Results of Proficiency Test
Benzene
February 2021

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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CONTENTS

1 INTRODUCTION

Since 1999 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Benzene in accordance with the latest version of ASTM D2359 every year. During the annual proficiency testing program 2020/2021 it was decided to continue the round robin for the analysis of Benzene.

In this interlaboratory study 59 laboratories in 26 different countries registered for participation. See appendix 2 for the number of participants per country. In this report the results of the Benzene 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 organizer of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory. It was decided to send one bottle of 1L Benzene, labelled #21010.
The 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/IEC17043:2010 (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 organization 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). 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

A batch of approximately 80 liters of Benzene was obtained from a local supplier. The Benzene was spiked with Toluene, 1,2-Dichlorobenzene and Thiophene. After homogenization 72 amber glass bottles of 1L were filled and labelled #21010.
The homogeneity of the subsamples was checked by determination of Toluene in accordance with ASTM D4492 and Density at 20˚C in accordance with ASTM D4052 on 8 stratified randomly selected subsamples.

	Density at 20°C in kg/L	Toluene in mg/kg
sample #21010-1	0.87891	1560
sample #21010-2	0.87892	1580
sample #21010-3	0.87894	1580
sample #21010-4	0.87895	1570
sample #21010-5	0.87891	1560
sample #21010-6	0.87894	1560
sample #21010-7	0.84895	1570
sample #21010-8	0.87894	1560

Table 1: homogeneity test results of subsamples #21010

From the above test results the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibility of the reference test methods in agreement with the procedure of ISO13528, Annex B2 in the next table.

	Density at 20°C in kg/L	Toluene in mg/kg
r (observed)	0.00005	25
reference test method	ISO12185:96	D7504:20
0.3 x R (reference test method)	0.00015	60

Table 2: evaluation of the repeatabilities of subsamples #21010

The calculated repeatabilities are in agreement with 0.3 times the corresponding reproducibility of the reference test methods. Therefore, homogeneity of the subsamples was assumed.

To each of the participating laboratories one bottle of 1L Benzene labelled #21010 was sent on January 27, 2021. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYZES

The participants were requested to determine: Acid Wash Color, Acidity, Appearance, Bromine Index, Total Chlorides, Organic Chlorides, Color Pt/Co, Density at 20°C, Distillation (IBP, 50% recovered, Dry Point, Distillation Range), Total Nitrogen, Purity by GC, Methylcyclohexane, Toluene, Nonaromatics, 1,4-Dioxane, Total Impurities, Solidification Point (anhydrous basis), Sulfur, Thiophene and Water.

It was explicitly requested to treat the sample as if it was a routine sample 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 (when applicable) 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 organization 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.

The assigned value is determined by consensus based on the test results of the group of participants after rejection of the statistical outliers and/or suspect data.

According to ISO13528 all (original received or corrected) results per determination were submitted to outlier tests. In the iis procedure for proficiency tests, outliers are detected prior to calculation of the mean, standard deviation and reproducibility. For small data sets, Dixon (up to 20 test results) or Grubbs (up to 40 test results) outlier tests can be used. For larger data sets (above 20 test results) Rosner’s outlier test can be used. 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 them with a factor of 2.8.

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test 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 test 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. This 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 (dotted line) was projected over the Kernel Density Graph (smooth line) for reference. The Gauss curve is calculated from the consensus value and the corresponding standard deviation.

3.3 Z-SCORES

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

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 test result tables in appendix 1.

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

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

4 EVALUATION

Some problems were encountered with the dispatch of the samples due to COVID-19 pandemic. Therefore, the reporting time on the data entry portal was extended with another week. Seven participants reported test results after the extended final reporting date and four other participants did not report any test results. Not all participants were able to report all tests requested.
In total 55 participants reported 722 numerical test results. Observed were 33 outlying test results, which is 4.6%. In proficiency tests 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 TEST

In this section the reported test results are discussed per test. The test methods, which were used by the various laboratories, were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original reported test results. The abbreviations, used in these tables, are explained in appendix 3.

Unfortunately, a suitable reference test method, providing the precision data, is not available for all determinations. For these tests the calculated reproducibility was compared against the estimated reproducibility calculated with the Horwitz equation.

In the iis PT reports ASTM test methods are referred to with a number and if appropriate an indication of sub test method (e.g. D7011:15). If applicable, a designation in parentheses is added to designate the year of reapproval e.g. D7011:15(2019). In the test result tables of appendix 1 only the method number (sub) and year of adoption or revision (e.g. D7011:15) will be used.

Acid Wash Color: This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D848:18.

Acidity: This determination was not problematic. The majority of laboratories reported “no free acid” (NFA) or “Pass”. One laboratory reported “fail”.

Appearance: This determination was not problematic. All laboratories agreed about the appearance of the sample, which was bright, clear and free of suspended matter (Pass).

Bromine Index: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D5776:14a.

Total Chlorides: This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5194:18.

Organic Chlorides: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D5808:20.

Color Pt/Co: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D5386:16 and ASTM D1209:05(2019).

Density at 20°C: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Distillation: This determination was not problematic. In total six statistical outliers were observed and one other test result was excluded. The calculated reproducibilities of IBP, 50% recovered and Dry Point after rejection of the suspect data were in agreement with the requirements of ASTM D850:21.

Total Nitrogen: This determination was very problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM D7184:20

Purity: This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D7504:20.

Methylcyclohexane: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the estimated reproducibility calculated with the Horwitz equation.

Toluene: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D7504:20.

Nonaromatics: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D7504:20.

1,4-Dioxane: This determination was not problematic. Almost all participants agreed on a concentration lower than 10 mg/kg. Therefore, no z-scores were calculated.

Total Impurities: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility calculated with the Horwitz equation.

Solidification Point (anhydrous basis): This determination was problematic. One statistical outlier was observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D852:20.

Sulfur: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ASTM D7183:18.

Thiophene: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ASTM D7011:15(2019).

