Results of Proficiency Test
Methanol
September 2012

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1996, a proficiency test for Methanol was organised every year by The Institute for Interlaboratory Studies. During the annual proficiency testing program 2012/2013, it was decided to continue the round robin for the analysis of Methanol in accordance with the latest applicable version of the IMPCA specification (latest version can be found and downloaded from www.impca.be, see ref. 13 in appendix 4). In this interlaboratory study, 84 laboratories in 31 different countries have participated. See appendix 2 for the number of participants per country. In this report, the results of the proficiency test are presented and discussed.

~~2~~ SET UP

The Institute for Interlaboratory studies in Spijkenisse, The Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted. In this proficiency test, the participants received, depending on the registration, one or two samples of Methanol: 1*1L Methanol (labelled #12090) and/or 1*100 mL Methanol (labelled #12091) for UV only.
Sample #12090 was spiked with Acetone (15.6 mg/kg), Ethanol (25.4 mg/kg), Benzene (15.2 mg/kg), Sodium Chloride (0.56 mg Cl/kg), Iron (0.025 mg/kg) and Trimethylamine (52 µg/kg). All materials used for spiking were >99% pure. The participants were requested to report rounded and unrounded results. The unrounded results were preferably used for the statistical evaluations.

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 125 litre bulk material was provided by a Methanol producer. The 125 litre bulk material was spiked with the components listed in table 1:

Component	*Amount*
Acetone	1545 mg
Ethanol	2517 mg
Benzene	1509 mg
Sodium Chloride	84.8 mg
Iron(III) Chloride.6H_2O	12.2 mg
Trimethylamine	5.02 mg

Table 1: components that were added to bulk material

After homogenisation in a pre-cleaned metal drum, for the first batch 100 brown glass bottles of 1L were filled and labelled #12090.

The homogeneity of the subsamples #12090 was checked by determination of Density in accordance with ASTM D4052:11 and Water content in accordance with ASTM E1064:08 and Chloride in accordance with IMPCA 002:98 on 6 stratified randomly selected samples.

	Density at 15ºC in kg/L	*Water in mg/kg*	*Chloride in mg/kg*
sample #12090-1	0.79595	190	0.6
sample #12090-2	0.79597	200	0.6
sample #12090-3	0.79597	190	0.7
sample #12090-4	0.79596	190	0.6
sample #12090-5	0.79597	190	0.6
sample #12090-6	0.79598	190	0.6

Table 2: homogeneity test results of subsamples #12090

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

	Density at 15ºC in kg/L	*Water in mg/kg*	*Chloride in mg/kg*
r (sample #12090)	0.00003	11	0.1
reference test	ASTM D4052:11	ASTM E1064:05	IMPCA002
0.3*R (reference test)	0.00015	10	0.1

Table 3: evaluation of repeatabilities of the subsamples #12090

The second batch of approx. 25 litre of methanol was divided over 100 brown glass bottles of 250 mL and labelled #12091.
The homogeneity of the subsamples #12091 was checked by determination of UV absorbance at 220, 250 and 268.5nm (using 5cm cells) according IMPCA004:06 on 6 stratified randomly selected samples.

	Density at 15ºC in kg/L	*UV absorbance at 268.5 nm*
sample #12091-1	0.79595	0.047
sample #12091-2	0.79597	0.047
sample #12091-3	0.79597	0.047
sample #12091-4	0.79596	0.047
sample #12091-5	0.79597	0.047
sample #12091-6	0.79598	0.046

Table 4: homogeneity tests of subsamples #12091

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

	Density at 15ºC in kg/L	*UV absorbance at 268.5 nm*
r (sample #12091)	0.00003	0.001
reference test	ASTM D4052:11	IMPCA004:06
0.3*R (reference test)	0.00015	0.004

Table 5: repeatabilities of the subsamples #12091

Each calculated repeatability was equal or less than 0.3 times the corresponding reproducibility of the reference method. Therefore, homogeneity of the subsamples #12090 and #12091 was assumed.

To the participants, depending on the registration, 1*1L bottle labelled #12090 and/or 1*250 mL bottle, labelled #12091 were sent on August 22, 2012.

2.5 STABILITY OF THE SAMPLES

The stability of Methanol, packed in the brown 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, Anorganic Chloride, Appearance, Colour, Carbonisable Substances Pt/Co, Colour Pt/Co, Density @ 20°C, Distillation (IBP, 50% & DP), Acetone, Benzene, Ethanol, Toluene, Water Miscibility, Nonvolatile Matter, Purity (“as is” and “on dry basis”), Permanganate Time Test, Specific Gravity 20/20 ºC/ºC, Apparent Specific Gravity 20/20 ºC/ºC, Total Iron, Trimethylamine and Water (coulometric and titrimetric) on

sample #12090. On sample #12091 was requested to determine the UV absorbance at 300, 268.5, 250, 240, 230 and 220 nm.

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.
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 gathered. The original data are tabulated per determination in appendix 1 of this report. The laboratories are represented by their code numbers.

Directly after the deadline, a reminder fax was sent to the laboratories that had not reported results at that moment. Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the results. Additional or corrected results are used for 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. In case a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.
In accordance to ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test and by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test and by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of the averages and the standard deviations.

Finally, the reproducibilities were calculated from the standard deviations by multiplying these with a factor of 2.8. 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 significant consequences for the evaluation of the test results.

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are under the X-axis.
The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle. Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 4; no.15 and 16).

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, 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 target reproducibility (preferably taken from a standardized test method) by division with 2.8.
The z-scores were calculated in accordance with:

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

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.

To evaluate the performance of the participating laboratories the z-scores were calculated. Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore, the usual interpretation of z-scores is as follows:

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

4 EVALUATION

In this proficiency test, some major problems were encountered with despatch of the samples to the laboratories in Brazil, Chile, India, Malaysia, Mexico, Saudi Arabia and Venezuela. Seventeen participants received the samples near, or after the final reporting date. In total, 15 participants reported after the deadline and 11 participants did not report any result at all. Not all participants were able to report all requested parameters. Finally, 73 participants did report 1280 numerical results. Observed were 54 outlying results, which is 4.2% of the total of numerical results. 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 test. None Gaussian distributions were found for the following test: Acidity, Anorganic Chloride, Carbonisable Substances, Colour, Density @ 20^{o}C, Specific Gravity, Apparent Specific Gravity, Distillation (automatic and manual), NVM, Purity “as received”, Purity “on dry basis”, Ethanol, Permanganate Time Test, Water (Coulometric) and UV absorbance at 300nm (50mm cuvette). In these cases the statistical evaluation should be used with due care.

Acidity: No analytical problems were observed. Only one statistical outlier was observed and the observed reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D1613:12.

Anorg. Chloride: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IMPCA002:98. The average recovery of the chloride content may be good (0.62 mg/kg found and 0.56 mg/kg added). The actual blank chloride content is unknown.

Appearance: No analytical problems were observed. All labs agreed about the appearance of the sample #12090, which was bright, clear and free of suspended matter.

Carbonisable Substances: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM E346:08.

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

Density @ 20^{o}C: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D4052:11.

SG 20/20 °C: This determination was problematic for a number of laboratories. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D4052:11.
The Specific Gravity is defined as: "*the ratio of the weight in Vacuum of a unit volume of a material at stated temperature to the weight in Vacuum of an equal volume of gas-free distilled water at a stated temperature".*

SG 20/20 °C = (density material at 20 °C) / (density water at 20 °C).

ASG 20/20 °C: This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D4052:11.
The Apparent Specific Gravity is defined as: "*the ratio of the weight in air of a unit volume of a material at stated temperature to the weight in air of equal density of an equal volume of gas-free distilled water at a stated temperature".*

SG Apparent 20/20 °C = (density material at 20 °C – 0.00120) / (density water at 20 °C - 0.00120).

SG General: When the Specific Gravities and Apparent Specific Gravities were calculated from the reported Densities, it was noticed that the reported results for the Specific Gravity 20/20 °C and Apparent Specific Gravity 20/20 °C are in line with the calculated results. Users of method ASTM D891 should be aware that this method results in Apparent Specific Gravity. To arrive at Specific Gravity or Density an additional conversion is necessary. The method provides the calculation formula.

Distillation: No analytical problems were observed for both the automated and the manual mode. For the automated and manual mode in total, six statistical outliers were observed. All calculated reproducibilities (IBP, MBP and DP for automated and manual mode) are, after rejection of the observed statistical outliers, in good agreement with the requirements for automated and manual modes of ASTM D1078:11. It was noticed that not all participants (3?) did correct properly for barometric pressure. Although the theoretical mid boiling point is 64.5 ºC (see table 3 of ASTM D1078), the test results 64.3 & 64.7 ºC were also reported.

Water Miscibility: No analytical problems were observed. All laboratories, except one, reported the test as "pass" or "passes". One laboratory reported complete as result.

NVM: No analytical problems were observed. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D1353:09.

Purity: For the purity “as received” and “on dry basis”, in total seven statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers, are both in agreement with the calculated reproducibilities of the 2011 PT iis11C06 (for “as received” 0.013 vs 0.015 and for “dry basis” 0.008 vs 0.009). One set of test results was excluded from the calculations, as the reported result for “as received” is larger than the reported result for “on dry basis”, which is impossible.

Acetone: This determination was problematic. Three statistical outliers and five false negatives were observed. The calculated reproducibility after rejection of the suspect data is not in agreement with the strict reproducibility limits, estimated using the Horwitz equation. The average recovery of Acetone (theoretical increment of 15.6 mg Acetone/kg) may be good: “less then 97%” (the actual blank Acetone content is unknown).

Benzene: This determination may be problematic for a number of laboratories. One statistical outlier and four false negatives were observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the strict reproducibility limits, estimated using the Horwitz equation. Also, the average recovery of Benzene (theoretical increment of 15.2 mg Benzene/kg) may be good: “less then 104%” (the actual blank Benzene content is unknown).

Ethanol: This determination may be problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers, is not in agreement with the strict reproducibility limits, estimated using the Horwitz equation. The average recovery of Ethanol (theoretical increment of 25.4 mg Ethanol/kg) may be good: “less then 112%” (the actual blank Ethanol content is unknown).

Toluene: It is hard to draw conclusions, because the toluene content is below or near the detection limit and only five participants reported numerical results.

PTT: All participants, except one, agreed on a result far above 60 minutes.
As it is unknown whether a Permanganate Time Test of >60 minutes is in the applicability range, it is therefore difficult to draw any conclusions. Therefore, no z-scores were calculated. Two statistical outliers were observed.

Sulphur: It is hard to draw conclusions, as the sulphur content is below or near the detection limit. Therefore, no z-scores were calculated.

Total Iron: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM E394:09. The average

recovery of Iron (theoretical increment of 0.025 mg Iron/kg) is unsatisfactory: “less then 69%” (the actual blank Iron content is unknown).

TMA: This determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the strict requirements of ASTM E346:08 nor with the estimated reproducibility calculated using the Horwitz equation. The average recovery of the TMA (theoretical increment of 52 µg TMA/kg) may be satisfactory, less then 127% (the actual blank TMA content is unknown).

Water (coul.): This determination was very problematic. Three statistical outliers were observed and the calculated reproducibility even after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM E1064:08.

Water (titr.): 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 E203:08.
It is remarkable to see that the calculated reproducibility of the group using a titration method is in full agreement with the requirements of the coulometric method as described in ASTM E1064.

UV-Absorbance: A split was made between the participants that used a 10mm and a 50mm cuvette. The determination was problematic for a number of laboratories. In total only four statistical outliers were observed. The observed reproducibilities for UV at 268.5nm and 250nm (10mm and 50mm cuvette) were not in agreement with the requirements of IMPCA004:08. For UV at 240nm and 230nm no precision data are available. The other observed reproducibilities were all in agreement with IMPCA004:08.
Seven (!) participants, all using a 10mm cuvette would not reject the sample as they reported “pass” for the UV curve. It is strongly advised to use the 50mm cuvette as minor impurities like 15 mg/kg Benzene are obviously not visible by UV using a 10mm cuvette.

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 tables.

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (lit)*
Acidity as acetic acid	mg/kg	64	11.5	10.2	14.0
Anorganic Chloride as Cl	mg/kg	45	0.62	0.24	0.30
Carbonisable Substances	Pt/Co	42	6.0	4.9	5.0
Colour	Pt/Co	43	2.3	3.1	7.0
Density @ 20 °C	kg/L	61	0.7913	0.0002	0.0005
Specific Gravity 20/20 °C		58	0.7927	0.0002	0.0005
Apparent Specific Gravity 20/20 °C		27	0.7924	0.0002	0.0005
Initial Boiling Point (automatic)	°C	34	64.41	0.32	1.00
Mid Boiling Point (automatic)	°C	33	64.52	0.16	1.01
Dry Point (automatic)	°C	31	64.74	0.24	0.69
Initial Boiling Point (manual)	°C	26	64.37	0.23	0.69
Mid Boiling Point (manual)	°C	23	64.50	0.12	0.69
Dry Point (manual)	°C	26	64.78	0.30	0.84
Nonvolatile Matter	mg/100 mL	44	0.3	0.7	2.4
Purity as received	%M/M	41	99.972	0.015	unknown
Purity on dry basis	%M/M	50	99.992	0.007	unknown
Acetone	mg/kg	51	15.2	6.7	4.5
Benzene	mg/kg	37	15.9	4.2	4.7
Ethanol	mg/kg	55	28.4	9.5	7.7
Toluene	mg/kg	5	1.6	5.9	(0.6)
Permanganate Time Test	minutes	58	95	32	24
Sulphur	mg/kg	20	0.2	0.4	(0.2)
Total Iron as Fe	mg/kg	39	0.017	0.015	0.009
Trimethylamine	µg/kg	8	67	74	25
Water (coulometric)	mg/kg	61	199	61	34
Water (titrimetric)	mg/kg	37	205	32	270

table 6: Reproducibilities for sample #12090

reproducibility values between brackets are for concentrations near of below the detection limit

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (lit)*
UV absorbance at 300 nm (10 mm cell)		10	0.002	0.002	0.003
UV absorbance at 268.5 nm (10 mm cell)		11	0.009	0.010	0.003
UV absorbance at 250 nm (10 mm cell)		13	0.034	0.018	0.003
UV absorbance at 240 nm (10 mm cell)		11	0.050	0.023	unknown
UV absorbance at 230 nm (10 mm cell)		11	0.105	0.037	unknown
UV absorbance at 220 nm (10 mm cell)		10	0.233	0.034	0.067
UV absorbance at 300 nm (50 mm cell)		22	0.010	0.009	0.014
UV absorbance at 268.5 nm (50 mm cell)		23	0.044	0.015	0.012
UV absorbance at 250 nm (50 mm cell)		23	0.179	0.042	0.018
UV absorbance at 240 nm (50 mm cell)		20	0.254	0.032	unknown
UV absorbance at 230 nm (50 mm cell)		20	0.519	0.086	unknown
UV absorbance at 220 nm (50 mm cell)		23	1.124	0.187	0.323

table 7: Reproducibilities for sample #12091

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 SEPTEMBER 2012 WITH PREVIOUS PTS

	September 2012	*September 2011*	*September 2010*	*September 2009*
Number of reporting labs	73	70	73	59
Number of results reported	1280	1205	1353	782
Statistical outliers	54	48	75	41
Percentage outliers	4.2%	4.0%	5.5%	5.2%

table 8: 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:

	September 2012		*September 2011*		*September 2010*		*September 2009*	
Acidity as acetic acid	++		++		++		++	
Chloride as Cl	++		-		--		++	
Carbonisable Substances	+/-		--		--		--	
Colour	++		++		++		++	
Density @ 20 °C	++		++		++		++	
Distillation (automatic)	++		++		++		++	
Distillation (manual)	++		++		++		++	
Nonvolatile Matter	++		++		++		++	
Specific Gravity 20/20 °C	++		++		++		++	
Total Iron	--		--		--		-	
Water (coulometric)	--		--		--		--	
Water (titrimetric)	++		++		++		++	
Benzene	++		++		++		--	
Toluene	n.e.		n.e.		++		++	
Acetone	--		+/-		--		--	
Ethanol	--		--		--		+	
Trimethylamine	--		--		--		n.e.	
UV absorbance 300nm *)	++	++	++	++	++	--	+	--
UV absorbance 268.5 nm *)	--	-	-	--	+/-	--	--	--
UV absorbance 250 nm *)	--	--	-	--	--	+/-	--	--
UV absorbance 220 nm *)	++	++	++	++	++	++	++	++

table 9: comparison determinations against the standard requirements

*) split-up into respective 50 mm and 10 mm cell results

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

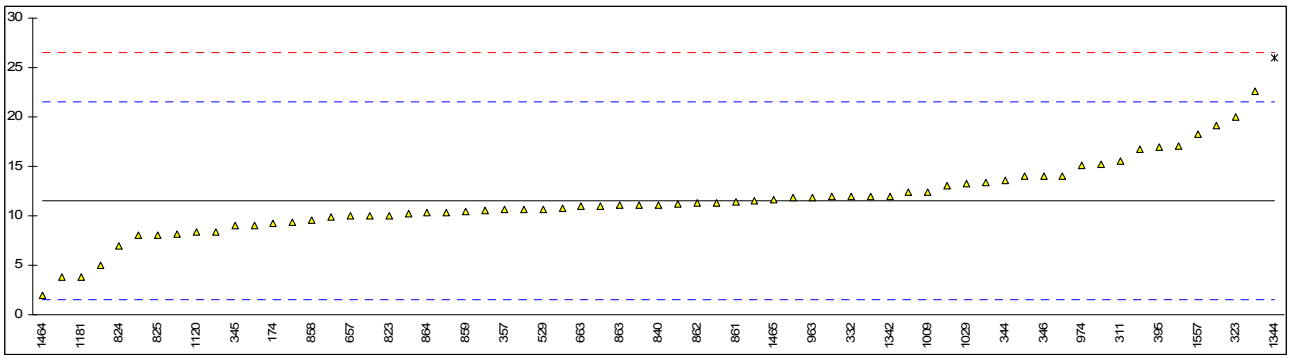
APPENDIX 1

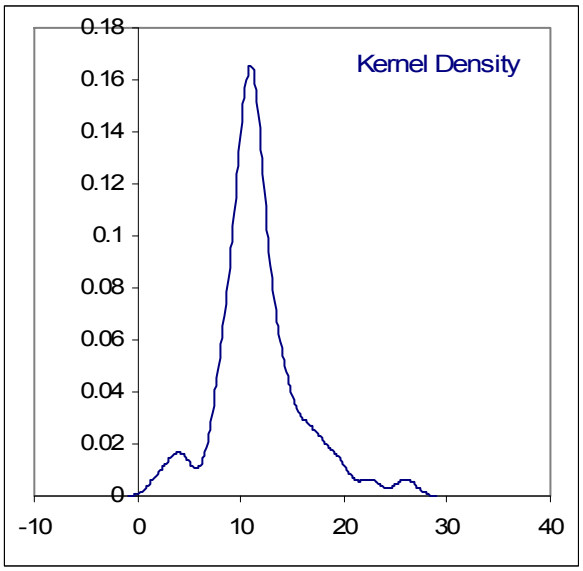
Determination of Acidity as Acetic Acid on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	D1613	11		-0.10	
150	D1613	15.2		0.74	
153	D1613	3.77168		-1.54	
171	D1613	8		-0.70	
174	D1613	9.2		-0.46	
311	D1613	15.5		0.80	
316		-----		-----	
319	D1613	10.5		-0.20	
323	D1613	20		1.70	
329		-----		-----	
332	D1613	12		0.10	
333	D1613	9		-0.50	
334		-----		-----	
343	D1613	11.1		-0.08	
344	D1613	13.6218		0.43	
345	INH-4103	9.0		-0.50	
346	D1613	14.0		0.50	
347	D1613	10.6		-0.18	
357	D1613	10.6		-0.18	
395	D1613	17		1.10	
444	D1613	16.7		1.04	
446	D1613	13		0.30	
494		-----		-----	
497		-----		-----	
528		-----		-----	
529	D1613	10.615		-0.17	
551		-----		-----	
554		-----		-----	
608	D1613	12.37		0.18	
609	D1613	11.246		-0.05	
646	D1613	19.1		1.52	
657	D1613	10		-0.30	
663	D1613	11		-0.10	
823	D1613	10		-0.30	
824	D1613	7		-0.90	
825	D1613	8		-0.70	
840	D1613	11.1		-0.08	
855	D1613	10.8		-0.14	
857	D1613	9.4		-0.42	
858	D1613	9.6		-0.38	
859	D1613	10.4		-0.22	
860	D1613	10.3		-0.24	
861	D1613	11.4		-0.02	
862	D1613	11.3		-0.04	
863	D1613	11.1		-0.08	
864	D1613	10.3		-0.24	
866	D1613	9.9		-0.32	
870	D1613	10.2		-0.26	
902	D1613	11.8		0.06	
912	D1613	11.5		0.00	
913	D1613	11.3		-0.04	
963	D1613	11.9		0.08	
974	D1613	15.16		0.74	
994		-----		-----	
1007		-----		-----	
1009	D1613	12.4		0.18	
1010	D1613	10		-0.30	
1016	D1613	8.4		-0.62	
1029	D1613	13.27		0.36	
1067		-----		-----	
1102		-----		-----	
1108		-----		-----	
1120	D1613	8.3319		-0.63	
1149		-----		-----	
1181	D1613	3.79		-1.54	
1204	D1613	13.3982	C	0.38	First reported 0.0013
1221		-----		-----	
1246		-----		-----	
1256	D1613	12	C	0.10	First reported 0.0012
1263	D1613	14.0283		0.51	
1264	D1613	14		0.50	
1341	D1613	22.6		2.22	
1342	D1613	12		0.10	

1343		-----		-----
1344	D1613	26	G(0.05)	2.90
1438		-----		-----
1464	D1613	2		-1.90
1465	D1613	11.6		0.02
1481	D1613	17.1		1.12
1510	D1613	12		0.10
1557	D1613	18.27		1.36
1615	D1613	5		-1.30
1707	D1613	8.2		-0.66
1866		-----		-----

normality	not OK
n	64
outliers	1
mean (n)	11.48
st.dev. (n)	3.649
R(calc.)	10.22
R(D1613:12)	14.00



