
1701		-----		-----	
1718	E2193	53.47		-0.49	
1823	E2193	53.161		-0.70	
1866		-----		-----	
1915		-----		-----	
1954	E2193	63.5	G(0.01)	6.45	
7006	E2193	55.3		0.77	
9008	E2193	52.56		-1.12	
9009	E2193	57.892		2.57	
	normality	OK			
	n	42			
	outliers	5			
	mean (n)	54.18			
	st.dev. (n)	1.763			
	R(calc.)	4.94			
	R(E2193:08)	4.05	unsparged		Compare R(E2193: sparged) = 9.68

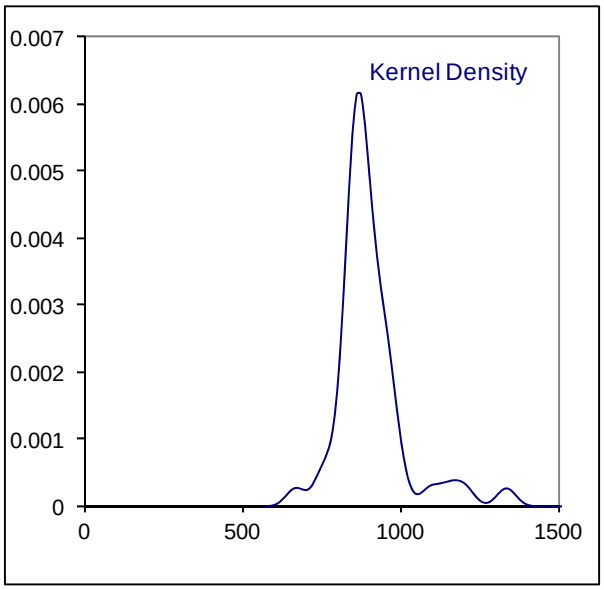

90
85
80
75
70
65
60
55
50
45
40
1492 323 171 174 609 9008 322 1509 825 529 1608 1823 1623 1718 865 1515 867 861 398 558 657 551 343 869 311 823 1151 395 1117 396 1603 528 912 862 7006 1169 860 902 857 150 1107 169 9009 1954 1386 663 347


Kernel Density
0.25
0.2
0.15
0.1
0.05
0
30
50
70
90

Determination of Water on sample #12131; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	E1064	855		-0.53	
150	E1064	916		0.60	
169	E1064	852		-0.59	
171	E1064	979		1.77	
173	E1064	670	CG(0.05)	-3.96	Reported 0.0670 (unit error? %M/M instead of mg/kg)
174	E1064	917	C	0.62	First reported 682
311	E1064	890		0.12	
322	E1064	872		-0.22	
323	E1064	1336	G(0.01)	8.38	
343	E1064	849		-0.64	
347	E1064	1885	G(0.01)	18.56	
395	E1064	851.19		-0.60	
396		-----		-----	
398	E1064	880		-0.07	
444		-----		-----	
528	E1064	952.38		1.27	
529	E1064	959.56		1.41	
551	E1064	1204.73	G(0.05)	5.95	
557		-----		-----	
558	E1064	962.7		1.47	
609	E1064	880.61		-0.06	
657	E1064	943		1.10	
663	E1064	912		0.53	
823	E1064	856		-0.51	
825	E1064	878		-0.10	
857	E1064	860		-0.44	
860	E1064	876		-0.14	
861	E1064	840		-0.81	
862	E1064	874		-0.18	
865	E1064	860		-0.44	
867	E1064	920		0.67	
869	E1064	762.2		-2.25	
886		-----		-----	
902	E1064	916.2		0.60	
912	E1064	1000		2.16	
913		-----		-----	
962		-----		-----	
963		-----		-----	
1107	E1064	915		0.58	
1117	D4672	878		-0.10	
1151	E1064	955		1.32	
1169	E1064	829.4		-1.00	
1217		-----		-----	
1386	E1064	860		-0.44	
1467		-----		-----	
1492	E1064	1095.695	G(0.05)	3.93	
1509	E1064	837		-0.86	
1515	E1064	826		-1.07	
1603	E1064	960		1.42	
1608	E1064	810		-1.36	
1623	E203	1155.00	C,G(0.05)	5.03	First reported 1181.33.
1701		-----		-----	
1718	E1064	871.0		-0.23	
1823	E1064	860		-0.44	
1866		-----		-----	
1915	E1064	3777	G(0.01)	53.62	
1954	E203	898		0.27	
7006	E203	756.93		-2.35	
9008	E1064	884.8		0.02	
9009	E1064	857		-0.49	
	normality	OK			
	n	42			
	outliers	7			
	mean (n)	883.6			
	st.dev. (n)	53.03			
	R(calc.)	148.5			
	R(E1064:12)	151.1			Compare R(E202:12) = 729.5


1500
1400
1300
1200
1100
1000
900
800
700
600
500
173 7006 869 1608 1515 1169 1509 861 343 395 169 120 823 9009 857 1386 865 1823 1718 322 862 860 1117 825 398 609 9008 311 1954 663 1107 150 902 174 867 657 528 1151 529 1603 558 171 912 1492 1623 551 323 347 1915


Kernel Density
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
0
500
1000
1500

APPENDIX 2

Number of participants per country

2 laboratories in	BELGIUM
3 laboratories in	BRAZIL
1 laboratory in	CANADA
1 laboratory in	GERMANY
4 laboratories in	INDIA
1 laboratory in	IRAN
3 laboratories in	ITALY
2 laboratories in	KOREA
1 laboratory in	KUWAIT
2 laboratories in	MALAYSIA
2 laboratories in	MEXICO
9 laboratories in	P.R. of CHINA
1 laboratory in	PAKISTAN
7 laboratories in	SAUDI ARABIA
3 laboratories in	SINGAPORE
2 laboratories in	SPAIN
1 laboratory in	TAIWAN R.O.C.
1 laboratory in	THAILAND
3 laboratories in	THE NETHERLANDS
1 laboratory in	TURKEY
8 laboratories in	U.S.A.
1 laboratory in	UNITED KINGDOM
1 laboratory in	VENEZUELA

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
on db	= on dry basis
ex	= excluded from calculations
E	= probably error in calculations
U	= probably reported in different unit
n.a.	= not applicable
fr.	= first reported
W	= withdrawn on request of the participant

Literature:

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2 ASTM E178-02
3 ASTM E1301-03
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6 ISO 5725, parts 1-6, 1994
7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
9 IP 367/96
10 DIN 38402 T41/42
11 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
12 J.N. Miller, Analyst, 118, 455, (1993)
13 W. Horwitz and R. Albert, J. AOAC Int., Vol. 79, 3, p. 589, (1996)
14 Analytical Methods Committee Technical brief, No4 January 2001.
15 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/).