Water: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM E1064:16.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the reference test method or as declared by the estimated target reproducibility calculated with the Horwitz equation and the reproducibility as found for the group of participating laboratories. The number of significant test results, the average, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility derived from literature reference test methods (in casu ASTM, ISO test methods) or estimated using the Horwitz equation are presented in the next table.

Parameter	Unit	n	average	2.8 * sd	R(lit)
Acid Wash Color		39	0.8 (1-)	0.3	2.1
Acidity		38	No free acid	n.a.	n.a.
Appearance		51	Pass (C&B)	n.a.	n.a.
Bromine Index	mg Br/100g	46	1.8	2.0	4.6
Total Chlorides	mg/kg	10	6.3	0.9	0.9
Organic Chlorides	mg/kg	22	6.3	1.3	1.3
Color Pt/Co		45	5.7	4.9	5.5
Density at 20°C	kg/L	48	0.8790	0.0002	0.0005
Distillation, IBP	°C	39	79.7	0.4	0.6
Distillation, 50% rec.	°C	35	80.1	0.0	0.2
Distillation, DP	°C	39	80.6	0.5	0.5
Total Nitrogen	mg/kg	36	1.12	0.74	0.31
Purity by GC	%M/M	46	99.853	0.026	0.025
Methylcyclohexane	mg/kg	29	12.5	3.8	3.8
Toluene	mg/kg	48	1366.1	214.0	175.3
Nonaromatics	mg/kg	47	71.6	38.3	58.1
1,4-Dioxane	mg/kg	31	<10	n.e.	n.e.
Total Impurities	mg/kg	33	1451	286	376
Solidification Point *)	°C	27	5.44	0.11	0.05
Sulfur	mg/kg	46	2.85	0.87	0.60
Thiophene	mg/kg	4	5.8	2.5	1.9
Water	mg/kg	42	230	18	37

Table 3: reproducibilities of tests on sample #21010

*) anhydrous basis

Without further statistical calculations, it can be concluded that for many tests there is a good compliance of the group of participants with the reference test methods. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF FEBRUARY 2021 WITH PREVIOUS PTS

	February 2021	February 2020	February 2019	March 2018	March 2017
Number of reporting laboratories	55	34	50	51	67
Number of test results	722	400	532	545	743
Number of statistical outliers	33	12	17	24	32
Percentage of statistical outliers	4.6%	3.0%	3.2%	4.4%	4.3%

Table 4: comparison with previous proficiency tests.

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.

The performance of the determinations of the proficiency tests was compared to the requirements of the reference test methods. The conclusions are given in the following table.

	February 2021	February 2020	February 2019	March 2018	March 2017
Acid Wash Color	++	++	++	++	++
Bromine Index	++	++	++	++	++
Total Chlorides	+/-	+	+/-	-	+/-
Organic Chlorides	+/-	+	++	++	+
Color Pt/Co	+	+	+	++	++
Density at 20°C	++	++	++	++	++
Distillation	+	-	++	++	++
Total Nitrogen	--	n.e.	-	+	+/-
Purity by GC	+/-	--	++	-	+/-
Methylcyclohexane	+/-	--	-	--	+/-
Toluene	-	-	n.e.	++	++
Nonaromatics	+	+	++	-	-
1,4-Dioxane	n.e.	n.e.	n.e.	n.e.	n.e.
Total Impurities	+	+/-	n.e.	n.e.	n.e.
Solidification Point *)	--	--	+	+/-	+
Sulfur	-	n.e.	+/-	+/-	n.e.
Thiophene	-	n.e.	n.e.	n.e.	n.e.
Water	++	-	-	n.e.	n.e.

Table 5: comparison determinations against the reference test methods

*) anhydrous basis

In the table above 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

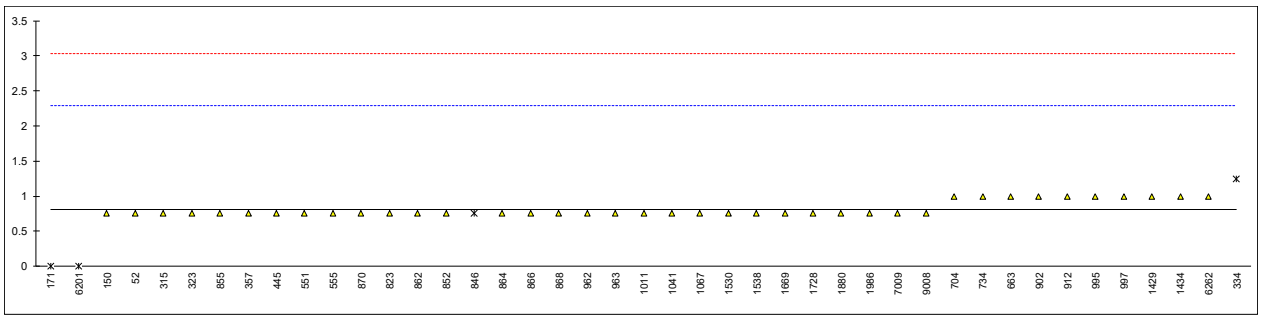
APPENDIX 1

Determination of Acid Wash Color on sample #21010;