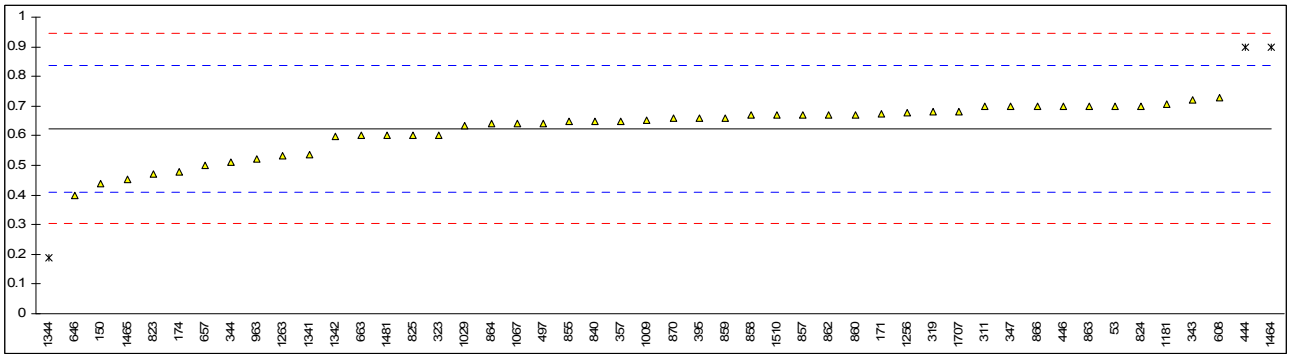


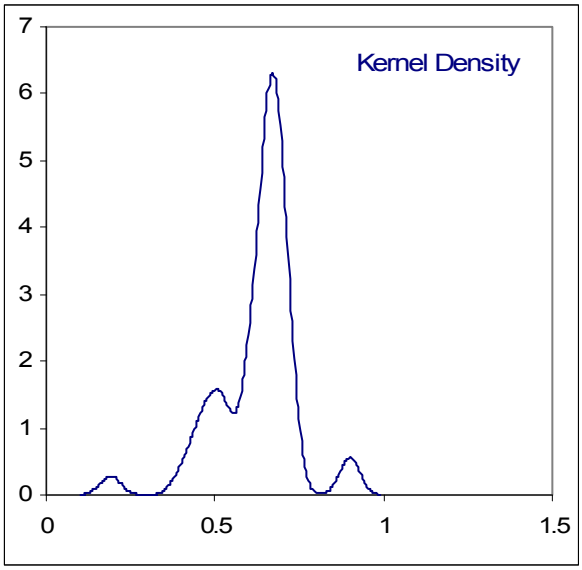
Determination of Anorganic Chloride as Cl on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	IMPCA002	0.70		0.71	
150	IMPCA002	0.44		-1.72	
153		-----		-----	
171	IMPCA002	0.675		0.47	
174	E2469	0.48		-1.35	
311	IMPCA002	0.70		0.71	
316		-----		-----	
319	IMPCA002	0.68		0.52	
323	IMPCA002	0.6		-0.23	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
343	IMPCA002	0.72		0.89	
344	IMPCA002	0.51		-1.07	
345		-----		-----	
346		-----		-----	
347	IMPCA002	0.7		0.71	
357	IMPCA002	0.65		0.24	
395	IMPCA002	0.66		0.33	
444	IMPCA002	0.9	DG(0.05)	2.57	
446	IMPCA002	0.7		0.71	
494		-----		-----	
497	IMPCA002	0.64		0.15	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608	IMPCA002	0.73		0.99	
609		-----		-----	
646	in house	0.4		-2.09	
657	IMPCA002	0.50		-1.16	
663	IMPCA002	0.6		-0.23	
823	IMPCA002	0.47		-1.44	
824	IMPCA002	0.70		0.71	
825	IMPCA002	0.60		-0.23	
840	IMPCA002	0.65		0.24	
855	IMPCA002	0.65		0.24	
857	IMPCA002	0.67		0.43	
858	IMPCA002	0.67		0.43	
859	IMPCA002	0.66		0.33	
860	IMPCA002	0.67		0.43	
861		-----		-----	
862	IMPCA002	0.67		0.43	
863	IMPCA002	0.70		0.71	
864	IMPCA002	0.64		0.15	
866	IMPCA002	0.70		0.71	
870	IMPCA002	0.66		0.33	
902		-----		-----	
912		-----		-----	
913		-----		-----	
963	IMPCA002	0.52		-0.97	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	IMPCA002	0.652		0.26	
1010	in house	>0.25		-----	
1016		-----		-----	
1029	IMPCA002	0.6356		0.11	
1067	IMPCA002	0.64		0.15	
1102		-----		-----	
1108		-----		-----	
1120		-----		-----	
1149		-----		-----	
1181	IMPCA002	0.7059		0.76	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256	IMPCA002	0.6766		0.49	
1263	EN14077	0.532		-0.86	
1264		-----		-----	
1341	IMPCA002	0.535		-0.83	
1342	IMPCA002	0.598		-0.25	

1343		-----		-----
1344	IMPCA002	0.19	G(0.01)	-4.05
1438		-----		-----
1464	IMPCA002	0.9	DG(0.05)	2.57
1465	in house	0.4529		-1.60
1481	IMPCA002	0.60		-0.23
1510	IMPCA002	0.67		0.43
1557	INH-208	<0.5		-----
1615		-----		-----
1707	IMPCA002	0.68		0.52
1866		-----		-----

normality	not OK		
n	45		
outliers	3	Spike:	
mean (n)	0.62	0.55	<113% recovered
st.dev. (n)	0.084		
R(calc.)	0.24		
R(IMPCA002:98)	0.30		





Determination of Appearance on sample #12090;

lab	method	value	mark	z(targ)	remarks
53	E2680	pass		-----	
150	E2680	pass		-----	
153		-----		-----	
171	E2680	pass		-----	
174	E2680	pass		-----	
311	IMPCA003	CFSM		-----	
316		-----		-----	
319	IMPCA003	CFSM		-----	
323	E2680	pass		-----	
329		-----		-----	
332	E2680	pass		-----	
333	E2680	CBFSM		-----	
334		-----		-----	
343	IMPCA003	C&B		-----	
344	E2680	pass		-----	
345	E2680	pass		-----	
346		-----		-----	
347	E2680	pass		-----	
357	E2680	pass		-----	
395	E2680	pass		-----	
444	E2680	pass		-----	
446	E2680	pass		-----	
494		-----		-----	
497	IMPCA003	C&B		-----	
528		-----		-----	
529	E2680	pass		-----	
551		-----		-----	
554		-----		-----	
608	E2680	pass		-----	
609	E2680	pass		-----	
646	E2680	CFSM		-----	
657	E2680	pass		-----	
663	IMPCA003	CFSM		-----	
823	E2680	pass		-----	
824	E2680	CFSM		-----	
825	E2680	CFSM		-----	
840	E2680	pass		-----	
855	E2680	pass		-----	
857	E2680	pass		-----	
858	E2680	pass		-----	
859	E2680	pass		-----	
860	E2680	pass		-----	
861	E2680	pass		-----	
862	E2680	pass		-----	
863	IMPCA003	CFSM		-----	
864	IMPCA003	CFSM		-----	
866	E2680	pass		-----	
870	E2680	pass		-----	
902	E2680	pass		-----	
912	E2680	pass		-----	
913	E2680	CFSM		-----	
963	E2680	pass		-----	
974	E2680	pass		-----	
994		-----		-----	
1007		-----		-----	
1009	E2680	CFSM		-----	
1010	IMPCA003	CFSM		-----	
1016	in house	pass		-----	
1029	IMPCA003	FSMS		-----	
1067	E2680	pass		-----	
1102	IMPCA003	CFSM		-----	
1108		-----		-----	
1120	E2680	pass		-----	
1149		-----		-----	
1181	IMPCA003	pass		-----	
1204	IMPCA003	Clear		-----	
1221		-----		-----	
1246		-----		-----	
1256	E2680	C&F		-----	
1263		-----		-----	
1264	E2680	CFSM		-----	
1341	E2680	pass		-----	
1342	E2680	pass		-----	

1343		-----	-----
1344	E2680	pass	-----
1438		-----	-----
1464	E2680	pass	-----
1465	IMPCA003	C&F	-----
1481	E2680	pass	-----
1510	E2680	pass	-----
1557	INH-254	CCL	-----
1615	IMPCA003	Clear	-----
1707	E2680	CFSM	-----
1866		-----	-----

normality	n.a.
n	65
outliers	n.a.
mean (n)	Pass / clear
st.dev. (n)	n.a.
R(calc.)	n.a.
R(IMPCA003:98)	n.a.

Abbreviations:

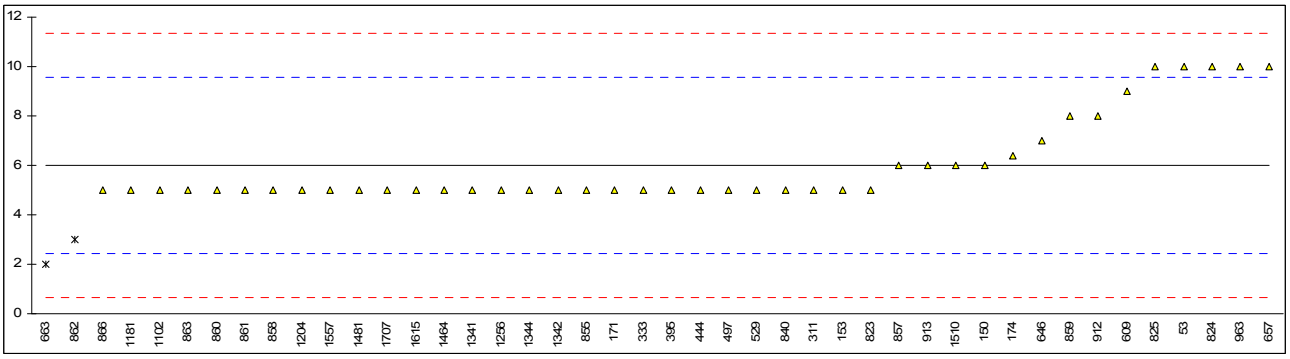
C&F = clear and free
CCL = clear colorless liquid
CFSM = clear free from suspended matter
CBFSM = clear bright free from suspended matter
FSMS = free from suspended matter and sediment

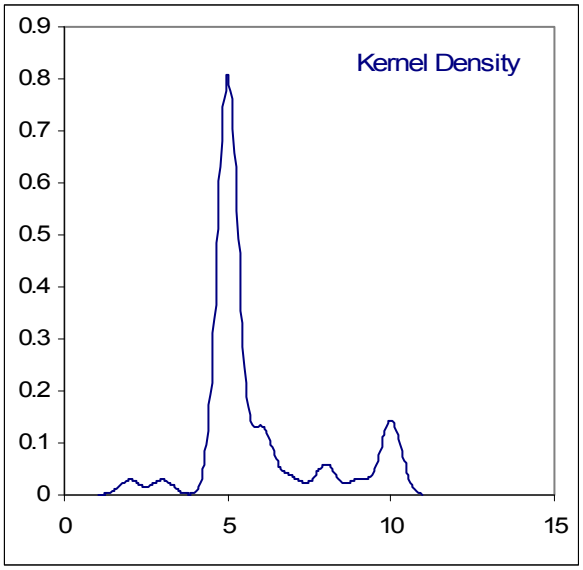
Determination of Carbonisable Substances Pt/Co on sample #12090;

lab	method	value	mark	z(targ)	remarks
53	E346	10		2.23	
150	E346	6		-0.01	
153	E346	5		-0.57	
171	E346	5		-0.57	
174	E346	6.4		0.22	
311	E346	5		-0.57	
316		-----		-----	
319	E346	<5		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333	E346	5		-0.57	
334		-----		-----	
343		-----		-----	
344	E346	<30		-----	
345		-----		-----	
346		-----		-----	
347		-----		-----	
357	E346	<5		-----	
395	E346	5		-0.57	
444	E346	5		-0.57	
446	E346	<20		-----	
494		-----		-----	
497	E346	5		-0.57	
528		-----		-----	
529	E346	5		-0.57	
551		-----		-----	
554		-----		-----	
608	E346	<10		-----	
609	E346	9		1.67	
646	E346	7		0.55	
657	E346	10		2.23	
663	E346	2	G(0.05)	-2.25	
823	E346	5		-0.57	
824	E346	10		2.23	
825	E346	10		2.23	
840	E346	5		-0.57	
855	E346	5		-0.57	
857	E346	6		-0.01	
858	E346	5		-0.57	
859	E346	8		1.11	
860	E346	5		-0.57	
861	E346	5		-0.57	
862	E346	3	G(0.05)	-1.69	
863	E346	5		-0.57	
864	E346	<10		-----	
866	E346	5		-0.57	
870	E346	<10		-----	
902		-----		-----	
912	E346	8		1.11	
913	E346	6.0		-0.01	
963	E346	10		2.23	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	E346	<30		-----	
1010	E346	<5		-----	
1016		-----		-----	
1029	E346	<5		-----	
1067		-----		-----	
1102	E346	5		-0.57	
1108		-----		-----	
1120	E346	<10		-----	
1149		-----		-----	
1181	E346	5		-0.57	
1204	E346	5		-0.57	
1221		-----		-----	
1246		-----		-----	
1256	E346	5		-0.57	
1263		-----		-----	
1264		-----		-----	
1341	E346	5		-0.57	
1342	E346	5		-0.57	

1343		-----	-----
1344	E346	5	-0.57
1438		-----	-----
1464	E346	5	-0.57
1465	E346	<5	-----
1481	E346	5	-0.57
1510	E346	6	-0.01
1557	E346	5.0	-0.57
1615	E346	5	-0.57
1707	E346	5	-0.57
1866		-----	-----

normality	not OK
n	42
outliers	2
mean (n)	6.0
st.dev. (n)	1.75
R(calc.)	4.9
R(E346:08)	5.0



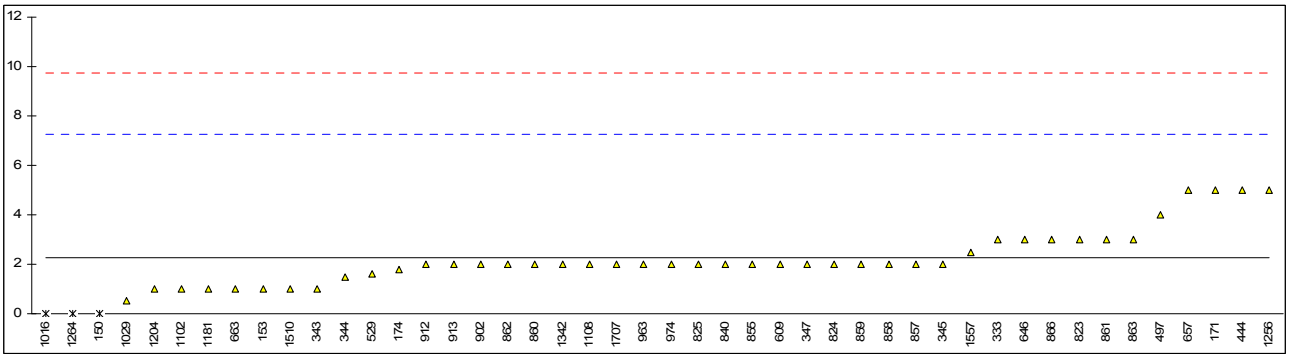


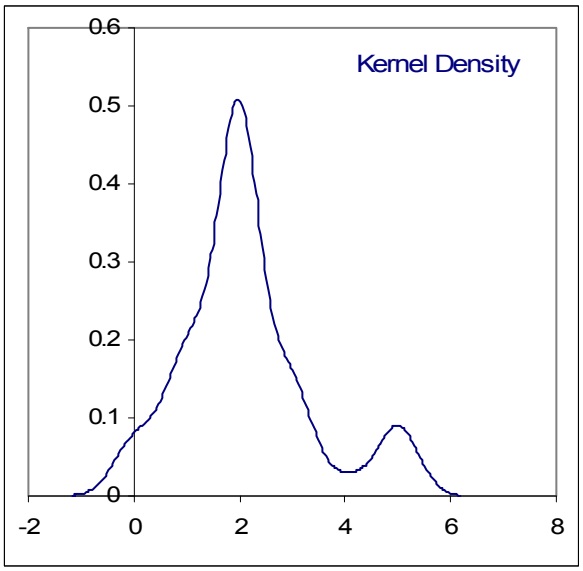
Determination of Colour as Pt/Co on sample #12090;

lab	method	value	mark	z(targ)	remarks
53	D1209	<5		-----	
150	D5386	0	ex	-0.90	Result excluded, zero is not a real result
153	D1209	1		-0.50	
171	D1209	5		1.10	
174	D1209	1.8		-0.18	
311	D1209	<5		-----	
316		-----		-----	
319	D1209	<5		-----	
323	D1209	<5		-----	
329		-----		-----	
332		-----		-----	
333	D1209	3		0.30	
334		-----		-----	
343	D1209	1		-0.50	
344	D5386	1.5		-0.30	
345	D5386	2		-0.10	
346		-----		-----	
347	D5386	2		-0.10	
357	D1209	<5		-----	
395	D1209	<5		-----	
444	D1209	5		1.10	
446	D1209	<5		-----	
494		-----		-----	
497	D1209	4		0.70	
528		-----		-----	
529	D1209	1.6		-0.26	
551		-----		-----	
554		-----		-----	
608	D1209	<5		-----	
609	D1209	2		-0.10	
646	D1209	3		0.30	
657	D1209	5		1.10	
663	D1209	1		-0.50	
823	D1209	3		0.30	
824	D1209	2		-0.10	
825	D1209	2		-0.10	
840	D1209	2		-0.10	
855	D1209	2		-0.10	
857	D1209	2		-0.10	
858	D1209	2		-0.10	
859	D1209	2		-0.10	
860	D1209	2		-0.10	
861	D1209	3		0.30	
862	D1209	2		-0.10	
863	D1209	3		0.30	
864	D1209	<5		-----	
866	D1209	3		0.30	
870	D1209	<5		-----	
902	D5386	2		-0.10	
912	D5386	2		-0.10	
913	D5386	2.0		-0.10	
963	D1209	2		-0.10	
974	D1209	2		-0.10	
994	D1209	<5		-----	
1007		-----		-----	
1009	D1209	<5		-----	
1010	D1209	<5		-----	
1016	D1209	0	ex	-0.90	Result excluded, zero is not a real result
1029	D1209	0.5413		-0.69	
1067	D1209	<5		-----	
1102	D1209	1		-0.50	
1108	D1209	2		-0.10	
1120	D1209	<5		-----	
1149		-----		-----	
1181	D1209	1		-0.50	
1204	D1209	1		-0.50	
1221		-----		-----	
1246		-----		-----	
1256	D1209	5		1.10	
1263		-----		-----	
1264	D1209	0	ex	-0.90	Result excluded, zero is not a real result
1341	D1209	<5		-----	
1342	D1209	2		-0.10	

1343		-----	-----
1344		-----	-----
1438		-----	-----
1464	D1209	<5	-----
1465	D1209	<5	-----
1481	D1209	<5	-----
1510	D1209	1	-0.50
1557	D1209	2.5	0.10
1615		-----	-----
1707	D1209	2	-0.10
1866		-----	-----

normality	not OK	
n	43	
outliers	0	+ 3 excluded
mean (n)	2.3	
st.dev. (n)	1.12	
R(calc.)	3.1	
R(D1209:11)	7.0	



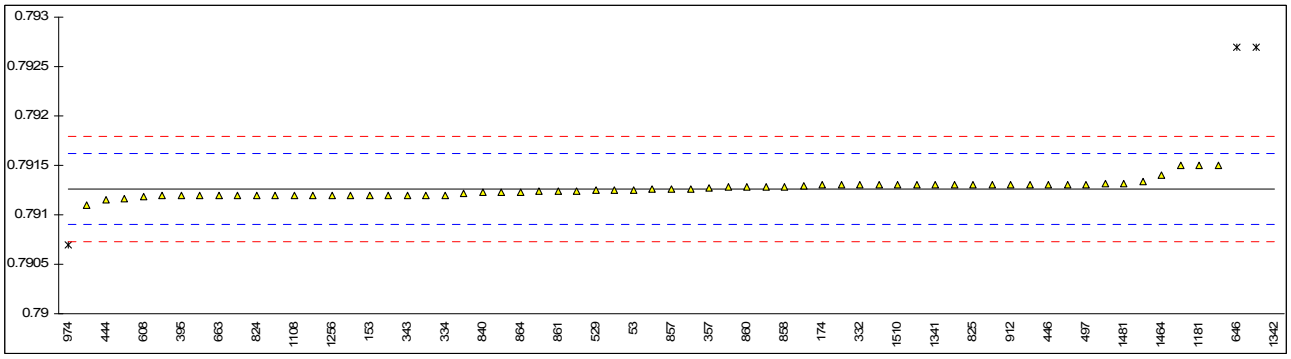


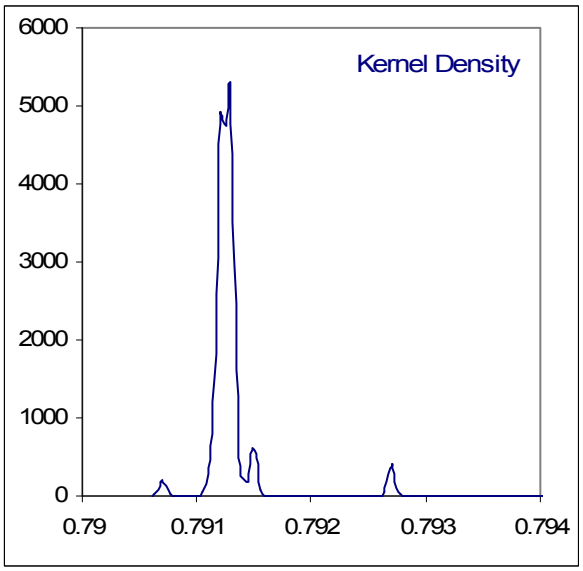
Determination of Density at 20°C on sample #12090; results in kg/L

lab	method	value	mark	z(targ)	remarks
53	D4052	0.79125		-0.07	
150	D4052	0.7912		-0.35	
153	D4052	0.7912		-0.35	
171	D4052	0.7915		1.33	
174	D4052	0.7913		0.21	
311		-----		-----	
316		-----		-----	
319		-----		-----	
323	D4052	0.7912		-0.35	
329		-----		-----	
332	D4052	0.7913		0.21	
333	D4052	0.7913		0.21	
334	D4052	0.7912		-0.35	
343	D4052	0.7912		-0.35	
344	D4052	0.7912		-0.35	
345	D4052	0.7913		0.21	
346	D1298	0.7911		-0.91	
347	D4052	0.79123		-0.18	
357	D4052	0.79127		0.04	
395	D4052	0.7912		-0.35	
444	D4052	0.79115		-0.63	
446	D4052	0.7913		0.21	
494		-----		-----	
497	D4052	0.7913		0.21	
528		-----		-----	
529	D4052	0.79125		-0.07	
551		-----		-----	
554		-----		-----	
608	D4052	0.79119		-0.41	
609	D4052	0.79116		-0.58	
646	D4052	0.7927	C,G(0.01)	8.05	First reported 0.7929
657	D4052	0.7912		-0.35	
663	D4052	0.7912		-0.35	
823	D4052	0.7913		0.21	
824	D4052	0.7912		-0.35	
825	D4052	0.7913		0.21	
840	D4052	0.79123		-0.18	
855	D4052	0.79124		-0.13	
857	D4052	0.79126		-0.02	
858	D4052	0.79128		0.10	
859	D4052	0.79126		-0.02	
860	D4052	0.79128		0.10	
861	D4052	0.79124		-0.13	
862	D4052	0.79128		0.10	
863	D4052	0.79131		0.26	
864	D4052	0.79123		-0.18	
866	D4052	0.79125		-0.07	
870	D4052	0.79122		-0.24	
902	D4052	0.79129		0.15	
912	D4052	0.7913		0.21	
913	D4052	0.7927	G(0.01)	8.05	
963	D4052	0.7913		0.21	
974	D4052	0.7907	G(0.01)	-3.15	
994	D4052	0.7912		-0.35	
1007		-----		-----	
1009		-----		-----	
1010	D4052	0.7912		-0.35	
1016	D4052	0.7912		-0.35	
1029	D4052	0.79124		-0.13	
1067		-----		-----	
1102	D4052	0.7912		-0.35	
1108	D4052	0.79120		-0.35	
1120	D4052	0.79134		0.43	
1149		-----		-----	
1181	D4052	0.7915		1.33	
1204	D4052	0.7913		0.21	
1221		-----		-----	
1246		-----		-----	
1256	D4052	0.7912		-0.35	
1263	ISO12185	0.791265		0.01	
1264	D4052	0.7915		1.33	
1341	D4052	0.7913		0.21	
1342	D4052	0.79614	C,G(0.01)	27.31	First reported 0.79126

