Results of Proficiency Test
Methanol
September 2018

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Authors: ing. R.J. Starink
Correctors: ing. A.S. Noordman-de Neef & ing. C.M. Nijssen-Wester
Report: iis18C05

November 2018

-- empty page --

CONTENTS

1 INTRODUCTION

Since 1999, the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Methanol. During the annual proficiency testing program 2018/2019, it was decided to continue the round robin for the analyses of Methanol in accordance with the latest applicable version of the IMPCA specification (latest version can be found and downloaded from www.impca.be).
In this interlaboratory study 92 laboratories in 36 different countries registered for participation of the main round and 57 laboratories in 24 countries registered for participation of the UV round. See appendix 3 for the number of participants per country. In this report, the results of the 2018 proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. It was decided to spike the batch of Methanol for the main round with Sodium Chloride and Iron Chloride and the batch of Methanol for the UV-round with p-Xylene. In this proficiency test depending on the registration the participants received; for the main round; 1x1L Methanol (labelled #18150) and/or 1x100 mL Methanol (labelled #18151) for UV Determination only. Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for the statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

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 batch of Methanol for the main round, approximately 120 litres, was obtained from a local supplier. The components listed in table 1 were added to this batch of Methanol.

Component	*Amount*
Sodium Chloride	47 mg
Iron Chloride hexahydrate	28.4 mg

Table 1: components added to bulk material for sample #18150

After homogenization, 114 amber glass bottles of 1 L were filled and labelled #18150.

The homogeneity of the subsamples #18150 was checked by determination of Density at 20°C in accordance with ASTM D4052, by determination of Water in accordance with ASTM E1064 and by determination of Chloride in accordance with IMPCA002 on 8 stratified randomly selected samples.

	Density at 20°C in kg/L	*Water in mg/kg*	*Chloride as Cl in mg/kg*
sample #18150-1	0.79138	570	0.7
sample #18150-2	0.79138	560	0.6
sample #18150-3	0.79138	570	0.6
sample #18150-4	0.79139	580	0.6
sample #18150-5	0.79138	570	0.6
sample #18150-6	0.79138	560	0.6
sample #18150-7	0.79140	570	0.6
sample #18150-8	0.79138	580	0.6

Table 2: homogeneity test results of subsamples #18150

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

	Density at 20°C in kg/L	*Water in mg/kg*	*Chloride as Cl in mg/kg*
r (observed)	0.00002	21	0.1
reference test method	ISO12185:96	ASTM E1064:16	IMPCA002:98
0.3 x R (ref. test method)	0.00015	29	0.1

Table 3: evaluation of repeatabilities of the subsamples #18150

The calculated repeatabilities of the Density, Water and Chloride Determinations on sample #18150 were less than 0.3 times the corresponding reproducibilities of the reference test methods. Therefore, homogeneity of the subsamples #18150 was assumed.

The necessary batch of Methanol for the UV-round, approximately 7.5 litres of Methanol was obtained from a local supplier. To this batch of Methanol, 118 mg p-Xylene was added. After homogenisation, 72 amber glass bottles of 100 mL were filled and labelled #18151. The homogeneity of the subsamples #18151 was checked by determination of UV absorbances at 268.5 nm (using a 50 mm cell) according to IMPCA004 on 8 stratified randomly selected samples.

	UV absorbance at 268.5 nm
sample #18151-1	0.4544
sample #18151-2	0.4284
sample #18151-3	0.4294
sample #18151-4	0.4298
sample #18151-5	0.4280
sample #18151-6	0.4290
sample #18151-7	0.4324
sample #18151-8	0.4366

Table 4: homogeneity tests of subsamples #18151

From the above test results, the repeatability was calculated and compared with 0.3 times the corresponding reproducibility of the reference test method in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	UV absorbance at 268.5 nm
r (observed)	0.0249
reference test method	IMPCA004:15
0.3 x R (ref. test method)	0.0352

Table 5: evaluation of repeatabilities of the subsamples #18151

The calculated repeatability at 268.5 nm of sample #18151 was less than 0.3 times the corresponding reproducibility of the reference test method. Therefore, the homogeneity of the subsamples #18151 was assumed.

To the participants, depending on the registration, 1 bottle of 1L labelled #18150 and/or 1 bottle of 100 mL labelled #18151 was sent on August 15, 2018. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSES

The participants were requested to determine on sample #18150: Acidity as Acetic Acid, Appearance, Carbonisable Substances Pt/Co, Inorganic Chloride as Cl, Colour Pt/Co, Density at 20°C, Specific Gravity 20/20°C, Distillation (IBP, 50%, DP and Range), Iron as Fe, Water Miscibility, Nonvolatile Matter, Permanganate Time Test at 15°C, Purity “as received” and “on dry basis”, Acetone, Benzene, Ethanol, Toluene, Sulphur, Trimethylamine and Water (coulometric and titrimetric). On sample #18151 it was requested to determine the UV absorbances at 300, 268.5, 250, 240, 230 and 220 nm and an evaluation of the UV scan.

It was explicitly requested to treat the samples as if they were routine samples and to report the test results using the indicated units on the report form and not to round the test results, but report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluations.

To get comparable test results, a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the reference test methods that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The participating laboratories are also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisnl.com.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment.

Shortly after the deadline, the available test results were screened for suspect data. A test 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 reported test results (no reanalysis). Additional or corrected test results are used for data analysis and the original test results are placed under ‘Remarks’ in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

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 June 2018 (iis-protocol, version 3.5).
For the statistical evaluation, the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test, a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either ‘unknown’, ‘OK’, ‘suspect’ or ‘not OK’. After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.

According to ISO 5725 the original test results per determination were submitted to Dixon’s, Grubbs' and/or Rosner’s outlier tests. Outliers are marked by D(0.01) for the Dixon’s test, by G(0.01) or DG(0.01) for the Grubbs’ test and by R(0.01) for the Rosner’s test. Stragglers are marked by D(0.05) for the Dixon’s test, by G(0.05) or DG(0.05) for the Grubbs’ test and by R(0.05) for the Rosner’s test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. In this PT, the criterion of ISO13528, paragraph 9.2.1. was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.

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

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis, the reported analysis results are plotted. The corresponding laboratory numbers are on 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 reference method. 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. The Kernel Density Graph is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also, a normal Gauss curve was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

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

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility based on former iis proficiency tests could be used.

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 whether the reported test result is fit-for-use.

The z-scores were calculated according to:

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

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

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

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

4 EVALUATION

In this interlaboratory study, problems with sample dispatch were encountered due to several reasons (e.g. customs clearance), especially to Brazil and Venezuela. In the main round 5 participants reported late and 8 other participants did not report any test result. In the UV round 4 participants reported late and 9 other participants did not report any test result. Not all laboratories were able to report all analyses requested. In total 96 participants reported 1412 test results. Observed were 62 outlying test results, which is 4.4% of the numerical test results. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

Not all original data sets proved to have a normal Gaussian distribution. These are referred to as “not OK” or “suspect”. The statistical evaluation of these data sets should be used with due care, see also paragraph 3.1.

4.1 EVALUATION PER SAMPLE AND PER TEST

In this section, the results are discussed per sample and per test. The specified test methods and requirements were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the reported data. The abbreviations, used in these tables, are listed in appendix 4.

In the iis PT reports, ASTM test methods are referred to with a number (e.g. D1209) and an added designation for the year that the test method was adopted or revised (e.g. D1209:05). If applicable, a designation in parentheses is added to designate the year of re-approval (e.g. D1209:05(2011)). In the test results tables of appendix 1 only the test method number and year of adoption or revision will be used.

Sample #18150

Acidity: This determination was problematic. One statistical outlier was observed. The calculated the reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D1613:17.

Appearance: No analytical problems were observed with this determination. All reporting participants agreed about the appearance of sample #18150, which was bright, clear and free of suspended matter (Pass).

Carbonisable Substances: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM E346:08e1.

Inorganic 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 Chloride (theoretical increment of 0.40 mg Cl/kg)

may be satisfactory: “less than 160%” (the actual blank Chloride content is unknown).

Color as Pt/Co: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D1209:05(2011).

Density at 20°C: 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 ISO12185:96.

Spec. Gravity 20/20°C: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO12185:96.

Distillation: This determination was not problematic. In total two statistical outliers were observed. However, the calculated reproducibilities after rejection of the statistical outliers were in good agreement with the respective requirements of ASTM D1078-A:11.

Total Iron: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM E394:15. The average recovery of Iron (theoretical increment of 0.059 mg Fe/kg) is less than 42% (the actual blank Iron content is unknown).

Water Miscibility: No analytical problems were observed. All reporting participants agreed about the Water Miscibility of sample #18150 and reported “Pass”.

Nonvolatile Matter: This determination was very problematic. Five statistical outliers were observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not at all in agreement with the requirements of ASTM D1353:13.

Permanganate Time Test: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D1363:06(2011).

Purity: For the determination of purity “as received” and “on dry basis” in total nine statistical outliers were observed and the test results of one participant were excluded. This participant reported a higher test result “as received” than for “on dry basis”, which is not possible.

When the calculated reproducibilities after rejection of the suspect data are compared with the calculated reproducibilities of the 2017 iis17C09 proficiency test, the current reproducibilities were smaller.

Acetone: All reporting participants, except one, agreed on a test result of less than 5 mg/kg. Therefore, no statistical conclusions were drawn, because the Acetone content was near or below the detection limit.

Benzene: All reporting participants, except one, agreed on a test result of less than 5 mg/kg. Therefore, no statistical conclusions were drawn, because the Benzene content was near or below the detection limit.

Ethanol: This determination was problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the strict reproducibility estimated using the Horwitz equation.

Toluene: All reporting participants agreed on a test result of less than 5 mg/kg. Therefore, no statistical conclusions were drawn, because the Toluene content was near or below the detection limit.

Sulphur: All reporting participants agreed on a test result of less than 1 mg/kg. No statistical conclusions were drawn, because the Sulphur content was near or below the detection limit.

TMA: This determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the strict reproducibility estimated from the repeatability of ASTM E346:08e1. The calculated reproducibility is also not in agreement with the estimated reproducibility calculated using the Horwitz equation. The low number of test results may (partly) explain the large variation.

Water (coul.): 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 agreement with the requirements of ASTM E1064:16.

Water (titr.): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM E203:16.

#Sample #18151

UV-Absorbance: The test results determined with a 50 mm or a 10 mm cuvette were evaluated separately.
The determinations with a 10 mm and a 50 mm cuvette were not problematic. In total seventeen statistical outliers were observed.
For the 50mm cuvette, the calculated reproducibilities, after rejection of sixteen statistical outliers, of all measured UV absorbances with a known reproducibility were in agreement with the requirements of IMPCA004:15.
For the 10mm cuvette, the calculated reproducibilities, after rejection of one statistical outlier of all measured UV absorbencies with a known reproducibility were in agreement with the requirements of IMPCA004:15, except for 250nm.
Regretfully, for “UV at 240nm and 230nm” no precision data are available.
All participants would have rejected the sample for being off-spec and selected “fail”, except one.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of participating laboratories. The average per sample, calculated reproducibilities and reproducibilities derived from literature reference test methods (in casu ASTM and IMPCA standards) are compared in the next tables.

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (lit)*
Acidity as Acetic Acid	mg/kg	71	36.7	34.8	14
Appearance		77	CFSM	n.a.	n.a.
Carbonisable substances	Pt/Co	50	5.5	6.2	5.6
Chloride, Inorganic as Cl	mg/kg	59	0.64	0.23	0.3
Color Pt/Co	Pt/Co	56	2.0	2.0	7
Density at 20°C	kg/L	72	0.7914	0.0002	0.0005
Specific Gravity 20/20°C		72	0.7928	0.0001	0.0005
Initial Boiling Point	°C	73	64.4	0.3	1.0
50% recovered	°C	71	64.5	0.2	0.4
Dry Point	°C	71	65.0	0.5	0.7
Iron as Fe	mg/kg	52	0.03	0.03	0.01
Miscibility with water		74	pass	n.a.	n.a.
Nonvolatile Matter	mg/100mL	47	0.25	0.27	0.11
Permanganate Time Test at 15°C	minutes	58	76.5	17.6	19.3
Purity “as received”	%M/M	46	99.936	0.016	n.a.
Purity “on dry basis”	%M/M	69	99.995	0.011	n.a.
Acetone	mg/kg	65	<5	n.a.	n.a.
Benzene	mg/kg	56	<5	n.a.	n.a.
Ethanol	mg/kg	65	13.3	4.5	4.0
Toluene	mg/kg	55	<5	n.a.	n.a.

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (lit)*
Sulphur	mg/kg	60	<1	n.a.	n.a.
Trimethylamine (TMA)	µg/kg	12	359	242	136
Water (Coulometric KF)	mg/kg	70	593	84	101
Water (Titrimetric KF)	mg/kg	41	605	152	270

Table 6: reproducibilities for sample #18150

Parameter	*unit*	*n*	*average*	*2.8 * sd*	*R (lit)*
UV absorbance					
- at 300 nm (50 mm cell)		33	0.006	0.008	0.008
- at 268.5 nm (50 mm cell)		34	0.411	0.049	0.111
- at 250 nm (50 mm cell)		35	0.195	0.016	0.020
- at 240 nm (50 mm cell)		32	0.254	0.022	n.a.
- at 230 nm (50 mm cell)		34	0.563	0.061	n.a.
- at 220 nm (50 mm cell)		36	2.809	0.653	0.806
Evaluation of UV scan		38	Fail	n.a.	n.a.
- at 300 nm (10 mm cell)		7	0.003	0.004	0.004
- at 268.5 nm (10 mm cell)		6	0.086	0.009	0.023
- at 250 nm (10 mm cell)		7	0.040	0.005	0.004
- at 240 nm (10 mm cell)		7	0.053	0.015	n.a.
- at 230 nm (10 mm cell)		8	0.116	0.024	n.a.
- at 220 nm (10 mm cell)		6	1.097	0.302	0.315
Evaluation of UV scan		8	Fail	n.a.	n.a.

Table 7: reproducibilities for sample #18151

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 reference test methods. The tests that are problematic have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF SEPTEMBER 2018 WITH PREVIOUS PTS

	September 2018	*September 2017*	*September 2016*	*September 2015*	*September 2014*
Number of reporting labs	96	80	82	73	78
Number of results reported	1412	1456	1540	1267	1360
Statistical outliers	62	54	56	38	49
Percentage outliers	4.4%	3.7%	3.6%	3.0%	3.6%

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 2018	*September 2017*	*September 2016*	*September 2015*	*September 2014*
Acidity as Acetic Acid	--	--	++	++	++
Carbonisable substances	-	+/-	+/-	--	+
Chloride, Inorganic as Cl	+	(+)	+	+	++
Color Pt/Co	++	++	++	++	++
Density at 20°C	++	++	++	++	++
Specific Gravity 20/20°C	++	++	++	++	++
Distillation	++	++	++	+	+
Iron as Fe	--	n.e.	--	--	+
Nonvolatile Matter	--	--	--	--	-
Permanganate Time Test at 15°C	+	-	+	n.e.	(+/-)
Purity	n.e.	n.e.	n.e.	n.e.	n.e.
Acetone	n.e.	-	-	-	-
Benzene	n.e.	+	-	n.e.	-
Ethanol	-	+/-	-	-	+/-
Toluene	n.e.	n.e.	n.e.	-	n.e.
Sulphur	n.e.	n.e.	n.e.	n.e.	n.e.
Trimethylamine (TMA)	--	--	--	--	--
Water (Coulometric KF)	+	+/-	-	+	+
Water (Titrimetric KF)	++	++	++	++	++

Table 9: comparison determinations against the requirements of the reference test methods for sample #18150
Evaluation between brackets is for concentrations near or below the detection limits

	September 2018		*September 2017*		*September 2016*		*September 2015*		*September 2014*	
Cuvette (in mm)	50	10	50	10	50	10	50	10	50	10
UV absorbance 300nm	+/-	+/-	+/-	+/-	-	+/-	-	++	-	++
UV absorbance 268.5 nm	++	++	+/-	--	--	-	--	++	+	-
UV absorbance 250 nm	+	-	+/-	--	--	-	--	+	--	-
UV absorbance 220 nm	+	+/-	++	-	-	++	++	+	+	++

Table 10: comparison determinations against the requirements of the reference test methods for sample #18151

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

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

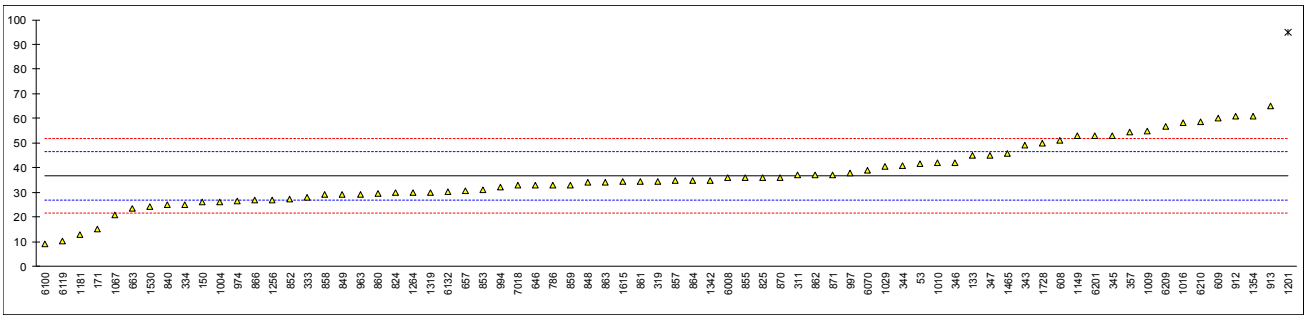
APPENDIX 1

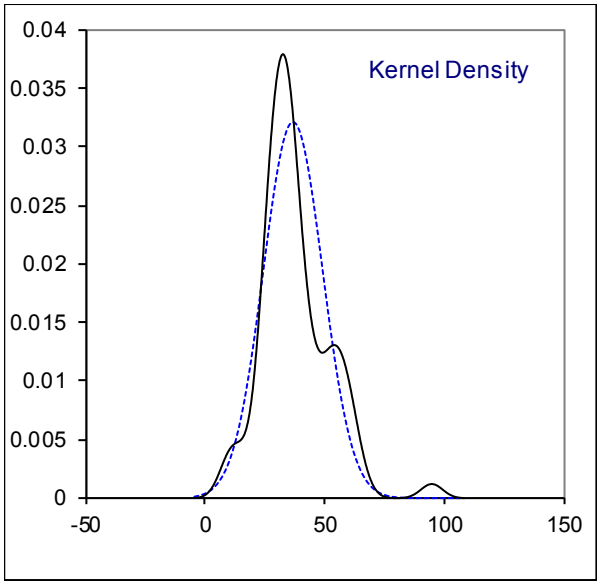
Determination of Acidity as Acetic Acid on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	D1613	41.7		1.00	
133	D1613	45		1.66	
150	D1613	26		-2.14	
171	D1613	15		-4.34	
311	D1613	37		0.06	
316		-----		-----	
319	D1613	34.57		-0.43	
323		-----		-----	
333	D1613	28		-1.74	
334	D1613	25		-2.34	
335		-----		-----	
343	D1613	49		2.46	
344	D1613	40.8		0.82	
345	D1613	53.1		3.28	
346	D1613	42.1		1.08	
347	D1613	45		1.66	
357	D1613	54.6		3.58	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D1613	51.2		2.90	
609	D1613	60.1		4.68	
646	D1613	32.9		-0.76	
657	D1613	30.6		-1.22	
663	D1613	23.6		-2.62	
786	D1613	33		-0.74	
823		-----		-----	
824	D1613	29.9		-1.36	
825	D1613	36		-0.14	
840	D1613	24.9		-2.36	
848	D1613	34.0		-0.54	
849	D1613	29		-1.54	
852	D1613	27.3		-1.88	
853	D1613	30.9		-1.16	
855	D1613	36		-0.14	
857	D1613	35		-0.34	
858	D1613	29		-1.54	
859	D1613	33		-0.74	
860	D1613	29.5		-1.44	
861	D1613	34.5		-0.44	
862	D1613	37		0.06	
863	D1613	34		-0.54	
864	D1613	35		-0.34	
866	D1613	27.0		-1.94	
870	D1613	36		-0.14	
871	D1613	37.2		0.10	
912	D1613	61		4.86	
913	D1613	65		5.66	
963	D1613	29		-1.54	
970		-----		-----	
974	D1613	26.7		-2.00	
994	D1613	32.25		-0.89	
997	D1613	37.9		0.24	
1004	D1613	26		-2.14	
1009	D1613	54.69		3.60	
1010	D1613	42		1.06	
1016	D1613	58.1		4.28	
1029	D1613	40.65		0.79	
1041		-----		-----	
1067	D1613	21		-3.14	
1120		-----		-----	
1149	D1613	53		3.26	
1181	D1613	13		-4.74	
1201	D1613	95	C,R(0.01)	11.66	First reported 100
1221		-----		-----	
1256	D1613	27		-1.94	
1264	D1613	30		-1.34	
1319	D1613	30		-1.34	
1342	D1613	35		-0.34	
1354	D1613	61.00		4.86	
1373		-----		-----	
1465	D1613	45.7		1.80	

lab	method	value	mark	z(targ)	remarks
1530	D1613	24.2		-2.50	
1557		-----		-----	
1615	D1613	34.27	C	-0.49	First reported 85.39
1656		-----		-----	
1689		-----		-----	
1728	D1613	50		2.66	
1866		-----		-----	
1886		-----		-----	
6008	D1613	35.8		-0.18	
6061		-----		-----	
6070	D1613	39		0.46	
6100	D1613	9		-5.54	
6119	GB338	10.20		-5.30	
6132	D1613	30.38		-1.27	
6201	D1613	53		3.26	
6209	D1613	56.8		4.02	
6210	D1613	58.5		4.36	
7018	D1613	32.8		-0.78	

normality	OK
n	71
outliers	1
mean (n)	36.710
st.dev. (n)	12.4315
R(calc.)	34.808
st.dev.(D1613:17)	5
R(D1613:17)	14