lab	method	Reported test value	iis conversion*	mark	z(targ)	remarks
52	D848	1-	0.75		-0.09	
150	D848	1-	0.75		-0.09	
171	D848	0	0	R(0.01)	-1.10	
315	D848	1-	0.75		-0.09	
317		n	-----		-----	
323	D848	-1	0.75		-0.09	
334	D848	1+	1.25	R(0.05)	0.59	
347		n	-----		-----	
357	D848	1-	0.75		-0.09	
444		n	-----		-----	
445	D848	1-	0.75		-0.09	
551	D848	1-	0.75		-0.09	
555	D848	1-	0.75		-0.09	
663	D848	No.1	1		0.25	
704	D848	1	1		0.25	
734	D848	1	1		0.25	
823	D848	1-	0.75		-0.09	
846	GB/T2012	<0.1	-----		-----	Deviating colorimetric method
852	D848	No.1-	0.75		-0.09	
855	D848	No.1-	0.75		-0.09	
862	D848	No.1-	0.75		-0.09	
864	D848	No.1-	0.75		-0.09	
866	D848	NO.1-	0.75		-0.09	
868	D848	No.1-	0.75		-0.09	
870	D848	NO.1-	0.75		-0.09	
902	D848	1	1		0.25	
912	D848	I	1		0.25	
913		n	-----		-----	
962	D848	-1	0.75		-0.09	
963	D848	1-	0.75		-0.09	
970		n	-----		-----	
995	D848	1	1		0.25	
997	D848	1.0	1.0		0.25	
1011	D848	1-	0.75		-0.09	
1041	D848	1-	0.75		-0.09	
1067	D848	1-	0.75		-0.09	
1081		n	-----		-----	
1117		n	-----		-----	
1151		n	-----		-----	
1264		n	-----		-----	
1357		n	-----		-----	
1429	D848	1	1		0.25	
1434	D848	1	1		0.25	
1467		n	-----		-----	
1530	D848	<1	0.75		-0.09	
1538	D848	1-	0.75		-0.09	
1669	D848	-1	0.75		-0.09	
1728	D848	1-	0.75		-0.09	
1812		n	-----		-----	
1823		n	-----		-----	
1880	D848	<1	0.75		-0.09	
1954		n	-----		-----	
1986	D848	1-	0.75		-0.09	
6198		n	-----		-----	
6201	D848	0	0	R(0.01)	-1.10	
6203		n	-----		-----	
6262	D848	1	1		0.25	
7009	D848	-1	0.75		-0.09	
9008	D848	1-	0.75		-0.09	

normality	suspect
n	39
outliers	3
mean (n)	0.8141
st.dev. (n)	0.11
R(calc.)	0.31
st.dev.(D848:18)	0.740
R(D848:18)	2.072

*) In the calculation of the mean, standard deviation, reproducibility and in the graphs, a reported value of 'y-', '-y' or '<y' is changed into y-0.25 (for example 1- into 0.75) and 'y+' is changed into y+0.25 (for example 0+ into 0.25).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3
2.5
2
1.5
1
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0
171
6201
150
52
315
323
855
357
445
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962
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1011
1041
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1538
1669
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6262
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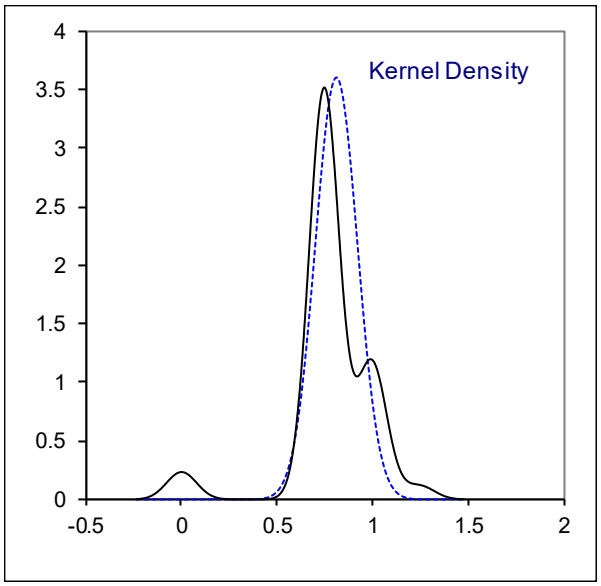

Kernel Density
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5
2

Determination of Acidity on sample #21010;

lab	method	Value	mark	z(targ)	remarks
52	D847	Pass		-----	
150	D847	0.0		-----	
171	D847	NFA		-----	
315	D847	Pass		-----	
317		-----		-----	
323	D847	NFA		-----	
334	D847	Pass		-----	
347	D847	Pass		-----	
357	D847	No free acid		-----	
444		-----		-----	
445	D847	Pass		-----	
551	D847	Pass		-----	
555	D847	Pass		-----	
663	D847	Pass		-----	
704	D847	No free acid		-----	
734		-----		-----	
823	D847	no free acid		-----	
846		-----		-----	
852	D847	No free acid		-----	
855	D847	No free acid		-----	
862	D847	No free acid		-----	
864	D847	No free acid		-----	
866	D847	NO FREE ACID		-----	
868	D847	PASS		-----	
870	D847	NO FREE ACID		-----	
902		-----		-----	
912	D847	No free Acid		-----	
913		-----		-----	
962		-----		-----	
963		-----		-----	
970		-----		-----	
995	D847	NFA		-----	
997	D847	No free acid		-----	
1011	D847	Pass		-----	
1041		-----		-----	
1067	D847	Pass		-----	
1081	D847	FAIL		-----	
1117	D847	< 0.4		-----	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429		-----		-----	
1434	D847	Pass		-----	
1467		-----		-----	
1530	D847	no free acid		-----	
1538	D847	No free acid		-----	
1669		-----		-----	
1728	D847	ABSENT		-----	
1812		-----		-----	
1823	D847	Pass		-----	
1880	D847	NFA		-----	
1954		-----		-----	
1986	D847	no free acid		-----	
6198		-----		-----	
6201	D847	pass/no free acid		-----	
6203		-----		-----	
6262	D847	Pass		-----	
7009	D847	No Free Acid		-----	
9008	D847	No Free Acid		-----	
	n	38		1	
	mean (n)	No free acid (pass)		Fail	

Abbreviation
NFA = No free acid

Determination of Appearance on sample #21010;