1343		-----	-----
1344	D4052	0.7913	0.21
1438		-----	-----
1464	D4052	0.7914	0.77
1465		-----	-----
1481	D4052	0.79132	0.32
1510	D4052	0.7913	0.21
1557		-----	-----
1615	D4052	0.79128	0.10
1707	D4052	0.7913	0.21
1866		-----	-----

normality	not OK
n	61
outliers	4
mean (n)	0.79126
st.dev. (n)	0.000076
R(calc.)	0.00021
R(D4052:11)	0.00050



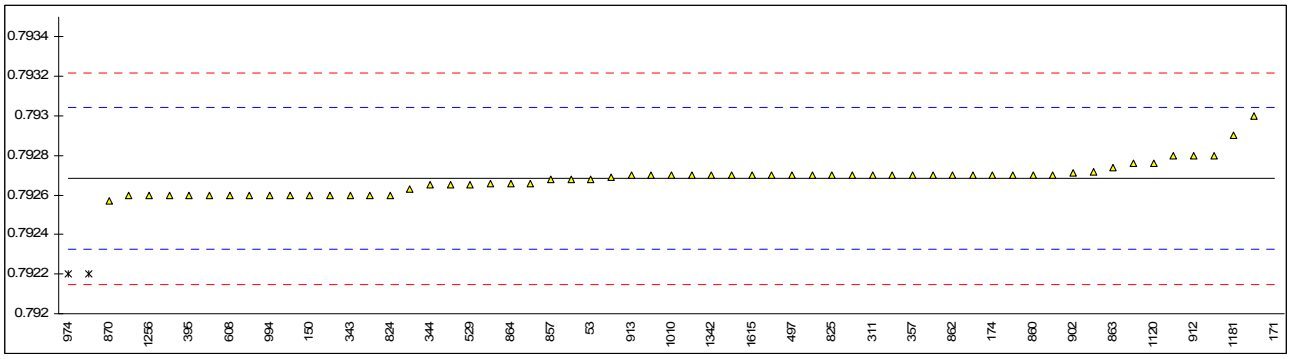


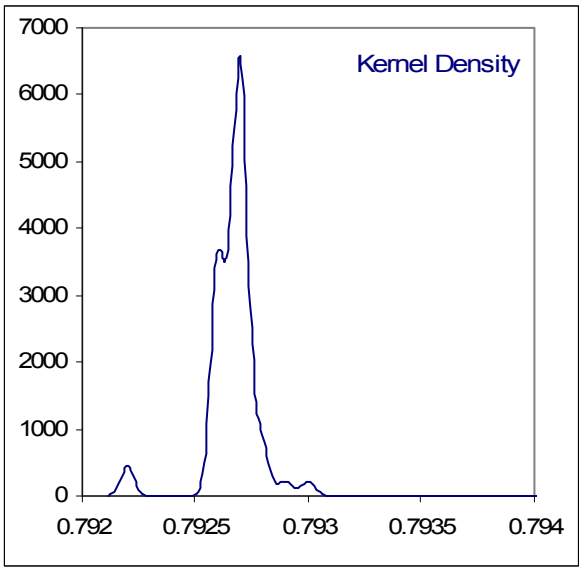
Determination of Specific Gravity 20/20 °C/°C on sample #12090;

lab	method	value	mark	z(targ)	remarks
53		0.79268		-0.02	
150	D4052	0.7926		-0.47	
153	D4052	0.7926	C	-0.47	First reported 0.7962
171	D4052	0.7956	G(0.01)	16.33	
174	D4052	0.7927		0.09	
311	D4052	0.7927		0.09	
316		-----		-----	
319	D4052	0.79269		0.03	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		0.7927		0.09	
334		-----		-----	
343		0.7926		-0.47	
344	D4052	0.79265		-0.19	
345	D4052	0.7927		0.09	
346		-----		-----	
347		0.79265		-0.19	
357	D4052	0.79270		0.09	
395	D4052	0.7926		-0.47	
444	D4052	0.7926		-0.47	
446		0.7927		0.09	
494		-----		-----	
497		0.7927		0.09	
528		-----		-----	
529		0.79265		-0.19	
551		-----		-----	
554		-----		-----	
608		0.7926		-0.47	
609	D4052	0.7926		-0.47	
646		-----		-----	
657		0.7926		-0.47	
663	D4052	0.7926		-0.47	
823	D4052	0.7927		0.09	
824		0.7926		-0.47	
825	D4052	0.7927		0.09	
840	D4052	0.79266		-0.13	
855	D4052	0.79266		-0.13	
857	D4052	0.79268		-0.02	
858	D4052	0.79270		0.09	
859	D4052	0.79268		-0.02	
860	D4052	0.79270		0.09	
861	D4052	0.7927		0.09	
862	D4052	0.79270		0.09	
863	D4052Cal.	0.79274		0.31	
864	D4052Cal.	0.79266		-0.13	
866	D4052	0.7927		0.09	
870	D4052Cal.	0.79257		-0.64	
902	D4052	0.79271		0.15	
912		0.7928		0.65	
913	D4052	0.79270		0.09	
963	D4052Mod.	0.7927		0.09	
974	D4052	0.7922	G(0.01)	-2.71	
994	D4052	0.7926		-0.47	
1007		-----		-----	
1009		0.7926		-0.47	
1010		0.7927		0.09	
1016		0.7926		-0.47	
1029	D4052	0.7927		0.09	
1067		-----		-----	
1102		0.79263		-0.30	
1108		-----		-----	
1120	D4052	0.79276		0.43	
1149		-----		-----	
1181	D4052	0.7929		1.21	
1204	D4052	0.7927		0.09	
1221		-----		-----	
1246		-----		-----	
1256		0.7926		-0.47	
1263		-----		-----	
1264		0.7930		1.77	
1341		-----		-----	
1342	D4052	0.7927		0.09	

1343		-----		-----	
1344	D4052	0.7927		0.09	
1438		-----		-----	
1464		0.7928		0.65	
1465	D4052	0.79276		0.43	
1481		0.79272		0.20	
1510		-----		-----	
1557	D891	0.7922	C,G(0.01)	-2.71	First reported 0.7880
1615	D4052	0.7927		0.09	
1707		0.7928		0.65	
1866		-----		-----	

normality	not OK
n	58
outliers	3
mean (n)	0.79268
st.dev. (n)	0.000076
R(calc.)	0.00021
R(D4052:11)	0.00050



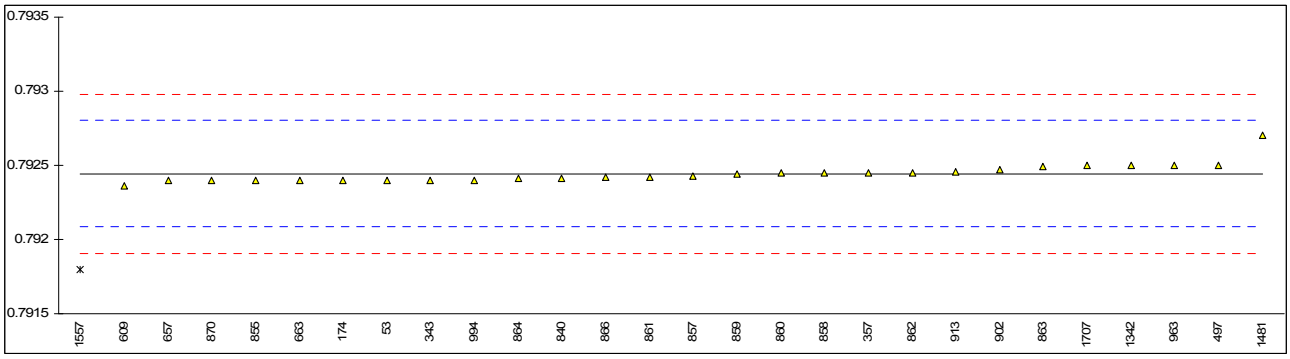


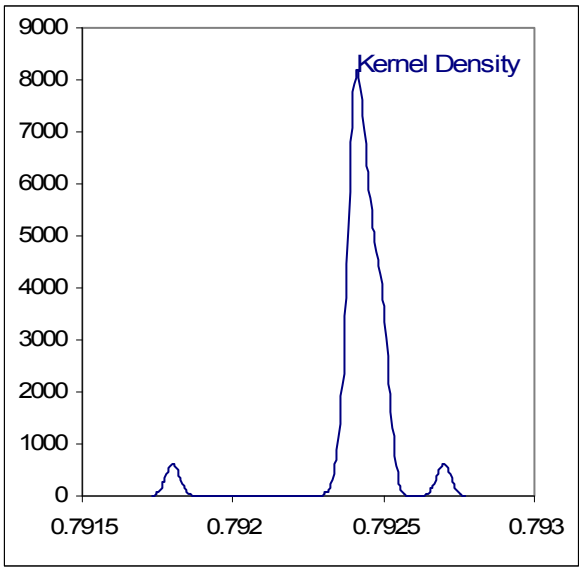
Determination of Specific Gravity, Apparent 20/20 °C/°C on sample #12090;

lab	method	value	mark	z(targ)	remarks
53		0.7924		-0.25	
150		-----		-----	
153		-----		-----	
171		-----		-----	
174	D4052	0.7924		-0.25	
311		-----		-----	
316		-----		-----	
319		-----		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
343		0.7924		-0.25	
344		-----		-----	
345		-----		-----	
346		-----		-----	
347		-----		-----	
357	D4052Calc.	0.79245		0.03	
395		-----		-----	
444		-----		-----	
446		-----		-----	
494		-----		-----	
497		0.7925		0.31	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	D4052	0.79236		-0.47	
646		-----		-----	
657		0.7924		-0.25	
663	D4052Cal.	0.7924		-0.25	
823		-----		-----	
824		-----		-----	
825		-----		-----	
840	D4052	0.79241		-0.19	
855	D891	0.7924		-0.25	
857	D4052Cal.	0.79243		-0.08	
858	D891	0.79245		0.03	
859	D891	0.79244		-0.03	
860	D891	0.79245		0.03	
861	D4052Cal.	0.79242		-0.14	
862	D891	0.79245		0.03	
863	D4052Cal.	0.79249		0.25	
864	D4052Cal.	0.79241		-0.19	
866	D4052Cal.	0.79242		-0.14	
870	D4052Cal.	0.79240		-0.25	
902		0.79247		0.14	
912		-----		-----	
913	D4052	0.79246		0.09	
963	D891	0.7925		0.31	
974		-----		-----	
994	D4052	0.7924		-0.25	
1007		-----		-----	
1009		-----		-----	
1010		-----		-----	
1016		-----		-----	
1029		-----		-----	
1067		-----		-----	
1102		-----		-----	
1108		-----		-----	
1120		-----		-----	
1149		-----		-----	
1181		-----		-----	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256		-----		-----	
1263		-----		-----	
1264		-----		-----	
1341		-----		-----	
1342	in house	0.7925		0.31	

1343		-----		-----	
1344		-----		-----	
1438		-----		-----	
1464		-----		-----	
1465		-----		-----	
1481		0.7927	C	1.43	First reported 0.7893
1510		-----		-----	
1557	D891	0.7918	C,G(0.01)	-3.61	First reported 0.7913
1615		-----		-----	
1707		0.7925		0.31	
1866		-----		-----	

normality	not OK
n	27
outliers	1
mean (n)	0.79244
st.dev. (n)	0.000064
R(calc.)	0.00018
R(D4052:11)	0.00050



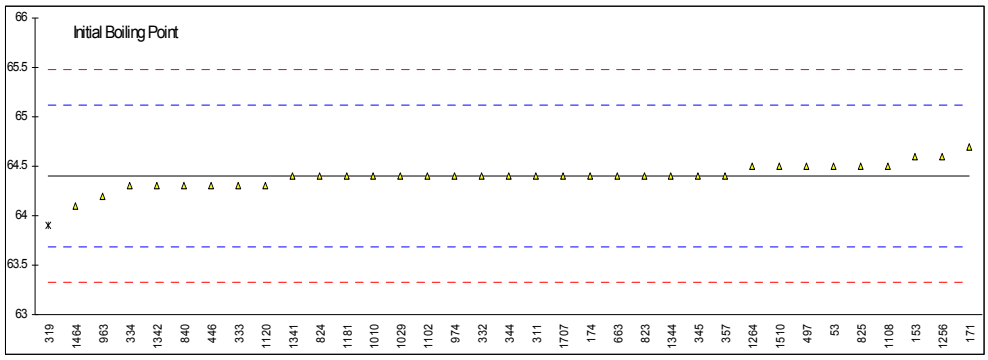


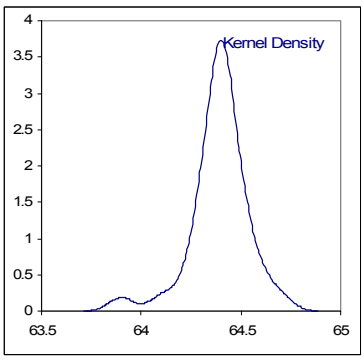
Determination of IBP, MBP and DP (automated) @ 760 mmHg on sample #12090; results in °C

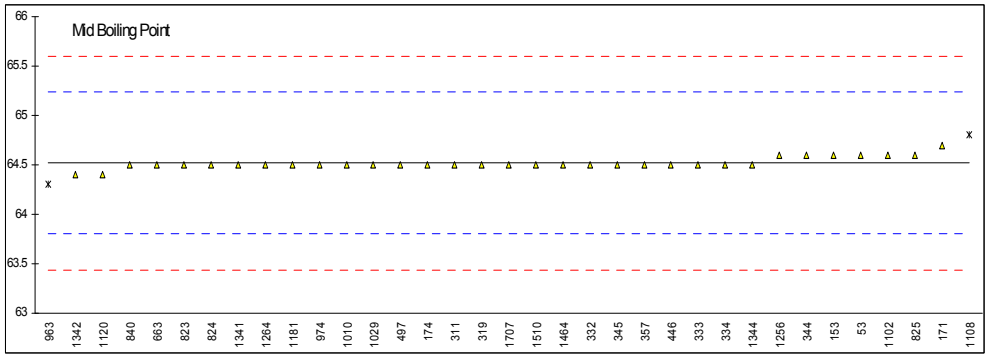
lab	method	IBP	mark	z(targ)	MBP	mark	z(targ)	DP	mark	z(targ)	remarks
53	D1078-A	64.5		0.26	64.6		0.23	64.8		0.25	
150		-----		-----	-----		-----	-----		-----	
153	D1078	64.6		0.54	64.6		0.23	64.7		-0.16	
171	D1078-A	64.7		0.82	64.7		0.51	64.9		0.65	
174	D1078-A	64.4		-0.02	64.5		-0.05	64.8		0.25	
311	D1078-A	64.4		-0.02	64.5		-0.05	64.7		-0.16	
316		-----		-----	-----		-----	-----		-----	
319	D1078-A	63.9	G(0.01)	-1.41	64.5		-0.05	64.7		-0.16	
323		-----		-----	-----		-----	-----		-----	
329		-----		-----	-----		-----	-----		-----	
332	D1078-A	64.4		-0.02	64.5		-0.05	64.7		-0.16	
333	D1078-A	64.3		-0.30	64.5		-0.05	64.8		0.25	
334	D1078-A	64.3		-0.30	64.5		-0.05	64.7		-0.16	
343		-----		-----	-----		-----	-----		-----	
344	D1078-A	64.4		-0.02	64.6		0.23	64.9		0.65	
345	D1078-A	64.4		-0.02	64.5		-0.05	65.1	DG(0.05)	1.46	
346		-----		-----	-----		-----	-----		-----	
347		-----		-----	-----		-----	-----		-----	
357	D1078-A	64.4		-0.02	64.5		-0.05	64.7		-0.16	
395		-----		-----	-----		-----	-----		-----	
444		-----		-----	-----		-----	-----		-----	
446	D1078-A	64.3		-0.30	64.5		-0.05	64.7		-0.16	
494		-----		-----	-----		-----	-----		-----	
497	D1078-A	64.5		0.26	64.5		-0.05	64.7		-0.16	
528		-----		-----	-----		-----	-----		-----	
529		-----		-----	-----		-----	-----		-----	
551		-----		-----	-----		-----	-----		-----	
554		-----		-----	-----		-----	-----		-----	
608		-----		-----	-----		-----	-----		-----	
609		-----		-----	-----		-----	-----		-----	
646		-----		-----	-----		-----	-----		-----	
657		-----		-----	-----		-----	-----		-----	
663	D1078-A	64.4		-0.02	64.5		-0.05	64.6		-0.56	
823	D1078-A	64.4		-0.02	64.5		-0.05	64.8		0.25	
824	D1078-A	64.4		-0.02	64.5		-0.05	64.8		0.25	
825	D1078-A	64.5		0.26	64.6		0.23	64.8		0.25	
840	D1078-A	64.3		-0.30	64.5		-0.05	64.8		0.25	
855		-----		-----	-----		-----	-----		-----	
857		-----		-----	-----		-----	-----		-----	
858		-----		-----	-----		-----	-----		-----	
859		-----		-----	-----		-----	-----		-----	
860		-----		-----	-----		-----	-----		-----	
861		-----		-----	-----		-----	-----		-----	
862		-----		-----	-----		-----	-----		-----	
863		-----		-----	-----		-----	-----		-----	
864		-----		-----	-----		-----	-----		-----	
866		-----		-----	-----		-----	-----		-----	
870		-----		-----	-----		-----	-----		-----	
902		-----		-----	-----		-----	-----		-----	
912		-----		-----	-----		-----	-----		-----	
913		-----		-----	-----		-----	-----		-----	
963	D1078-A	64.2		-0.57	64.3	G(0.05)	-0.61	64.5		-0.96	
974	D1078-A	64.4		-0.02	64.5		-0.05	-----		-----	
994		-----		-----	-----		-----	-----		-----	
1007		-----		-----	-----		-----	-----		-----	
1009		-----		-----	-----		-----	-----		-----	
1010	D1078-A	64.4		-0.02	64.5		-0.05	64.8		0.25	
1016		-----		-----	-----		-----	-----		-----	
1029	D1078-A	64.4		-0.02	64.5		-0.05	64.7		-0.16	
1067		-----		-----	-----		-----	-----		-----	
1102	D1078-A	64.4		-0.02	64.6		0.23	64.8		0.25	
1108	D1078-A	64.5		0.26	64.8	G(0.01)	0.78	65.1	G(0.01)	1.46	
1120	D1078-A	64.3		-0.30	64.4		-0.33	64.7		-0.16	
1149		-----		-----	-----		-----	-----		-----	
1181	D1078-A	64.4		-0.02	64.5		-0.05	64.7		-0.16	
1204		-----		-----	-----		-----	-----		-----	
1221		-----		-----	-----		-----	-----		-----	
1246		-----		-----	-----		-----	-----		-----	
1256	D1078-A	64.6		0.54	64.6		0.23	64.8		0.25	
1263		-----		-----	-----		-----	-----		-----	
1264	D1078-A	64.5		0.26	64.5		-0.05	64.6		-0.56	
1341	D1078-A	64.4		-0.02	64.5		-0.05	65.1	DG(0.05)	1.46	
1342	D1078-A	64.3		-0.30	64.4		-0.33	64.8		0.25	

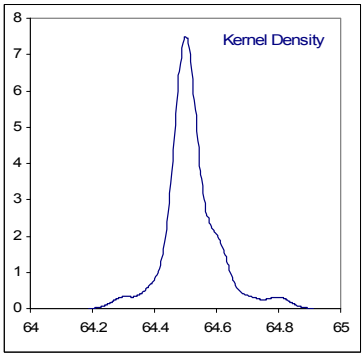
1343		-----	-----	-----	-----	-----	-----
1344	D1078-A	64.4	-0.02	64.5	-0.05	64.8	0.25
1438		-----	-----	-----	-----	-----	-----
1464	D1078-A	64.1	-0.85	64.5	-0.05	64.7	-0.16
1465		-----	-----	-----	-----	-----	-----
1481		-----	-----	-----	-----	-----	-----
1510	D1078-A	64.5	0.26	64.5	-0.05	64.7	-0.16
1557		-----	-----	-----	-----	-----	-----
1615		-----	-----	-----	-----	-----	-----
1707	D1078-A	64.4	-0.02	64.5	-0.05	64.7	-0.16
1866		-----	-----	-----	-----	-----	-----