Determination of Appearance on sample #18150;

lab	method	value	mark	z(targ)	remarks
53	IMPCA003	Clear and free		-----	
133	E2680	Pass		-----	
150	E2680	Pass		-----	
171	E2680	PASS		-----	
311	IMPCA003	CSFM		-----	
316		-----		-----	
319	IMPCA003	Pass		-----	
323	E2680	clear & bright liquid		-----	
333	IMPCA003	CBFFSM		-----	
334		-----		-----	
335		-----		-----	
343	INH-1608	clear&bright		-----	
344	IMPCA003	C&B		-----	
345	E2680	pass		-----	
346	IMPCA003	Pass		-----	
347	E2680	Pass		-----	
357	E2680	CSFM		-----	
395	IMPCA003	PASS		-----	
529	IMPCA003	CFSM		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	IMPCA003	CFSM		-----	
609	E2680	PASS		-----	
646	IMPCA003	CFSM		-----	
657	IMPCA003	Pass		-----	
663	IMPCA003	CSFM		-----	
786	IMPCA003	CFSM		-----	
823	IMPCA003	CFSM		-----	
824	IMPCA003	CSFM		-----	
825	IMPCA003	CSFM		-----	
840	E2680	Pass		-----	
848	IMPCA003	CSFM		-----	
849	E2680	CLEAR&BRIGHT		-----	
852	IMPCA003	pass		-----	
853	IMPCA003	CSFM		-----	
855	IMPCA003	CSFM		-----	
857	E2680	Pass		-----	
858	IMPCA003	Clear and free		-----	
859	E2680	Pass		-----	
860	E2680	Pass		-----	
861	E2680	Bright&Clear		-----	
862	IMPCA003	CSFM		-----	
863	IMPCA003	CSFM		-----	
864	E2680	Pass		-----	
866	IMPCA003	CFSM		-----	
870	IMPCA003	CSFM		-----	
871	IMPCA003	pass		-----	
912	IMPCA003	CSFM		-----	
913	E2680	Pass		-----	
963	E2680	Pass		-----	
970	Visual	Pass		-----	
974	IMPCA003	Pass		-----	
994	IMPCA003	pass		-----	
997	IMPCA003	pass		-----	
1004	IMPCA003	CSFM		-----	
1009	In house	PASS		-----	
1010	IMPCA003	CSFM		-----	
1016	In house	Pass		-----	
1029	IMPCA003	CFSM		-----	
1041		-----		-----	
1067	IMPCA003	Bright and Clear		-----	
1120	IMPCA003	Pass		-----	
1149	IMPCA003	C&B		-----	
1181	IMPCA003	CSFM		-----	
1201	IMPCA003	Bright and Clear		-----	
1221		-----		-----	
1256	IMPCA003	Clear		-----	
1264	IMPCA003	Pass		-----	
1319	IMPCA003	CSFM		-----	
1342	IMPCA003	CFSM		-----	
1354	IMPCA003	CSFM		-----	
1373		-----		-----	
1465	IMPCA003	Clear & Free		-----	

lab	method	value	mark	z(targ)	remarks
1530	IMPCA003	C & b		-----	
1557		-----		-----	
1615	IMPCA003	CFSM		-----	
1656		-----		-----	
1689	E2680	pass		-----	
1728		CLEAR		-----	
1866		-----		-----	
1886		-----		-----	
6008	IMPCA003	CSFM		-----	
6061		-----		-----	
6070	IMPCA003	C & B		-----	
6100	IMPCA003	CSFM		-----	
6119		-----		-----	
6132	IMPCA003	Pass		-----	
6201	E2680	clear and bright		-----	
6209	IMPCA003	CSFM		-----	
6210	IMPCA003	CSFM		-----	
7018	IMPCA003	CSFM		-----	
	normality	Unknown			
	n	77			
	mean (n)	CFSM / Pass			

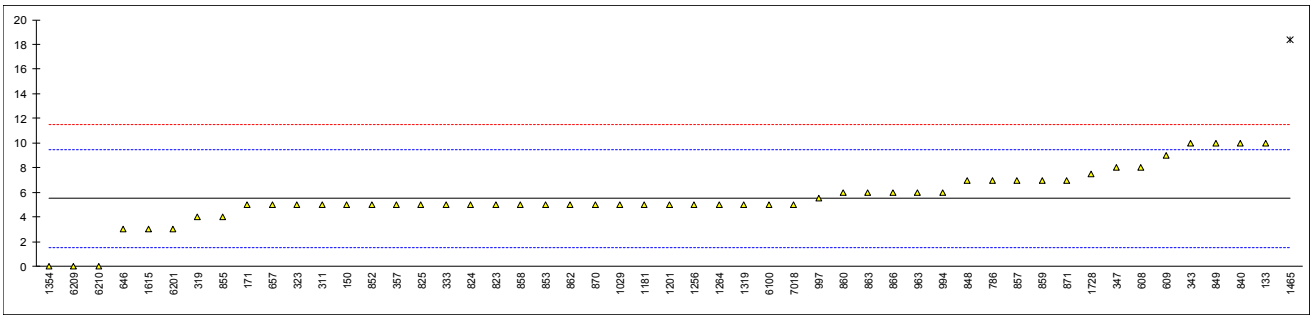
CFSM = Clear, Free of Suspended matter
C&B = Clear & Bright

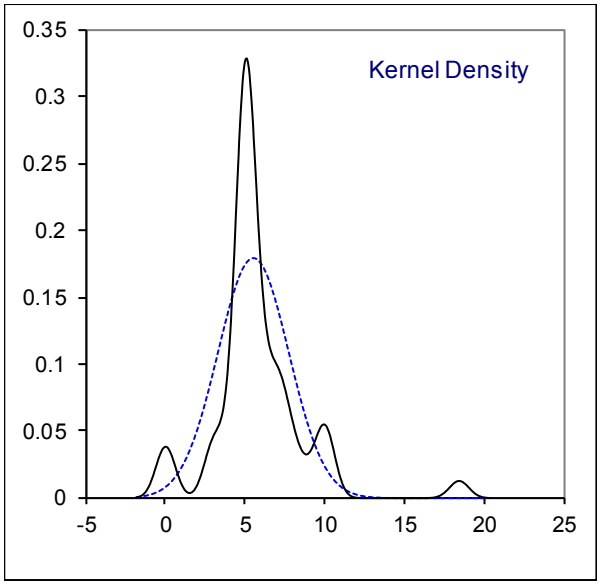
Determination of Carbonisable Substances Pt/Co on sample #18150;

lab	method	value	mark	z(targ)	remarks
53	E346	<5		-----	
133	E346	10		2.25	
150	E346	5		-0.25	
171	E346	5		-0.25	
311	E346	5		-0.25	
316		-----		-----	
319	E346	4		-0.75	
323	E346	5		-0.25	
333	E346	5		-0.25	
334		-----		-----	
335		-----		-----	
343	E346	10		2.25	
344	E346	<30		-----	
345		-----		-----	
346	E346	<10		-----	
347	E346	8		1.25	
357	E346	5		-0.25	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	E346	8		1.25	
609	E346	9	C	1.75	First reported 18
646	E346	3		-1.25	
657	E346	5		-0.25	
663		-----		-----	
786	E346	7		0.75	
823	E346	5		-0.25	
824	E346	5		-0.25	
825	E346	5		-0.25	
840	E346	10		2.25	
848	E346	7.0		0.75	
849	E346	10		2.25	
852	E346	5		-0.25	
853	E346	5		-0.25	
855	E346	4		-0.75	
857	E346	7		0.75	
858	E346	5		-0.25	
859	E346	7		0.75	
860	E346	6		0.25	
861		-----		-----	
862	E346	5		-0.25	
863	E346	6		0.25	
864	E346	<10		-----	
866	E346	6		0.25	
870	E346	5		-0.25	
871	E346	7		0.75	
912		-----		-----	
913		-----		-----	
963	E346	6		0.25	
970		-----		-----	
974		-----		-----	
994	E346	6		0.25	
997	E346	5.5		0.00	
1004	E346	<30		-----	
1009	In house	>30		>12.26	Probably a false positive test result?
1010		-----		-----	
1016		-----		-----	
1029	E346	5		-0.25	
1041		-----		-----	
1067		-----		-----	
1120	E346	<10		-----	
1149	E346	<30		-----	
1181	E346	5		-0.25	
1201	E346	5		-0.25	
1221		-----		-----	
1256	E346	5		-0.25	
1264	E346	5		-0.25	
1319	E346	5		-0.25	
1342	E346	< 5		-----	
1354	E346	0	C	-2.75	First reported 20
1373		-----		-----	
1465	E346	18.4	R(0.01)	6.45	

lab	method	value	mark	z(targ)	remarks
1530	E346	< 5		-----	
1557		-----		-----	
1615	E346	3		-1.25	
1656		-----		-----	
1689		-----		-----	
1728	E346	7.5	C	1.00	First reported 20
1866		-----		-----	
1886		-----		-----	
6008	E346	<30 ; PASS		-----	
6061		-----		-----	
6070	E346	< 5		-----	
6100	E346	5	C	-0.25	First reported 20
6119		-----		-----	
6132	E346	<5		-----	
6201	E346	3		-1.25	
6209	E346	0		-2.75	
6210	E346	0		-2.75	
7018	E346	5		-0.25	

normality	suspect
n	50
outliers	1
mean (n)	5.50
st.dev. (n)	2.222
R(calc.)	6.22
st.dev.(E346:08e1)	1.999
R(E346:08e1)	5.60

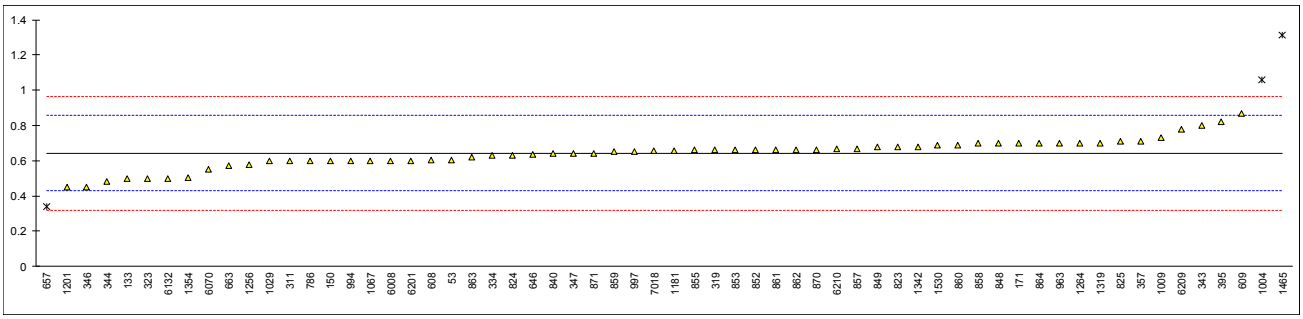


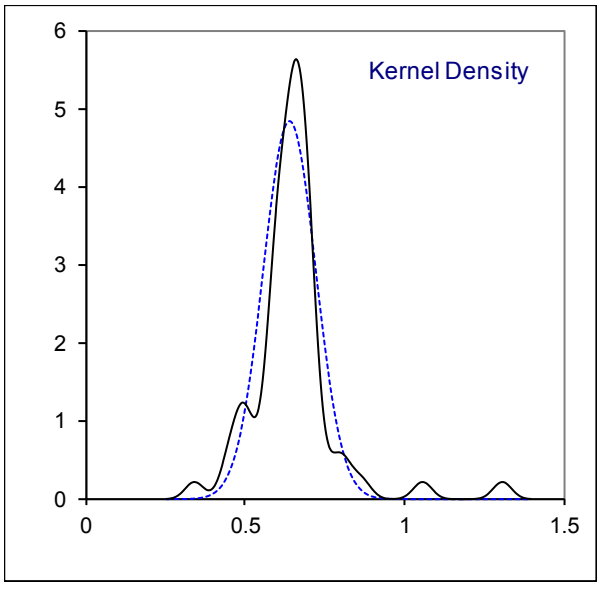


Determination of Chloride Inorganic as Cl on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	IMPCA002	0.605		-0.34	
133	IMPCA002	0.5		-1.32	
150	IMPCA002	0.6		-0.39	
171	IMPCA002	0.7		0.55	
311	IMPCA002	0.6		-0.39	
316		-----		-----	
319	IMPCA002	0.66		0.17	
323	IMPCA002	0.5		-1.32	
333		-----		-----	
334	IMPCA002	0.63		-0.11	
335		-----		-----	
343	IMPCA002	0.8	C	1.48	First reported 1
344	IMPCA002	0.48		-1.51	
345		-----		-----	
346	IMPCA002	0.451		-1.78	
347	IMPCA002	0.64		-0.01	
357	IMPCA002	0.71		0.64	
395	IMPCA002	0.821		1.68	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	IMPCA002	0.604		-0.35	
609	IMPCA002	0.87		2.13	
646	IMPCA002	0.634		-0.07	
657	IMPCA002	0.3421	R(0.05)	-2.79	
663	IMPCA002	0.57		-0.67	
786	IMPCA002	0.6		-0.39	
823	IMPCA002	0.68		0.36	
824	IMPCA002	0.63		-0.11	
825	IMPCA002	0.71		0.64	
840	IMPCA002	0.64		-0.01	
848	IMPCA002	0.70		0.55	
849	IMPCA002	0.68		0.36	
852	IMPCA002	0.66		0.17	
853	IMPCA002	0.66		0.17	
855	IMPCA002	0.66		0.17	
857	IMPCA002	0.67		0.27	
858	IMPCA002	0.70		0.55	
859	IMPCA002	0.65		0.08	
860	IMPCA002	0.69		0.45	
861	IMPCA002	0.66		0.17	
862	IMPCA002	0.66		0.17	
863	IMPCA002	0.62		-0.20	
864	IMPCA002	0.70		0.55	
866		-----		-----	
870	IMPCA002	0.66		0.17	
871	IMPCA002	0.64		-0.01	
912		-----		-----	
913		-----		-----	
963	IMPCA002	0.70		0.55	
970		-----		-----	
974		-----		-----	
994	IMPCA002	0.6		-0.39	
997	IMPCA002	0.65		0.08	
1004	IMPCA002	1.06	R(0.01)	3.91	
1009	In house	0.7299		0.83	
1010		-----		-----	
1016		-----		-----	
1029	IMPCA002	0.5984		-0.40	
1041		-----		-----	
1067	IMPCA002	0.6		-0.39	
1120		-----		-----	
1149		-----		-----	
1181	IMPCA002	0.6595		0.17	
1201	IMPCA002	0.45		-1.79	
1221		-----		-----	
1256	IMPCA002	0.5799		-0.57	
1264	IMPCA002	0.70		0.55	
1319	IMPCA002	0.7		0.55	
1342	IMPCA002	0.68		0.36	
1354	IMPCA002	0.50585		-1.26	
1373		-----		-----	
1465	In house	1.311	C,R(0.01)	6.25	First reported 1.656

lab	method	value	mark	z(targ)	remarks
1530	IMPCA002	0.688		0.44	
1557		-----		-----	
1615		-----		-----	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA002	<0.25		<-3.65	Probably a false negative test result?
1886		-----		-----	
6008	IMPCA002	0.60		-0.39	
6061		-----		-----	
6070	IMPCA002	0.55		-0.85	
6100		-----		-----	
6119		-----		-----	
6132	IMPCA002	0.5	C	-1.32	First reported 1.0
6201	IMPCA002	0.60		-0.39	
6209	IMPCA002	0.78		1.29	
6210	IMPCA002	0.665		0.22	
7018	D512	0.6552		0.13	
	normality	OK			
	n	59			
	outliers	3	Spike		
	mean (n)	0.641	0.40		Recovery <160%
	st.dev. (n)	0.0826			
	R(calc.)	0.231			
	st.dev.(IMPCA002:98)	0.1071			
	R(IMPCA002:98)	0.3			



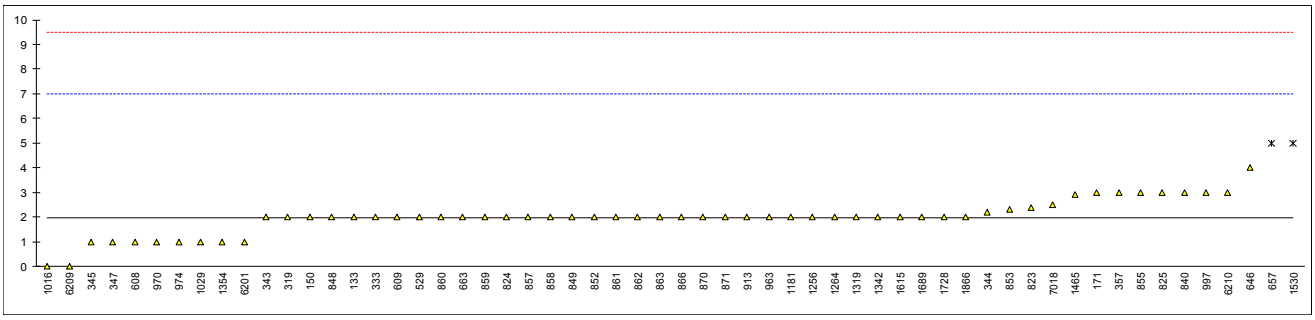


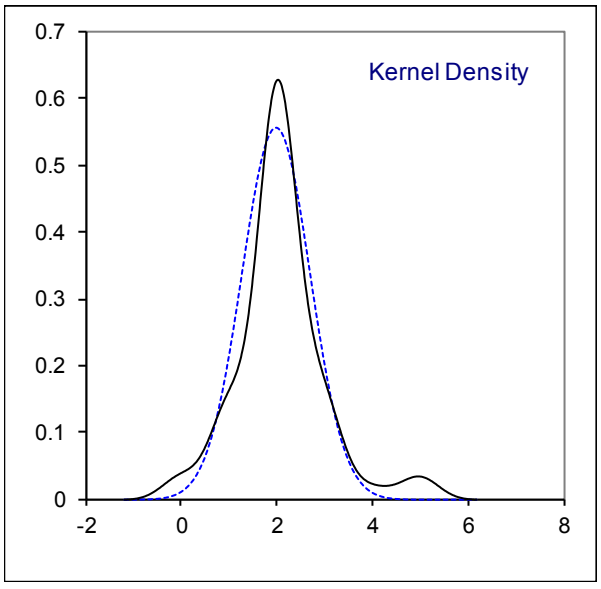
Determination of Color as Pt/Co on sample #18150;

lab	method	value	mark	z(targ)	remarks
53	D1209	<5		-----	
133	D1209	2		0.00	
150	D5386	2		0.00	
171	D1209	3		0.40	
311	D1209	<5		-----	
316		-----		-----	
319	D1209	2		0.00	
323	D1209	<5		-----	
333	D1209	2		0.00	
334		-----		-----	
335		-----		-----	
343	D5386	2		0.00	
344	D5386	2.2		0.08	
345	D5386	1		-0.40	
346	D1209	<5		-----	
347	D5386	1		-0.40	
357	D5386	3		0.40	
395	D1209	<5		-----	
529	D1209	2		0.00	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D1209	1		-0.40	
609	D1209	2		0.00	
646	D1209	4		0.80	
657	D1209	5	R(0.01)	1.20	
663	D1209	2		0.00	
786	D1209	<5		-----	
823	D5386	2.4		0.16	
824	D5386	2		0.00	
825	D1209	3		0.40	
840	D1209	3		0.40	
848	D1209	2		0.00	
849	D1209	2		0.00	
852	D1209	2		0.00	
853	D1209	2.3		0.12	
855	D1209	3		0.40	
857	D5386	2		0.00	
858	D1209	2		0.00	
859	D1209	2		0.00	
860	D5386	2		0.00	
861	D1209	2		0.00	
862	D1209	2		0.00	
863	D1209	2		0.00	
864	D1209	<5		-----	
866	D1209	2		0.00	
870	D1209	2		0.00	
871	D1209	2		0.00	
912		-----		-----	
913	D5386	2		0.00	
963	D1209	2		0.00	
970	D1209	1		-0.40	
974	D1209	1		-0.40	
994	D1209	<5		-----	
997	D1209	3		0.40	
1004	D1209	<5		-----	
1009	D1209	<5		-----	
1010		-----		-----	
1016	D1209	0		-0.80	
1029	D1209	1		-0.40	
1041		-----		-----	
1067	D1209	< 5		-----	
1120		<5		-----	
1149		-----		-----	
1181	D1209	2		0.00	
1201	D1209	<5		-----	
1221		-----		-----	
1256	D1209	2		0.00	
1264	D1209	2		0.00	
1319	D1209	2		0.00	
1342	D1209	2		0.00	
1354	D5386	1.0		-0.40	
1373		-----		-----	
1465	D1209	2.9		0.36	

lab	method	value	mark	z(targ)	remarks
1530	D1209	5	R(0.01)	1.20	
1557		-----		-----	
1615	D1209	2		0.00	
1656	D1209	<5		-----	
1689	D1209	2		0.00	
1728	D1209	2		0.00	
1866	D1209	2		0.00	
1886		-----		-----	
6008	D1209	<5		-----	
6061		-----		-----	
6070	D1209	< 5		-----	
6100	D1209	＜5		-----	
6119		-----		-----	
6132	D1209	<5		-----	
6201	D1209	1		-0.40	
6209	D5386	0		-0.80	
6210	D5386	3		0.40	
7018	D1209	2.5		0.20	

normality	suspect
n	56
outliers	2
mean (n)	1.99
st.dev. (n)	0.718
R(calc.)	2.01
st.dev.(D1209:05)	2.500
R(D1209:05)	7