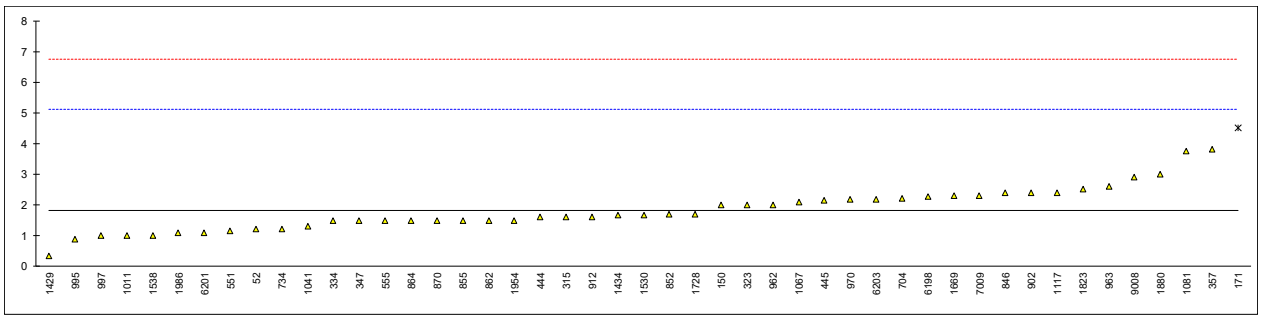
lab	method	value	mark	z(targ)	remarks
52	D4176	Pass		-----	
150	E2680	Pass		-----	
171	E2680	Pass		-----	
315	E2680	Pass		-----	
317	D4176	PASS		-----	
323	E2680	clear & bright		-----	
334	EN15769	CLEAR AND COLORLESS		-----	
347	E2680	Pass		-----	
357	E2680	Pass		-----	
444	E2680	Pass		-----	
445	D4176	Pass C&B		-----	
551	E2680	Pass		-----	
555	E2680	Pass		-----	
663	Visual	Bright & Clear		-----	
704	E2680	Pass		-----	
734	E2680	Cl&Br		-----	
823	E2680	Pass		-----	
846	Visual	Pass		-----	
852	Visual	Clear&Bright		-----	
855	E2680	Pass		-----	
862	E2680	Pass		-----	
864	E2680	Pass		-----	
866	D4176	PASS		-----	
868	E2680	PASS		-----	
870	E2680	Pass		-----	
902	E2680	PASS		-----	
912	E2680	Pass		-----	
913		-----		-----	
962	D4176	Clear		-----	
963	Visual	Pass		-----	
970	Visual	Clear & Bright		-----	
995	E2680	Pass		-----	
997	E2680	PASS C&B		-----	
1011	Visual	Bright and Clear		-----	
1041	Visual	CBFSM		-----	
1067	E2680	Bright and Clear		-----	
1081	In house	C/B		-----	
1117	D4176	Pass		-----	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	E2680	Clear and Bright		-----	
1434	Visual	clear lig		-----	
1467		-----		-----	
1530	Visual	C&B		-----	
1538		B&C		-----	
1669	Visual	Claro y Brillante		-----	
1728	Visual	CLEAR		-----	
1812		-----		-----	
1823	D4176	Clear&FFSM&No Free Water		-----	
1880	Visual	Pass		-----	
1954	Visual	CLEAR COLOURLESS LIQUID		-----	
1986	E2680	Pass		-----	
6198		-----		-----	
6201	Visual	Br & Cl		-----	
6203		-----		-----	
6262	Visual	clear & bright		-----	
7009	Visual	Clear		-----	
9008	Visual	Clear		-----	
	n	51			
	mean (n)	Pass (Clear & Bright)			

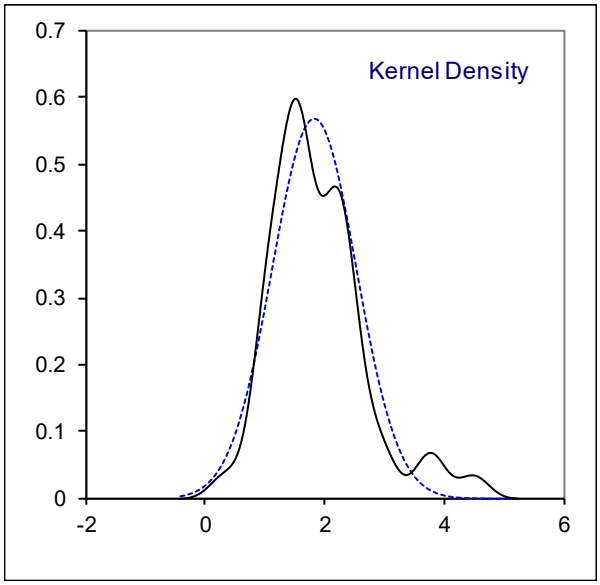
Abbreviation
C&B = Clear and bright
FFSM = Free from suspended matter

Determination of Bromine Index on sample #21010; results in mg Br/100g

Lab	method	value	mark	z(targ)	remarks
52	D1492	1.2		-0.38	
150	D1492	2		0.10	
171	D5776	4.5	R(0.05)	1.62	
315	D5776	1.6		-0.14	
317	D5776	<0.5		-----	
323	D5776	2.0		0.10	
334	D5776	1.5		-0.20	
347	D5776	1.5		-0.20	
357	D5776	3.8		1.20	
444	D5776	1.6		-0.14	
445	D2710	2.15		0.19	
551	D5776	1.16		-0.41	
555	D5776	1.5		-0.20	
663		-----		-----	
704	D5776	2.2		0.22	
734	D5776	1.21		-0.38	
823		-----		-----	
846	SH/T0630	2.38		0.33	
852	D5776	1.7		-0.08	
855	D5776	1.5		-0.20	
862	D5776	1.5		-0.20	
864	D5776	1.5		-0.20	
866	D5776	<5		-----	
868	D5776	<10		-----	
870	D5776	1.5		-0.20	
902	D2710	2.4		0.35	
912	D1492	1.6		-0.14	
913		-----		-----	
962	D1492	2		0.10	
963	D1492	2.6		0.47	
970	D1492	2.18		0.21	
995	D5776	0.89		-0.57	
997	D5776	1.0		-0.51	
1011	D5776	1		-0.51	
1041	DIN51774	1.30		-0.32	
1067	D5776	2.1		0.16	
1081	D1492	3.75		1.17	
1117	D1492	2.4		0.35	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D2710	0.34		-0.91	
1434	D5776	1.67		-0.10	
1467		-----		-----	
1530	DIN51774	1.67		-0.10	
1538	D1492	1		-0.51	
1669	D5776	2.3		0.28	
1728	D5776	1.7		-0.08	
1812		-----		-----	
1823	D1492	2.5058		0.41	
1880	D1492	3.0		0.71	
1954	D2710	1.5		-0.20	
1986	D5776	1.1		-0.45	
6198	D1492	2.28		0.27	
6201	D5776	1.1		-0.45	
6203	D5776	2.19		0.22	
6262	D5776	<0.5		-----	
7009	D1492	2.3		0.28	
9008	D1492	2.9		0.65	

normality	suspect
n	46
outliers	1
mean (n)	1.832
st.dev. (n)	0.7030
R(calc.)	1.968
st.dev.(D5776:14a)	1.6429
R(D5776:14a)	4.6