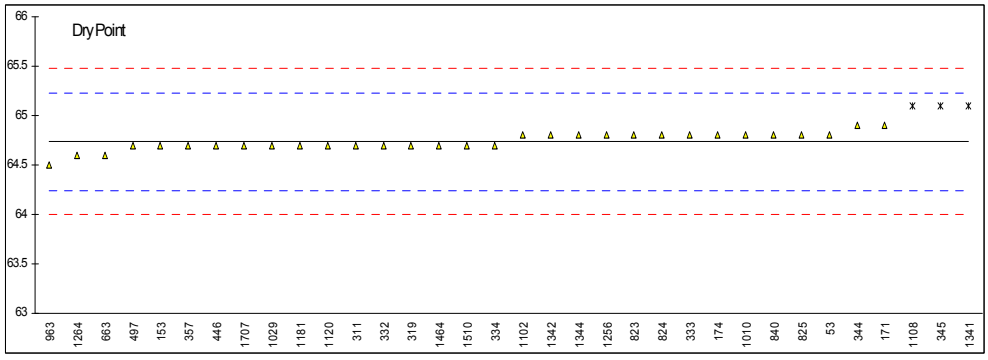
normality	not OK	not OK	not OK
n	34	33	31
outliers	1	2	3
mean (n)	64.41	64.52	64.74
st.dev. (n)	0.113	0.058	0.084
R(calc.)	0.32	0.16	0.24
R(D1078:11-A)	1.00	1.01	0.69

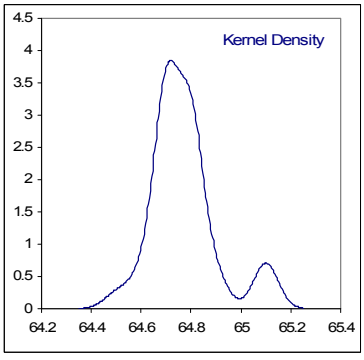










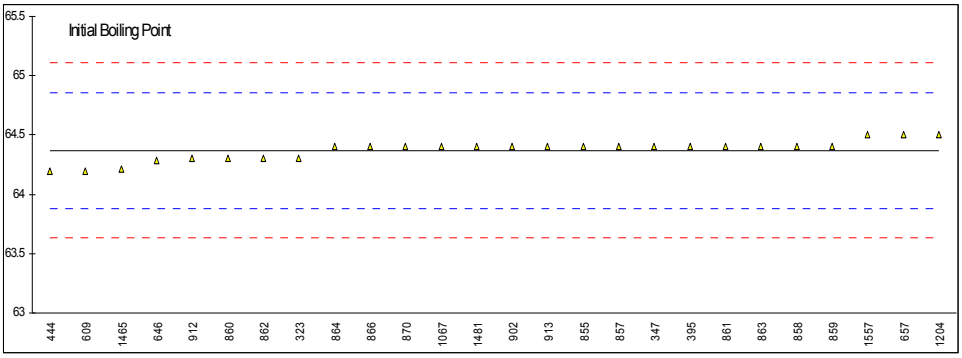


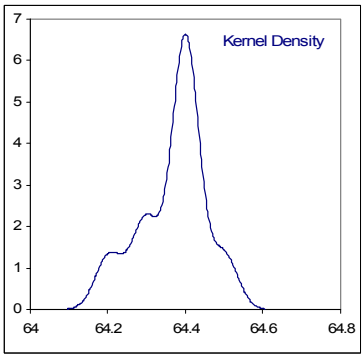
Determination of IBP, MBP and DP (manual) @ 760 mmHg on sample #12090; results in °C

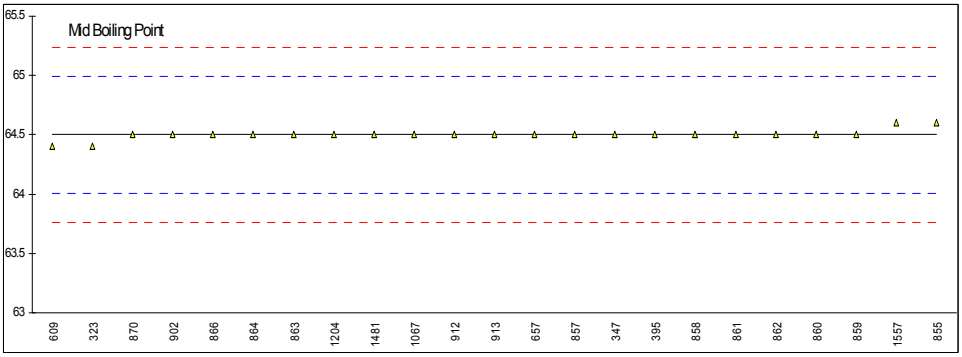
Lab	method	IBP	mark	z(targ)	MBP	mark	z(targ)	DP	mark	z(targ)	Remarks
53		-----		-----	-----		-----	-----		-----	
150		-----		-----	-----		-----	-----		-----	
153		-----		-----	-----		-----	-----		-----	
171		-----		-----	-----		-----	-----		-----	
174		-----		-----	-----		-----	-----		-----	
311		-----		-----	-----		-----	-----		-----	
316		-----		-----	-----		-----	-----		-----	
319		-----		-----	-----		-----	-----		-----	
323	D1078-M	64.3		-0.28	64.4		-0.41	64.8		0.08	
329		-----		-----	-----		-----	-----		-----	
332		-----		-----	-----		-----	-----		-----	
333		-----		-----	-----		-----	-----		-----	
334		-----		-----	-----		-----	-----		-----	
343		-----		-----	-----		-----	-----		-----	
344		-----		-----	-----		-----	-----		-----	
345		-----		-----	-----		-----	-----		-----	
346		-----		-----	-----		-----	-----		-----	
347	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
357		-----		-----	-----		-----	-----		-----	
395	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
444	D1078-M	64.2		-0.69	-----		-----	64.9		0.41	
446		-----		-----	-----		-----	-----		-----	
494		-----		-----	-----		-----	-----		-----	
497		-----		-----	-----		-----	-----		-----	
528		-----		-----	-----		-----	-----		-----	
529		-----		-----	-----		-----	-----		-----	
551		-----		-----	-----		-----	-----		-----	
554		-----		-----	-----		-----	-----		-----	
608		-----		-----	-----		-----	-----		-----	
609	D1078-M	64.2		-0.69	64.4		-0.41	64.8		0.08	
646	D1078-M	64.285		-0.34	-----		-----	64.485		-0.97	
657	D1078-M	64.5		0.53	64.5		0.00	64.8		0.08	
663		-----		-----	-----		-----	-----		-----	
823		-----		-----	-----		-----	-----		-----	
824		-----		-----	-----		-----	-----		-----	
825		-----		-----	-----		-----	-----		-----	
840		-----		-----	-----		-----	-----		-----	
855	D1078-M	64.4		0.13	64.6		0.41	64.8		0.08	
857	D1078-M	64.4		0.13	64.5		0.00	64.7		-0.25	
858	D1078-M	64.4		0.13	64.5		0.00	64.7		-0.25	
859	D1078-M	64.4		0.13	64.5		0.00	64.7		-0.25	
860	D1078-M	64.3		-0.28	64.5		0.00	64.6		-0.59	
861	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
862	D1078-M	64.3		-0.28	64.5		0.00	64.7		-0.25	
863	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
864	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
866	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
870	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
902	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
912	D1078-M	64.3		-0.28	64.5		0.00	64.8		0.08	
913	D1078-M	64.4		0.13	64.5		0.00	64.8		0.08	
963		-----		-----	-----		-----	-----		-----	
974		-----		-----	-----		-----	-----		-----	
994		-----		-----	-----		-----	-----		-----	
1007		-----		-----	-----		-----	-----		-----	
1009		-----		-----	-----		-----	-----		-----	
1010		-----		-----	-----		-----	-----		-----	
1016		-----		-----	-----		-----	-----		-----	
1029		-----		-----	-----		-----	-----		-----	
1067	D1078-M	64.4		0.13	64.5		0.00	64.7		-0.25	
1102		-----		-----	-----		-----	-----		-----	
1108		-----		-----	-----		-----	-----		-----	
1120		-----		-----	-----		-----	-----		-----	
1149		-----		-----	-----		-----	-----		-----	
1181		-----		-----	-----		-----	-----		-----	
1204	D1078-M	64.5		0.53	64.5		0.00	65.1		1.07	
1221		-----		-----	-----		-----	-----		-----	
1246		-----		-----	-----		-----	-----		-----	
1256		-----		-----	-----		-----	-----		-----	
1263		-----		-----	-----		-----	-----		-----	
1264		-----		-----	-----		-----	-----		-----	
1341		-----		-----	-----		-----	-----		-----	
1342		-----		-----	-----		-----	-----		-----	

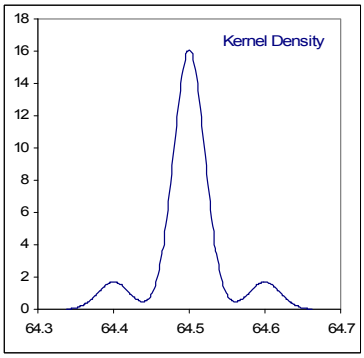
1343		-----	-----	-----	-----	-----	-----
1344		-----	-----	-----	-----	-----	-----
1438		-----	-----	-----	-----	-----	-----
1464		-----	-----	-----	-----	-----	-----
1465	D1078-M	64.21	-0.65	-----	-----	64.71	-0.22
1481	D1078-M	64.4	0.13	64.5	0.00	64.8	0.08
1510		-----	-----	-----	-----	-----	-----
1557	D1078-M	64.5	0.53	64.6	0.41	64.9	0.41
1615		-----	-----	-----	-----	-----	-----
1707		-----	-----	-----	-----	-----	-----
1866		-----	-----	-----	-----	-----	-----

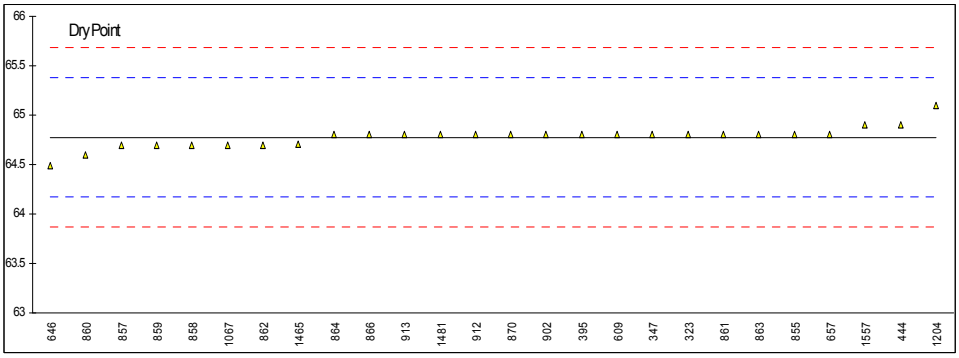
normality	not OK	not OK	not OK
n	26	23	26
outliers	0	0	0
mean (n)	64.37	64.50	64.78
st.dev. (n)	0.084	0.043	0.108
R(calc.)	0.23	0.12	0.30
R(D1078:11-M)	0.69	0.69	0.84

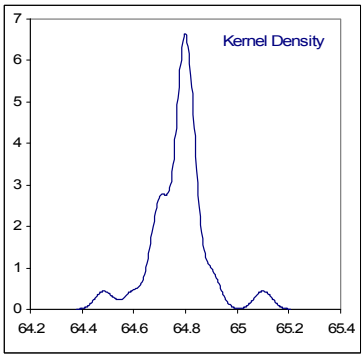












Determination of Water Miscibility on sample #12090;

lab	method	value	mark	z(targ)	remarks
53	D1722	pass		-----	
150	D1722	pass		-----	
153	D1722	pass		-----	
171	D1722	pass		-----	
174	D1722	pass		-----	
311	D1722	pass		-----	
316		-----		-----	
319	D1722	pass		-----	
323	D1722	pass		-----	
329		-----		-----	
332	D1722	pass		-----	
333	D1722	pass		-----	
334		-----		-----	
343	D1722	pass		-----	
344	D1722	pass		-----	
345	D1722	pass		-----	
346	D1722	pass		-----	
347	D1722	pass		-----	
357	D1722	pass		-----	
395	D1722	pass		-----	
444	D1722	pass		-----	
446	D1722	pass		-----	
494		-----		-----	
497	D1722	pass		-----	
528		-----		-----	
529	D1722	pass		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	D1722	pass		-----	
646	D1722	pass		-----	
657	D1722	pass		-----	
663	D1722	pass		-----	
823	D1722	pass		-----	
824	D1722	pass		-----	
825	D1722	pass		-----	
840	D1722	pass		-----	
855	D1722	pass		-----	
857	D1722	pass		-----	
858	D1722	pass		-----	
859	D1722	pass		-----	
860	D1722	pass		-----	
861	D1722	pass		-----	
862	D1722	pass		-----	
863	D1722	pass		-----	
864	D1722	pass		-----	
866	D1722	pass		-----	
870	D1722	pass		-----	
902	D1722	pass		-----	
912	D1722	pass		-----	
913	D1722	pass		-----	
963	D1722	pass		-----	
974	D1722	pass		-----	
994	D1722	pass		-----	
1007		-----		-----	
1009	D1722	pass		-----	
1010	D1722	pass		-----	
1016	D1722	pass		-----	
1029	D1722	pass		-----	
1067	D1722	pass		-----	
1102	D1722	pass		-----	
1108		-----		-----	
1120	D1722	pass		-----	
1149		-----		-----	
1181	D1722	pass		-----	
1204	D1722	pass		-----	
1221		-----		-----	
1246		-----		-----	
1256	D1722	pass		-----	
1263		-----		-----	
1264	D1722	pass		-----	
1341	D1722	pass		-----	
1342	D1722	pass		-----	

1343		-----	-----
1344	D1722	pass	-----
1438		-----	-----
1464	D1722	pass	-----
1465	D1722	pass	-----
1481	D1722	pass	-----
1510	D1722	pass	-----
1557	D1722	pass	-----
1615	D1722	Pass	-----
1707	D1722	Complete	-----
1866		-----	-----

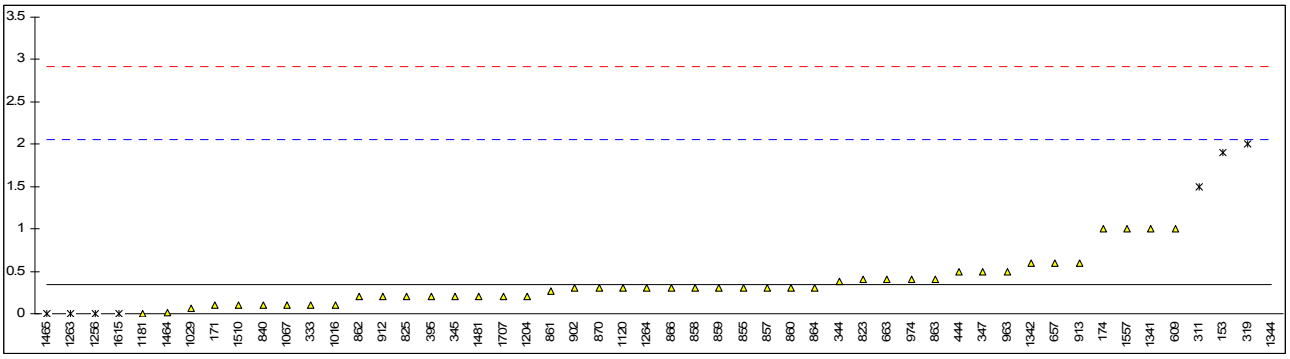
normality	n.a.
n	67
outliers	n.a.
mean (n)	Pass
st.dev. (n)	n.a.
R(calc.)	n.a.
R(D1722:09)	n.a.

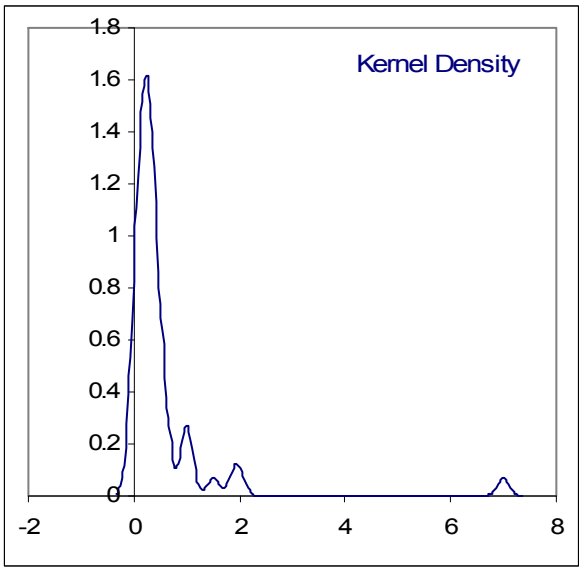
Determination of Nonvolatile Matter on sample #12090; results in mg/100 mL

lab	method	value	mark	z(targ)	remarks
53	D1353	<5		-----	
150	D1353	<1		-----	
153	D1353	1.9	G(0.01)	1.82	
171	D1353	0.1		-0.28	
174	D1353	1.0		0.77	
311	D1353	1.5	G(0.01)	1.35	
316		-----		-----	
319	D1353	2.0	G(0.01)	1.93	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333	D1353	0.1		-0.28	
334		-----		-----	
343		-----		-----	
344	D1353	0.3775		0.04	
345	D1353	0.2		-0.17	
346		-----		-----	
347	D1353	0.5		0.18	
357	D1353	<1		-----	
395	D1353	0.2		-0.17	
444	D1353	0.5		0.18	
446	D1353	<1		-----	
494		-----		-----	
497		-----		-----	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	D1353	1.0		0.77	
646		-----		-----	
657	D1353	0.6		0.30	
663	D1353	0.4		0.07	
823	D1353	0.4		0.07	
824		-----		-----	
825	D1353	0.2	C	-0.17	First reported 2.0
840	D1353	0.1		-0.28	
855	D1353	0.3		-0.05	
857	D1353	0.3		-0.05	
858	D1353	0.3		-0.05	
859	D1353	0.3		-0.05	
860	D1353	0.3		-0.05	
861	D1353	0.26		-0.10	
862	D1353	0.2		-0.17	
863	D1353	0.4		0.07	
864	D1353	0.3		-0.05	
866	D1353	0.3		-0.05	
870	D1353	0.3		-0.05	
902	D1353	0.3		-0.05	
912	D1353	0.2		-0.17	
913	D1353	0.6		0.30	
963	D1353	0.5		0.18	
974	D1353	0.4		0.07	
994		-----		-----	
1007		-----		-----	
1009	D1353	<1		-----	
1010	D1353	<0.8		-----	
1016	D1353	0.1		-0.28	
1029	D1353	0.06		-0.33	
1067	D1353	0.1		-0.28	
1102		-----		-----	
1108		-----		-----	
1120	D1353	0.3	C	-0.05	First reported 3.2
1149		-----		-----	
1181	D1353	0.006		-0.39	
1204	D1353	0.2		-0.17	
1221		-----		-----	
1246		-----		-----	
1256	D1353	0.0	ex	-0.40	Result excluded, zero is not a real result
1263	D1353	0.0	ex	-0.40	Result excluded, zero is not a real result
1264	D1353	0.3		-0.05	
1341	D1353	1		0.77	
1342	D1353	0.6		0.30	

1343		-----		-----	
1344	D1353	7	G(0.01)	7.77	
1438		-----		-----	
1464	D1353	0.007		-0.39	
1465	D1353	0	ex	-0.40	Result excluded, zero is not a real result
1481	D1353	0.2		-0.17	
1510	D1353	0.1		-0.28	
1557	INH-257	1.00		0.77	
1615	D1353	0.0	ex	-0.40	Result excluded, zero is not a real result
1707	D1353	0.2		-0.17	
1866		-----		-----	

	normality	not OK
	n	44
	outliers	4 + 4 excluded
	mean (n)	0.34
	st.dev. (n)	0.258
	R(calc.)	0.72
	R(D1353:09)	2.40



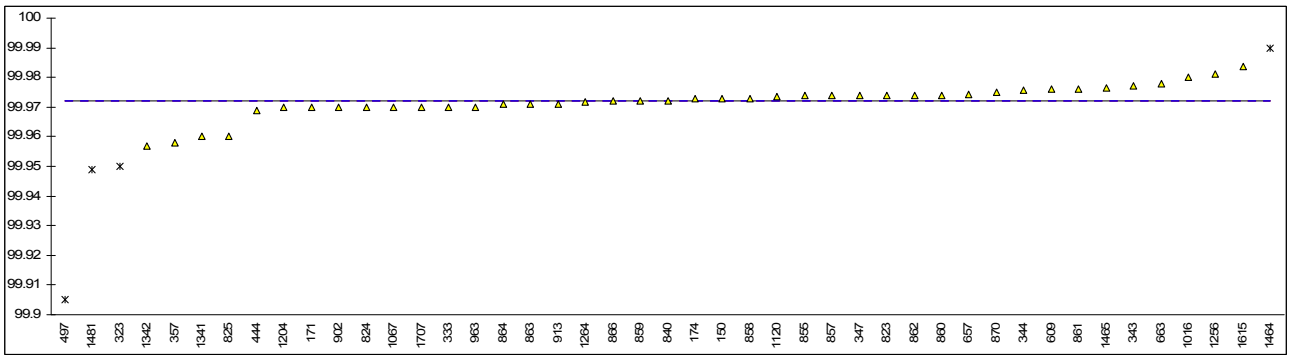


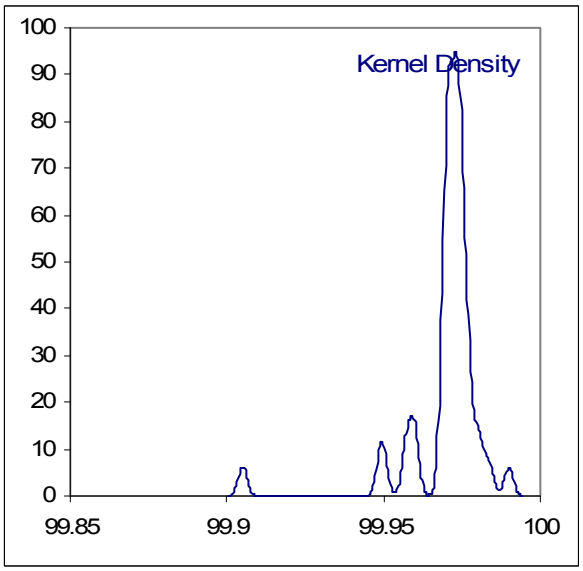
Determination of Purity “as received” on sample #12090; results in %M/M