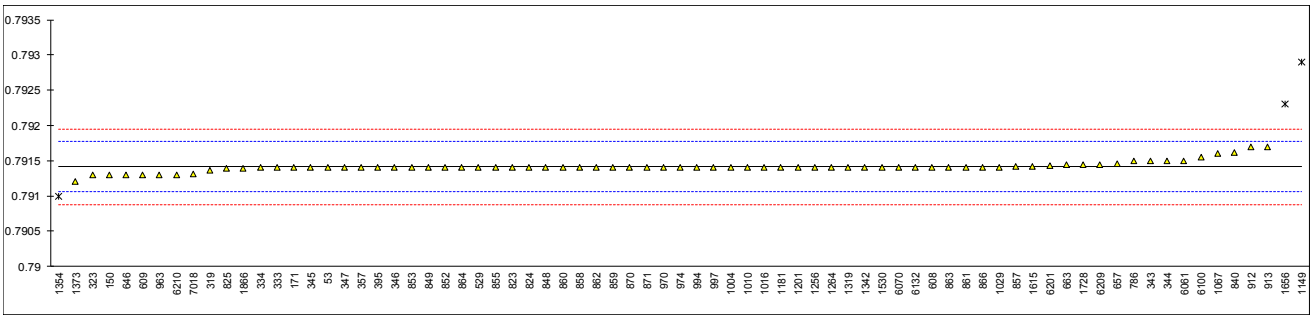


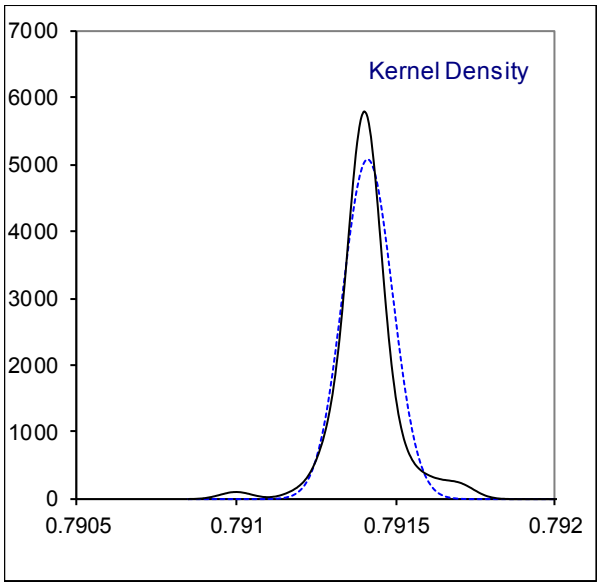
Determination of Density at 20°C on sample #18150; results in kg/L

lab	method	value	mark	z(targ)	remarks
53	D4052	0.7914		-0.07	
133		-----		-----	
150	D4052	0.7913		-0.63	
171	D4052	0.7914		-0.07	
311		-----		-----	
316		-----		-----	
319	D4052	0.79137		-0.24	
323	D4052	0.7913		-0.63	
333	ISO12185	0.7914		-0.07	
334	ISO12185	0.7914		-0.07	
335		-----		-----	
343	D4052	0.7915		0.49	
344	D4052	0.7915		0.49	
345	D4052	0.7914		-0.07	
346	D1298	0.7914		-0.07	
347	D4052	0.79140		-0.07	
357	D4052	0.79140		-0.07	
395	D4052	0.7914		-0.07	
529	D4052	0.7914		-0.07	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D4052	0.79141	C	-0.02	First reported 791.41 kg/L
609	D4052	0.7913		-0.63	
646	D4052	0.7913		-0.63	
657	D4052	0.79146		0.26	
663	D4052	0.79144		0.15	
786	D4052	0.7915		0.49	
823	ISO12185	0.79140		-0.07	
824	ISO12185	0.7914		-0.07	
825	ISO12185	0.79139		-0.13	
840	D4052	0.79161		1.10	
848	D4052	0.7914		-0.07	
849	D4052	0.7914		-0.07	
852	D4052	0.7914		-0.07	
853	D4052	0.7914		-0.07	
855	ISO12185	0.7914		-0.07	
857	D4052	0.79142		0.04	
858	D4052	0.7914		-0.07	
859	D4052	0.7914		-0.07	
860	D4052	0.79140		-0.07	
861	D4052	0.79141		-0.02	
862	D4052	0.7914		-0.07	
863	D4052	0.79141		-0.02	
864	D4052	0.7914		-0.07	
866	D4052	0.79141		-0.02	
870	ISO12185	0.7914		-0.07	
871	D4052	0.7914		-0.07	
912	D4052	0.7917		1.61	
913	D4052	0.7917		1.61	
963	ISO12185	0.7913		-0.63	
970	D4052	0.7914		-0.07	
974	D4052	0.7914		-0.07	
994	ISO12185	0.7914		-0.07	
997	ISO12185	0.7914		-0.07	
1004	D4052	0.7914		-0.07	
1009		-----		-----	
1010	D4052	0.7914		-0.07	
1016	D4052	0.7914		-0.07	
1029	D4052	0.79141		-0.02	
1041		-----		-----	
1067	D4052	0.7916		1.05	
1120		-----		-----	
1149	ISO12185	0.7929	R(0.01)	8.33	
1181	D4052	0.7914		-0.07	
1201	D4052	0.7914		-0.07	
1221		-----		-----	
1256	D4052	0.7914		-0.07	
1264	D4052	0.7914		-0.07	
1319	D4052	0.7914		-0.07	
1342	D4052	0.7914		-0.07	
1354	D4052	0.791	R(0.01)	-2.31	
1373	INH-007	0.7912		-1.19	
1465		-----		-----	

lab	method	value	mark	z(targ)	remarks
1530	D4052	0.79140		-0.07	
1557		-----		-----	
1615	D4052	0.79142		0.04	
1656	ISO12185	0.7923	C,R(0.01)	4.97	First reported 792.3 kg/L
1689		-----		-----	
1728	D4052	0.79145		0.21	
1866	ISO12185	0.79139		-0.13	
1886		-----		-----	
6008		-----		-----	
6061	D4052	0.7915		0.49	
6070	D4052	0.7914		-0.07	
6100	D4052	0.79155		0.77	
6119		-----		-----	
6132	D4052	0.7914		-0.07	
6201	ISO12185	0.79143		0.09	
6209	D4052	0.79145		0.21	
6210	D4052	0.7913		-0.63	
7018	D4052	0.79131		-0.58	

normality	not OK
n	72
outliers	3
mean (n)	0.79141
st.dev. (n)	0.000078
R(calc.)	0.00022
st.dev.(ISO12185:96)	0.000179
R(ISO12185:96)	0.0005



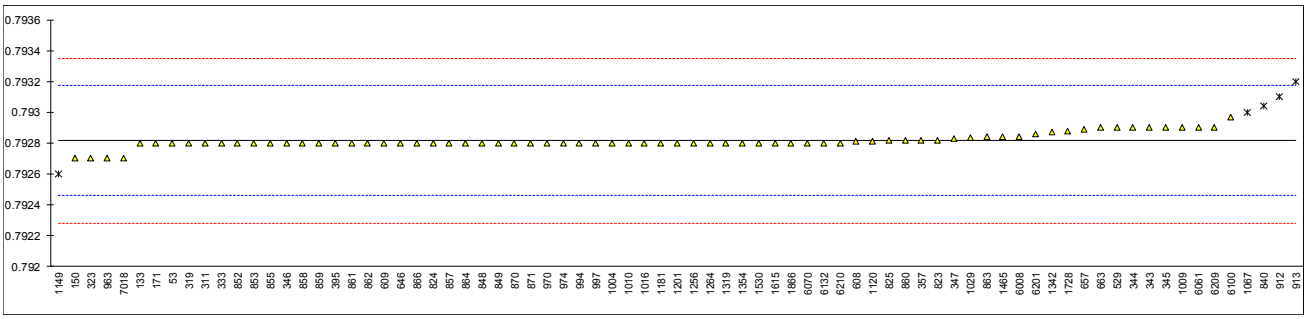


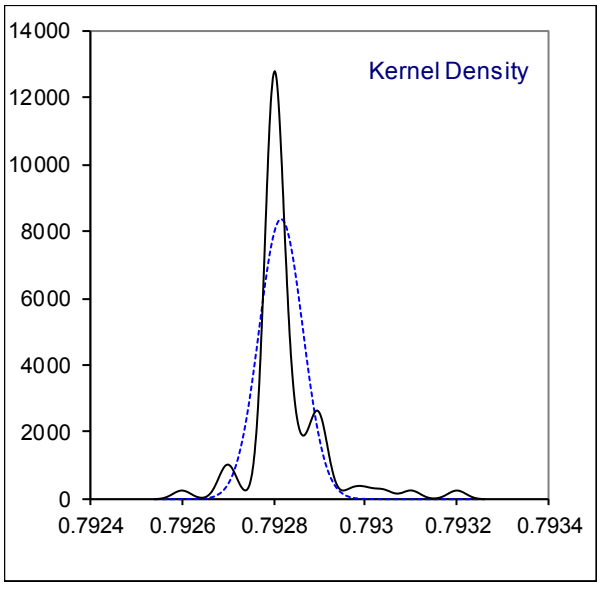
Determination of Specific Gravity 20/20°C on sample #18150;

lab	method	value	mark	z(targ)	remarks
53	D4052	0.7928		-0.09	
133	D4052	0.7928		-0.09	
150	D4052	0.7927		-0.65	
171	D4052	0.7928		-0.09	
311	D4052	0.7928		-0.09	
316		-----		-----	
319	D4052	0.79280		-0.09	
323	D4052	0.7927		-0.65	
333	ISO12185	0.7928		-0.09	
334		-----		-----	
335		-----		-----	
343	D4052	0.7929		0.47	
344	D4052	0.7929		0.47	
345	D4052	0.7929		0.47	
346	D1298	0.7928		-0.09	
347	D4052	0.79283		0.08	
357	D4052	0.79282		0.02	
395	D4052	0.7928		-0.09	
529	D4052	0.7929		0.47	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D4052	0.79281		-0.04	
609	D4052	0.7928		-0.09	
646	D4052	0.7928		-0.09	
657	D4052	0.79289		0.41	
663	D4052	0.7929		0.47	
786		-----		-----	
823	ISO12185	0.79282		0.02	
824	ISO12185	0.7928		-0.09	
825	ISO12185	0.79282		0.02	
840	D4052	0.79304	R(0.01)	1.25	
848	D4052	0.7928		-0.09	
849	D4052	0.7928		-0.09	
852	D4052	0.7928		-0.09	
853	D4052	0.7928		-0.09	
855	D4052	0.7928		-0.09	
857	D4052	0.7928		-0.09	
858	D4052	0.7928		-0.09	
859	D4052	0.7928		-0.09	
860	D4052	0.79282		0.02	
861	D4052	0.7928		-0.09	
862	D4052	0.7928		-0.09	
863	D4052	0.79284		0.13	
864	D4052	0.7928		-0.09	
866	D4052	0.7928		-0.09	
870	D4052	0.7928		-0.09	
871	D4052	0.7928		-0.09	
912	D4052	0.7931	R(0.01)	1.59	
913	D4052	0.7932	R(0.01)	2.15	
963	ISO12185	0.7927		-0.65	
970	D4052	0.7928		-0.09	
974	D4052	0.7928		-0.09	
994	ISO12185	0.7928		-0.09	
997	ISO12185	0.7928		-0.09	
1004	D4052	0.7928		-0.09	
1009	D4052	0.79290		0.47	
1010	D4052	0.7928		-0.09	
1016	D4052	0.7928		-0.09	
1029	D4052	0.792834		0.10	
1041		-----		-----	
1067	D4052	0.7930	R(0.05)	1.03	
1120	E346	0.79281		-0.04	
1149	D4052	0.7926	R(0.01)	-1.21	
1181	D4052	0.7928		-0.09	
1201	D4052	0.7928		-0.09	
1221		-----		-----	
1256	D4052	0.7928		-0.09	
1264	D4052	0.7928		-0.09	
1319	D4052	0.7928		-0.09	
1342	D4052	0.79287		0.30	
1354	D4052	0.7928		-0.09	
1373		-----		-----	
1465	D4052	0.79284		0.13	

lab	method	value	mark	z(targ)	remarks
1530	D4052	0.79280		-0.09	
1557		-----		-----	
1615	D4052	0.7928		-0.09	
1656		-----		-----	
1689		-----		-----	
1728	D4052	0.79288		0.36	
1866	ISO12185	0.7928		-0.09	
1886		-----		-----	
6008	D4052	0.79284		0.13	
6061	D4052	0.7929		0.47	
6070	D4052	0.7928		-0.09	
6100	D4052	0.79297		0.86	
6119		-----		-----	
6132	D4052	0.7928		-0.09	
6201	ISO12185	0.79286		0.24	
6209	D4052	0.7929		0.47	
6210	D4052	0.7928		-0.09	
7018	D4052	0.7927		-0.65	

normality	not OK
n	72
outliers	5
mean (n)	0.79282
st.dev. (n)	0.000048
R(calc.)	0.00013
st.dev.(ISO12185:96)	0.000179
R(ISO12185:96)	0.0005



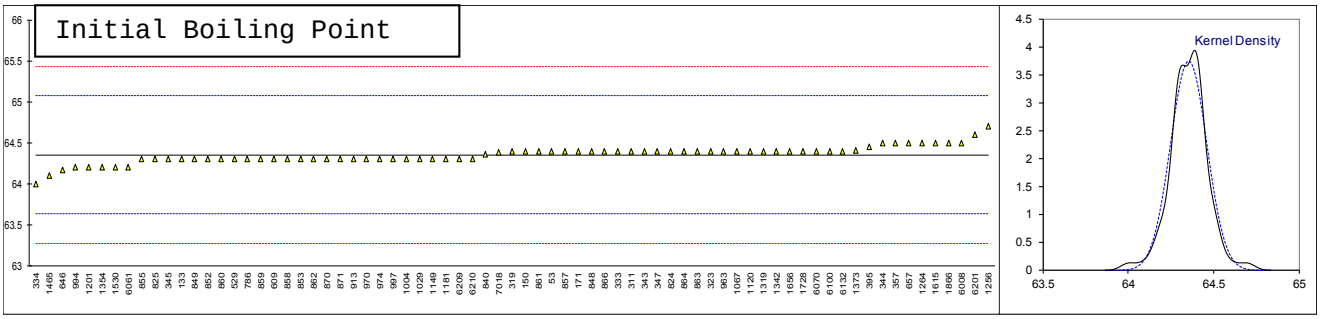


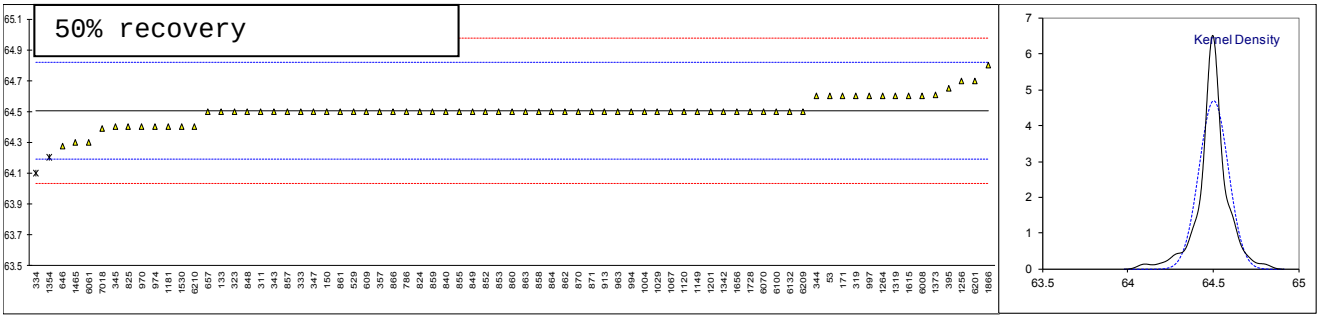
Determination of IBP, 50% recovered and DP on sample #18150; results in °C

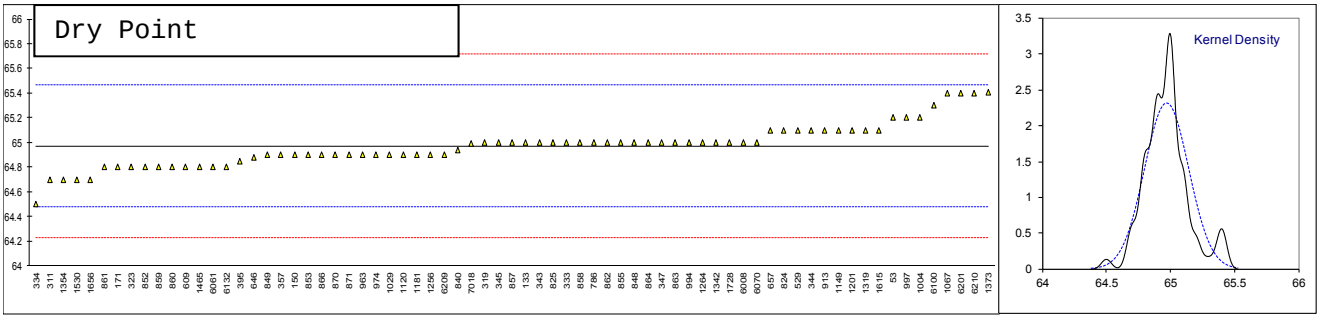
lab	method	IBP	mark	z(targ)	50% rec.	mark	z(targ)	DP	mark	z(targ)	range
53	D1078-automated	64.4		0.13	64.6		0.60	65.2		0.92	0.8
133	D1078-automated	64.3		-0.15	64.5		-0.04	65.0		0.12	0.7
150	D1078-automated	64.4		0.13	64.5		-0.04	64.9		-0.29	0.5
171	D1078	64.4		0.13	64.6		0.60	64.8		-0.69	0.4
311	D1078-automated	64.4		0.13	64.5		-0.04	64.7		-1.09	0.3
316		-----		-----	-----		-----	-----		-----	-----
319	D1078-automated	64.4		0.13	64.6		0.60	65.0		0.12	0.6
323	D1078-manual	64.4		0.13	64.5		-0.04	64.8		-0.69	0.4
333	D1078-automated	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
334	D1078-automated	64.0		-0.99	64.1	R(0.01)	-2.58	64.5		-1.90	0.5
335		-----		-----	-----		-----	-----		-----	-----
343	D1078-automated	64.4		0.13	64.5		-0.04	65.0		0.12	-----
344	D1078-automated	64.5		0.41	64.6		0.60	65.1		0.52	-----
345	D1078-automated	64.3		-0.15	64.4		-0.67	65.0		0.12	0.7
346		-----		-----	-----		-----	-----		-----	-----
347	D1078-automated	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
357	D1078-automated	64.5		0.41	64.5		-0.04	64.9		-0.29	0.4
395	D1078-manual	64.45		0.27	64.65		0.92	64.85		-0.49	0.4
529	D1078-automated	64.3		-0.15	64.5		-0.04	65.1		0.52	0.8
551		-----		-----	-----		-----	-----		-----	-----
554		-----		-----	-----		-----	-----		-----	-----
557		-----		-----	-----		-----	-----		-----	-----
608		-----		-----	-----		-----	-----		-----	-----
609	D1078-manual	64.3		-0.15	64.5		-0.04	64.8		-0.69	-----
646	D1078-manual	64.175		-0.50	64.275		-1.47	64.875		-0.39	0.7
657	D1078-automated	64.5		0.41	64.5		-0.04	65.1		0.52	0.6
663		-----		-----	-----		-----	-----		-----	-----
786	D1078-manual	64.3		-0.15	64.5		-0.04	65.0		0.12	0.7
823		-----		-----	-----		-----	-----		-----	-----
824	D1078-automated	64.4		0.13	64.5		-0.04	65.1		0.52	0.7
825	D1078-automated	64.3		-0.15	64.4		-0.67	65.0		0.12	0.7
840	D1078-automated	64.36		0.02	64.50		-0.04	64.94		-0.13	0.58
848	D1078-manual	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
849	D1078-manual	64.3		-0.15	64.5		-0.04	64.9		-0.29	0.6
852	D1078-manual	64.3		-0.15	64.5		-0.04	64.8		-0.69	0.5
853	D1078-manual	64.3		-0.15	64.5		-0.04	64.9		-0.29	0.6
855	D1078-manual	64.3		-0.15	64.5		-0.04	65.0		0.12	0.7
857	D1078-manual	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
858	D1078-manual	64.3		-0.15	64.5		-0.04	65.0		0.12	0.7
859	D1078-manual	64.3		-0.15	64.5		-0.04	64.8		-0.69	0.5
860	D1078-manual	64.3		-0.15	64.5		-0.04	64.8		-0.69	0.5
861	D1078-manual	64.4		0.13	64.5		-0.04	64.8		-0.69	0.4
862	D1078-manual	64.3		-0.15	64.5		-0.04	65.0		0.12	0.7
863	D1078-manual	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
864	D1078-automated	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
866	D1078-manual	64.4		0.13	64.5		-0.04	64.9		-0.29	0.5
870	D1078-manual	64.3		-0.15	64.5		-0.04	64.9		-0.29	0.6
871	D1078-manual	64.3		-0.15	64.5		-0.04	64.9		-0.29	0.6
912		-----		-----	-----		-----	-----		-----	-----
913	D1078-manual	64.3		-0.15	64.5		-0.04	65.1		0.52	0.8
963	D1078-automated	64.4		0.13	64.5		-0.04	64.9		-0.29	0.5
970		64.3		-0.15	64.4		-0.67	-----		-----	-----
974	D1078-automated	64.3		-0.15	64.4		-0.67	64.9		-0.29	-----
994	D1078-manual	64.2		-0.43	64.5		-0.04	65.0		0.12	0.8
997		64.3		-0.15	64.6		0.60	65.2		0.92	0.9
1004	D1078-manual	64.3		-0.15	64.5		-0.04	65.2		0.92	0.9
1009		-----		-----	-----		-----	-----		-----	-----
1010		-----		-----	-----		-----	-----		-----	-----
1016		-----		-----	-----		-----	-----		-----	-----
1029	D1078-automated	64.3		-0.15	64.5		-0.04	64.9		-0.29	-----
1041		-----		-----	-----		-----	-----		-----	-----
1067	D1078-manual	64.4		0.13	64.5		-0.04	65.4		1.73	1.0
1120	D1078-automated	64.4		0.13	64.5		-0.04	64.9		-0.29	-----
1149	D1078	64.3		-0.15	64.5		-0.04	65.1		0.52	0.8
1181	D1078A	64.3		-0.15	64.4		-0.67	64.9		-0.29	0.6
1201	D1078-automated	64.2		-0.43	64.5		-0.04	65.1		0.52	0.9
1221		-----		-----	-----		-----	-----		-----	-----
1256	D1078	64.7		0.96	64.7		1.23	64.9		-0.29	0.2
1264	D1078-automated	64.5		0.41	64.6		0.60	65.0		0.12	0.5
1319	D1078-manual	64.4		0.13	64.6		0.60	65.1		0.52	0.7
1342	D1078-automated	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
1354	D1078-automated	64.2		-0.43	64.2	R(0.05)	-1.94	64.7		-1.09	0.50
1373	D1078-manual	64.409		0.15	64.609		0.65	65.409		1.76	1.0
1465	D1078-automated	64.1		-0.71	64.3		-1.31	64.8		-0.69	0.7