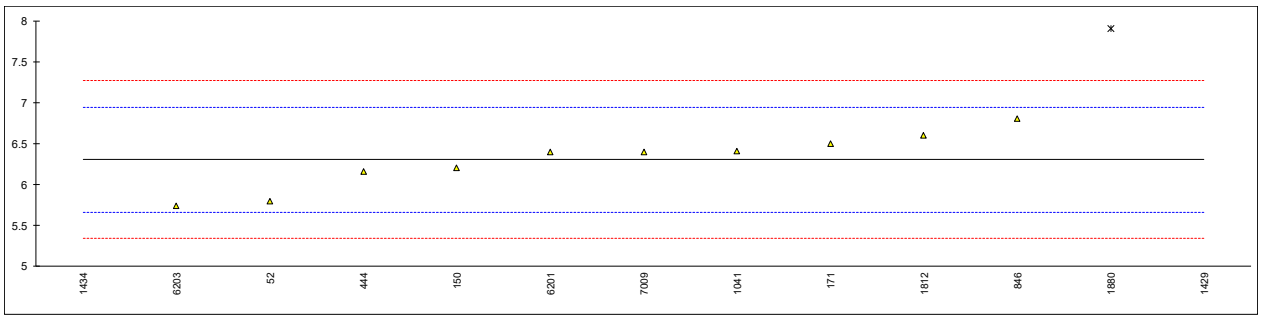

8
7
6
5
4
3
2
1
0
1429
995
997
1011
1538
1986
6201
551
52
734
1041
334
347
555
884
870
865
862
1954
444
315
912
1434
1530
852
1728
150
323
962
1067
445
970
6203
704
6198
1669
7009
846
902
1117
1823
963
9008
1880
1081
357
171

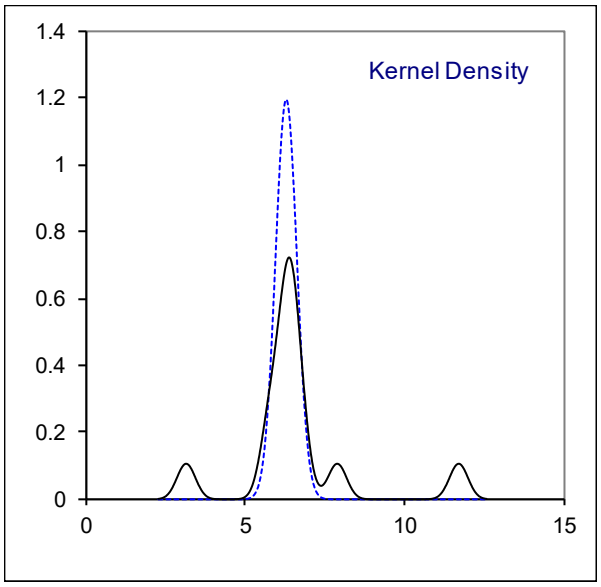

Kernel Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-2
0
2
4
6

Determination of Total Chlorides on sample #21010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D7536	5.8		-1.56	
150	D7359	6.2		-0.31	
171	D7536	6.5		0.62	
315		-----		-----	
317		-----		-----	
323		-----		-----	
334		-----		-----	
347		-----		-----	
357		-----		-----	
444	IP510	6.16		-0.44	
445		-----		-----	
551		-----		-----	
555		-----		-----	
663		-----		-----	
704		-----		-----	
734		-----		-----	
823		-----		-----	
846	D7536	6.80		1.55	
852		-----		-----	
855		-----		-----	
862		-----		-----	
864		-----		-----	
866		-----		-----	
868		-----		-----	
870		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963		-----		-----	
970		-----		-----	
995		-----		-----	
997		-----		-----	
1011		-----		-----	
1041		6.41		0.34	
1067		-----		-----	
1081		-----		-----	
1117		-----		-----	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D7359	11.7	G(0.01)	16.80	
1434	D7536	3.17	G(0.01)	-9.74	
1467		-----		-----	
1530		-----		-----	
1538		-----		-----	
1669		-----		-----	
1728		-----		-----	
1812		6.6		0.93	
1823		-----		-----	
1880	D7359	7.9	C,G(0.05)	4.97	first reported 5.0
1954		-----		-----	
1986		-----		-----	
6198		-----		-----	
6201	UOP779	6.4		0.31	
6203	D5808	5.74		-1.75	
6262		-----		-----	
7009	D7536	6.4		0.31	
9008		-----		-----	

normality	OK
n	10
outliers	3
mean (n)	6.301
st.dev. (n)	0.3342
R(calc.)	0.936
st.dev.(D5194:18)	0.3214
R(D5194:18)	0.9