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
150		99.973		-----	
153		-----		-----	
171		99.97		-----	
174	IMPCA001	99.973		-----	
311		-----		-----	
316		-----		-----	
319		-----		-----	
323	INH-064	99.95	DG(0.01)	-----	
329		-----		-----	
332		-----		-----	
333		99.97		-----	
334		-----		-----	
343		99.977		-----	
344	IMPCA001	99.9757		-----	
345		-----		-----	
346		-----		-----	
347	IMPCA001	99.974		-----	
357		99.958		-----	
395		-----		-----	
444		99.969	C	-----	First reported 99.877
446		-----		-----	
494		-----		-----	
497		99.9050	C,G(0.01)	-----	First reported 99.9254
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	Calc.	99.976		-----	
646		-----		-----	
657	Calc.	99.9741		-----	
663	IMPCA001	99.978		-----	
823	IMPCA001	99.974		-----	
824		99.97		-----	
825		99.96		-----	
840	IMPCA001	99.972		-----	
855		99.974		-----	
857		99.974		-----	
858	IMPCA001	99.973		-----	
859		99.972		-----	
860	IMPCA001	99.974		-----	
861	IMPCA001	99.976		-----	
862	IMPCA001	99.974		-----	
863	IMPCA001	99.971		-----	
864	IMPCA001	99.971		-----	
866	IMPCA001	99.972		-----	
870	IMPCA001	99.975		-----	
902	IMPCA001	99.970		-----	
912		-----		-----	
913	IMPCA001	99.9711		-----	
963	IMPCA001Mod.	99.97		-----	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009		-----		-----	
1010		-----		-----	
1016		99.98		-----	
1029		-----		-----	
1067		99.97		-----	
1102		-----		-----	
1108		-----		-----	
1120		99.97369		-----	
1149		-----		-----	
1181		-----		-----	
1204	Calc.	99.96975	C	-----	First reported 99.97005
1221		-----		-----	
1246		-----		-----	
1256		99.981	C	-----	First reported 99.989
1263		-----		-----	
1264		99.9719		-----	
1341		99.96		-----	
1342	IMPCA001	99.957		-----	

1343		-----		-----	
1344		-----		-----	
1438		-----		-----	
1464		99.99	ex	-----	Result excluded as purity “as received” > purity on dry basis
1465		99.9765		-----	
1481		99.949	DG(0.01)	-----	
1510		-----		-----	
1557		-----		-----	
1615	in house	99.9838		-----	
1707		99.97		-----	
1866		-----		-----	

	normality	not OK	
	n	41	
	outliers	3	+1 excluded
	mean (n)	99.9721	
	st.dev. (n)	0.00550	
	R(calc.)	0.0154	Compare R(iis11C06) = 0.0134
	R(lit.)	unknown	



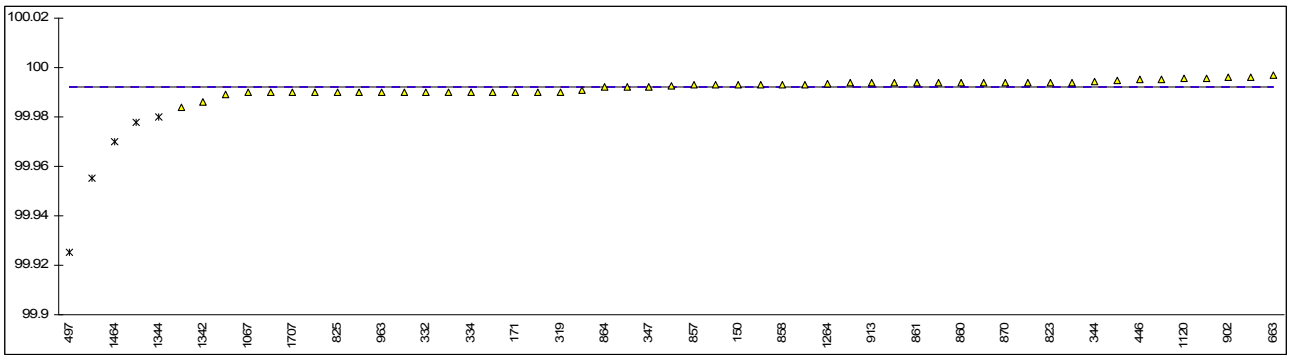


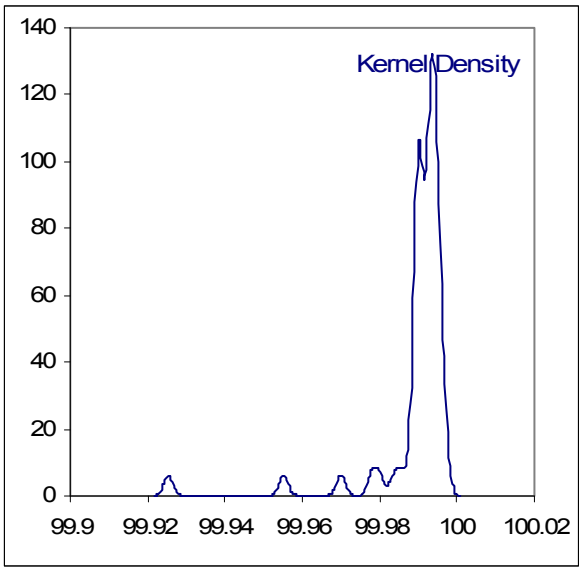
Determination of Purity on dry basis on sample #12090; results in %M/M

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
150	IMPCA001	99.993		-----	
153	IMPCA001	99.95526	G(0.01)	-----	
171	IMPCA001	99.99		-----	
174	IMPCA001	99.993		-----	
311		-----		-----	
316		-----		-----	
319	IMPCA001	99.99		-----	
323	IMPCA001	99.99		-----	
329		-----		-----	
332	IMPCA001	99.99		-----	
333		-----		-----	
334	IMPCA001	99.99		-----	
343	IMPCA001	99.99		-----	
344	IMPCA001	99.9945		-----	
345	IMPCA001	99.9958		-----	
346		-----		-----	
347	IMPCA001	99.992		-----	
357	IMPCA001	99.978	G(0.01)	-----	
395	IMPCA001	99.994		-----	
444	IMPCA001	99.990	C	-----	First reported 99.898
446	IMPCA001	99.995		-----	
494		-----		-----	
497	IMPCA001	99.9254	C,G(0.01)	-----	First reported 99.9254
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	IMPCA001	99.99		-----	
646	IMPCA001	99.993		-----	
657	IMPCA001	99.9928		-----	
663	IMPCA001	99.997		-----	
823	IMPCA001	99.994		-----	
824	IMPCA001	99.99		-----	
825	IMPCA001	99.99		-----	
840	IMPCA001	99.993		-----	
855	IMPCA001	99.994		-----	
857	IMPCA001	99.993		-----	
858	IMPCA001	99.993		-----	
859	IMPCA001	99.992		-----	
860	IMPCA001	99.994		-----	
861	IMPCA001	99.994		-----	
862	IMPCA001	99.994		-----	
863	IMPCA001	99.994		-----	
864	IMPCA001	99.992		-----	
866	IMPCA001	99.991		-----	
870	IMPCA001	99.994		-----	
902	IMPCA001	99.996		-----	
912	IMPCA001	99.99		-----	
913	IMPCA001	99.9938		-----	
963	IMPCA001	99.99		-----	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	IMPCA001	99.99		-----	
1010	IMPCA001	>99.99		-----	
1016		-----		-----	
1029	IMPCA001	99.9954		-----	
1067	IMPCA001	99.99		-----	
1102	IMPCA001	99.9938		-----	
1108		-----		-----	
1120	E346Mod.	99.99559		-----	
1149		-----		-----	
1181	IMPCA001	99.9949		-----	
1204	Calc.	99.9939	C	-----	First reported 99.9942
1221		-----		-----	
1246		-----		-----	
1256	IMPCA001	99.989	C	-----	First reported 99.981
1263		-----		-----	
1264	IMPCA001	99.9936		-----	
1341		-----		-----	
1342	IMPCA001	99.986		-----	

1343		-----		-----	
1344	IMPCA001	99.98	G(0.01)	-----	
1438		-----		-----	
1464	IMPCA001	99.97	ex	-----	Result excluded as purity on dry basis < purity “as received”
1465	IMPCA001	99.9962		-----	
1481	IMPCA001	99.984		-----	
1510		-----		-----	
1557		-----		-----	
1615		-----		-----	
1707	IMPCA001	99.99		-----	
1866		-----		-----	

	normality	not OK	
	n	50	
	outliers	4	+1 excluded
	mean (n)	99.9923	
	st.dev. (n)	0.00263	
	R(calc.)	0.0074	Compare R(iis11C06) = 0.008
	R(lit.)	unknown	



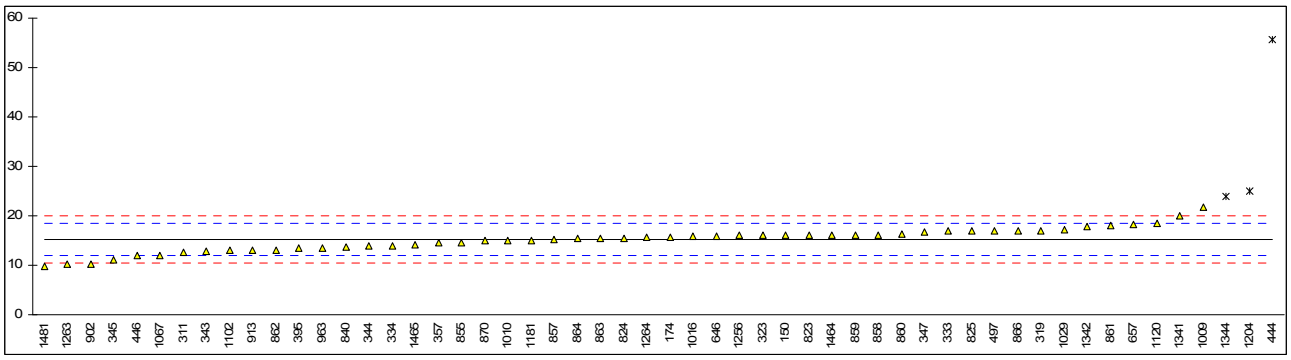


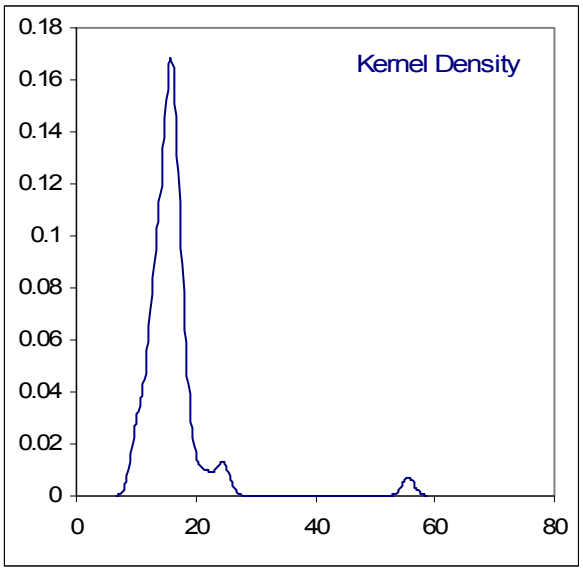
Determination of Acetone content on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	Remarks
53		-----		-----	
150	IMPCA001	16		0.52	
153		-----		-----	
171	IMPCA001	<1		<-8.79	False negative result?
174	IMPCA001	15.7		0.33	
311	IMPCA001	12.6		-1.59	
316		-----		-----	
319	IMPCA001	17		1.14	
323	IMPCA001	16		0.52	
329		-----		-----	
332		-----		-----	
333	IMPCA001	17		1.14	
334	IMPCA001	14		-0.72	
343	IMPCA001	12.83		-1.45	
344	IMPCA001	13.971		-0.74	
345	IMPCA001	11		-2.58	
346		-----		-----	
347	IMPCA001	16.8	C	1.02	First reported 36.8
357	IMPCA001	14.5		-0.41	
395	IMPCA001	13.39		-1.10	
444	IMPCA001	55.6	G(0.01)	25.10	
446	IMPCA001	12		-1.96	
494		-----		-----	
497	IMPCA001	17		1.14	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	E346	<30		-----	
646	IMPCA001	15.8		0.40	
657	IMPCA001	18.29		1.94	
663	IMPCA001	<5		<-4.59	False negative result?
823	IMPCA001	16		0.52	
824	IMPCA001	15.5		0.21	
825	IMPCA001	17		1.14	
840	IMPCA001	13.6		-0.97	
855	IMPCA001	14.6		-0.35	
857	IMPCA001	15.2		0.02	
858	IMPCA001	16.1		0.58	
859	IMPCA001	16.1		0.58	
860	IMPCA001	16.4		0.77	
861	IMPCA001	18		1.76	
862	IMPCA001	13		-1.34	
863	IMPCA001	15.5		0.21	
864	IMPCA001	15.5		0.21	
866	IMPCA001	17.0		1.14	
870	IMPCA001	14.9		-0.16	
902	IMPCA001	10.28		-3.03	
912		-----		-----	
913	IMPCA001	13.0		-1.34	
963	IMPCA001	13.524		-1.02	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	IMPCA001	21.8		4.12	
1010	IMPCA001	15		-0.10	
1016	in house	15.79		0.39	
1029	IMPCA001	17.115		1.21	
1067	IMPCA001	12		-1.96	
1102	IMPCA001	12.98		-1.35	
1108		-----		-----	
1120	E346Mod.	18.5692		2.12	
1149		-----		-----	
1181	IMPCA001	15.0631		-0.06	
1204	IMPCA001	25	G(0.05)	6.11	
1221		-----		-----	
1246		-----		-----	
1256	IMPCA001	16		0.52	
1263	D5501	10.175		-3.09	
1264	IMPCA001	15.6		0.27	
1341	IMPCA001	20		3.00	
1342	IMPCA001	17.9	C	1.70	First reported 11.2

1343		-----		-----	
1344	IMPCA001	24	G(0.05)	5.49	
1438		-----		-----	
1464	IMPCA001	16.09		0.58	
1465	IMPCA001	14.22		-0.58	
1481	IMPCA001	9.8		-3.33	
1510		-----		-----	
1557	D1612	<3		<-7.55	False negative result?
1615	D1612	<0.03		<-9.39	False negative result?
1707	IMPCA001	<10		<-3.20	False negative result?
1866		-----		-----	

	normality	OK	
	n	51	
	outliers	3	Spike:
	mean (n)	15.161	15.6
	st.dev. (n)	2.4085	
	R(calc.)	6.744	
	R(Horwitz)	4.511	



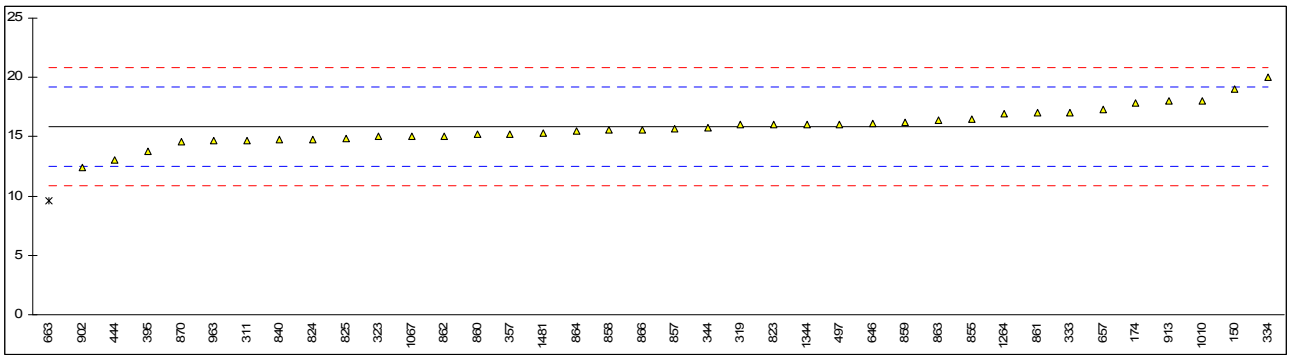


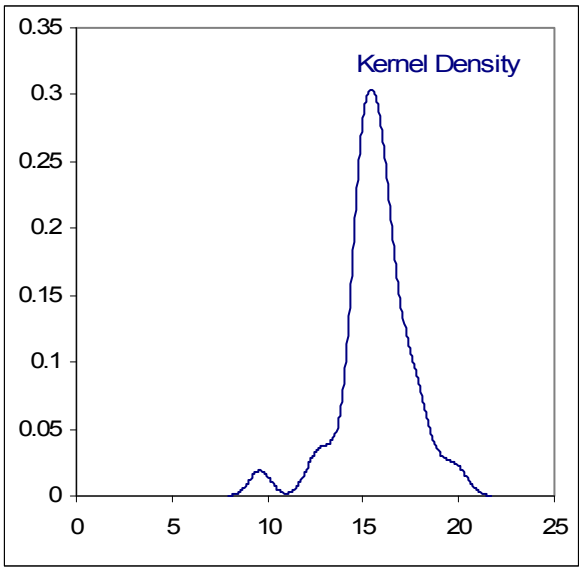
Determination of Benzene content on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	Remarks
53		-----		-----	
150	IMPCA001	19		1.88	
153		-----		-----	
171	IMPCA001	<1		<-6.67	False negative result?
174	IMPCA001	17.8		1.16	
311	IMPCA001	14.7	C	-0.69	First reported 11.7
316		-----		-----	
319	IMPCA001	16		0.09	
323	INH-064	15		-0.51	
329		-----		-----	
332		-----		-----	
333	IMPCA001	17		0.68	
334	IMPCA001	20	C	2.48	First reported 35
343		-----		-----	
344	IMPCA001	15.803		-0.03	
345		-----		-----	
346		-----		-----	
347		-----		-----	
357	IMPCA001	15.2		-0.39	
395	IMPCA001	13.75		-1.26	
444	IMPCA001	13.0		-1.71	
446		-----		-----	
494		-----		-----	
497	IMPCA001	16		0.09	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609		-----		-----	
646	IMPCA001	16.1		0.15	
657	IMPCA001	17.33		0.88	
663	IMPCA001	9.62	G(0.01)	-3.73	
823	IMPCA001	16		0.09	
824	IMPCA001	14.8		-0.63	
825	IMPCA001	14.9		-0.57	
840	IMPCA001	14.8		-0.63	
855	IMPCA001	16.5		0.38	
857	IMPCA001	15.7		-0.09	
858	IMPCA001	15.6		-0.15	
859	IMPCA001	16.2		0.20	
860	IMPCA001	15.2		-0.39	
861	IMPCA001	17		0.68	
862	IMPCA001	15		-0.51	
863	IMPCA001	16.4		0.32	
864	IMPCA001	15.5		-0.21	
866	IMPCA001	15.6		-0.15	
870	IMPCA001	14.6		-0.75	
902	IMPCA001	12.38		-2.08	
912		-----		-----	
913	IMPCA001	18.0		1.28	
963	IMPCA001	14.643		-0.73	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009		-----		-----	
1010	IMPCA001	18		1.28	
1016		-----		-----	
1029		-----		-----	
1067	IMPCA001	15		-0.51	
1102		-----		-----	
1108		-----		-----	
1120		-----		-----	
1149		-----		-----	
1181		-----		-----	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256		-----		-----	
1263		-----		-----	
1264	IMPCA001	16.9		0.62	
1341		-----		-----	
1342	IMPCA001	<10		<-3.50	False negative result?

1343		-----	-----	
1344	IMPCA001	16	0.09	
1438		-----	-----	
1464	IMPCA001	<0.01	<-9.47	False negative result?
1465		-----	-----	
1481	IMPCA001	15.3	-0.33	
1510		-----	-----	
1557		-----	-----	
1615		-----	-----	
1707	IMPCA001	<10	<-3.50	False negative result?
1866		-----	-----	

normality	OK		
n	37		
outliers	1	Spike:	
mean (n)	15.857	15.2	<104% recovered
st.dev. (n)	1.5160		
R(calc.)	4.245		
R(Horwitz)	4.686		



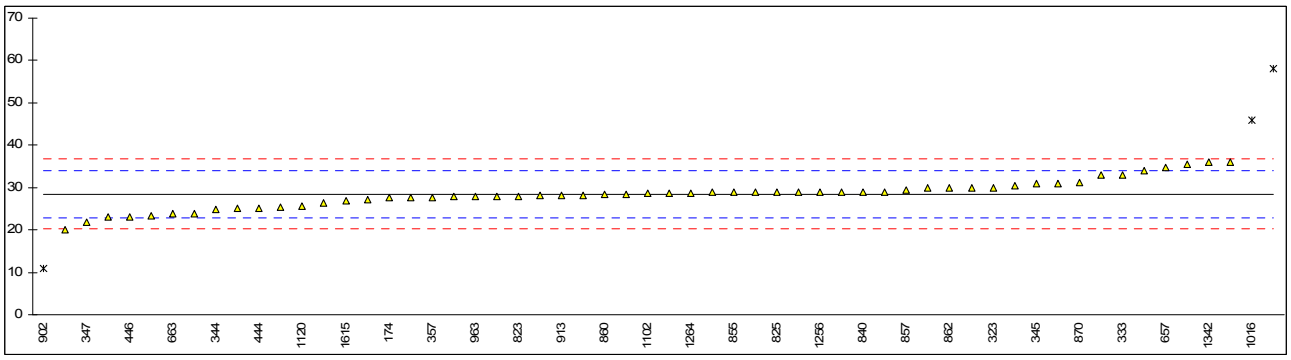


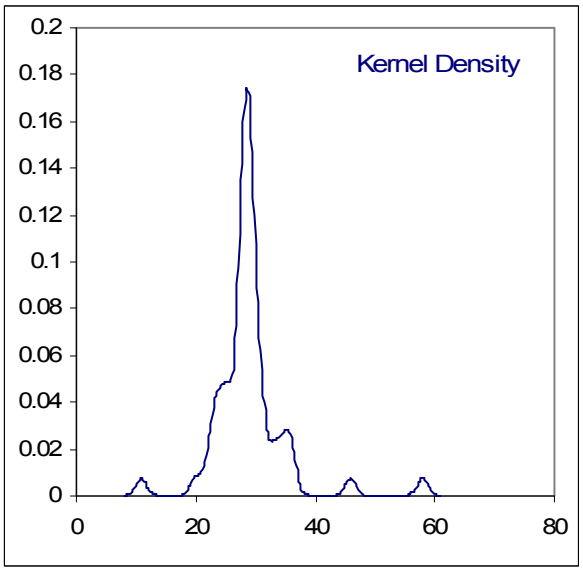
Determination of Ethanol content on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
150	IMPCA001	31		0.94	
153		-----		-----	
171	IMPCA001	25		-1.24	
174	IMPCA001	27.6		-0.30	
311	IMPCA001	26.5		-0.70	
316		-----		-----	
319	IMPCA001	29		0.21	
323	IMPCA001	30		0.57	
329		-----		-----	
332	IMPCA001	33		1.67	
333	IMPCA001	33		1.67	
334	IMPCA001	29	C	0.21	First reported 16
343	IMPCA001	27.2		-0.44	
344	IMPCA001	24.898		-1.28	
345	IMPCA001	31		0.94	
346		-----		-----	
347	IMPCA001	21.9		-2.37	
357	IMPCA001	27.7		-0.26	
395	IMPCA001	23.41		-1.82	
444	IMPCA001	25.1		-1.21	
446	IMPCA001	23		-1.97	
494		-----		-----	
497	IMPCA001	34		2.03	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	IMPCA001	20		-3.06	
646	IMPCA001	30.4		0.72	
657	IMPCA001	34.76		2.31	
663	IMPCA001	23.75		-1.70	
823	IMPCA001	28		-0.15	
824	IMPCA001	28.2		-0.08	
825	IMPCA001	29		0.21	
840	IMPCA001	29.0		0.21	
855	IMPCA001	28.9		0.17	
857	IMPCA001	29.3		0.32	
858	IMPCA001	28.9		0.17	
859	IMPCA001	30.0		0.57	
860	IMPCA001	28.4		-0.01	
861	IMPCA001	28.6		0.07	
862	IMPCA001	30		0.57	
863	IMPCA001	27.7		-0.26	
864	IMPCA001	30.0		0.57	
866	IMPCA001	28.2		-0.08	
870	IMPCA001	31.2		1.01	
902	IMPCA001	10.9	C,G(0.01)	-6.38	First reported 15.92
912		-----		-----	
913	IMPCA001	28.2		-0.08	
963	IMPCA001	27.899		-0.19	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	IMPCA001	>20		-----	
1010	IMPCA001	29		0.21	
1016	in house	45.90	G(0.01)	6.36	
1029	IMPCA001	27.795		-0.23	
1067	IMPCA001	29		0.21	
1102	IMPCA001	28.57		0.05	
1108		-----		-----	
1120	E346Mod.	25.5316		-1.05	
1149		-----		-----	
1181	IMPCA001	35.4025		2.54	
1204	IMPCA001	36		2.76	
1221		-----		-----	
1246		-----		-----	
1256	IMPCA001	29		0.21	
1263		-----		-----	
1264	IMPCA001	28.7		0.10	
1341	IMPCA001	58	G(0.01)	10.77	
1342	IMPCA001	35.9	C	2.72	First reported 15.4