lab	method	IBP	mark	z(targ)	50% rec.	mark	z(targ)	DP	mark	z(targ)	range
1530	D1078-automated	64.2		-0.43	64.4		-0.67	64.7		-1.09	0.5
1557		-----		-----	-----		-----	-----		-----	-----
1615	D1078-automated	64.5		0.41	64.6		0.60	65.1		0.52	0.6
1656		64.4		0.13	64.5		-0.04	64.7		-1.09	0.3
1689		-----		-----	-----		-----	-----		-----	-----
1728	D1078-manual	64.4		0.13	64.5		-0.04	65		0.12	0.6
1866	D1078	64.5		0.41	64.8		1.87	-----		-----	-----
1886		-----		-----	-----		-----	-----		-----	-----
6008	D1078-automated	64.5		0.41	64.6		0.60	65.0		0.12	0.5
6061	D1078-automated	64.2		-0.43	64.3		-1.31	64.8		-0.69	0.6
6070	D1078-automated	64.4		0.13	64.5		-0.04	65.0		0.12	0.6
6100	D1078-automated	64.4		0.13	64.5		-0.04	65.3		1.32	0.9
6119		-----		-----	-----		-----	-----		-----	-----
6132	D1078-automated	64.4		0.13	64.5		-0.04	64.8		-0.69	0.4
6201	D1078-manual	64.6		0.68	64.7		1.23	65.4		1.73	0.8
6209	D1078-automated	64.30		-0.15	64.50		-0.04	64.90		-0.29	0.60
6210	D1078-automated	64.30		-0.15	64.40		-0.67	65.40		1.73	1.10
7018	D1078-manual	64.39		0.10	64.39		-0.74	64.99		0.08	0.6

normality	not OK	not OK	suspect
n	73	71	71
outliers	0	2	0
mean (n)	64.355	64.506	64.971
st.dev. (n)	0.1063	0.0849	0.1724
R(calc.)	0.298	0.238	0.483
st.dev.(D1078-A:11)	0.3585	0.1573	0.2483
R(D1078-A:11)	1.004	0.441	0.695



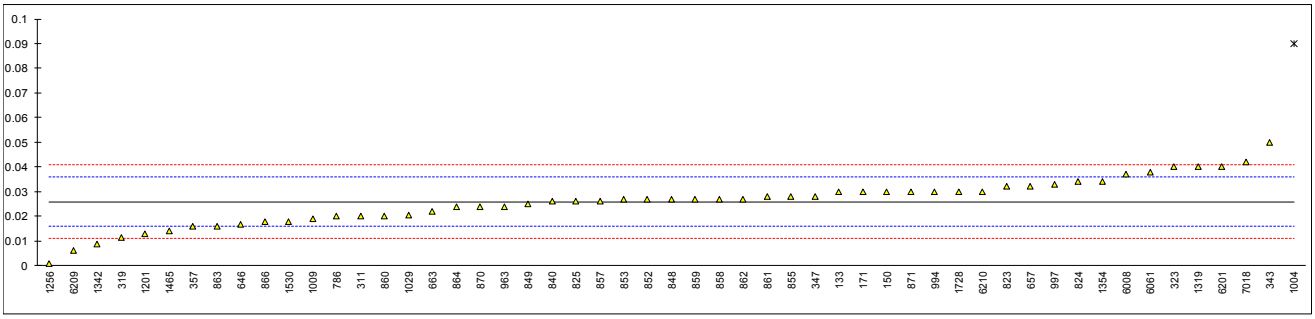


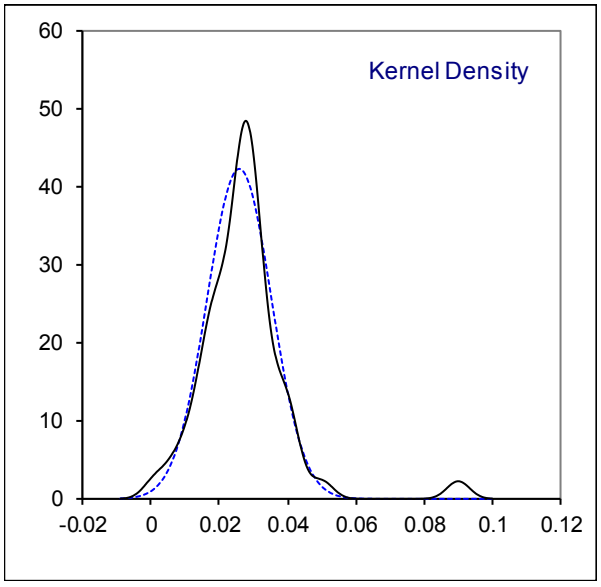


Determination of Iron as Fe on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	E394	<0.01		<-3.18	Probably a false negative test result?
133	E394	0.03		0.84	
150	E394	0.03		0.84	
171	E394	0.03		0.84	
311	E394	0.02		-1.17	
316		-----		-----	
319	E394	0.0114		-2.90	
323	E394	0.04		2.85	
333	E394	< 0.1		-----	
334		-----		-----	
335		-----		-----	
343	E394	0.05		4.85	
344	E394	<0.1		-----	
345		-----		-----	
346	E394	<0,1		-----	
347	E394	0.028		0.44	
357	E394	0.016		-1.98	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609		-----		-----	
646	E394	0.0168		-1.81	
657	E394	0.032		1.24	
663	E394	0.022		-0.77	
786	E394	0.02		-1.17	
823	E394	0.032		1.24	
824	E394	0.034		1.64	
825	E394	0.026		0.03	
840	E394	0.026		0.03	
848	E394	0.027		0.23	
849	E394	0.025		-0.17	
852	E394	0.027		0.23	
853	E394	0.027		0.23	
855	E394	0.028		0.44	
857	E394	0.026		0.03	
858	E394	0.027		0.23	
859	E394	0.027		0.23	
860	E394	0.020		-1.17	
861	E394	0.028		0.44	
862	E394	0.027		0.23	
863	E394	0.016		-1.98	
864	E394	0.024		-0.37	
866	E394	0.018		-1.57	
870	E394	0.024		-0.37	
871	E394	0.03		0.84	
912		-----		-----	
913		-----		-----	
963	E394	0.024		-0.37	
970		-----		-----	
974		-----		-----	
994	E394	0.03		0.84	
997	E394	0.033		1.44	
1004	E394	0.09	R(0.01)	12.89	
1009	In house	0.0189		-1.39	
1010		-----		-----	
1016		-----		-----	
1029	E394	0.02039		-1.09	
1041		-----		-----	
1067	E394	< 0.10		-----	
1120		-----		-----	
1149		-----		-----	
1181	E394	<0.01		<-3.18	Probably a false negative test result?
1201	E394	0.013		-2.58	
1221		-----		-----	
1256	E94	0.001		-4.99	
1264	E394	<0.1		-----	
1319	E394	0.04		2.85	
1342	E394	0.0088		-3.42	
1354	E394	0.034		1.64	
1373		-----		-----	
1465	E394	0.014		-2.38	

lab	method	value	mark	z(targ)	remarks
1530	E394	0.018		-1.57	
1557		-----		-----	
1615		-----		-----	
1656		-----		-----	
1689		-----		-----	
1728	E394	0.030		0.84	
1866		-----		-----	
1886		-----		-----	
6008	E394	0.037		2.24	
6061	E394	0.038		2.44	
6070	E394	< 0.1		-----	
6100		-----		-----	
6119		-----		-----	
6132	E394	<0.01		<-3.18	Probably a false negative test result?
6201	E394	0.04		2.85	
6209	E394	0.006		-3.98	
6210	E394	0.03		0.84	
7018	E394	0.042		3.25	
	normality	OK			
	n	52			
	outliers	1	Spike		
	mean (n)	0.0258	0.059		Recovery <42%
	st.dev. (n)	0.00944			
	R(calc.)	0.0264			
	st.dev.(E394:15)	0.00498			
	R(E394:15)	0.0139			





Determination of Miscibility with water (Hydrocarbons) on sample #18150;

lab	method	value	mark	z(targ)	remarks
53	D1722	Pass		-----	
133	D1722	Passes		-----	
150	D1722	Passes		-----	
171	D1722	PASSES		-----	
311	D1722	pass		-----	
316		-----		-----	
319	D1722	pass test		-----	
323	IMPCA	pass		-----	
333	D1722	pass test		-----	
334		-----		-----	
335		-----		-----	
343	D1722	PASS		-----	
344	D1722	pass		-----	
345	D1722	pass		-----	
346	D1722	Pass		-----	
347	D1722	Pass		-----	
357	D1722	Passes		-----	
395	D1722	PASS		-----	
529	D1722	PASS TEST		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D1722	Passes Test		-----	
609	D1722	PASS		-----	
646	D1722	Pass		-----	
657	D1722	Pass		-----	
663	D1722	Pass test		-----	
786	D1722	Pass		-----	
823	D1722	Pass		-----	
824		-----		-----	
825	D1722	Passes Test		-----	
840	D1722	Pass		-----	
848		-----		-----	
849	D1722	PASS		-----	
852	D1722	pass		-----	
853	D1722	Passes test		-----	
855	D1722	Pass		-----	
857	D1722	Pass		-----	
858	D1722	Passes test		-----	
859	D1722	Pass		-----	
860	D1722	Pass		-----	
861	D1722	Pass		-----	
862	D1722	pass		-----	
863	D1722	passse test		-----	
864	D1722	Pass		-----	
866	D1722	Pass		-----	
870	D1722	Pass		-----	
871	D1722	pass		-----	
912	D1722	Pass		-----	
913	D1722	Pass		-----	
963	D1722	Pass		-----	
970	D1722	Pass		-----	
974	D1722	Pass		-----	
994	D1722	pass		-----	
997	D1722	pass		-----	
1004	D1722	Pass Test		-----	
1009	D1722	PASS		-----	
1010	D1722	Passes		-----	
1016	D1722	PASSES TEST		-----	
1029	D1722	PASS		-----	
1041		-----		-----	
1067	D1722	Pass		-----	
1120	E346	Pass		-----	
1149		Passes Test		-----	
1181	D1722	PASS		-----	
1201	D1722	pass		-----	
1221		-----		-----	
1256	D1722	PASS		-----	
1264	D1722	Pass		-----	
1319	D1722	Passes test		-----	
1342	D1722	Pass		-----	
1354	D1722	Pass		-----	
1373		-----		-----	
1465	D1722	Pass		-----	

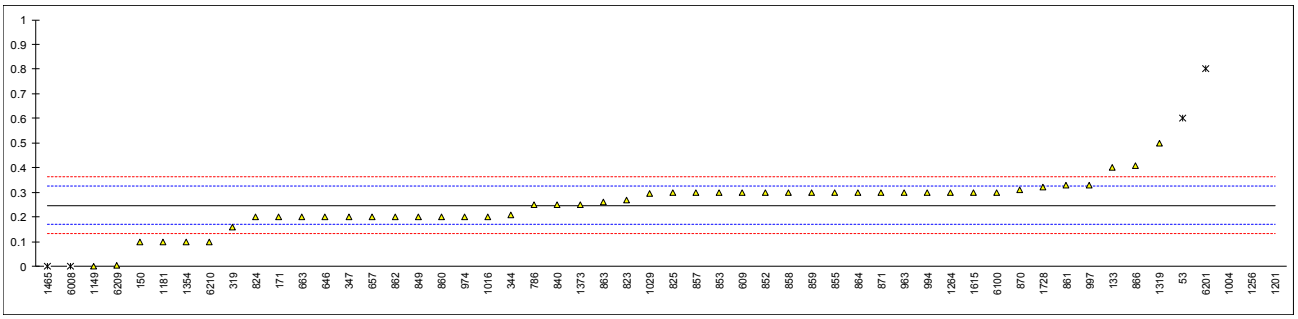
lab	method	value	mark	z(targ)	remarks
1530		-----		-----	
1557		-----		-----	
1615	D1722	PASS		-----	
1656		-----		-----	
1689	D1722	passes test		-----	
1728	D1722	PASS		-----	
1866		-----		-----	
1886		-----		-----	
6008	D1722	PASS		-----	
6061		-----		-----	
6070	D1722	PASS		-----	
6100	D1722	passes test		-----	
6119		-----		-----	
6132	D1722	Pass		-----	
6201	D1722	pass test		-----	
6209	D1722	Pass		-----	
6210	D1722	Pass		-----	
7018	D1722	pass		-----	
	normality	Unknown			
	n	74			
	mean (n)	Pass test			

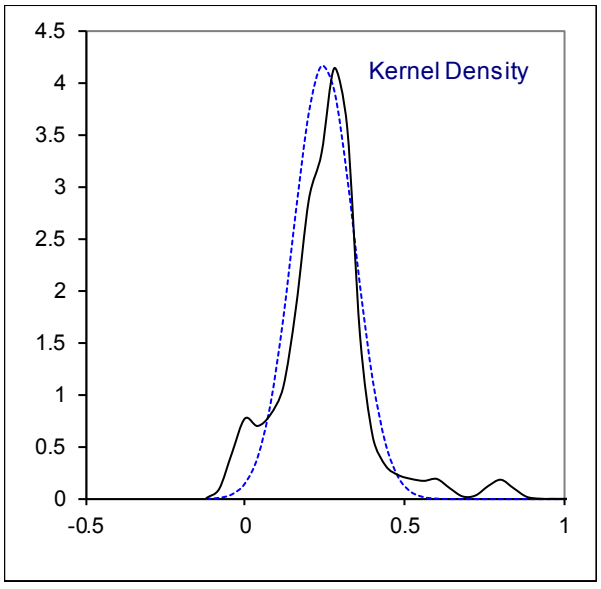
Determination of Nonvolatile Matter on sample #18150; results in mg/100 mL

lab	method	value	mark	z(targ)	remarks
53	D1353	0.6	R(0.05)	9.22	
133	D1353	0.4		3.98	
150	D1353	0.1		-3.87	
171	D1353	0.2		-1.25	
311	D1353	<0.8		-----	
316		-----		-----	
319	D1353	0.16		-2.30	
323	D1353	<1		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
343	D1353	<0,1		-----	
344	D1353	0.21		-0.99	
345	D1353	<0.1		-----	
346		-----		-----	
347	D1353	0.2		-1.25	
357	D1353	< 1		-----	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609	D1353	0.3		1.37	
646	D1353	0.2		-1.25	
657	D1353	0.2		-1.25	
663	D1353	0.2		-1.25	
786	D1353	0.25		0.06	
823	D1353	0.27		0.58	
824	D1353	0.2		-1.25	
825	D1353	0.3		1.37	
840	D1353	0.25		0.06	
848		-----		-----	
849	D1353	0.2		-1.25	
852	D1353	0.3		1.37	
853	D1353	0.3		1.37	
855	D1353	0.3		1.37	
857	D1353	0.3		1.37	
858	D1353	0.3		1.37	
859	D1353	0.3		1.37	
860	D1353	0.2		-1.25	
861	D1353	0.33		2.15	
862	D1353	0.2		-1.25	
863	D1353	0.26		0.32	
864	D1353	0.3		1.37	
866	D1353	0.41		4.25	
870	D1353	0.31		1.63	
871	D1353	0.3		1.37	
912		-----		-----	
913		-----		-----	
963	D1353	0.3		1.37	
970		-----		-----	
974	D1353	0.2		-1.25	
994	D1353	0.3		1.37	
997	D1353	0.33		2.15	
1004	D1353	2.6	R(0.01)	61.58	
1009	D1353	<0.4		-----	
1010		-----		-----	
1016	D1353	0.2		-1.25	
1029	D1353	0.2951		1.24	
1041		-----		-----	
1067		-----		-----	
1120		-----		-----	
1149	D1353	0.0005		-6.48	
1181	D1353	0.1		-3.87	
1201	D1353	10	R(0.01)	255.33	
1221		-----		-----	
1256	D1353	3	R(0.01)	72.06	
1264	D1353	0.3		1.37	
1319	D1353	0.5		6.60	
1342	D1353	<0.1		-----	
1354	D1353	0.10		-3.87	
1373	D1353	0.25		0.06	
1465	D1353	0	ex	-6.49	Result excluded, zero is not a real test result

lab	method	value	mark	z(targ)	remarks
1530	D1353	< 1		-----	
1557		-----		-----	
1615	D1353	0.3		1.37	
1656		-----		-----	
1689		-----		-----	
1728	D1353	0.32		1.89	
1866		-----		-----	
1886		-----		-----	
6008	D1353	0	ex	-6.49	Result excluded, zero is not a real test result
6061		-----		-----	
6070	D1353	< 0.1		-----	
6100	D1353	0.3		1.37	
6119		-----		-----	
6132	D1353	<0.1		-----	
6201	D1353	0.8	C,R(0.01)	14.46	First reported 0.75
6209	D1353	0.0034		-6.40	
6210	D1353	0.100		-3.87	
7018	D1353	<0.5		-----	

normality	suspect
n	47
outliers	5 (+2excl)
mean (n)	0.248
st.dev. (n)	0.0958
R(calc.)	0.268
st.dev.(D1353:13)	0.0382
R(D1353:13)	0.107