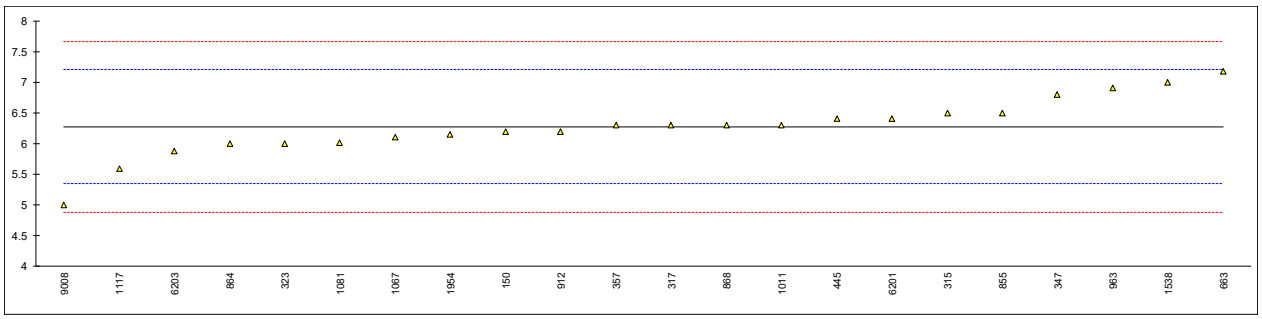

8
7.5
7
6.5
6
5.5
5
1434
6203
52
444
150
6201
7009
1041
171
1812
846
1880
1429

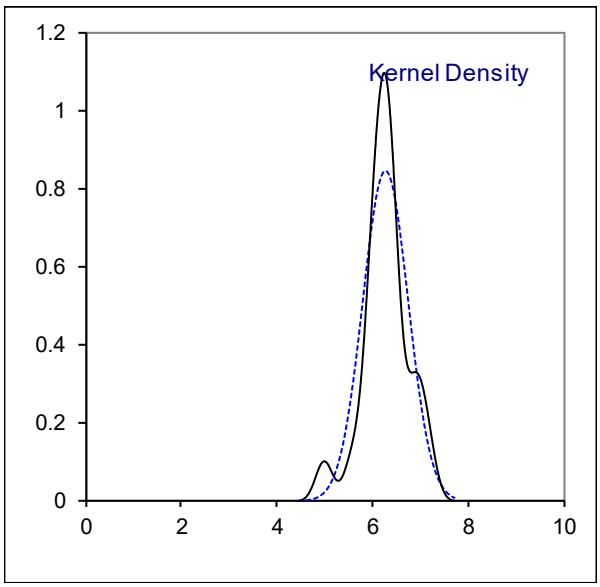

Kernel Density
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
5
10
15

Determination of Organic Chlorides on sample #21010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
150	D7359	6.2		-0.16	
171		-----		-----	
315	UOP779	6.5		0.49	
317	UOP779	6.3		0.06	
323	D5808	6		-0.59	
334		-----		-----	
347	D4929B	6.8		1.14	
357	D5808	6.3		0.06	
444		-----		-----	
445	IP510	6.4		0.27	
551		-----		-----	
555		-----		-----	
663	D5808	7.17		1.93	
704		-----		-----	
734		-----		-----	
823		-----		-----	
846		-----		-----	
852		-----		-----	
855	D5808	6.5		0.49	
862		-----		-----	
864	D5808	6.0		-0.59	
866		-----		-----	
868	D5808	6.3		0.06	
870		-----		-----	
902		-----		-----	
912	D5808	6.2		-0.16	
913		-----		-----	
962		-----		-----	
963	D5808	6.9		1.35	
970		-----		-----	
995		-----		-----	
997		-----		-----	
1011	D5808	6.3		0.06	
1041		-----		-----	
1067	UOP779	6.1		-0.37	
1081	D5808	6.01		-0.57	
1117	D7359	5.59		-1.47	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429		-----		-----	
1434		-----		-----	
1467		-----		-----	
1530		-----		-----	
1538	D5808	7.0		1.57	
1669		-----		-----	
1728		-----		-----	
1812		-----		-----	
1823		-----		-----	
1880		-----		-----	
1954	D5808	6.15		-0.26	
1986		-----		-----	
6198		-----		-----	
6201	D5808	6.4		0.27	
6203	D5808	5.88		-0.85	
6262		-----		-----	
7009		-----		-----	
9008	D5808	5.0		-2.74	

normality	suspect
n	22
outliers	0
mean (n)	6.273
st.dev. (n)	0.4709
R(calc.)	1.319
st.dev.(D5808:20)	0.4643
R(D5808:20)	1.3

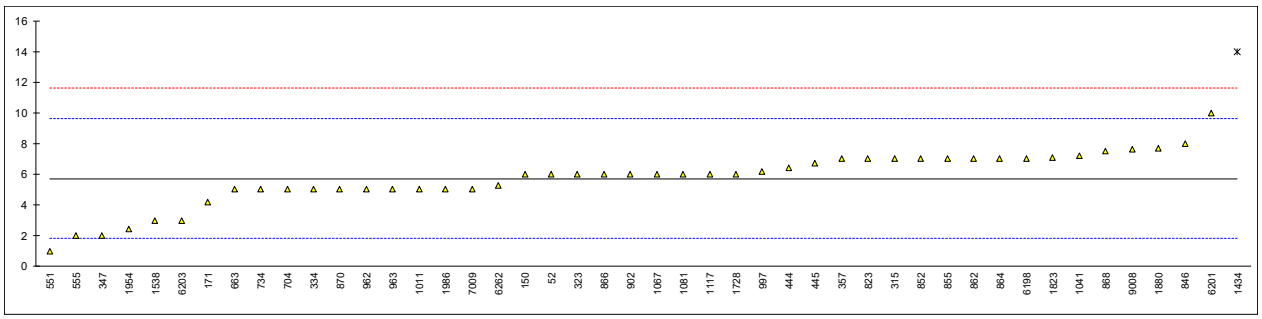

8
7.5
7
6.5
6
5.5
5
4.5
4
9008
1117
6203
864
323
1081
1067
1954
150
912
357
317
868
1011
445
6201
315
855
347
963
1538
663