1343		-----	-----
1344	IMPCA001	23	-1.97
1438		-----	-----
1464	IMPCA001	27.90	-0.19
1465	IMPCA001	23.85	-1.66
1481	IMPCA001	28.4	-0.01
1510		-----	-----
1557		-----	-----
1615	in house	26.9589	-0.53
1707	IMPCA001	25.4	-1.10
1866		-----	-----

normality	not OK		
n	55		
outliers	3	Spike	
mean (n)	28.420	25.4	<112% recovered
st.dev. (n)	3.3800		
R(calc.)	9.464		
R(Horwitz)	7.693		





Determination of Toluene content on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
150	IMPCA001	<5		-----	
153		-----		-----	
171	IMPCA001	<1		-----	
174		-----		-----	
311	IMPCA001	<10		-----	
316		-----		-----	
319	IMPCA001	<10		-----	
323	INH-064	<5		-----	
329		-----		-----	
332		-----		-----	
333	IMPCA001	<1		-----	
334		-----		-----	
343		-----		-----	
344	IMPCA001	<10		-----	
345		-----		-----	
346		-----		-----	
347		-----		-----	
357	IMPCA001	<5		-----	
395	IMPCA001	<10		-----	
444		-----		-----	
446		-----		-----	
494		-----		-----	
497	IMPCA001	<1		-----	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609		-----		-----	
646		-----		-----	
657	IMPCA001	<10		-----	
663	IMPCA001	<5		-----	
823	IMPCA001	<10		-----	
824	IMPCA001	<5		-----	
825	IMPCA001	<5		-----	
840	IMPCA001	<1		-----	
855	IMPCA001	<10		-----	
857	IMPCA001	<1		-----	
858	IMPCA001	<1		-----	
859	IMPCA001	0.2		-----	
860	IMPCA001	<1		-----	
861	IMPCA001	<10		-----	
862	IMPCA001	0.2		-----	
863	IMPCA001	<10		-----	
864	IMPCA001	<10		-----	
866	IMPCA001	<10		-----	
870	IMPCA001	<5		-----	
902	IMPCA001	<10		-----	
912		-----		-----	
913		-----		-----	
963	IMPCA001	0.14		-----	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009		-----		-----	
1010	IMPCA001	5		-----	
1016		-----		-----	
1029		-----		-----	
1067	IMPCA001	<5		-----	
1102		-----		-----	
1108		-----		-----	
1120		-----		-----	
1149		-----		-----	
1181		-----		-----	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256		-----		-----	
1263		-----		-----	
1264	IMPCA001	2.2		-----	
1341		-----		-----	
1342	IMPCA001	<10		-----	

1343		-----		-----	
1344	IMPCA001	0	ex	-----	Result excluded, zero is not a real result
1438		-----		-----	
1464	IMPCA001	<0.01		-----	
1465		-----		-----	
1481	IMPCA001	<10		-----	
1510		-----		-----	
1557		-----		-----	
1615		-----		-----	
1707	IMPCA001	<10		-----	
1866		-----		-----	

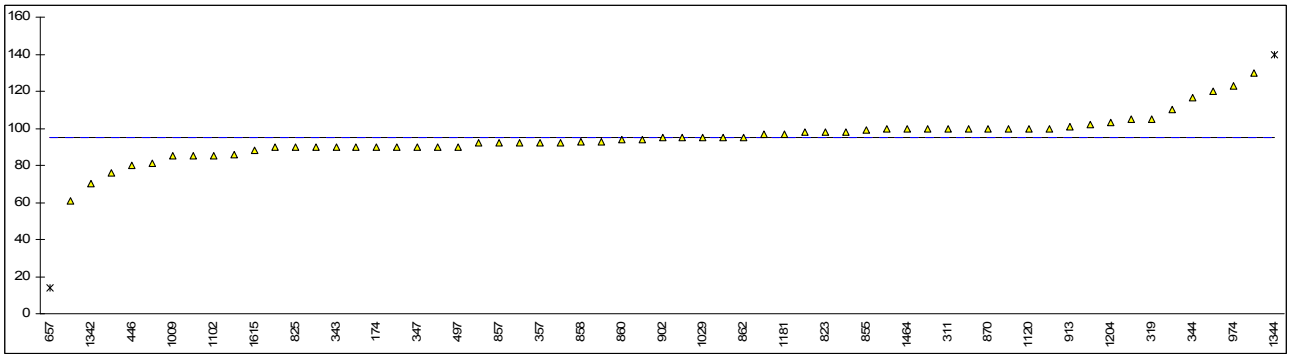
normality	not OK
n	5
outliers	1
mean (n)	1.55
st.dev. (n)	2.119
R(calc.)	5.93
R(Horwitz)	(0.65)

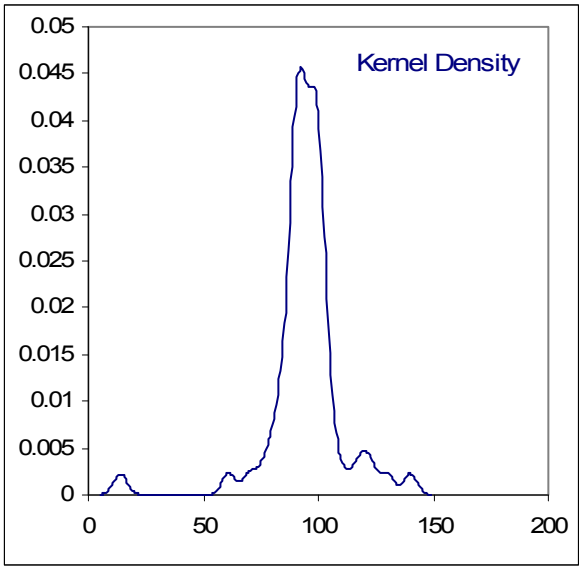
Determination of Permanganate Time Test @ 15°C on sample #12090; results in minutes

lab	method	value	mark	z(targ)	remarks
53	D1363	97		-----	
150	D1363	>60		-----	
153		-----		-----	
171	D1363	>50		-----	
174	D1363	90		-----	
311	D1363	100		-----	
316		-----		-----	
319	D1363	105		-----	
323	D1363	100		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
343	D1363	90		-----	
344	D1363	116.5		-----	
345	D1363	90		-----	
346	D1363	81		-----	
347	D1363	90		-----	
357	D1363	92		-----	
395	D1363	90		-----	
444		-----		-----	
446	D1363	80		-----	
494		-----		-----	
497	D1363	90		-----	
528		-----		-----	
529	D1363	110		-----	
551		-----		-----	
554		-----		-----	
608	D1363	90		-----	
609	D1363	94		-----	
646	D1363	100		-----	
657	D1363	14	G(0.01)	-----	
663	D1363	95		-----	
823	D1363	98		-----	
824	D1363	90		-----	
825	D1363	90		-----	
840	D1363	92		-----	
855	D1363	99		-----	
857	D1363	92		-----	
858	D1363	93		-----	
859	D1363	92		-----	
860	D1363	94		-----	
861	D1363	93		-----	
862	D1363	95		-----	
863	D1363	98		-----	
864	D1363	98		-----	
866	D1363	100		-----	
870	D1363	100		-----	
902	D1363	95		-----	
912	D1363	90		-----	
913	D1363	101		-----	
963	D1363	85		-----	
974	D1363	123		-----	
994		-----		-----	
1007		-----		-----	
1009	D1363	85		-----	
1010	D1363	100		-----	
1016		-----		-----	
1029	D1363	95		-----	
1067	D1363	100		-----	
1102	D1363	85		-----	
1108		-----		-----	
1120	D1363	100		-----	
1149		-----		-----	
1181	D1363	97		-----	
1204	D1363	103		-----	
1221		-----		-----	
1246		-----		-----	
1256	D1363	61		-----	
1263		-----		-----	
1264	D1363	130		-----	
1341	D1363	120		-----	
1342	D1363	70		-----	

1343		-----		-----
1344	D1363	140	G(0.05)	-----
1438		-----		-----
1464	D1363	100		-----
1465	D1363	105		-----
1481	D1363	95		-----
1510	D1363	76		-----
1557	D1363	102		-----
1615	D1363	88		-----
1707	D1363	86		-----
1866		-----		-----

normality	not OK
n	58
outliers	2
mean (n)	95.1
st.dev. (n)	11.27
R(calc.)	31.5
R(D1363:11)	(24.0)



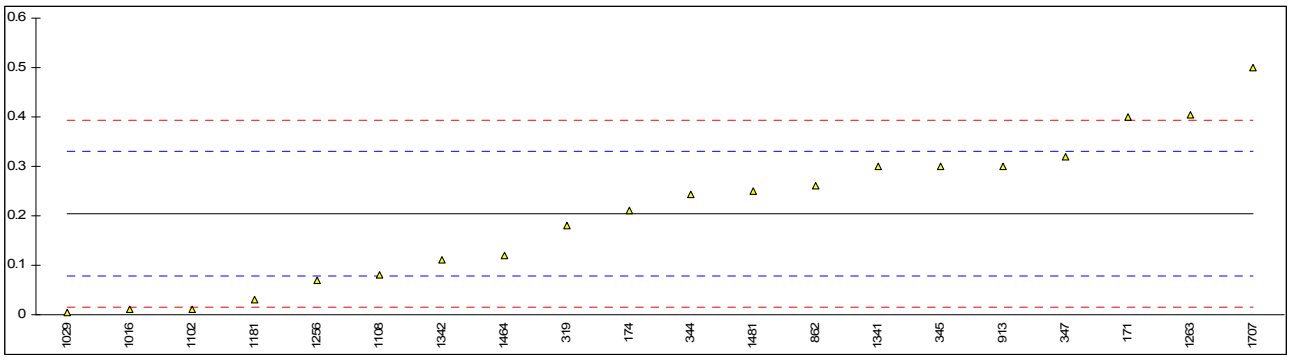


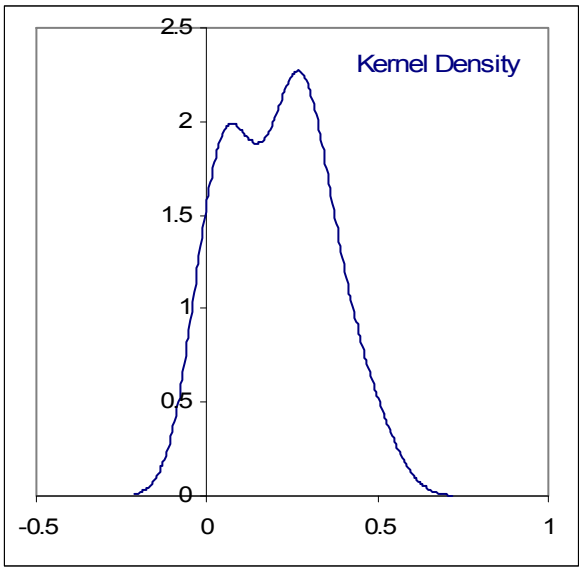
Determination of Sulphur on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	D5453	<0.5		-----	
150	D5453	<0.1		-----	
153		-----		-----	
171	D5453	0.40		-----	
174	D5453	0.21		-----	
311	D5453	<1		-----	
316		-----		-----	
319	D3961	0.18		-----	
323	D5453	<1.0		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
343		-----		-----	
344	D5453	0.243		-----	
345	ISO20846	0.3		-----	
346		-----		-----	
347	D5453	0.32		-----	
357	D5453	<0.5		-----	
395	D5453	<1		-----	
444		-----		-----	
446		-----		-----	
494		-----		-----	
497		-----		-----	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609		-----		-----	
646	D5453	<0.2		-----	
657	D5453	<1		-----	
663	D5453	<10		-----	
823		-----		-----	
824	D5453	<0.5		-----	
825	D5453	<0.5		-----	
840		-----		-----	
855	D5453	<0.5		-----	
857	D3961	<0.5		-----	
858		-----		-----	
859		-----		-----	
860		-----		-----	
861		-----		-----	
862	D5453	0.26		-----	
863	D5453	<0.5		-----	
864	D5453	<0.5		-----	
866		-----		-----	
870		-----		-----	
902		-----		-----	
912		-----		-----	
913	D5453	0.30		-----	
963		-----		-----	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009		-----		-----	
1010	in house	<0.5		-----	
1016	ISO20846	0.01		-----	
1029	D5453	0.0053		-----	
1067	D5453	<0.5		-----	
1102	D5453	0.01		-----	
1108	D5453	0.08		-----	
1120		-----		-----	
1149		-----		-----	
1181	D5453	0.03		-----	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256	D5453	0.07		-----	
1263	ISO20846	0.405		-----	
1264		-----		-----	
1341	D5453	0.3		-----	
1342	D5453	0.11		-----	

1343		-----	-----
1344	D5453	<1	-----
1438		-----	-----
1464	D5453	0.12	-----
1465		-----	-----
1481	D5453	0.25	-----
1510		-----	-----
1557	D5453	<0.3	-----
1615		-----	-----
1707	D5453	0.5	-----
1866		-----	-----

normality	OK
n	20
outliers	0
mean (n)	0.21
st.dev. (n)	0.147
R(calc.)	0.41
R(D5453:09)	(0.18)



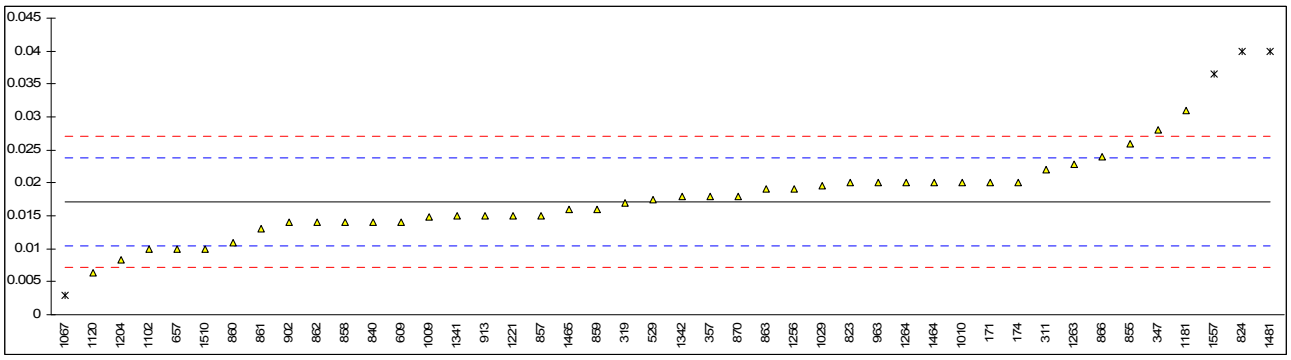


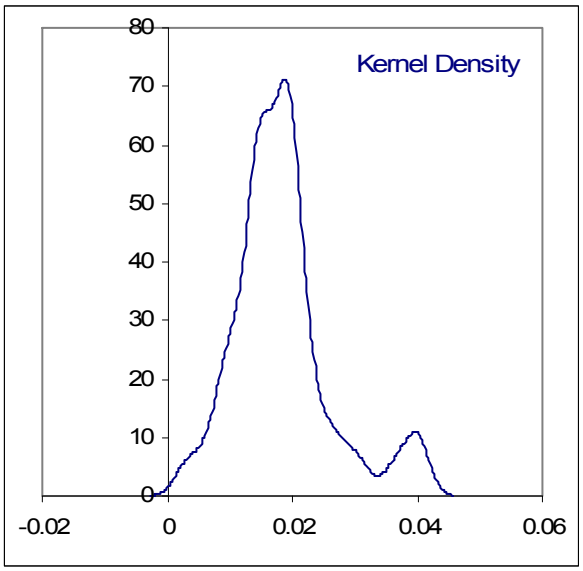
Determination of Total Iron as Fe on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	E394	<0.02		<0.85	
150		-----		-----	
153		-----		-----	
171	E394	0.02		0.85	
174	E394	0.02		0.85	
311	E394	0.022		1.45	
316		-----		-----	
319	E394	0.017		-0.06	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
343		-----		-----	
344	E394	<0.1		-----	
345		-----		-----	
346		-----		-----	
347	E394	0.028	C	3.26	First reported 0.278
357	E394	0.018		0.25	
395		-----		-----	
444	E394	<0.01		<-2.17	
446	E394	<0.01		<-2.17	
494		-----		-----	
497		-----		-----	
528		-----		-----	
529	E394	0.0175		0.09	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	E394	0.014		-0.96	
646	E394	<0.01		<-2.17	
657	E394	0.01		-2.17	
663		-----		-----	
823	E394	0.02	C	0.85	First reported 0.08
824	E394	0.04	DG(0.05)	6.89	
825		-----		-----	
840	E394	0.014		-0.96	
855	E394	0.026		2.66	
857	E394	0.015		-0.66	
858	E394	0.014		-0.96	
859	E394	0.016		-0.36	
860	E394	0.011		-1.87	
861	E394	0.013		-1.26	
862	E394	0.014		-0.96	
863	E394	0.019		0.55	
864	E394	<0.1		-----	
866	E394	0.024		2.06	
870	E394	0.018		0.25	
902	E394	0.014		-0.96	
912	E394	<0.01		<-2.17	
913	E394	0.015		-0.66	
963	E394	0.02		0.85	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	E394	0.0148		-0.72	
1010	E394	0.02		0.85	
1016		-----		-----	
1029	E394	0.01964		0.74	
1067	E394	0.003	DG(0.05)	-4.28	
1102	E394	0.01		-2.17	
1108		-----		-----	
1120	in house	0.0063		-3.29	
1149		-----		-----	
1181	E394	0.0309		4.14	
1204	E394	0.0083		-2.68	
1221		-----		-----	
1246		-----		-----	
1256	E394	0.019	C	0.55	
1263	DIN38604	0.0229		1.72	
1264	E394	0.02		0.85	
1341	E394	0.015		-0.66	
1342	E394	0.018		0.25	

1343		-----		-----
1344	E394	<0.1		-----
1438		-----		-----
1464	E394	0.02		0.85
1465	E394	0.016		-0.36
1481	E394	0.040	DG(0.05)	6.89
1510	E394	0.01		-2.17
1557	in house	0.0365	DG(0.05)	5.83
1615		-----		-----
1707	E394	<0.01		<-2.17
1866		-----		-----

	normality	OK	
	n	39	
	outliers	4	Spike:
	mean (n)	0.0172	0.025 69% recovered
	st.dev. (n)	0.00522	
	R(calc.)	0.0146	
	R(E394:09)	0.0093	