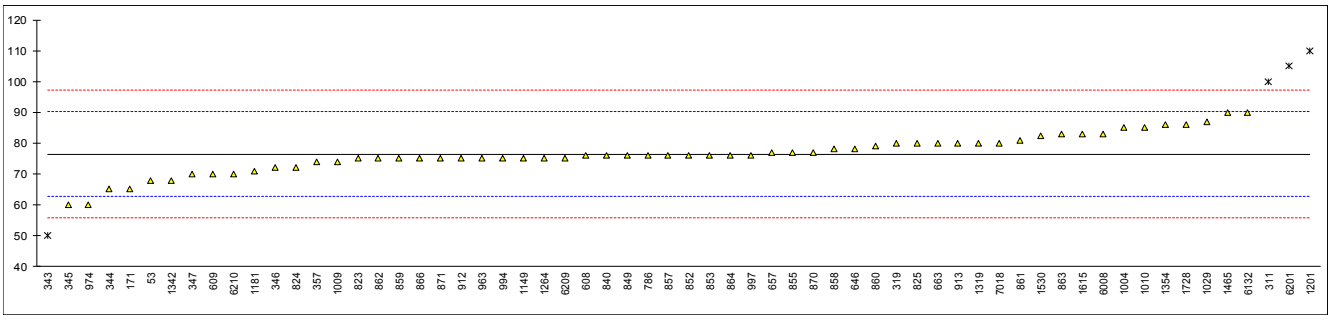


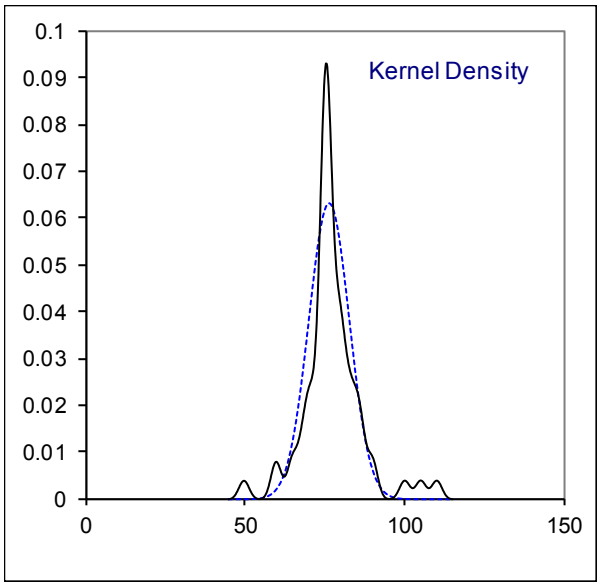
Determination of Permanganate Time Test at 15°C on sample #18150; results in minutes

lab	method	value	mark	z(targ)	remarks
53	D1363	68		-1.23	
133	D1363	>60		-----	
150	D1363	>60		-----	
171	D1363	65		-1.67	
311	D1363	100	R(0.05)	3.42	
316		-----		-----	
319	D1363	80		0.51	
323	D1363	>50		-----	
333	D1363	>60		-----	
334		-----		-----	
335		-----		-----	
343	D1363	50	R(0.05)	-3.85	
344	D1363	65		-1.67	
345	D1363	60		-2.39	
346	D1363	72		-0.65	
347	D1363	70		-0.94	
357	D1363	74		-0.36	
395	D1363	>60		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D1363	76		-0.07	
609	D1363	70		-0.94	
646	D1363	78		0.22	
657	D1363	77		0.08	
663	D1363	80		0.51	
786	D1363	76		-0.07	
823	D1363	75		-0.21	
824	D1363	72		-0.65	
825	D1363	80		0.51	
840	D1363	76		-0.07	
848		-----		-----	
849	D1363	76		-0.07	
852	D1363	76		-0.07	
853	D1363	76		-0.07	
855	D1363	77		0.08	
857	D1363	76		-0.07	
858	D1363	78		0.22	
859	D1363	75		-0.21	
860	D1363	79		0.37	
861	D1363	81		0.66	
862	D1363	75		-0.21	
863	D1363	83		0.95	
864	D1363	76		-0.07	
866	D1363	75		-0.21	
870	D1363	77		0.08	
871	D1363	75		-0.21	
912	D1363	75		-0.21	
913	D1363	80		0.51	
963	D1363	75		-0.21	
970		-----		-----	
974	D1363	60		-2.39	
994	D1363	75		-0.21	
997	D1363	76		-0.07	
1004	D1363	85		1.24	
1009	D1363	74		-0.36	
1010	D1363	85		1.24	
1016		-----		-----	
1029	D1363	87		1.53	
1041		-----		-----	
1067	D1363	> 50		-----	
1120	D1363	>70		-----	
1149	D1363	75		-0.21	
1181	D1363	71		-0.80	
1201	D1363	110	R(0.05)	4.87	
1221		-----		-----	
1256		-----		-----	
1264	D1363	75		-0.21	
1319	D1363	80		0.51	
1342	D1363	68		-1.23	
1354	D1363	86		1.38	
1373		-----		-----	
1465	D1363	90		1.97	

lab	method	value	mark	z(targ)	remarks
1530	D1363	82.5		0.88	
1557		-----		-----	
1615	D1363	83		0.95	
1656		-----		-----	
1689		-----		-----	
1728	D1363	86		1.38	
1866		-----		-----	
1886		-----		-----	
6008	D1363	83		0.95	
6061	D1363	>60		-----	
6070	D1363	> 60		-----	
6100	D1363	＞60min		-----	
6119		-----		-----	
6132	D1363	90		1.97	
6201	D1363	105	R(0.05)	4.14	
6209	D1363	75.0		-0.21	
6210	D1363	70.0		-0.94	
7018	D1363	80		0.51	

normality	OK
n	58
outliers	4
mean (n)	76.5
st.dev. (n)	6.29
R(calc.)	17.6
st.dev.(D1363:06)	6.88
R(D1363:06)	19.3

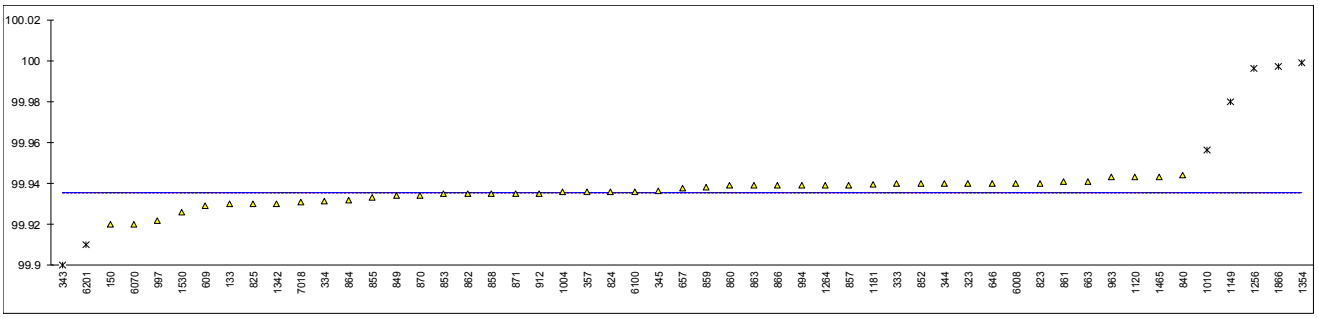


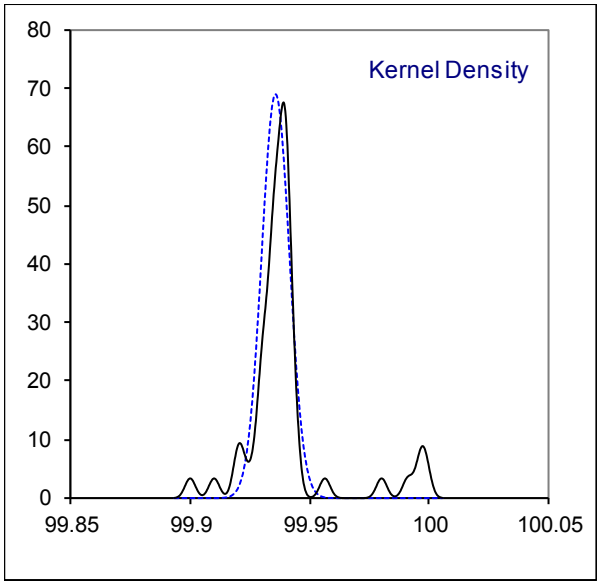


Determination of Purity by GC “as received” on sample #18150; results in %M/M

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
133	IMPCA001	99.93		-----	
150	IMPCA001	99.92		-----	
171		-----		-----	
311		-----		-----	
316		-----		-----	
319		-----		-----	
323	IMPCA001	99.94		-----	
333	IMPCA001	99.94		-----	
334	IMPCA001	99.9312		-----	
335		-----		-----	
343	IMPCA001	99.90	R(0.01)	-----	
344	IMPCA001	99.94		-----	
345	IMPCA001	99.9364		-----	
346		-----		-----	
347		-----		-----	
357	IMPCA001	99.936	C	-----	First reported 99.994
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609	IMPCA001	99.929		-----	
646	IMPCA001	99.94		-----	
657	IMPCA001	99.9377		-----	
663	IMPCA001	99.941		-----	
786		-----		-----	
823	IMPCA001	99.9401		-----	
824	IMPCA001	99.936		-----	
825	IMPCA001	99.93		-----	
840	IMPCA001	99.944		-----	
848		-----		-----	
849	IMPCA001	99.934		-----	
852	IMPCA001	99.94		-----	
853	IMPCA001	99.935		-----	
855	IMPCA001	99.933		-----	
857	IMPCA001	99.9392		-----	
858	IMPCA001	99.935		-----	
859	IMPCA001	99.938		-----	
860	IMPCA001	99.939		-----	
861	IMPCA001	99.941		-----	
862	IMPCA001	99.935		-----	
863	IMPCA001	99.939		-----	
864	IMPCA001	99.932		-----	
866	IMPCA001	99.939		-----	
870	IMPCA001	99.934		-----	
871	IMPCA001	99.935		-----	
912	IMPCA001	99.935		-----	
913		-----		-----	
963	IMPCA001	99.943	C	-----	First reported 99.998
970		-----		-----	
974		-----		-----	
994	IMPCA001	99.939		-----	
997	IMPCA001	99.922		-----	
1004	IMPCA001	99.9358		-----	
1009		-----		-----	
1010	IMPCA001	99.9563	R(0.05)	-----	
1016		-----		-----	
1029		-----		-----	
1041		-----		-----	
1067		-----		-----	
1120	E346	99.943		-----	
1149		99.98	R(0.01)	-----	
1181	IMPCA001	99.9397		-----	
1201		-----		-----	
1221		-----		-----	
1256	IMPCA001	99.996	R(0.01)	-----	
1264	IMPCA001	99.939		-----	
1319		-----		-----	
1342	IMPCA001	99.93		-----	
1354	IMPCA001	99.998812	C,R(0.01)	-----	First reported 99.99
1373		-----		-----	
1465	IMPCA001	99.943		-----	

lab	method	value	mark	z(targ)	remarks
1530	IMPCA001	99.926		-----	
1557		-----		-----	
1615		-----		-----	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA001	99.997	ex	-----	Result excluded as test result ‘as received” > ‘on dry basis”.
1886		-----		-----	
6008	IMPCA001	99.94		-----	
6061		-----		-----	
6070	IMPCA001	99.92		-----	
6100	IMPCA001	99.936	C	-----	First reported 99.999
6119		-----		-----	
6132		-----		-----	
6201	IMPCA001	99.91	R(0.05)	-----	
6209		-----		-----	
6210		-----		-----	
7018	IMPCA001	99.9307		-----	
	normality	Suspect			
	n	46			
	outliers	6 (+1 excl)			
	mean (n)	99.93568			
	st.dev. (n)	0.005774			
	R(calc.)	0.01617			
	st.dev.(lit)	unknown			
	R(lit)	unknown			Compare R(iis17C09) = 0.01730

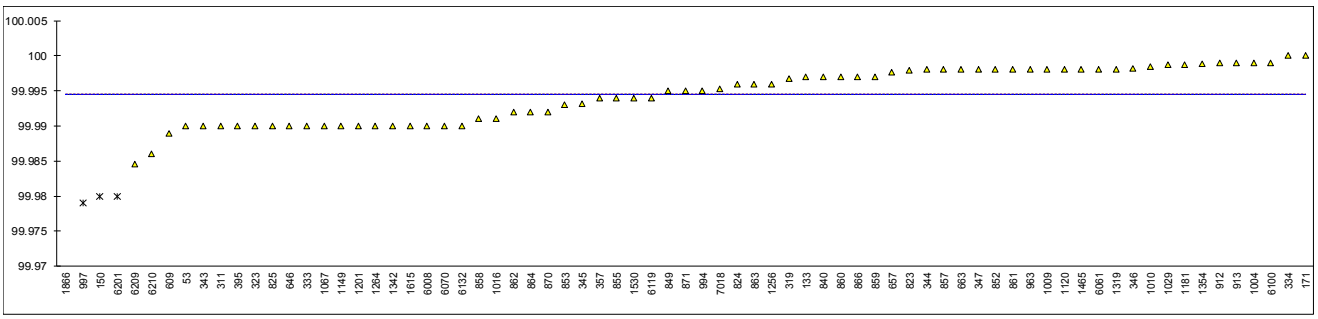


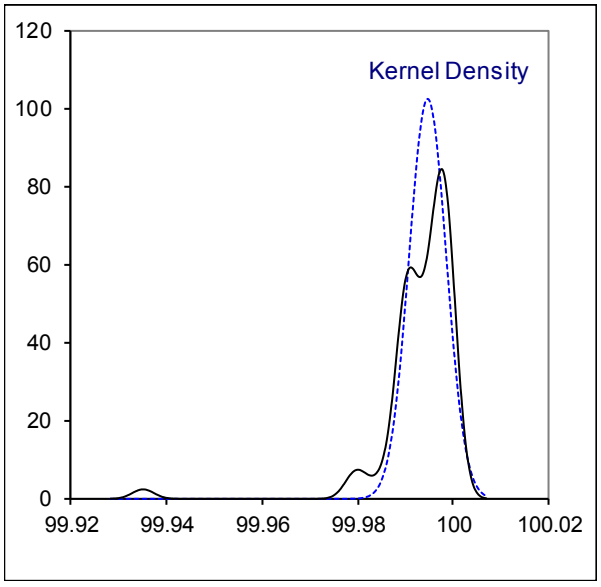


Determination of Purity by GC on dry basis on sample #18150; results in %M/M

lab	method	value	mark	z(targ)	Remarks
53	IMPCA001	99.99		-----	
133	IMPCA001	99.997		-----	
150	IMPCA001	99.98	R(0.05)	-----	
171	IMPCA001	100.0		-----	
311	IMPCA001	99.99		-----	
316		-----		-----	
319	IMPCA001	99.9967		-----	
323	IMPCA001	99.99		-----	
333	IMPCA001	99.99		-----	
334	IMPCA001	100.00		-----	
335		-----		-----	
343	IMPCA001	99.99		-----	
344	IMPCA001	99.998		-----	
345	IMPCA001	99.9932		-----	
346	IMPCA001	99.9982		-----	
347	IMPCA001	99.998		-----	
357	IMPCA001	99.994	C	-----	First reported 99.936
395	IMPCA001	99.99		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609	IMPCA001	99.989		-----	
646	IMPCA001	99.99		-----	
657	IMPCA001	99.9977		-----	
663	IMPCA001	99.998		-----	
786	IMPCA001	>99.99		-----	
823	IMPCA001	99.9979		-----	
824	IMPCA001	99.996		-----	
825	IMPCA001	99.99		-----	
840	IMPCA001	99.997		-----	
848		-----		-----	
849	IMPCA001	99.995		-----	
852	IMPCA001	99.998		-----	
853	IMPCA001	99.993		-----	
855	IMPCA001	99.994		-----	
857	IMPCA001	99.998		-----	
858	IMPCA001	99.991		-----	
859	IMPCA001	99.997		-----	
860	IMPCA001	99.997		-----	
861	IMPCA001	99.998		-----	
862	IMPCA001	99.992		-----	
863	IMPCA001	99.996		-----	
864	IMPCA001	99.992		-----	
866	IMPCA001	99.997		-----	
870	IMPCA001	99.992		-----	
871	IMPCA001	99.995		-----	
912	IMPCA001	99.999		-----	
913	IMPCA001	99.999		-----	
963	IMPCA001	99.998	C	-----	First reported 99.943
970		-----		-----	
974		-----		-----	
994	IMPCA001	99.995		-----	
997	IMPCA001	99.979	R(0.05)	-----	
1004	IMPCA001	99.9990		-----	
1009	IMPCA001	99.998		-----	
1010	IMPCA001	99.9985		-----	
1016	In house	99.991	C	-----	First reported as Purity “as received”
1029	IMPCA001	99.9987		-----	
1041		-----		-----	
1067	IMPCA001	99.99		-----	
1120	E346	99.998		-----	
1149	IMPCA001	99.99		-----	
1181	IMPCA001	99.9987		-----	
1201	IMPCA001	99.99		-----	
1221		-----		-----	
1256	IMPCA001	99.996		-----	
1264	IMPCA001	99.99		-----	
1319	IMPCA001	99.9981		-----	
1342	IMPCA001	99.99		-----	
1354	IMPCA001	99.998812		-----	
1373		-----		-----	
1465	IMPCA001	99.998		-----	

lab	method	value	mark	z(targ)	Remarks
1530	IMPCA001	99.994		-----	
1557		-----		-----	
1615	IMPCA001	99.99		-----	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA001	99.935	ex	-----	Result excluded as test result ‘as received” > ‘on dry basis”.
1886		-----		-----	
6008	IMPCA001	99.99		-----	
6061	IMPCA001	99.998		-----	
6070	IMPCA001	99.99		-----	
6100	IMPCA001	99.999		-----	
6119	IMPCA001	99.994		-----	
6132	IMPCA001	99.99		-----	
6201	IMPCA001	99.98	R(0.05)	-----	
6209	IMPCA001	99.98461		-----	
6210	IMPCA001	99.986		-----	
7018	IMPCA001	99.9953		-----	
	normality	OK			
	n	69			
	outliers	3 (+1 excl)			
	mean (n)	99.99450			
	st.dev. (n)	0.003896			
	R(calc.)	0.01091			
	st.dev.(lit)	unknown			
	R(lit)	unknown			Compare R(iis17C09) = 0.01285





Determination of Acetone content on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	IMPCA001	<5		-----	
133	IMPCA001	<5		-----	
150	IMPCA001	<5		-----	
171	IMPCA001	<5		-----	
311	IMPCA001	<5		-----	
316		-----		-----	
319	IMPCA001	1		-----	
323	IMPCA001	<5		-----	
333	IMPCA001	<10		-----	
334		-----		-----	
335		-----		-----	
343	IMPCA001	<10		-----	
344	IMPCA001	<5		-----	
345	IMPCA001	<5	C	-----	First reported 48.85
346	IMPCA001	<5		-----	
347	IMPCA001	<5		-----	
357	IMPCA001	< 5		-----	
395	IMPCA001	<5		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609	IMPCA001	<5		-----	
646	IMPCA001	BDL		-----	
657	IMPCA001	N.D.		-----	
663	IMPCA001	0		-----	
786	IMPCA001	<5		-----	
823	IMPCA001	<5		-----	
824	IMPCA001	<5		-----	
825	IMPCA001	L5		-----	
840	IMPCA001	<5		-----	
848		-----		-----	
849	IMPCA001	<5		-----	
852	IMPCA001	<5		-----	
853	IMPCA001	<5		-----	
855	IMPCA001	<5		-----	
857	IMPCA001	<5		-----	
858	IMPCA001	<5		-----	
859	IMPCA001	<5		-----	
860	IMPCA001	<5		-----	
861	IMPCA001	<5		-----	
862	IMPCA001	<5		-----	
863	IMPCA001	<5		-----	
864	IMPCA001	<5		-----	
866	IMPCA001	<5		-----	
870	IMPCA001	<5		-----	
871	IMPCA001	<5		-----	
912	IMPCA001	<5		-----	
913		-----		-----	
963	IMPCA001	<5		-----	
970		-----		-----	
974		-----		-----	
994	IMPCA001	<5		-----	
997	IMPCA001	0		-----	
1004	IMPCA001	<1		-----	
1009	IMPCA001	<5		-----	
1010	IMPCA001	<5		-----	
1016	In house	0.00		-----	
1029	IMPCA001	<5		-----	
1041		-----		-----	
1067	IMPCA001	< 5		-----	
1120	E346	-----		-----	
1149	IMPCA001	<5		-----	
1181	IMPCA001	<5		-----	
1201	IMPCA001	<5		-----	
1221		-----		-----	
1256	IMPCA001	<5		-----	
1264	IMPCA001	<5		-----	
1319	IMPCA001	Less than 5		-----	
1342	IMPCA001	< 5		-----	
1354	IMPCA001	0.00		-----	
1373		-----		-----	
1465	IMPCA001	0		-----	

lab	method	value	mark	z(targ)	remarks
1530	IMPCA001	23		-----	Probably a false positive test result?
1557		-----		-----	
1615	IMPCA001	<5		-----	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA001	<5		-----	
1886		-----		-----	
6008	IMPCA001	<5		-----	
6061	IMPCA001	<5		-----	
6070	IMPCA001	< 5		-----	
6100	IMPCA001	＜5		-----	
6119	IMPCA001	n.d.		-----	
6132	IMPCA001	<5		-----	
6201	IMPCA001	4		-----	
6209	IMPCA001	0.00		-----	
6210	IMPCA001	3		-----	
7018	IMPCA001	<5		-----	
	normality	unknown			
	n	65			
	mean (n)	<5			