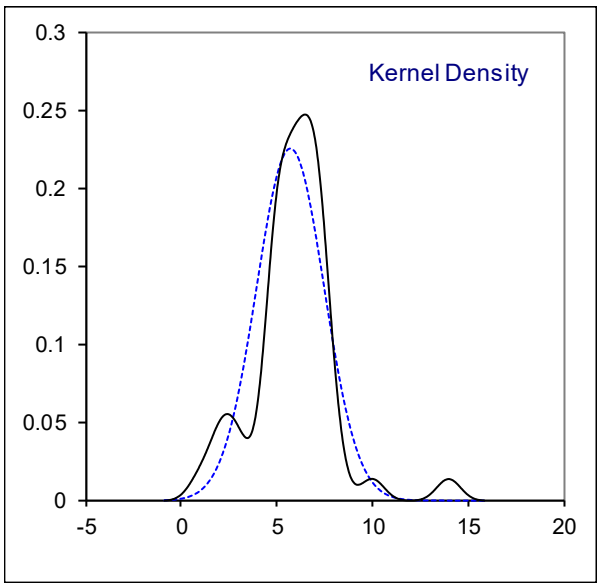

Kernel Density
1.2
1
0.8
0.6
0.4
0.2
0
0
2
4
6
8
10

Determination of Color Pt/Co on sample #21010;

lab	method	value	mark	z(targ)	remarks
52	D5386	6		0.14	
150	D5386	6		0.14	
171	D5386	4.2		-0.77	
315	D5386	7		0.65	
317	D1209	<5		-----	
323	D5386	6		0.14	
334	D1209	5		-0.37	
347	D5386	2		-1.90	
357	D5386	7		0.65	
444	D5386	6.4		0.35	
445	D1209	6.7		0.50	
551	D5386	1		-2.41	
555	D5386	2		-1.90	
663	D5386	5		-0.37	
704	D1209	5		-0.37	
734	D1209	5		-0.37	
823	D5386	7		0.65	
846	D5386	8		1.17	
852	D5386	7		0.65	
855	D1209	7		0.65	
862	D5386	7		0.65	
864	D5386	7		0.65	
866	D1209	6		0.14	
868	D5386	7.5		0.91	
870	D1209	5		-0.37	
902	D5386	6		0.14	
912		-----		-----	
913		-----		-----	
962	D1209	5		-0.37	
963	D5386	5		-0.37	
970	D1209	<5		-----	
995		-----		-----	
997	D1209	6.2		0.25	
1011	D1209	5		-0.37	
1041	ISO6271	7.2		0.76	
1067	D5386	6		0.14	
1081	D5386	6		0.14	
1117	D1209	6		0.14	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D1209	<5		-----	
1434	D1209	14	R(0.01)	4.23	
1467		-----		-----	
1530	D1209	<3		-----	
1538	D1209	3		-1.39	
1669		-----		-----	
1728	D1209	6		0.14	
1812		-----		-----	
1823	D5386	7.1		0.71	
1880	D5386	7.69		1.01	
1954	D1209	2.4		-1.69	
1986	D1209	5		-0.37	
6198	D5386	7.0		0.65	
6201	D5386	10		2.19	
6203	D1209	3		-1.39	
6262	D5386	5.3		-0.21	
7009	D1209	5.0		-0.37	
9008	D5386	7.6		0.96	

	normality	OK
	n	45
	outliers	1
	mean (n)	5.72
	st.dev. (n)	1.765
	R(calc.)	4.94
	st.dev.(D5386:16)	1.959
	R(D5386:16)	5.48
Compare		
	R(D1209:05)	7

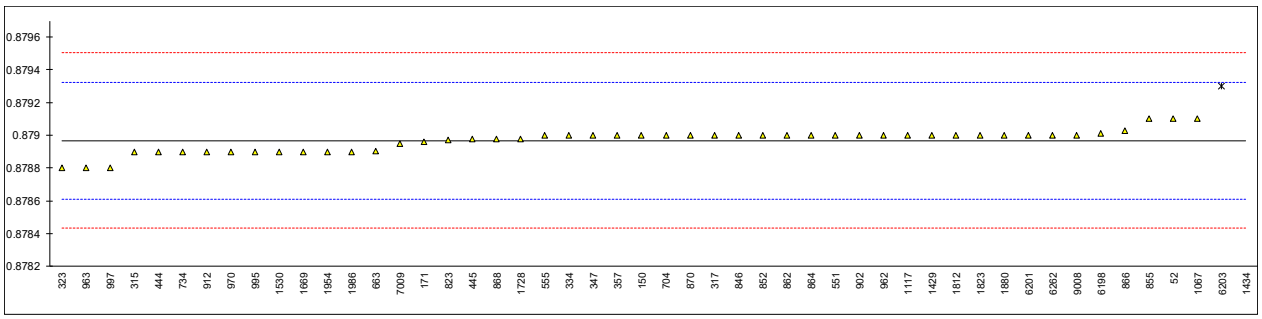

16
14
12
10
8
6
4
2
0
551 555 347 1954 1538 6203 171 663 734 704 334 870 962 963 1011 1986 7009 6262 150 52 323 866 902 1067 1081 1117 1728 997 444 445 357 823 315 852 855 862 864 6198 1823 1041 868 9008 1880 846 6201 1434