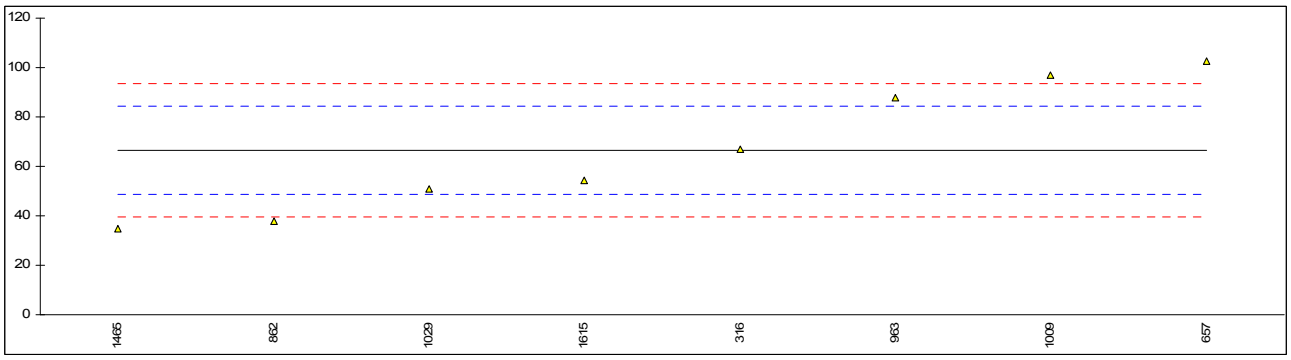


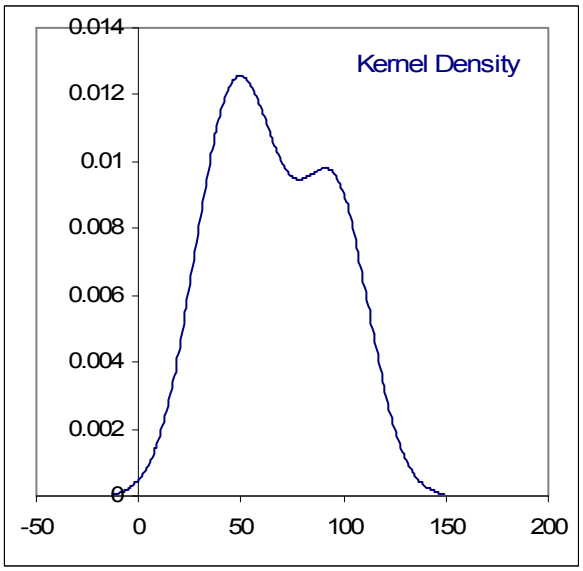
Determination of Trimethylamine on sample #12090; results in µg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
150		-----		-----	
153		-----		-----	
171		-----		-----	
174		-----		-----	
311		-----		-----	
316	INH-018	66.7658		0.02	
319		-----		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
343		-----		-----	
344		-----		-----	
345		-----		-----	
346		-----		-----	
347		-----		-----	
357		-----		-----	
395		-----		-----	
444		-----		-----	
446		-----		-----	
494		-----		-----	
497		-----		-----	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609		-----		-----	
646		-----		-----	
657	E346	102.5		4.00	
663		-----		-----	
823		-----		-----	
824		-----		-----	
825		-----		-----	
840		-----		-----	
855		-----		-----	
857		-----		-----	
858		-----		-----	
859		-----		-----	
860		-----		-----	
861		-----		-----	
862	E346	38		-3.18	
863		-----		-----	
864		-----		-----	
866		-----		-----	
870		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
963	E346	88		2.39	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009	E346	97.1		3.40	
1010		-----		-----	
1016		-----		-----	
1029	E346	51.06235		-1.72	
1067		-----		-----	
1102		-----		-----	
1108		-----		-----	
1120		-----		-----	
1149		-----		-----	
1181		-----		-----	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256		-----		-----	
1263		-----		-----	
1264		-----		-----	
1341		-----		-----	
1342		-----		-----	

1343		-----		-----	
1344		-----		-----	
1438		-----		-----	
1464		-----		-----	
1465	E346	34.61		-3.56	
1481		-----		-----	
1510		-----		-----	
1557		-----		-----	
1615	in house	54.4	C	-1.35	
1707	E346	<40		<-2.96	False negative?
1866		-----		-----	

	normality	OK	
	n	8	
	outliers	0	Spike:
	mean (n)	66.56	52.4 <127% recovered
	st.dev. (n)	26.481	
	R(calc.)	74.15	
	R(E346:08)	25.16	Compare R(Horwitz) = 44.832



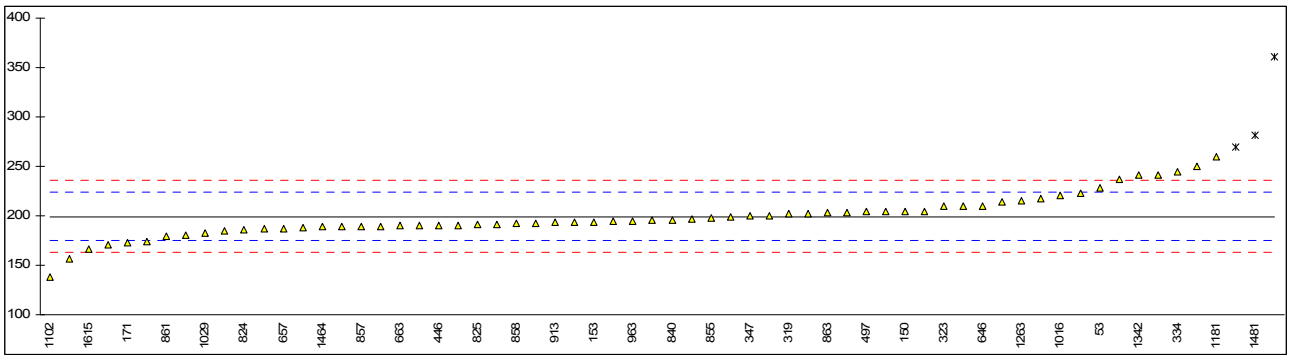


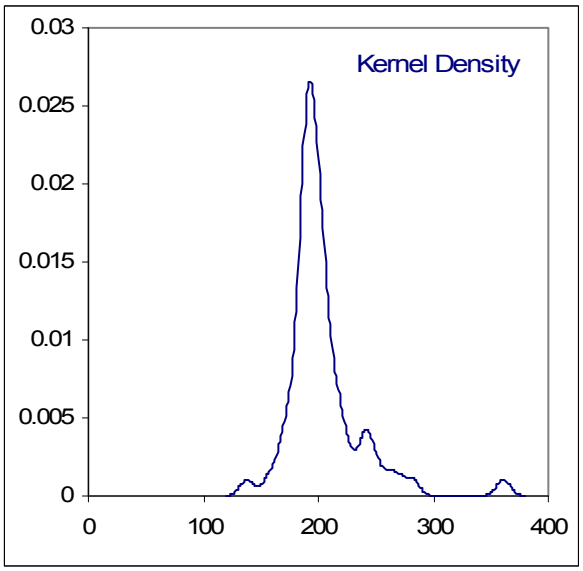
Determination of Water content (coulometric) on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	E1064	228		2.38	
150	E1064	204		0.41	
153	E1064	193.5		-0.46	
171	E1064	173		-2.14	
174	E1064	187.1		-0.98	
311	E1064	214		1.23	
316		-----		-----	
319	E1064	201.7		0.22	
323	E1064	210		0.90	
329		-----		-----	
332	E1064	250		4.19	
333		-----		-----	
334	E1064	245		3.78	
343	E1064	189.6		-0.78	
344	E1064	188.4		-0.88	
345	E1064	190		-0.75	
346	E1064	174		-2.06	
347	E1064	200		0.08	
357	E1064	196		-0.25	
395	E1064	203.02		0.33	
444		-----		-----	
446	E1064	190		-0.75	
494		-----		-----	
497	E1064	204		0.41	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608		-----		-----	
609	E1064	210		0.90	
646	E1064	210		0.90	
657	E1064	187.5		-0.95	
663	E1064	190		-0.75	
823	E1064	189		-0.83	
824	E1064	186		-1.07	
825	E1064	191		-0.66	
840	E1064	196		-0.25	
855	E1064	198		-0.09	
857	E1064	189		-0.83	
858	E1064	192		-0.58	
859	E1064	200		0.08	
860	E1064	204		0.41	
861	E1064	179		-1.65	
862	E1064	204		0.41	
863	E1064	203		0.32	
864	E1064	195		-0.33	
866	E1064	191		-0.66	
870	E1064	193.4		-0.47	
902	E1064	269.3	DG(0.05)	5.78	
912		-----		-----	
913	E1064	193		-0.50	
963	E1064	195		-0.33	
974	E1064	157		-3.46	
994		-----		-----	
1007		-----		-----	
1009	E1064	192		-0.58	
1010	E1064	180	C	-1.57	First reported 0.018
1016	E1064	221		1.80	
1029	E1064	183		-1.32	
1067	E1064	185		-1.16	
1102	E1064	138		-5.02	
1108	E1064	223		1.97	
1120		-----		-----	
1149		-----		-----	
1181	E1064	260		5.01	
1204	E1064	241.5		3.49	
1221		-----		-----	
1246		-----		-----	
1256		-----		-----	
1263	ISO12937	215.4		1.34	
1264	E1064	217		1.48	
1341	E1064	361	G(0.01)	13.32	
1342	E1064	241		3.45	

1343		-----		-----
1344	E1064	171		-2.31
1438	D6304	202		0.24
1464	E1064	189		-0.83
1465	E1064	197		-0.17
1481	E1064	282	DG(0.05)	6.82
1510	E1064	237		3.12
1557	E1064	190.5		-0.70
1615	E1064	166.2972		-2.70
1707	E1064	199		-0.01
1866		-----		-----

normality	not OK
n	61
outliers	3
mean (n)	199.06
st.dev. (n)	21.670
R(calc.)	60.67
R(E1064:08)	34.04



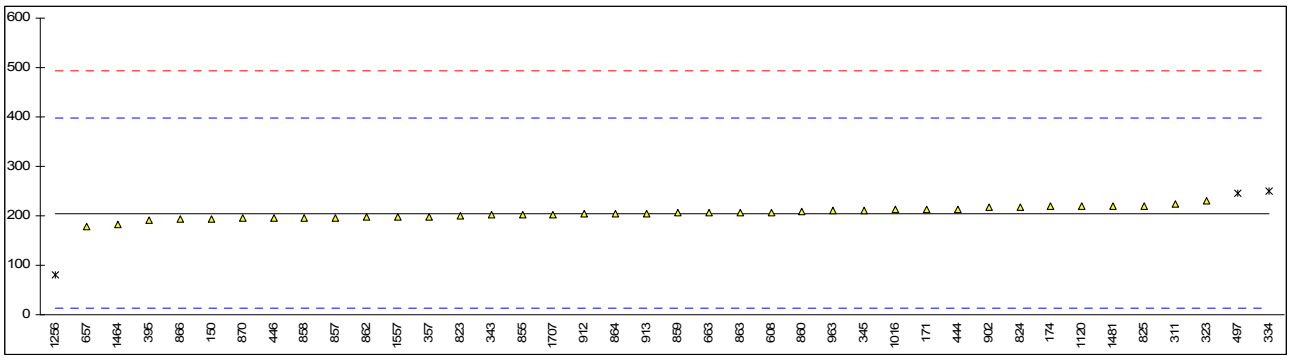


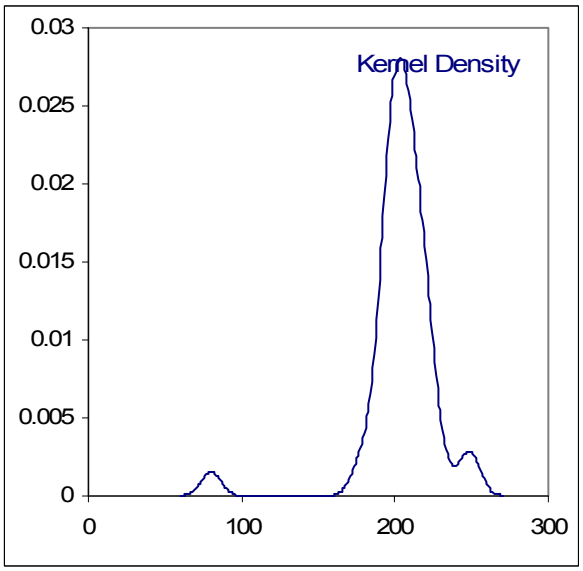
Determination of Water content (titrimetric) on sample #12090; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
150	E203	194		-0.12	
153		-----		-----	
171	E203	212		0.07	
174	E203	218.9		0.14	
311	E203	224		0.20	
316		-----		-----	
319		-----		-----	
323	E203	230		0.26	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334	E203	251	DG(0.01)	0.48	
343	E203	201.5		-0.04	
344		-----		-----	
345	E203	210		0.05	
346		-----		-----	
347		-----		-----	
357	E203	198		-0.07	
395	E203	191.55		-0.14	
444	E203	213		0.08	
446	E203	195		-0.11	
494		-----		-----	
497	E203	246	DG(0.01)	0.42	
528		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
608	E203	207.6		0.03	
609		-----		-----	
646		-----		-----	
657	E203	177.3		-0.29	
663	E203	206		0.01	
823	E203	199		-0.06	
824	E203	218		0.13	
825	E203	220		0.15	
840		-----		-----	
855	E203	203		-0.02	
857	E203	196		-0.09	
858	E203	195		-0.11	
859	E203	206		0.01	
860	E203	208		0.03	
861		-----		-----	
862	E203	197		-0.08	
863	E203	207		0.02	
864	E203	204		-0.01	
866	E203	193		-0.13	
870	E203	194.6		-0.11	
902	E203	217.8		0.13	
912	E203	204		-0.01	
913	E203	205		0.00	
963	E203	210		0.05	
974		-----		-----	
994		-----		-----	
1007		-----		-----	
1009		-----		-----	
1010		-----		-----	
1016	D1364	212		0.07	
1029		-----		-----	
1067		-----		-----	
1102		-----		-----	
1108		-----		-----	
1120	D1364	219		0.14	
1149		-----		-----	
1181		-----		-----	
1204		-----		-----	
1221		-----		-----	
1246		-----		-----	
1256	E203	80	G(0.01)	-1.30	
1263		-----		-----	
1264		-----		-----	
1341		-----		-----	
1342		-----		-----	

1343		-----	-----
1344		-----	-----
1438		-----	-----
1464	E203	183	-0.23
1465		-----	-----
1481	E203	220	0.15
1510		-----	-----
1557	E203	197.2	-0.08
1615		-----	-----
1707	E203	203	-0.02
1866		-----	-----

normality	OK
n	37
outliers	3
mean (n)	205.15
st.dev. (n)	11.438
R(calc.)	32.03
R(E203:08)	270.00

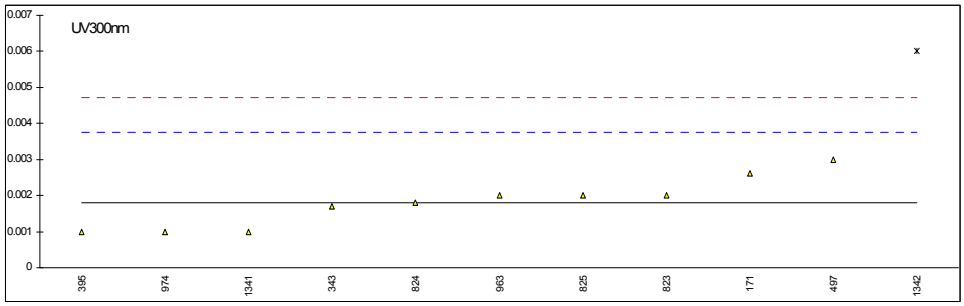


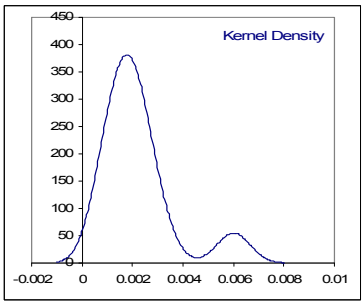


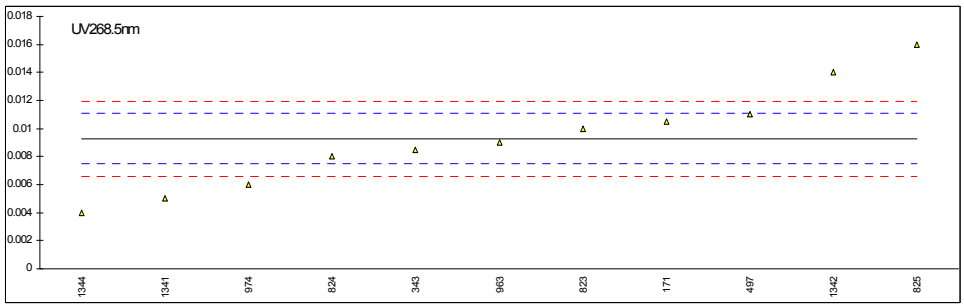
Determination of UV Absorbance (10 mm Cuvette) on sample #12091

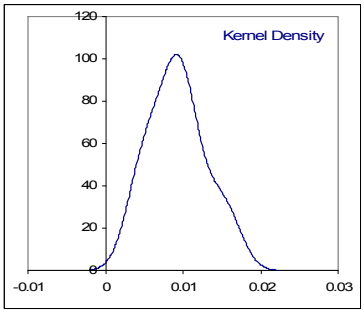
lab	method	300nm	268.5nm	250nm	240nm	230nm	220nm	curve	Pass/Fail
150		-----	-----	-----	-----	-----	-----	-----	-----
171	IMPCA004	0.0026	0.0105	0.0371	0.0542	0.1091	0.2399	not smooth	fail
311		-----	-----	-----	-----	-----	-----	-----	-----
319		-----	-----	-----	-----	-----	-----	-----	-----
323		-----	-----	-----	-----	-----	-----	-----	-----
329		-----	-----	-----	-----	-----	-----	-----	-----
334		-----	-----	-----	-----	-----	-----	-----	-----
343	IMPCA004	0.0017	0.0085	0.0348	-----	-----	0.2288	pass	pass
347		-----	-----	-----	-----	-----	-----	-----	-----
357		-----	-----	-----	-----	-----	-----	-----	-----
395	IMPCA004	0.001	-----	0.022	0.033	0.086	0.222	not	fail
444		-----	-----	-----	-----	-----	-----	-----	-----
497	IMPCA004	0.003	0.011	0.040	0.054	0.115	0.247	smooth	Pass
609		-----	-----	-----	-----	-----	-----	-----	-----
657		-----	-----	-----	-----	-----	-----	-----	-----
823	IMPCA004	0.002	0.010	0.035	0.050	0.101	0.222	smooth	Pass
824	IMPCA004	0.0018	0.0080	0.0317	0.0475	0.0991	0.2151	-----	Fail
825	IMPCA004	0.002	0.016	0.046	0.060	0.124	0.243	smooth	Pass
855		-----	-----	-----	-----	-----	-----	-----	-----
857		-----	-----	-----	-----	-----	-----	-----	-----
858		-----	-----	-----	-----	-----	-----	-----	-----
859		-----	-----	-----	-----	-----	-----	-----	-----
860		-----	-----	-----	-----	-----	-----	-----	-----
861		-----	-----	-----	-----	-----	-----	-----	-----
862		-----	-----	-----	-----	-----	-----	-----	-----
863		-----	-----	-----	-----	-----	-----	-----	-----
864		-----	-----	-----	-----	-----	-----	-----	-----
866		-----	-----	-----	-----	-----	-----	-----	-----
870		-----	-----	-----	-----	-----	-----	-----	-----
963	IMPCA004	0.002	0.009	0.037	0.051	0.105	0.224	smooth	Pass
974	IMPCA004	0.001	0.006	0.035	0.053	0.081	0.243	-----	-----
1007		-----	-----	-----	-----	-----	-----	-----	-----
1010		-----	-----	-----	-----	-----	-----	-----	-----
1067		-----	-----	-----	-----	-----	-----	-----	-----
1102		-----	-----	-----	-----	-----	-----	-----	-----
1149		-----	-----	-----	-----	-----	-----	-----	-----
1341	IMPCA004	0.001	0.005	0.031	0.053	0.103	***0.155***	smooth	Pass
1342	IMPCA004	***0.006***	0.014	0.028	0.060	0.122	0.249	smooth	Pass
1343		-----	-----	-----	-----	-----	-----	-----	-----
1344	IMPCA004	<0.001	0.004	0.026	0.038	***0.018***	***0.137***	-----	-----
1438		-----	-----	0.04	-----	0.11	-----	-----	Fail
1866		-----	-----	-----	-----	-----	-----	-----	-----
	normality	OK	OK	OK	OK	OK	OK		
	n	10	11	13	11	11	10		
	outliers	1	0	0	0	1	2		
	mean (n)	0.0018	0.0093	0.0341	0.0503	0.1050	0.2334		
	st.dev. (n)	0.00068	0.00363	0.00642	0.00831	0.01336	0.01229		
	R(calc.)	0.0019	0.0102	0.0180	0.0233	0.0374	0.0344		
	R(IMPCA004:06)	0.0027	0.0025	0.0034	unknown	unknown	0.0670		

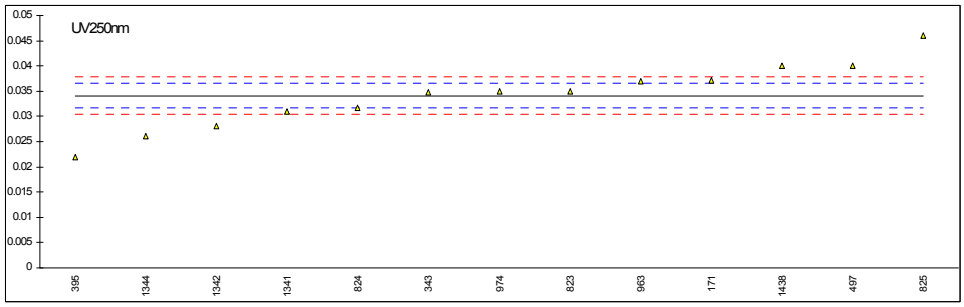
Results in Bold, Italic, underlined are outliers with Grubbs outlier test.