Determination of Benzene content on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
133		-----		-----	
150	IMPCA001	<5		-----	
171		-----		-----	
311	IMPCA001	<5		-----	
316		-----		-----	
319	IMPCA001	14		-----	Probably a false positive test result?
323	IMPCA001	<5		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
343	IMPCA001	<5		-----	
344	IMPCA001	<5		-----	
345	IMPCA001	<1		-----	
346	IMPCA001	<5		-----	
347	IMPCA001	<5		-----	
357	IMPCA001	< 5		-----	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609		-----		-----	
646	IMPCA001	BDL		-----	
657	IMPCA001	N.D.		-----	
663	IMPCA001	<5		-----	
786	IMPCA001	<5		-----	
823	IMPCA001	<5		-----	
824	IMPCA001	<1		-----	
825	IMPCA001	L5		-----	
840	IMPCA001	<5		-----	
848		-----		-----	
849	IMPCA001	<5		-----	
852	IMPCA001	<5		-----	
853	IMPCA001	<5		-----	
855	IMPCA001	<5		-----	
857	IMPCA001	<5		-----	
858	IMPCA001	<5		-----	
859	IMPCA001	<5		-----	
860	IMPCA001	<5		-----	
861	IMPCA001	<5		-----	
862	IMPCA001	<5		-----	
863	IMPCA001	<5		-----	
864	IMPCA001	<5		-----	
866	IMPCA001	<5		-----	
870	IMPCA001	<5		-----	
871	IMPCA001	<5		-----	
912	IMPCA001	<10		-----	
913		-----		-----	
963	IMPCA001	<5		-----	
970		-----		-----	
974		-----		-----	
994	IMPCA001	<5		-----	
997		-----		-----	
1004	IMPCA001	<1		-----	
1009	IMPCA001	<5		-----	
1010	IMPCA001	<5		-----	
1016		-----		-----	
1029	IMPCA001	<1		-----	
1041		-----		-----	
1067	IMPCA001	< 5		-----	
1120		-----		-----	
1149		-----		-----	
1181	IMPCA001	<5		-----	
1201	IMPCA001	<1		-----	
1221		-----		-----	
1256	IMPCA001	<5		-----	
1264	IMPCA001	<5		-----	
1319	IMPCA001	Less than 5		-----	
1342	IMPCA001	<5		-----	
1354	IMPCA001	0.00		-----	
1373		-----		-----	
1465	IMPCA001	0		-----	

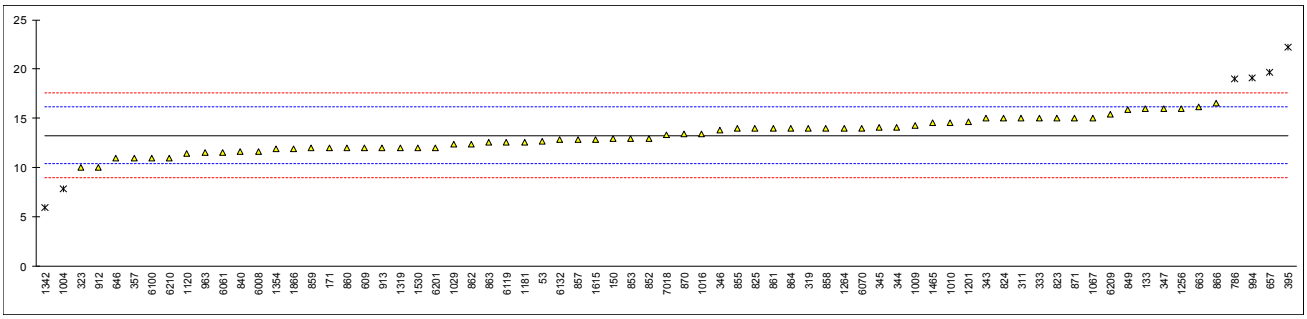
lab	method	value	mark	z(targ)	remarks
1530	IMPCA001	< 2		-----	
1557		-----		-----	
1615	IMPCA001	2.67		-----	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA001	<5		-----	
1886		-----		-----	
6008	IMPCA001	<5		-----	
6061	IMPCA001	<5		-----	
6070	IMPCA001	< 5		-----	
6100		-----		-----	
6119	IMPCA001	1.1		-----	
6132	IMPCA001	<5		-----	
6201	IMPCA001	<1		-----	
6209	IMPCA001	0.00		-----	
6210	IMPCA001	0		-----	
7018		-----		-----	
	normality	unknown			
	n	56			
	mean (n)	<5			

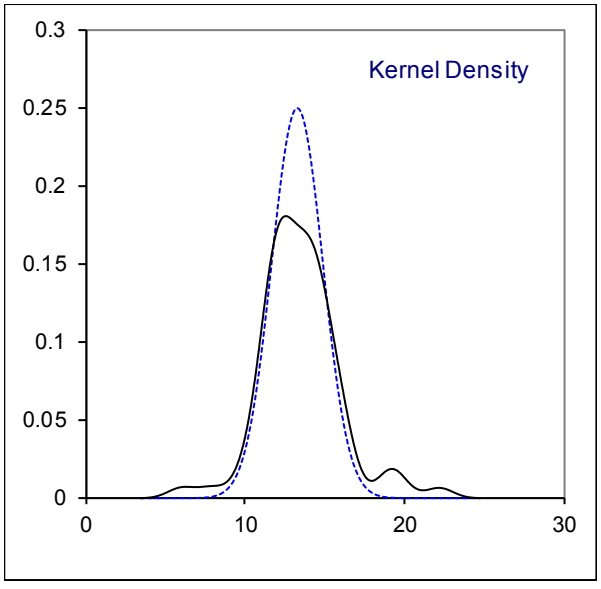
Determination of Ethanol content on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	IMPCA001	12.7		-0.41	
133	IMPCA001	16		1.89	
150	IMPCA001	13		-0.20	
171	IMPCA001	12		-0.89	
311	IMPCA001	15		1.19	
316		-----		-----	
319	IMPCA001	14	C	0.50	First reported 0
323	IMPCA001	10		-2.28	
333	IMPCA001	15		1.19	
334		-----		-----	
335		-----		-----	
343	IMPCA001	15		1.19	
344	IMPCA001	14.1		0.57	
345	IMPCA001	14.05		0.53	
346	IMPCA001	13.7954		0.36	
347	IMPCA001	16		1.89	
357	IMPCA001	11		-1.59	
395	IMPCA001	22.219	R(0.05)	6.20	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609	IMPCA001	12		-0.89	
646	IMPCA001	10.93		-1.63	
657	IMPCA001	19.6296	R(0.05)	4.41	
663	IMPCA001	16.2		2.02	
786	IMPCA001	19	R(0.05)	3.97	
823	IMPCA001	15		1.19	
824	IMPCA001	15		1.19	
825	IMPCA001	14		0.50	
840	IMPCA001	11.6		-1.17	
848		-----		-----	
849	IMPCA001	15.9		1.82	
852	IMPCA001	13		-0.20	
853	IMPCA001	13		-0.20	
855	IMPCA001	14		0.50	
857	IMPCA001	12.9		-0.27	
858	IMPCA001	14		0.50	
859	IMPCA001	12		-0.89	
860	IMPCA001	12		-0.89	
861	IMPCA001	14.0		0.50	
862	IMPCA001	12.4		-0.61	
863	IMPCA001	12.6		-0.48	
864	IMPCA001	14		0.50	
866	IMPCA001	16.5		2.23	
870	IMPCA001	13.4		0.08	
871	IMPCA001	15		1.19	
912	IMPCA001	10		-2.28	
913	IMPCA001	12		-0.89	
963	IMPCA001	11.5		-1.24	
970		-----		-----	
974		-----		-----	
994	IMPCA001	19.13	R(0.05)	4.06	
997		-----		-----	
1004	IMPCA001	7.9	R(0.05)	-3.74	
1009	IMPCA001	14.26		0.68	
1010	IMPCA001	14.6		0.91	
1016	In house	13.43		0.10	
1029	IMPCA001	12.38		-0.63	
1041		-----		-----	
1067	IMPCA001	15		1.19	
1120	E346	11.45		-1.27	
1149	IMPCA001	<5		<-5.75	Probably a false negative test result?
1181	IMPCA001	12.61291		-0.47	
1201	IMPCA001	14.7		0.98	
1221		-----		-----	
1256	IMPCA001	16		1.89	
1264	IMPCA001	14		0.50	
1319	IMPCA001	12		-0.89	
1342	IMPCA001	6	R(0.05)	-5.06	
1354	IMPCA001	11.885		-0.97	
1373		-----		-----	
1465	IMPCA001	14.54		0.87	

lab	method	value	mark	z(targ)	remarks
1530	IMPCA001	12		-0.89	
1557		-----		-----	
1615	IMPCA001	12.91		-0.26	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA001	11.9		-0.96	
1886		-----		-----	
6008	IMPCA001	11.6		-1.17	
6061	IMPCA001	11.5		-1.24	
6070	IMPCA001	14		0.50	
6100	IMPCA001	11		-1.59	
6119	IMPCA001	12.6		-0.48	
6132	IMPCA001	12.82		-0.32	
6201	IMPCA001	12		-0.89	
6209	IMPCA001	15.39824		1.47	
6210	IMPCA001	11		-1.59	
7018	IMPCA001	13.3		0.01	

normality	OK
n	65
outliers	6
mean (n)	13.284
st.dev. (n)	1.6013
R(calc.)	4.484
st.dev.(Horwitz)	1.4400
R(Horwitz)	4.032





Determination of Toluene content on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
133		-----		-----	
150	IMPCA001	<5		-----	
171		-----		-----	
311	IMPCA001	<5		-----	
316		-----		-----	
319	IMPCA001	<5		-----	
323	IMPCA001	<5		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
343	IMPCA001	<5		-----	
344	IMPCA001	<5		-----	
345	IMPCA001	<1		-----	
346	IMPCA001	<5		-----	
347	IMPCA001	<5		-----	
357	IMPCA001	< 5		-----	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609		-----		-----	
646	IMPCA001	BDL		-----	
657	IMPCA001	N.D.		-----	
663	IMPCA001	<5		-----	
786	IMPCA001	<5		-----	
823	IMPCA001	<5		-----	
824	IMPCA001	<5		-----	
825	IMPCA001	L5		-----	
840	IMPCA001	<5		-----	
848		-----		-----	
849	IMPCA001	<5		-----	
852	IMPCA001	<5		-----	
853	IMPCA001	<5		-----	
855	IMPCA001	<5		-----	
857	IMPCA001	<5		-----	
858	IMPCA001	<5		-----	
859	IMPCA001	<5		-----	
860	IMPCA001	<5		-----	
861	IMPCA001	<5		-----	
862	IMPCA001	<5		-----	
863	IMPCA001	<5		-----	
864	IMPCA001	<5		-----	
866	IMPCA001	<5		-----	
870	IMPCA001	<5		-----	
871	IMPCA001	<5		-----	
912	IMPCA001	<10		-----	
913		-----		-----	
963	IMPCA001	<10		-----	
970		-----		-----	
974		-----		-----	
994	IMPCA001	<5		-----	
997	IMPCA001	1		-----	
1004	IMPCA001	2.1		-----	
1009	IMPCA001	<5		-----	
1010	IMPCA001	<5		-----	
1016		-----		-----	
1029	IMPCA001	0.178		-----	
1041		-----		-----	
1067	IMPCA001	< 5		-----	
1120		-----		-----	
1149		-----		-----	
1181	IMPCA001	<5		-----	
1201	IMPCA001	2		-----	
1221		-----		-----	
1256	IMPCA001	<5		-----	
1264	IMPCA001	<5		-----	
1319	IMPCA001	Less than 5		-----	
1342	IMPCA001	1.4		-----	
1354	IMPCA001	0.00		-----	
1373		-----		-----	
1465	IMPCA001	0		-----	

lab	method	value	mark	z(targ)	remarks
1530		-----		-----	
1557		-----		-----	
1615	IMPCA001	4.23		-----	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866	IMPCA001	<5		-----	
1886		-----		-----	
6008	IMPCA001	<5		-----	
6061	IMPCA001	<5		-----	
6070	IMPCA001	< 5		-----	
6100		-----		-----	
6119	IMPCA001	n.d.		-----	
6132	IMPCA001	<5		-----	
6201	IMPCA001	<1		-----	
6209	IMPCA001	0.00		-----	
6210	IMPCA001	0		-----	
7018		-----		-----	
	normality	Unknown			
	n	55			
	mean (n)	<5			

Determination of Sulphur on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	D5453	<0.5		-----	
133	D5453	<1.0		-----	
150	D5453	<1.0		-----	
171	D5453	<1.0		-----	
311	D5453	<1.0		-----	
316		-----		-----	
319		-----		-----	
323	D5453	<1		-----	
333	D5453	<0.5		-----	
334	D5453	0.0		-----	
335		-----		-----	
343	D5453	<0,5		-----	
344	D5453	0.342		-----	
345	ISO20846	<0.5		-----	
346		-----		-----	
347	D5453	<0.5		-----	
357	D5453	< 0,5		-----	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	D5453	0.017		-----	
609	D5453	<1		-----	
646	D3961	<0.2		-----	
657	D5453	0.1		-----	
663	D5453	0.05		-----	
786	D5453	<0.5		-----	
823	D5453	<1.0		-----	
824	D5453	<1.0		-----	
825	D5453	0.10		-----	
840	D5453	0.27		-----	
848		-----		-----	
849		NA		-----	
852	D3120	<0.5		-----	
853		n/a		-----	
855	D5453	<1		-----	
857	D3120	<0.5		-----	
858	D5453	<0.5		-----	
859	D5453	<0.5		-----	
860	D3120	<0.5		-----	
861		-----		-----	
862	D5453	<0.5		-----	
863	D5453	<0.5		-----	
864	D5453	<0.5		-----	
866		-----		-----	
870	D3120	<1		-----	
871		-----		-----	
912	D5453	<1		-----	
913	D5453	<1.0		-----	
963	D5453	0.1		-----	
970	D5453	<1		-----	
974		-----		-----	
994	D5453	<0.5		-----	
997	D5453	less1		-----	
1004	D5453	<0.5		-----	
1009		-----		-----	
1010		-----		-----	
1016	ISO20846	0.0		-----	
1029	D5453	<0.5		-----	
1041		-----		-----	
1067	D5453	< 0.5		-----	
1120		-----		-----	
1149		-----		-----	
1181	D5453	0.03		-----	
1201	D5453	0.1		-----	
1221		-----		-----	
1256		-----		-----	
1264	D5453	<1		-----	
1319	D5453	Less than 1		-----	
1342	D5453	0.3		-----	
1354	D5453	0.00		-----	
1373		-----		-----	
1465	D5453	0.127		-----	

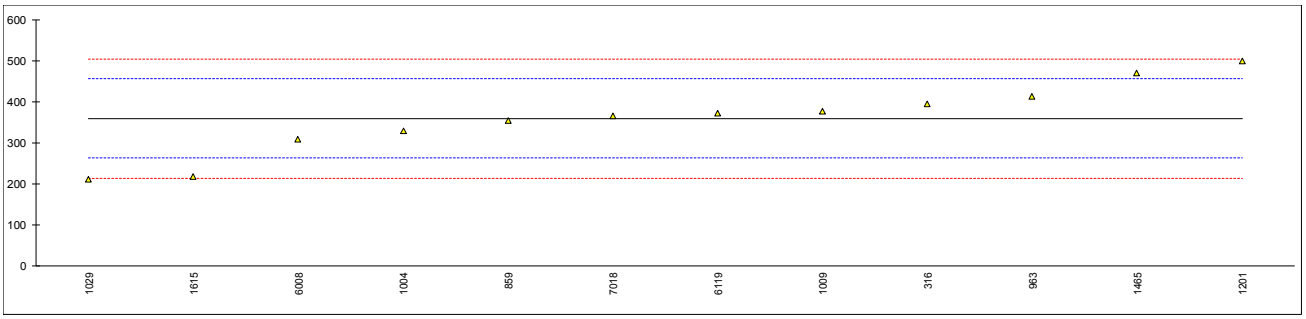
lab	method	value	mark	z(targ)	remarks
1530	D5453	< 0,5		-----	
1557		-----		-----	
1615		-----		-----	
1656		-----		-----	
1689		-----		-----	
1728	D5453	<1		-----	
1866	D5453	<0.5		-----	
1886		-----		-----	
6008	D5453	0.015		-----	
6061		-----		-----	
6070	D5453	< 0.5		-----	
6100	D5453	0.04		-----	
6119		-----		-----	
6132	D5453	<1		-----	
6201	D5453	0.04		-----	
6209	D5453	0.00		-----	
6210	D5453	0.00		-----	
7018		-----		-----	
	normality	Unknown			
	n	60			
	mean (n)	<1			

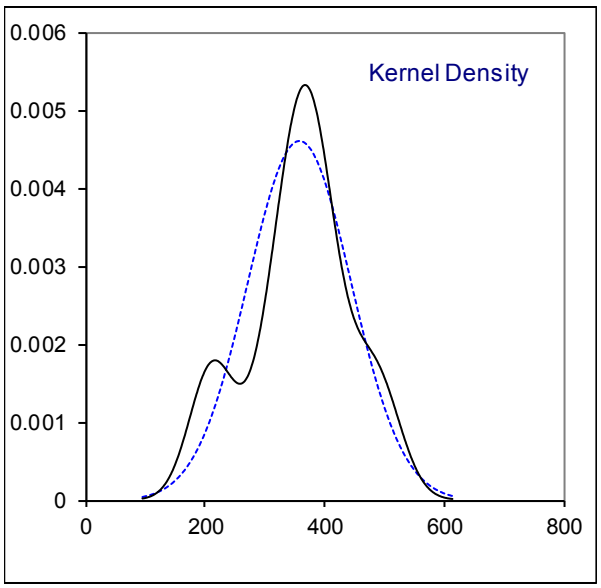
Determination of Trimethylamine (TMA) on sample #18150; results in µg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
133		-----		-----	
150		-----		-----	
171		-----		-----	
311		-----		-----	
316	INH-018	395		0.74	
319		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
335		-----		-----	
343		-----		-----	
344		-----		-----	
345		-----		-----	
346		-----		-----	
347		-----		-----	
357		-----		-----	
395		-----		-----	
529		-----		-----	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609		-----		-----	
646		-----		-----	
657		-----		-----	
663		-----		-----	
786		-----		-----	
823		-----		-----	
824		-----		-----	
825		-----		-----	
840		-----		-----	
848		-----		-----	
849		NA		-----	
852		-----		-----	
853		n/a		-----	
855		-----		-----	
857		-----		-----	
858		n/a		-----	
859	E346	353		-0.13	
860		-----		-----	
861		-----		-----	
862		-----		-----	
863		-----		-----	
864		-----		-----	
866		-----		-----	
870		-----		-----	
871		-----		-----	
912		-----		-----	
913		-----		-----	
963	E346	412		1.09	
970		-----		-----	
974		-----		-----	
994		-----		-----	
997		-----		-----	
1004	E346	330		-0.60	
1009		376.71		0.36	
1010		-----		-----	
1016		-----		-----	
1029	E346	211.5722		-3.05	
1041		-----		-----	
1067		-----		-----	
1120		-----		-----	
1149		-----		-----	
1181		-----		-----	
1201	E346	500		2.90	
1221		-----		-----	
1256		-----		-----	
1264		-----		-----	
1319		-----		-----	
1342		-----		-----	
1354		-----		-----	
1373		-----		-----	
1465	E346	469.71		2.28	

lab	method	value	mark	z(targ)	remarks
1530		-----		-----	
1557		-----		-----	
1615	E346	217		-2.93	
1656		-----		-----	
1689		-----		-----	
1728		-----		-----	
1866		-----		-----	
1886		-----		-----	
6008	E346	308.7		-1.04	
6061		-----		-----	
6070		-----		-----	
6100		-----		-----	
6119	In house	372		0.26	
6132		-----		-----	
6201		-----		-----	
6209		-----		-----	
6210		-----		-----	
7018	E346	365.6		0.13	
	normality	OK			
	n	12			
	outliers	0			
	mean (n)	359.27			
	st.dev. (n)	86.379			
	R(calc.)	241.86			
	st.dev.(E346:08e1)	48.502			
	R(E346:08e1) *)	135.81			Compare R(Horwitz) = 187.77

*) reproducibility estimated based on repeatability data of ASTM E346:08e1



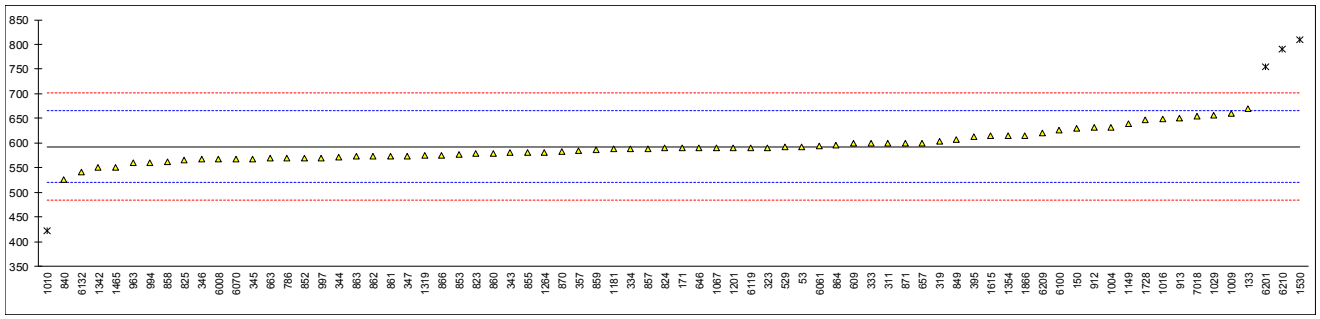


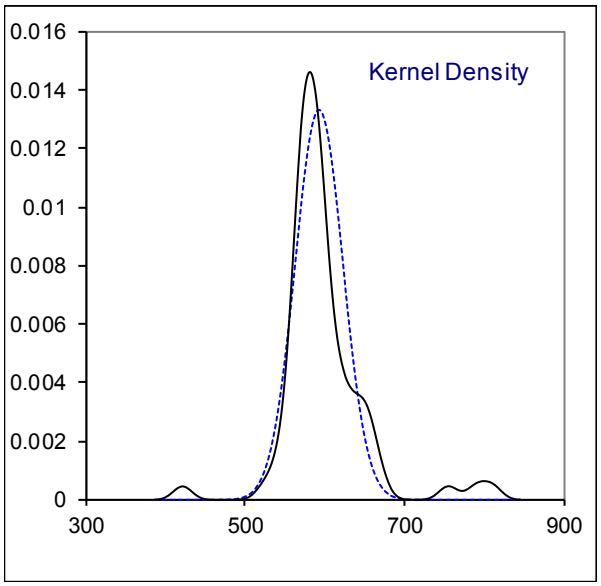
Determination of Water, Coulometric KF titration on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53	E1064	592		-0.03	
133	E1064	670		2.13	
150	E1064	630		1.02	
171	E1064	590		-0.08	
311	E1064	600		0.19	
316		-----		-----	
319	E1064	603		0.28	
323	E1064	591		-0.06	
333	E1064	600		0.19	
334	E1064	588	C	-0.14	First reported 0.0688%M/M
335		-----		-----	
343	E1064	580	C	-0.36	First reported 850
344	E1064	571.5		-0.59	
345	E1064	568.3		-0.68	
346	E1064	567		-0.72	
347	E1064	574		-0.52	
357	E1064	584		-0.25	
395	E1064	613.1		0.55	
529	E1064	591.51		-0.04	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608		-----		-----	
609	E1064	599		0.17	
646	E1064	590		-0.08	
657	E1064	600.4		0.20	
663	E1064	569		-0.66	
786	E1064	569		-0.66	
823	E1064	578		-0.41	
824	E1064	590		-0.08	
825	E1064	566.4		-0.73	
840	E1064	526		-1.85	
848		-----		-----	
849	E1064	608		0.41	
852	E1064	570		-0.64	
853	E1064	576.9		-0.44	
855	E1064	580		-0.36	
857	E1064	589		-0.11	
858	E1064	561.5		-0.87	
859	E1064	587		-0.17	
860	E1064	579		-0.39	
861	E1064	573		-0.55	
862	E1064	573		-0.55	
863	E1064	573		-0.55	
864	E1064	596		0.08	
866	E1064	576		-0.47	
870	E1064	582		-0.30	
871	E1064	600		0.19	
912	E1064	632		1.08	
913	E1064	650		1.57	
963	E1064	560		-0.91	
970		-----		-----	
974		-----		-----	
994	E1064	560		-0.91	
997	E1064	570		-0.64	
1004	E1064	632		1.08	
1009	E1064	661.1		1.88	
1010	E1064	422	R(0.01)	-4.72	
1016	E1064	647.92		1.52	
1029	E1064	655.83		1.73	
1041		-----		-----	
1067	E1064	590		-0.08	
1120		-----		-----	
1149	E1064	640		1.30	
1181	E1064	587.952		-0.14	
1201	E1064	590		-0.08	
1221		-----		-----	
1256		-----		-----	
1264	E1064	580		-0.36	
1319	E1064	575		-0.50	
1342	E1064	550		-1.19	
1354	E1064	614.2	C	0.59	First reported 0.6142 %M/M
1373		-----		-----	
1465	E1064	550.0		-1.19	

lab	method	value	mark	z(targ)	remarks
1530	E1064	810	R(0.01)	5.99	
1557		-----		-----	
1615	E1064	614		0.58	
1656		-----		-----	
1689		-----		-----	
1728	E1064	646		1.46	
1866	E1064	615		0.61	
1886		-----		-----	
6008	E1064	568		-0.69	
6061	E1064	594		0.03	
6070	E1064	568	C	-0.69	First reported 0.0700 %M/M
6100	E1064	626		0.91	
6119	E1064	590.75		-0.06	
6132	E1064	541.73		-1.42	
6201	E1064	755	C,R(0.01)	4.47	First reported 0.0755 mg/kg
6209	E1064	620.9		0.77	
6210	E1064	790	C,R(0.01)	5.44	First reported 0.079 mg/kg
7018	E1064	654.4		1.70	

normality	OK
n	70
outliers	4
mean (n)	593.01
st.dev. (n)	29.933
R(calc.)	83.81
st.dev.(E1064:16)	36.216
R(E1064:16)	101.40



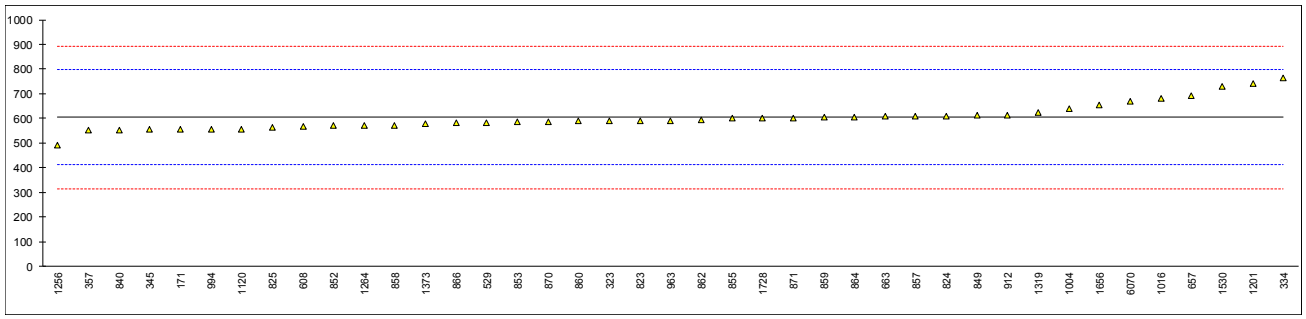


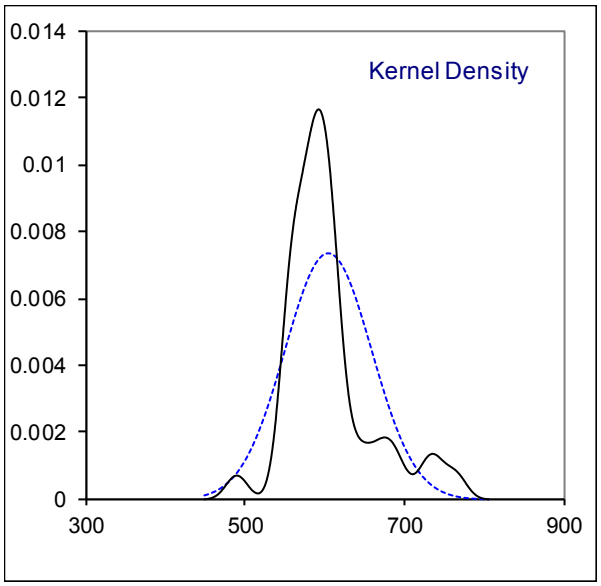
Determination of Water, Titrimetric on sample #18150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
53		-----		-----	
133		-----		-----	
150		-----		-----	
171	E203	557		-0.50	
311		-----		-----	
316		-----		-----	
319		-----		-----	
323	E203	590		-0.15	
333		-----		-----	
334	E203	765		1.66	
335		-----		-----	
343		-----		-----	
344		-----		-----	
345	E203	554.3		-0.52	
346		-----		-----	
347		-----		-----	
357	E203	553		-0.54	
395		-----		-----	
529	E203	583.09		-0.22	
551		-----		-----	
554		-----		-----	
557		-----		-----	
608	E203	566		-0.40	
609		-----		-----	
646		-----		-----	
657	E203	693		0.92	
663	E203	608		0.03	
786		-----		-----	
823	E203	590		-0.15	
824	E203	610		0.05	
825	E203	565.5		-0.41	
840	E203	554		-0.53	
848		-----		-----	
849	E203	612		0.08	
852	E203	570		-0.36	
853	E203	586.5		-0.19	
855	E203	600		-0.05	
857	E203	610		0.05	
858	E203	572.6		-0.33	
859	E203	604		-0.01	
860	E203	589		-0.16	
861		-----		-----	
862	E203	592		-0.13	
863		-----		-----	
864	E203	604		-0.01	
866	E203	582		-0.24	
870	E203	588		-0.17	
871	E203	603		-0.02	
912	E203	613		0.09	
913		-----		-----	
963	E203	590		-0.15	
970		-----		-----	
974		-----		-----	
994	E203	557		-0.50	
997		-----		-----	
1004	E203	640		0.37	
1009		-----		-----	
1010		-----		-----	
1016	D1364	680		0.78	
1029		-----		-----	
1041		-----		-----	
1067		-----		-----	
1120	E346	557.51		-0.49	
1149		-----		-----	
1181		-----		-----	
1201	E203	740		1.40	
1221		-----		-----	
1256	E203	490	C	-1.19	First reported 0.049 mg/kg
1264	E203	570		-0.36	
1319	E203	623		0.19	
1342		-----		-----	
1354		-----		-----	
1373	INH-001	580.6		-0.25	
1465		-----		-----	

lab	method	value	mark	z(targ)	remarks
1530	E203	728		1.28	
1557		-----		-----	
1615		-----		-----	
1656	E203	653		0.50	
1689		-----		-----	
1728	E203	600		-0.05	
1866		-----		-----	
1886		-----		-----	
6008		-----		-----	
6061		-----		-----	
6070	E203	670		0.68	
6100		-----		-----	
6119		-----		-----	
6132		-----		-----	
6201		-----		-----	
6209		-----		-----	
6210		-----		-----	
7018		-----		-----	

normality	not OK
n	41
outliers	0
mean (n)	604.73
st.dev. (n)	54.430
R(calc.)	152.41
st.dev.(E203:16)	96.429
R(E203:16)	270



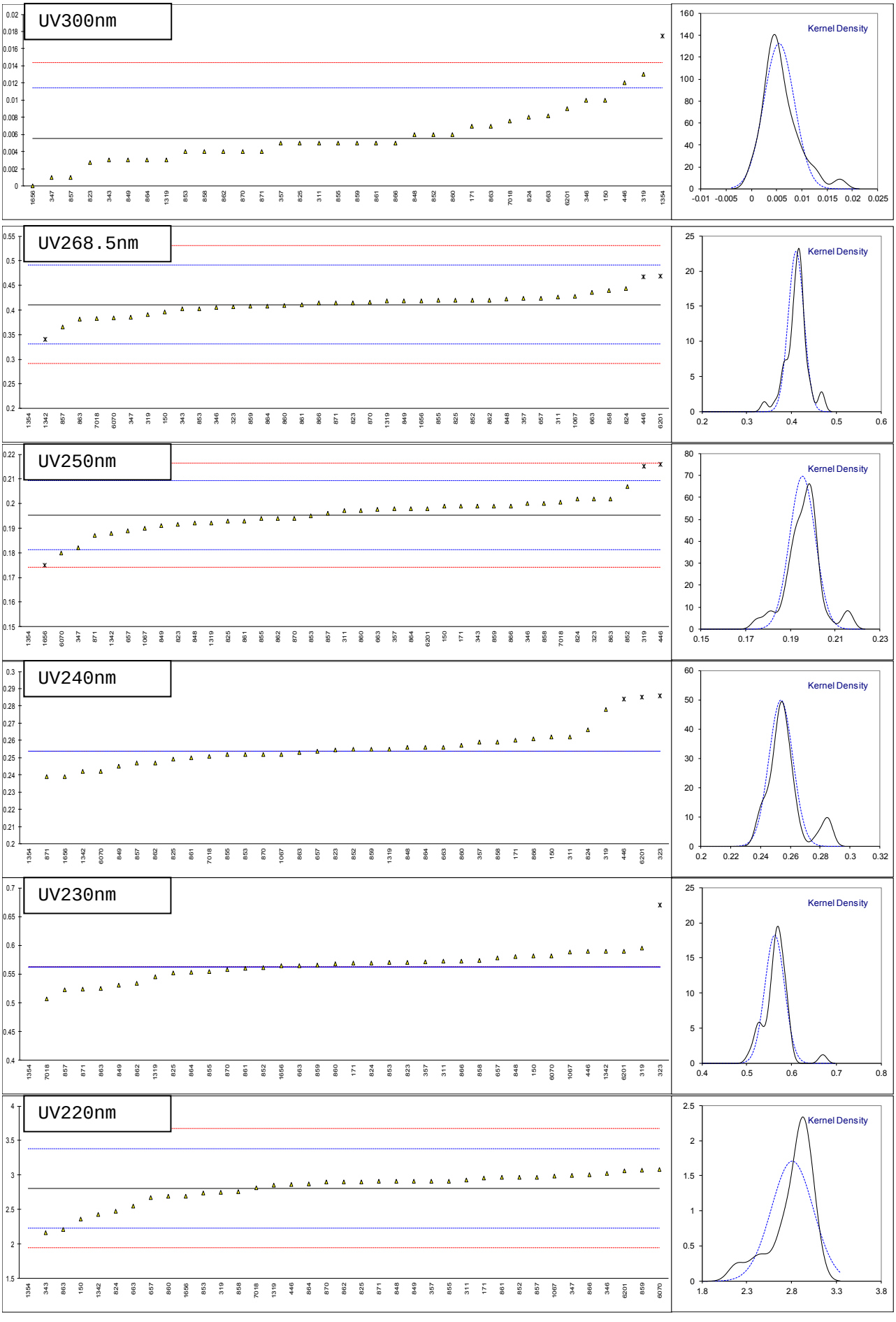


Determination of UV Absorbance (50 mm cuvette) on sample #18151

lab	method	300nm	268.5nm	250nm	240nm	230nm	220nm	Pass/Fail
150	IMPCA004	0.010	0.396	0.199	0.262	0.582	2.360	Fail
171	IMPCA004	0.007	-----	0.199	0.260	0.569	2.955	Pass
311	IMPCA004	0.005	0.426	0.197	0.262	0.572	2.932	fail
319	IMPCA004	0.013	0.391	**0.215**	0.278	0.595	2.749	Fail
323	IMPCA004	<0.010	0.406	0.202	**0.286**	**0.670**	>1	fail
343	-----	0.003 C	0.402	0.199	-----	-----	2.166	FAIL
346	IMPCA004	0.010	0.405	0.200	-----	-----	3.023	Fail
347	IMPCA004	0.001	0.385	0.182	-----	-----	2.997	Fail
357	IMPCA004	0.005	0.424	0.198	0.259	0.571	2.908	Fails
395		-----	-----	-----	-----	-----	-----	-----
446	IMPCA004	0.012	**0.467**	**0.216**	**0.284**	0.589	2.866	FAIL
529	-----	-----	-----	-----	-----	-----	-----	-----
657	IMPCA004	< 0.0001	0.4241	0.1890	0.2536	0.5786	2.674	Fail
663	IMPCA004	0.0082	0.4361	0.1977	0.2561	0.5649	2.5527	Fail
786	-----	-----	-----	-----	-----	-----	-----	-----
823	IMPCA004	0.0027	0.4147	0.1916	0.2545	0.5704	-----	Fail
824	IMPCA004	0.008	0.443	0.202	0.266	0.569	2.470	Fail
825	IMPCA004	0.005	0.420	0.193	0.249	0.552	2.904	Fail
848	IMPCA004	0.006	0.423	0.192	0.256	0.580	2.906	Fail
849	IMPCA004	0.003	0.419	0.191	0.245	0.531	2.907	FAIL
852	IMPCA004	0.006	0.420	0.207	0.255	0.561	2.968	Fail
853	IMPCA004	0.004	0.403	0.195	0.252	0.570	2.739	Fail
855	IMPCA004	0.005	0.420	0.194	0.252	0.554	2.912	Fail
857	IMPCA004	0.001	0.365	0.196	0.247	0.523	2.968	Fail
858	IMPCA004	0.004	0.440	0.200	0.259	0.574	2.761	Fail
859	IMPCA004	0.005	0.408	0.199	0.255	0.566	3.069	Fail
860	IMPCA004	0.006	0.409	0.197	0.257	0.568	2.689	Fail
861	IMPCA004	0.005	0.411	0.193	0.250	0.560	2.962	Fail
862	IMPCA004	0.004	0.420	0.194	0.247	0.534	2.902	Fail
863	IMPCA004	0.007	0.381	0.202	0.253	0.525	2.209	Fail
864	IMPCA004	0.003	0.408	0.198	0.256	0.553	2.875	Fail
866	IMPCA004	0.005	0.414	0.199	0.261	0.573	2.999	Fail
870	IMPCA004	0.004	0.416	0.194	0.252	0.558	2.896	Fail
871	IMPCA004	0.004	0.414	0.187	0.239	0.524	2.905	Fail
912	-----	-----	-----	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----	-----	-----	-----
963	-----	-----	-----	-----	-----	-----	-----	-----
994	-----	-----	-----	-----	-----	-----	-----	-----
1004	-----	-----	-----	-----	-----	-----	-----	-----
1016	-----	-----	-----	-----	-----	-----	-----	-----
1041	-----	-----	-----	-----	-----	-----	-----	-----
1067	IMPCA004	< 0.001	0.428 C	0.190 C	0.252 C	0.588 C	2.988 C	Fail
1149	-----	-----	-----	-----	-----	-----	-----	Fail
1201	-----	-----	-----	-----	-----	-----	-----	-----
1264	-----	-----	-----	-----	-----	-----	-----	-----
1319	IMPCA004	0.003	0.418	0.192	0.255	0.545	2.848	Fail
1342	IMPCA004	<0.001	**0.340** C	0.188	0.242	0.589	2.426	FAIL
1354	IMPCA004	**0.0175**	**0.0419**	**0.0593**	**0.0732**	**0.1038**	**0.1739**	Pass
1438		-----	-----	-----	-----	-----	-----	-----
1656	IMPCA004	0	0.419	**0.175**	0.239	0.564	2.693	Fail
1866	IMPCA004	-----	-----	-----	-----	-----	-----	-----
1886	-----	-----	-----	-----	-----	-----	-----	-----
6070	IMPCA004	<0.001	0.384	0.180	0.242	0.582	3.075	FAIL
6201	IMPCA004	0.009 C	**0.469**	0.198 C	**0.285**	0.590	3.064	fail
6209	-----	-----	-----	-----	-----	-----	-----	-----
6210	-----	-----	-----	-----	-----	-----	-----	-----
7018	IMPCA004	0.0076	0.3828	0.2005	0.2508	0.5071	2.8182	Fail
	normality	OK	OK	OK	suspect	OK	suspect	Fail: 38
	n	33	34	35	32	34	36	Pass: 1
	outliers	1	4	4	4	2	1	
	mean (n)	0.00550	0.41105	0.19531	0.25366	0.56271	2.80933	
	st.dev. (n)	0.003016	0.017512	0.005729	0.008011	0.021868	0.233324	
	R(calc.)	0.00844	0.04903	0.01604	0.02243	0.06123	0.65331	
	st.dev.(IMPCA004:15)	0.002946	0.039784	0.007045	n.a.	n.a.	0.287956	
	R(IMPCA004:15)	0.00825	0.11139	0.01973	n.a.	n.a.	0.80628	

Lab 343: first reported 2.166
Lab 1067: first reported 0.069, 0.021, 0.035, 0.104, 1.176
Lab 1342: first reported 0.269
Lab 6201: first reported 0.015, 0.220

Test results in bold and underlined are marked as statistical outliers acc. Rosner.