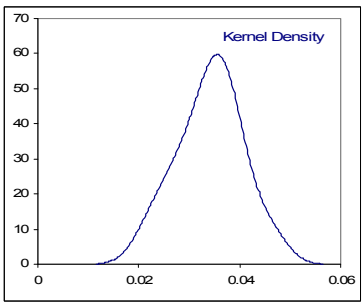

UV300nm
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
395 974 1341 343 824 963 825 823 171 497 1342

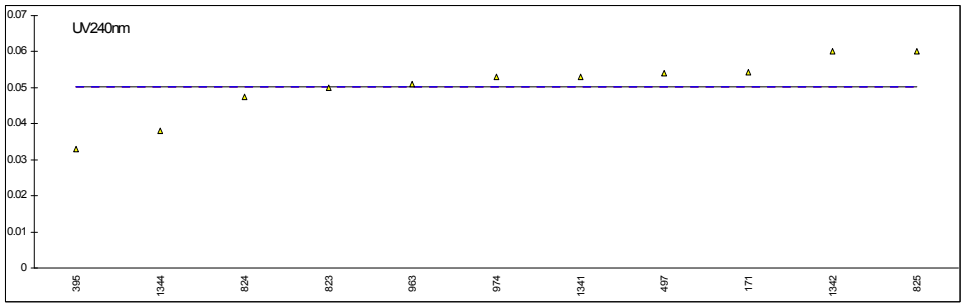

Kernel Density
450
400
350
300
250
200
150
100
50
0
-0.002 0 0.002 0.004 0.006 0.008 0.01

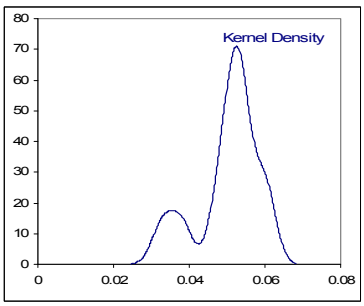

UV268.5nm
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
1344 1341 974 824 343 963 823 171 497 1342 825

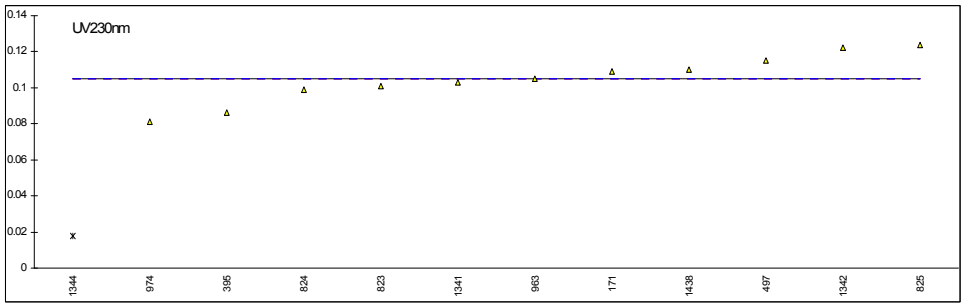

Kernel Density
120
100
80
60
40
20
0
-0.01 0 0.01 0.02 0.03

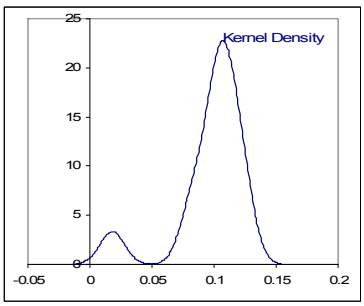

UV250nm
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
395 1344 1342 1341 824 343 974 823 963 171 1438 497 825

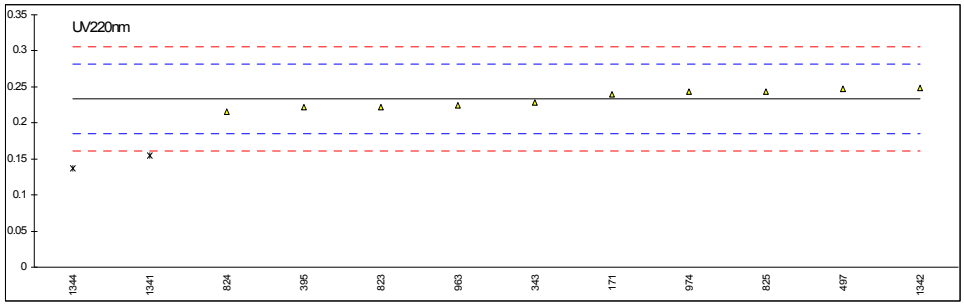

Kernel Density
70
60
50
40
30
20
10
0
0 0.02 0.04 0.06

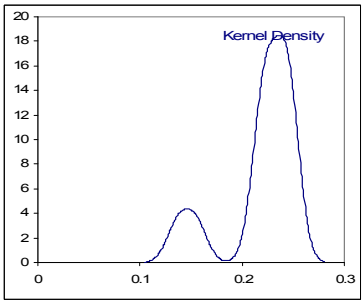

UV240nm
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
395 1344 824 823 963 974 1341 497 171 1342 825


Kernel Density
80
70
60
50
40
30
20
10
0
0 0.02 0.04 0.06 0.08


UV230nm
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1344 974 395 824 823 1341 963 171 1438 497 1342 825


Kernel Density
25
20
15
10
5
0
-0.05 0 0.05 0.1 0.15 0.2


UV220nm
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1344 1341 824 395 823 963 343 171 974 825 497 1342

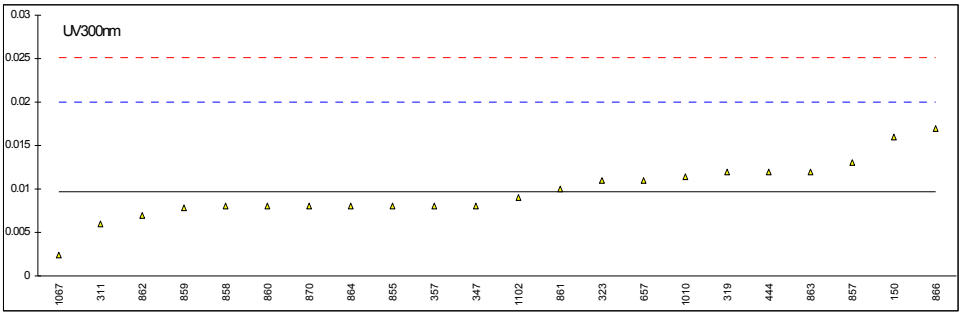

Kernel Density
20
18
16
14
12
10
8
6
4
2
0
0 0.1 0.2 0.3

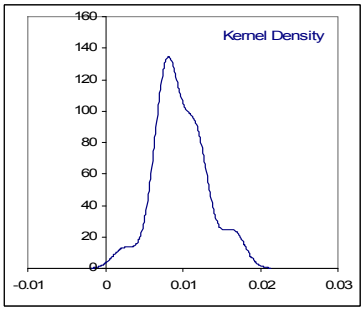
Determination of UV Absorbance (50 mm Cuvette) on sample #12091

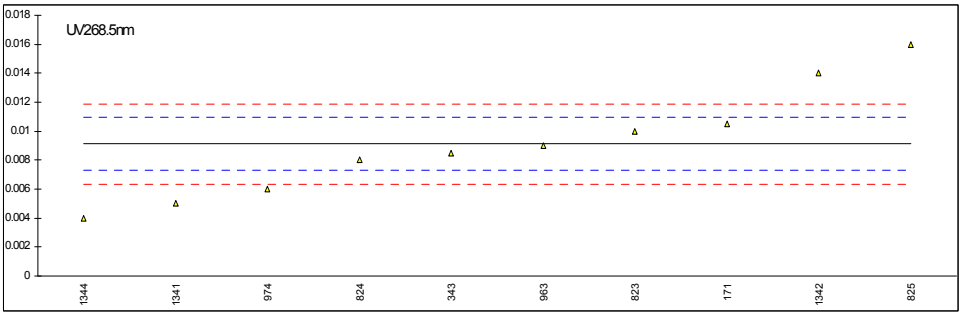
lab	method	300nm	268.5nm	250nm	240nm	230nm	220nm	curve	Pass/Fail
150	IMPCA004	0.016	0.058	0.186	-----	-----	1.199	not smooth	Fail
171		-----	-----	-----	-----	-----	-----	-----	-----
311	IMPCA004	0.0060	0.0380	0.1764	0.2644	0.5488	1.1890	-----	Fail
319	IMPCA004	0.012	0.045	0.208	0.267	0.596	1.199	not smooth	Fail
323	IMPCA004	0.011	0.043	0.206	-----	-----	1.234	fails	Fail
329		-----	-----	-----	-----	-----	-----	-----	-----
334	IMPCA004	<0.01	0.0454	0.1854	0.2647	0.5434	1.2197	-----	Fail
343		-----	-----	-----	-----	-----	-----	-----	-----
347	IMPCA004	0.008	0.041	0.169	0.250	0.519	1.1340	-----	Fail
357	IMPCA004	0.008	0.046	0.179	0.257	0.519	1.128	not smooth	Fail
395		-----	-----	-----	-----	-----	-----	-----	-----
444	IMPCA004	0.012	0.051	0.214	-----	-----	1.098	not smooth	Fail
497		-----	-----	-----	-----	-----	-----	-----	-----
609		-----	-----	-----	-----	-----	-----	-----	-----
657	IMPCA004	0.011	0.048	0.182	0.259	0.520	1.106	not smooth	-----
823		-----	-----	-----	-----	-----	-----	-----	-----
824		-----	-----	-----	-----	-----	-----	-----	-----
825		-----	-----	-----	-----	-----	-----	-----	-----
855	IMPCA004	0.008	0.044	0.169	0.245	0.500	1.065	not smooth	Fail
857	IMPCA004	0.013	0.047	0.184	0.264	0.529	1.1090	not smooth	Fail
858	IMPCA004	0.008	0.040	0.160	0.238	0.492	1.055	not smooth	Fail
859	IMPCA004	0.0078	0.0406	0.1679	0.2440	0.4984	1.0734	not smooth	Fail
860	IMPCA004	0.008	0.040	0.177	0.256	0.514	1.097	not smooth	Fail
861	IMPCA004	0.010	0.042	0.170	0.248	0.500	1.078	not smooth	Fail
862	IMPCA004	0.007	0.040	0.160	0.239	0.488	1.048	not smooth	Fail
863	IMPCA004	0.012	0.048	0.172	0.245	0.476	1.035	not smooth	Fail
864	IMPCA004	0.008	0.041	0.160	0.240	0.495	1.050	not smooth	Fail
866	IMPCA004	0.017	0.050	0.176	0.252	0.500	1.094	not smooth	Fail
870	IMPCA004	0.008	0.040	0.162	0.242	0.496	1.068	not smooth	Fail
963		-----	-----	-----	-----	-----	-----	-----	-----
974		-----	-----	-----	-----	-----	-----	-----	-----
1007		-----	-----	-----	-----	-----	-----	-----	-----
1010	IMPCA004	0.0114	0.0444	0.1769	0.2549	0.5164	1.1261	not smooth	Fail
1067	IMPCA004	0.0024	0.0318	0.1764	0.2625	0.5448	1.1914	-----	Fail
1102	IMPCA004	0.009	0.045	0.189	0.280	0.579	1.259	not smooth	Fail
1149		-----	-----	-----	-----	-----	-----	-----	-----
1341		-----	-----	-----	-----	-----	-----	-----	-----
1342		-----	-----	-----	-----	-----	-----	-----	-----
1343		-----	-----	-----	-----	-----	-----	-----	-----
1344		-----	-----	-----	-----	-----	-----	-----	-----
1438		-----	-----	-----	-----	-----	-----	-----	-----
1866		-----	-----	-----	-----	-----	-----	-----	-----

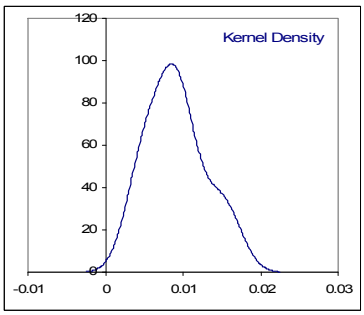
normality	not OK	OK	OK	OK	OK	OK
n	22	23	23	20	20	23
outliers	0	0	0	0	0	0
mean (n)	0.0097	0.0439	0.1785	0.2536	0.5187	1.1242
st.dev. (n)	0.00327	0.00528	0.01488	0.01127	0.03075	0.06664
R(calc.)	0.0092	0.0148	0.0417	0.0316	0.0861	0.1866
R(IMPCA004:06)	0.0144	0.0119	0.0180	unknown	unknown	0.3226

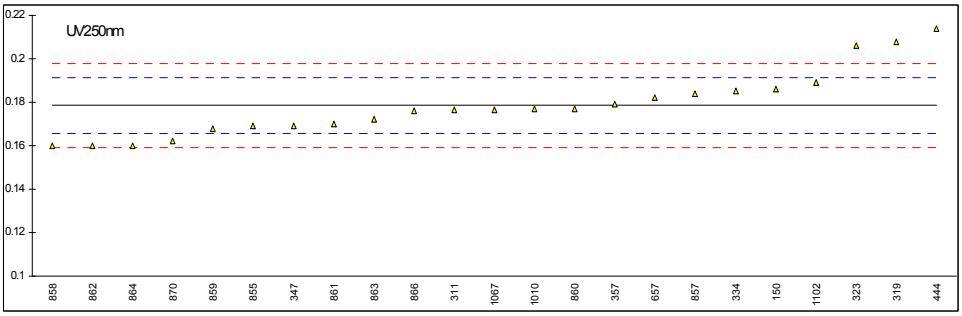
First reported results:
Lab 319: 300nm = 0.023, 268.5nm = 0.073, 240nm = 0.312
Lab 334: 268.5nm = <0.01, 250nm = 0.099, 240nm = 0.156, 230nm = 0.384, 220nm = 0.867

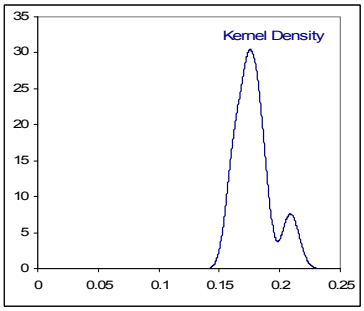

UV300nm
1067 311 862 859 858 860 870 864 855 357 347 1102 861 323 657 1010 319 444 863 857 150 866

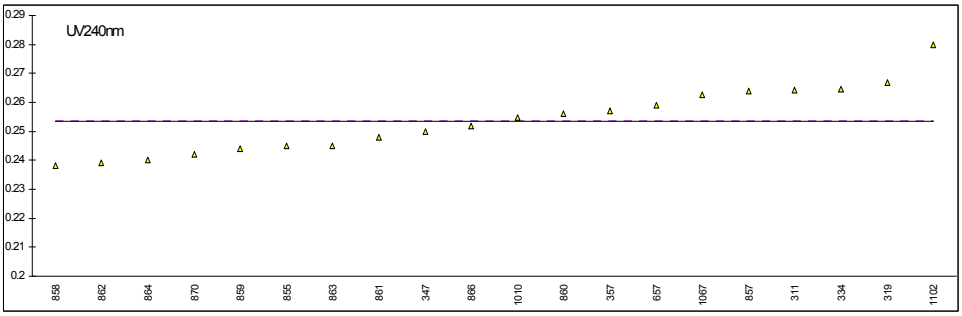

Kernel Density

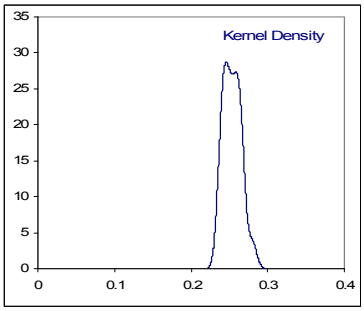

UV268.5nm
1344 1341 974 824 343 963 823 171 1342 825

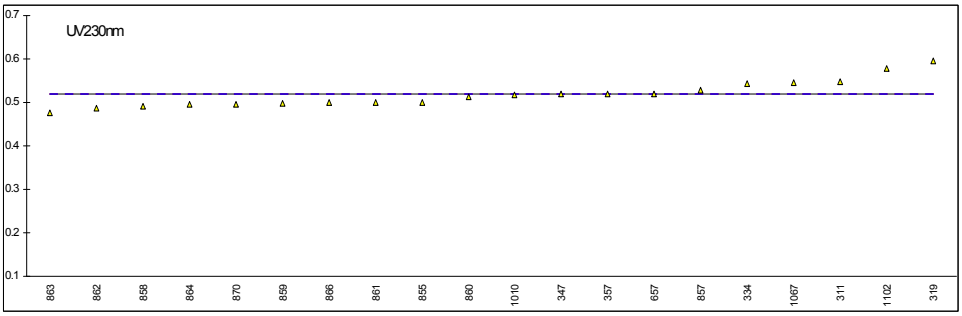

Kernel Density

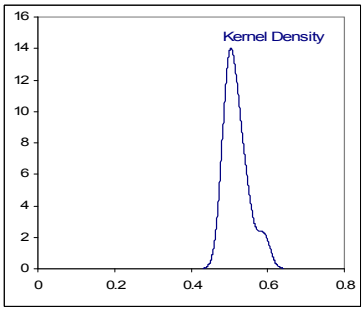

UV250nm
858 862 864 870 859 855 347 861 863 866 311 1067 1010 860 357 657 857 334 150 1102 323 319 444

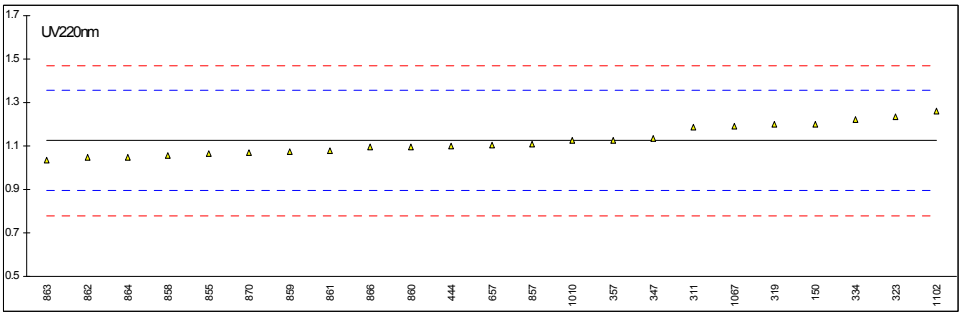

Kernel Density

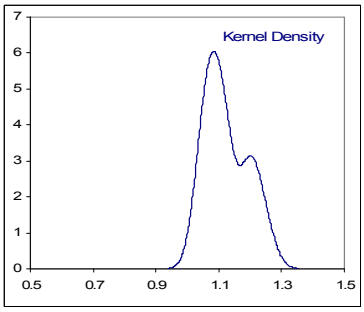

UV240nm
858 862 864 870 859 855 863 861 347 866 1010 860 357 657 1067 857 311 334 319 1102


Kernel Density


UV230nm
863 862 858 864 870 859 866 861 855 860 1010 347 357 657 857 334 1067 311 1102 319


Kernel Density


UV220nm
863 862 864 858 855 870 859 861 866 860 444 657 857 1010 357 347 311 1067 319 150 334 323 1102


Kernel Density

z-scores UV absorbance

	10mm Cuvette						50mm Cuvette					
lab	300nm	268.5nm	250nm	240nm	230nm	220nm	300nm	268.5nm	250nm	240nm	230nm	220nm
150	-----	-----	-----	-----	-----	-----	1.21	3.33	1.16	-----	-----	0.65
171	0.81	1.37	2.42	-----	-----	0.27	-----	-----	-----	-----	-----	-----
311	-----	-----	-----	-----	-----	-----	-0.71	-1.38	-0.33	-----	-----	0.56
319	-----	-----	-----	-----	-----	-----	0.44	0.26	4.58	-----	-----	0.65
323	-----	-----	-----	-----	-----	-----	0.25	-0.21	4.27	-----	-----	0.95
329	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
334	-----	-----	-----	-----	-----	-----	-----	0.36	1.07	-----	-----	0.83
343	-0.11	-0.86	0.55	-----	-----	-0.19	-----	-----	-----	-----	-----	-----
347	-----	-----	-----	-----	-----	-----	-0.33	-0.68	-1.48	-----	-----	0.09
357	-----	-----	-----	-----	-----	-----	-0.33	0.50	0.07	-----	-----	0.03
395	-0.84	-----	-9.85	-----	-----	-0.48	-----	-----	-----	-----	-----	-----
444	-----	-----	-----	-----	-----	-----	0.44	1.68	5.51	-----	-----	-0.23
497	1.23	1.92	4.77	-----	-----	0.57	-----	-----	-----	-----	-----	-----
609	-----	-----	-----	-----	-----	-----	0.25	0.97	0.54	-----	-----	-0.16
657	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
823	0.20	0.81	0.71	-----	-----	-0.48	-----	-----	-----	-----	-----	-----
824	-0.01	-1.42	-1.97	-----	-----	-0.76	-----	-----	-----	-----	-----	-----
825	0.20	7.50	9.65	-----	-----	0.40	-0.33	0.03	-1.48	-----	-----	-0.51
855	-----	-----	-----	-----	-----	-----	0.63	0.74	0.85	-----	-----	-0.13
857	-----	-----	-----	-----	-----	-----	-0.33	-0.91	-2.88	-----	-----	-0.60
858	-----	-----	-----	-----	-----	-----	-0.37	-0.77	-1.65	-----	-----	-0.44
859	-----	-----	-----	-----	-----	-----	-0.33	-0.91	-0.24	-----	-----	-0.24
860	-----	-----	-----	-----	-----	-----	0.06	-0.44	-1.32	-----	-----	-0.40
861	-----	-----	-----	-----	-----	-----	-0.52	-0.91	-2.88	-----	-----	-0.66
862	-----	-----	-----	-----	-----	-----	0.44	0.97	-1.01	-----	-----	-0.77
863	-----	-----	-----	-----	-----	-----	-0.33	-0.68	-2.88	-----	-----	-0.64
864	-----	-----	-----	-----	-----	-----	1.40	1.44	-0.39	-----	-----	-0.26
866	-----	-----	-----	-----	-----	-----	-0.33	-0.91	-2.57	-----	-----	-0.49
870	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
963	0.20	-0.30	2.34	-----	-----	-0.39	-----	-----	-----	-----	-----	-----
974	-0.84	-3.65	0.71	-----	-----	0.40	-----	-----	-----	-----	-----	-----
1007	-----	-----	-----	-----	-----	-----	0.33	0.12	-0.25	-----	-----	0.02
1010	-----	-----	-----	-----	-----	-----	-1.41	-2.84	-0.33	-----	-----	0.58
1067	-----	-----	-----	-----	-----	-----	-0.14	0.26	1.63	-----	-----	1.17
1102	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1149	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1341	-0.84	-4.76	-2.54	-----	-----	-3.28	-----	-----	-----	-----	-----	-----
1342	4.32	5.27	-4.97	-----	-----	0.65	-----	-----	-----	-----	-----	-----
1343	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1344	-----	-5.88	-6.60	-----	-----	-4.03	-----	-----	-----	-----	-----	-----
1438	-----	-----	4.77	-----	-----	-----	-----	-----	-----	-----	-----	-----
1866	-----	-----	-----			-----						

APPENDIX 2

Number of participants per country

1 lab in	AUSTRIA
1 lab in	AZERBAIJAN
2 labs in	BELGIUM
2 labs in	BRAZIL
3 labs in	CANADA
1 lab in	CHILE
1 lab in	FINLAND
3 labs in	FRANCE
3 labs in	GERMANY
1 lab in	GREECE
2 labs in	INDIA
1 lab in	ISRAEL
1 lab in	ITALY
3 labs in	KOREA
4 labs in	MALAYSIA
2 labs in	MEXICO
2 labs in	NEW ZEALAND
1 lab in	NORWAY
11 labs in	P.R. of CHINA
5 labs in	SAUDI ARABIA
1 lab in	SERBIA
2 labs in	SINGAPORE
5 labs in	SPAIN
1 lab in	THAILAND
6 labs in	THE NETHERLANDS
2 labs in	TURKEY
1 lab in	U.A.E.
10 labs in	U.S.A.
3 labs in	UNITED KINGDOM
2 labs in	VENEZUELA
1 lab in	VIETNAM

APPENDIX 3

Abbreviations:

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

Literature:

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010
2 ASTM E178-02
3 ASTM E1301-03
4 ISO 5725-86
5 ISO 5725, parts 1-6, 1994
6 ISO 13528-05,
7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
9 IP 367/96
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 IMPCA Methanol Reference Specifications, IMPCA, Brussels, October 2012.
14 ASTM E346-03e1
15 Analytical Methods Committee Technical brief, No4 January 2001.
16 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/).