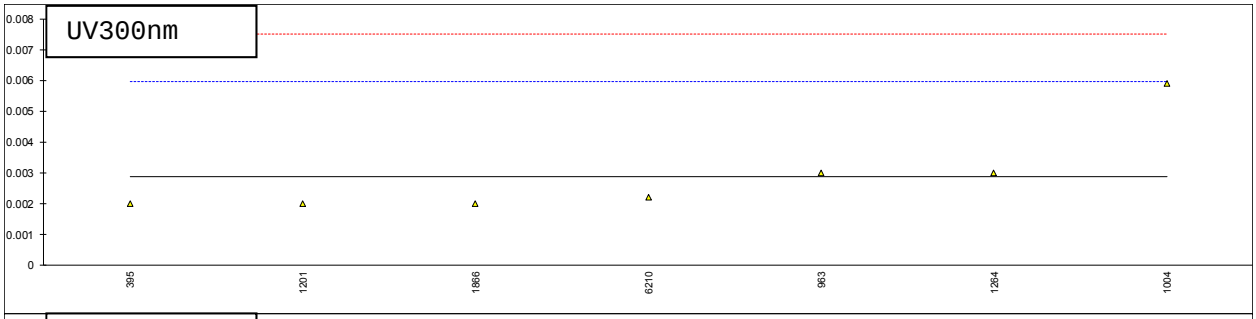

UV300nm
Kernel Density
UV268.5nm
Kernel Density
UV250nm
Kernel Density
UV240nm
Kernel Density
UV230nm
Kernel Density
UV220nm
Kernel Density

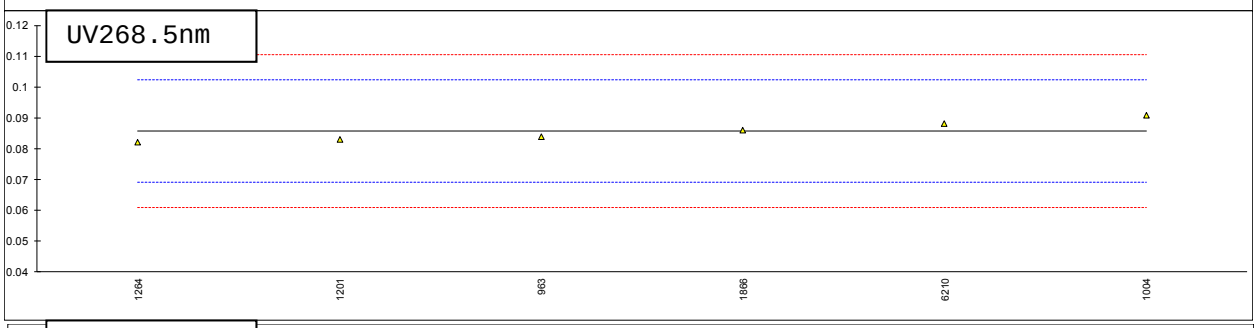
Determination of UV Absorbance (10 mm cuvette) on sample #18151

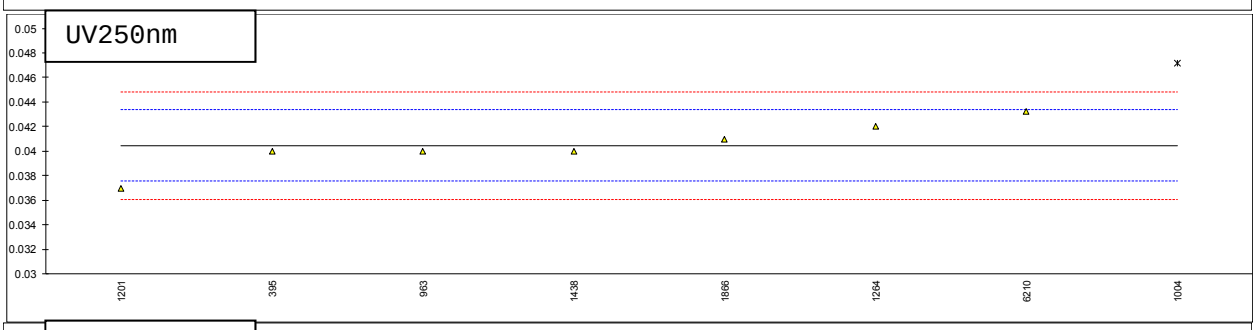
lab	method	300nm	268.5nm	250nm		240nm	230nm	220nm	Pass/Fail
150		-----	-----	-----		-----	-----	-----	-----
171		-----	-----	-----		-----	-----	-----	-----
311		-----	-----	-----		-----	-----	-----	-----
319		-----	-----	-----		-----	-----	-----	-----
323		-----	-----	-----		-----	-----	-----	-----
343		-----	-----	-----		-----	-----	-----	-----
346		-----	-----	-----		-----	-----	-----	-----
347		-----	-----	-----		-----	-----	-----	-----
357		-----	-----	-----		-----	-----	-----	-----
395	IMPCA004	0.002	-----	0.04	C	0.042	0.103	-----	FAIL
446		-----	-----	-----		-----	-----	-----	-----
529		-----	-----	-----		-----	-----	-----	-----
657		-----	-----	-----		-----	-----	-----	-----
663		-----	-----	-----		-----	-----	-----	-----
786		-----	-----	-----		-----	-----	-----	-----
823		-----	-----	-----		-----	-----	-----	-----
824		-----	-----	-----		-----	-----	-----	-----
825		-----	-----	-----		-----	-----	-----	-----
848		-----	-----	-----		-----	-----	-----	-----
849		-----	-----	-----		-----	-----	-----	-----
852		-----	-----	-----		-----	-----	-----	-----
853		-----	-----	-----		-----	-----	-----	-----
855		-----	-----	-----		-----	-----	-----	-----
857		-----	-----	-----		-----	-----	-----	-----
858		-----	-----	-----		-----	-----	-----	-----
859		-----	-----	-----		-----	-----	-----	-----
860		-----	-----	-----		-----	-----	-----	-----
861		-----	-----	-----		-----	-----	-----	-----
862		-----	-----	-----		-----	-----	-----	-----
863		-----	-----	-----		-----	-----	-----	-----
864		-----	-----	-----		-----	-----	-----	-----
866		-----	-----	-----		-----	-----	-----	-----
870		-----	-----	-----		-----	-----	-----	-----
871		-----	-----	-----		-----	-----	-----	-----
912		-----	-----	-----		-----	-----	-----	-----
913		-----	-----	-----		-----	-----	-----	-----
963	IMPCA004	0.003	0.084	0.040		0.055	0.125	1.051	Fail
994		-----	-----	-----		-----	-----	-----	Fail
1004	IMPCA004	0.0059	0.0907	**0.0472**		0.0592	0.1152	1.1271	Fail
1016		-----	-----	-----		-----	-----	-----	-----
1041		-----	-----	-----		-----	-----	-----	-----
1067		-----	-----	-----		-----	-----	-----	-----
1149		-----	-----	-----		-----	-----	-----	-----
1201	IMPCA004	0.002	0.083	0.037		0.052	0.120	1.165	fail
1264	IMPCA004	0.003	0.082	0.042		0.051	0.110	0.897	FAIL
1319		-----	-----	-----		-----	-----	-----	-----
1342		-----	-----	-----		-----	-----	-----	-----
1354		-----	-----	-----		-----	-----	-----	-----
1438	INH-25	-----	-----	0.04		-----	0.11	-----	Fail
1656		-----	-----	-----		-----	-----	-----	-----
1866	IMPCA004	0.002	0.086	0.041		0.054	0.116	1.166	-----
1886		-----	-----	-----		-----	-----	-----	-----
6070		-----	-----	-----		-----	-----	-----	-----
6201		-----	-----	-----		-----	-----	-----	-----
6209		-----	-----	-----		-----	-----	-----	-----
6210	IMPCA004	0.0022	0.08815	0.0432		0.0567	0.1292	1.1739	Fail
7018		-----	-----	-----		-----	-----	-----	-----
	normality	unknown	unknown	unknown		unknown	unknown	unknown	Fail: 8
	n	7	6	7		7	8	6	Pass: 0
	outliers	0	0	1		0	0	0	
	mean (n)	0.00287	0.08564	0.04046		0.05284	0.11605	1.09667	
	st.dev. (n)	0.001410	0.003315	0.001948		0.005522	0.008560	0.108000	
	R(calc.)	0.00395	0.00928	0.00546		0.01546	0.02397	0.30240	
	st.dev.(IMPCA004:15)	0.001538	0.008289	0.001459		n.a.	n.a.	0.112408	
	R(IMPCA004:15)	0.00431	0.02321	0.00409		n.a.	n.a.	0.31474	

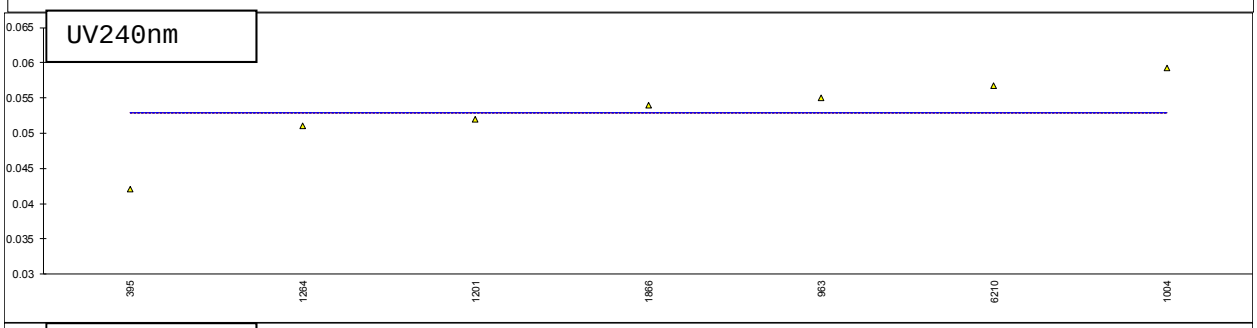
Lab 395: first reported 0.03

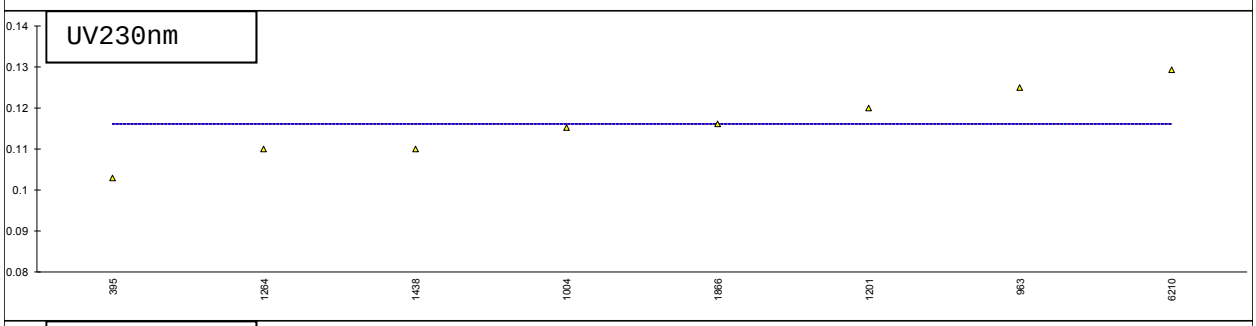
Test results in bold and underlined are marked as statistical outliers acc. Huber.

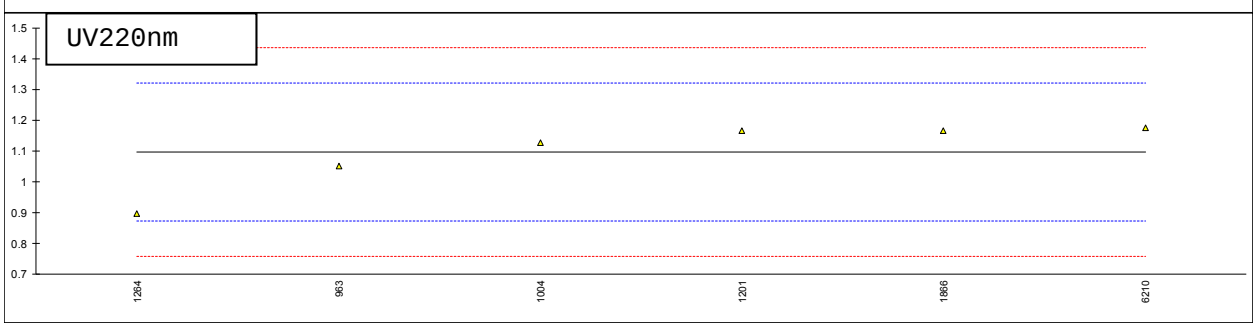

UV300nm
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
395
1201
1866
6210
963
1264
1004


UV268.5nm
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
1264
1201
963
1866
6210
1004


UV250nm
0.05
0.048
0.046
0.044
0.042
0.04
0.038
0.036
0.034
0.032
0.03
1201
395
963
1438
1866
1264
6210
1004


UV240nm
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
395
1264
1201
1866
963
6210
1004


UV230nm
0.14
0.13
0.12
0.11
0.1
0.09
0.08
395
1264
1438
1004
1866
1201
963
6210


UV220nm
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
1264
963
1004
1201
1866
6210

APPENDIX 2

z-scores 50 mm cuvette users

lab	300nm	268.5nm	250nm	240nm	230nm	220nm
150	1.53	-0.38	0.52	-----	-----	-1.56
171	0.51	-----	0.52	-----	-----	0.51
311	-0.17	0.38	0.24	-----	-----	0.43
319	2.55	-0.50	2.80	-----	-----	-0.21
323	-----	-0.13	0.95	-----	-----	-----
343	-0.85	-0.23	0.52	-----	-----	-2.23
346	1.53	-0.15	0.67	-----	-----	0.74
347	-1.53	-0.65	-1.89	-----	-----	0.65
357	-0.17	0.33	0.38	-----	-----	0.34
395	-----	-----	-----	-----	-----	-----
446	2.21	1.41	2.94	-----	-----	0.20
529	-----	-----	-----	-----	-----	-----
657	-----	0.33	-0.90	-----	-----	-0.47
663	0.92	0.63	0.34	-----	-----	-0.89
786	-----	-----	-----	-----	-----	-----
823	-0.95	0.09	-0.53	-----	-----	-----
824	0.85	0.80	0.95	-----	-----	-1.18
825	-0.17	0.22	-0.33	-----	-----	0.33
848	0.17	0.30	-0.47	-----	-----	0.34
849	-0.85	0.20	-0.61	-----	-----	0.34
852	0.17	0.22	1.66	-----	-----	0.55
853	-0.51	-0.20	-0.04	-----	-----	-0.24
855	-0.17	0.22	-0.19	-----	-----	0.36
857	-1.53	-1.16	0.10	-----	-----	0.55
858	-0.51	0.73	0.67	-----	-----	-0.17
859	-0.17	-0.08	0.52	-----	-----	0.90
860	0.17	-0.05	0.24	-----	-----	-0.42
861	-0.17	0.00	-0.33	-----	-----	0.53
862	-0.51	0.22	-0.19	-----	-----	0.32
863	0.51	-0.76	0.95	-----	-----	-2.08
864	-0.85	-0.08	0.38	-----	-----	0.23
866	-0.17	0.07	0.52	-----	-----	0.66
870	-0.51	0.12	-0.19	-----	-----	0.30
871	-0.51	0.07	-1.18	-----	-----	0.33
912	-----	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----	-----
963	-----	-----	-----	-----	-----	-----
994	-----	-----	-----	-----	-----	-----
1004	-----	-----	-----	-----	-----	-----
1016	-----	-----	-----	-----	-----	-----
1041	-----	-----	-----	-----	-----	-----
1067	-----	0.43	-0.75	-----	-----	0.62
1149	-----	-----	-----	-----	-----	-----
1201	-----	-----	-----	-----	-----	-----
1264	-----	-----	-----	-----	-----	-----
1319	-0.85	0.17	-0.47	-----	-----	0.13
1342	-----	-1.79	-1.04	-----	-----	-1.33
1354	4.07	-9.28	-19.31	-----	-----	-9.15
1438	-----	-----	-----	-----	-----	-----
1656	-1.87	0.20	-2.88	-----	-----	-0.40
1866	-----	-----	-----	-----	-----	-----
1886	-----	-----	-----	-----	-----	-----
6070	-----	-0.68	-2.17	-----	-----	0.92
6201	1.19	1.46	0.38	-----	-----	0.88
6209	-----	-----	-----	-----	-----	-----
6210	-----	-----	-----	-----	-----	-----
7018	0.71	-0.71	0.74	-----	-----	0.03

z-scores 10 mm cuvette users

lab	300nm	268.5nm	250nm	240nm	230nm	220nm
150	-----	-----	-----	-----	-----	-----
171	-----	-----	-----	-----	-----	-----
311	-----	-----	-----	-----	-----	-----
319	-----	-----	-----	-----	-----	-----
323	-----	-----	-----	-----	-----	-----
343	-----	-----	-----	-----	-----	-----
346	-----	-----	-----	-----	-----	-----
347	-----	-----	-----	-----	-----	-----
357	-----	-----	-----	-----	-----	-----
395	-0.57	-----	-0.31	-----	-----	-----
446	-----	-----	-----	-----	-----	-----
529	-----	-----	-----	-----	-----	-----
657	-----	-----	-----	-----	-----	-----
663	-----	-----	-----	-----	-----	-----
786	-----	-----	-----	-----	-----	-----
823	-----	-----	-----	-----	-----	-----
824	-----	-----	-----	-----	-----	-----
825	-----	-----	-----	-----	-----	-----
848	-----	-----	-----	-----	-----	-----
849	-----	-----	-----	-----	-----	-----
852	-----	-----	-----	-----	-----	-----
853	-----	-----	-----	-----	-----	-----
855	-----	-----	-----	-----	-----	-----
857	-----	-----	-----	-----	-----	-----
858	-----	-----	-----	-----	-----	-----
859	-----	-----	-----	-----	-----	-----
860	-----	-----	-----	-----	-----	-----
861	-----	-----	-----	-----	-----	-----
862	-----	-----	-----	-----	-----	-----
863	-----	-----	-----	-----	-----	-----
864	-----	-----	-----	-----	-----	-----
866	-----	-----	-----	-----	-----	-----
870	-----	-----	-----	-----	-----	-----
871	-----	-----	-----	-----	-----	-----
912	-----	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----	-----
963	0.08	-0.20	-0.31	-----	-----	-0.41
994	-----	-----	-----	-----	-----	-----
1004	1.97	0.61	4.62	-----	-----	0.27
1016	-----	-----	-----	-----	-----	-----
1041	-----	-----	-----	-----	-----	-----
1067	-----	-----	-----	-----	-----	-----
1149	-----	-----	-----	-----	-----	-----
1201	-0.57	-0.32	-2.37	-----	-----	0.61
1264	0.08	-0.44	1.06	-----	-----	-1.78
1319	-----	-----	-----	-----	-----	-----
1342	-----	-----	-----	-----	-----	-----
1354	-----	-----	-----	-----	-----	-----
1438	-----	-----	-0.31	-----	-----	-----
1656	-----	-----	-----	-----	-----	-----
1866	-0.57	0.04	0.37	-----	-----	0.62
1886	-----	-----	-----	-----	-----	-----
6070	-----	-----	-----	-----	-----	-----
6201	-----	-----	-----	-----	-----	-----
6209	-----	-----	-----	-----	-----	-----
6210	-0.44	0.30	1.88	-----	-----	0.69
7018	-----	-----	-----	-----	-----	-----

APPENDIX 3

Number of participants per country

Main round

1 lab in AZERBAIJAN
1 lab in BAHRAIN
1 lab in BELGIUM
3 labs in BRAZIL
3 labs in CANADA
18 labs in CHINA, People's Republic
1 lab in EGYPT
1 lab in FINLAND
3 labs in FRANCE
1 lab in GEORGIA
3 labs in GERMANY
2 labs in INDIA
1 lab in IRAN, Islamic Republic of
1 lab in ITALY
1 lab in JAPAN
4 labs in MALAYSIA
1 lab in MEXICO
7 labs in NETHERLANDS
2 labs in NEW ZEALAND
1 lab in NORWAY
1 lab in OMAN
1 lab in PORTUGAL
1 lab in ROMANIA
1 lab in RUSSIAN FEDERATION
3 labs in SAUDI ARABIA
1 lab in SERBIA
1 lab in SINGAPORE
3 labs in SOUTH KOREA
5 labs in SPAIN
1 lab in THAILAND
1 lab in TRINIDAD and TOBAGO W.I.
2 labs in UNITED ARAB EMIRATES
1 lab in UNITED KINGDOM
11 labs in UNITED STATES OF AMERICA
2 labs in VENEZUELA
1 lab in VIETNAM

UV only

1 lab in AZERBAIJAN
1 lab in BELGIUM
16 labs in CHINA, People's Republic
1 lab in EGYPT
1 lab in FINLAND
1 lab in GERMANY
2 labs in INDIA
1 lab in IRAN, Islamic Republic of
1 lab in ISRAEL
1 lab in ITALY
1 lab in JAPAN
1 lab in MEXICO
6 labs in NETHERLANDS
1 lab in RUSSIAN FEDERATION
2 labs in SAUDI ARABIA
1 lab in SINGAPORE
3 labs in SOUTH KOREA
3 labs in SPAIN
1 lab in THAILAND
1 lab in TRINIDAD and TOBAGO W.I.
1 lab in UNITED ARAB EMIRATES
2 labs in UNITED KINGDOM
7 labs in UNITED STATES OF AMERICA
1 lab in VENEZUELA

APPENDIX 4

Abbreviations:

C = final test result after checking of first reported suspect test result
D(0.01) = outlier in Dixon's outlier test
D(0.05) = straggler in Dixon's outlier test
G(0.01) = outlier in Grubbs' outlier test
G(0.05) = straggler in Grubbs' outlier test
DG(0.01) = outlier in Double Grubbs' outlier test
DG(0.05) = straggler in Double Grubbs' outlier test
R(0.01) = outlier in Rosner's outlier test
R(0.05) = straggler in Rosner's outlier test
E = probably an error in calculations
U = test result probably reported in a different unit
W = test result withdrawn on request of participant
ex = test result excluded from statistical evaluation
n.a. = not applicable
n.e. = not evaluated
n.d. = not detected
fr. = first reported
SDS = Safety Data Sheet

Literature:

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, June 2018
2 ASTM E178:02
3 ASTM E1301:95(2003)
4 ISO 5725:86
5 ISO 5725, parts 1-6, 1994
6 ISO 13528:05
7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
9 IP 367/84
10 DIN 38402 T41/42
11 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
12 J.N. Miller, Analyst, 118, 455, (1993)
13 IMPCA Methanol Reference Specifications, IMPCA, Brussels, December 2010.
14 Analytical Methods Committee Technical brief, No 4, January 2001
15 P.J. Lowthian and M. Thompson, The Royal Society of Chemistry, Analyst, 127, 1359-1364, (2002)
16 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)
17 Horwitz, W and Albert, R, J. AOAC Int, 79, 3, 589, (1996)