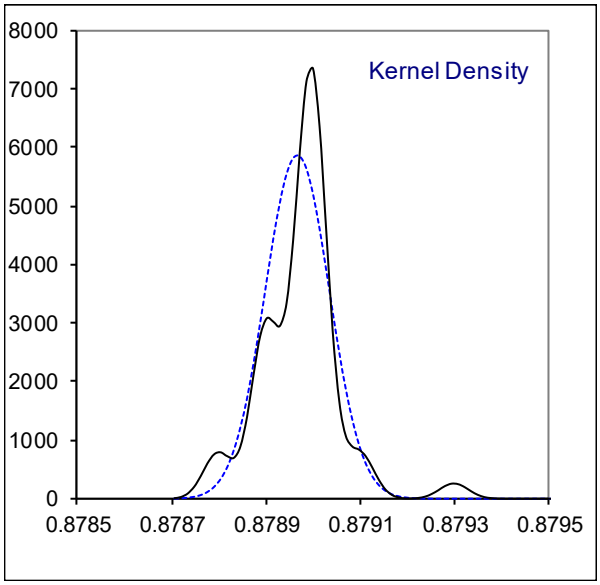

Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
-5
0
5
10
15
20

Determination of Density at 20°C on sample #21010; results in kg/L

lab	method	value	mark	z(targ)	remarks
52	D4052	0.8791		0.74	
150	D4052	0.8790		0.18	
171	D4052	0.87896		-0.05	
315	D4052	0.8789		-0.38	
317	ISO12185	0.8790		0.18	
323	D4052	0.8788		-0.94	
334	ISO12185	0.8790		0.18	
347	D4052	0.8790		0.18	
357	D4052	0.87900		0.18	
444	D4052	0.8789		-0.38	
445	D4052	0.87898		0.07	
551	D4052	0.8790		0.18	
555	D4052	0.8790		0.18	
663	D4052	0.878905		-0.35	
704	ISO12185	0.8790		0.18	
734	D4052	0.8789		-0.38	
823	D4052	0.87897		0.01	
846	SH/T0604	0.8790		0.18	
852	D4052	0.8790		0.18	
855	ISO12185	0.8791		0.74	
862	D4052	0.8790		0.18	
864	D4052	0.8790		0.18	
866	D4052	0.87903		0.35	
868	D4052	0.87898		0.07	
870	ISO12185	0.8790		0.18	
902	ISO12185	0.8790		0.18	
912	ISO12185	0.8789		-0.38	
913		-----		-----	
962	ISO12185	0.8790		0.18	
963	ISO12185	0.8788		-0.94	
970	D4052	0.8789		-0.38	
995	ISO12185	0.8789		-0.38	
997	ISO12185	0.8788		-0.94	
1011		-----		-----	
1041		-----		-----	
1067	ISO12185	0.8791		0.74	
1081		-----		-----	
1117	D4052	0.8790		0.18	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	ISO12185	0.8790		0.18	
1434	D4052	0.88218	R(0.01)	17.99	
1467		-----		-----	
1530	ISO12185	0.87890		-0.38	
1538		-----		-----	
1669	D4052	0.8789		-0.38	
1728	ISO12185	0.87898		0.07	
1812	ISO12185	0.8790	C	0.18	first reported 879.0 kg/L
1823	D4052	0.8790		0.18	
1880	D4052	0.8790		0.18	
1954	D4052	0.8789	C	-0.38	first reported 0,8810
1986	ISO12185	0.8789		-0.38	
6198	D4052	0.87901		0.23	
6201	ISO12185	0.8790		0.18	
6203	ISO12185	0.8793	R(0.01)	1.86	
6262	ISO12185	0.8790		0.18	
7009	D4052	0.87895		-0.10	
9008	D4052	0.8790		0.18	

normality	OK
n	48
outliers	2
mean (n)	0.87897
st.dev. (n)	0.000068
R(calc.)	0.00019
st.dev.(ISO12185:96)	0.000179
R(ISO12185:96)	0.0005

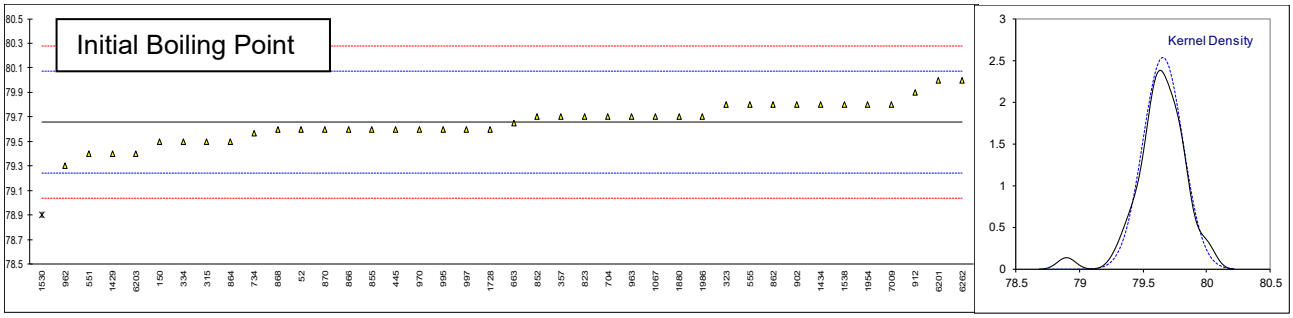

0.8796
0.8794
0.8792
0.879
0.8788
0.8786
0.8784
0.8782
323 963 997 315 444 734 912 970 995 1530 1669 1954 1986 663 7009 171 823 445 868 1728 555 334 347 357 150 704 870 317 846 852 862 864 551 902 962 1117 1429 1812 1823 1880 6201 6262 9008 6198 866 855 52 1067 6203 1434

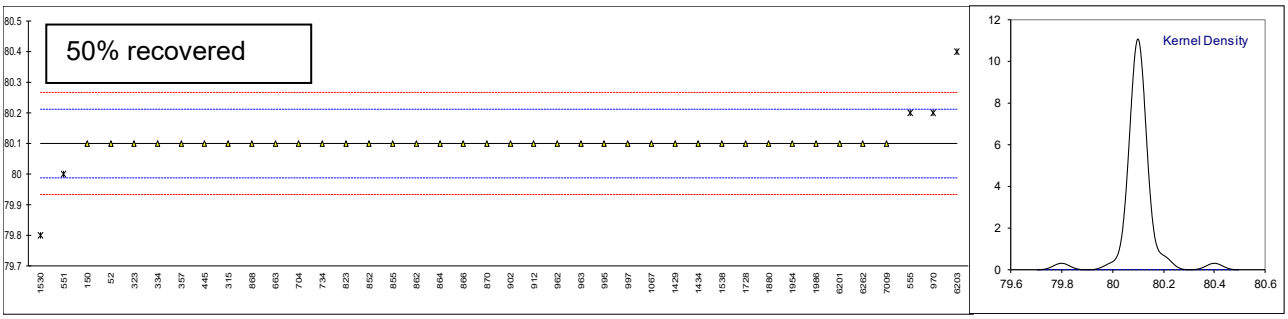

Kernel Density
8000
7000
6000
5000
4000
3000
2000
1000
0
0.8785
0.8787
0.8789
0.8791
0.8793
0.8795

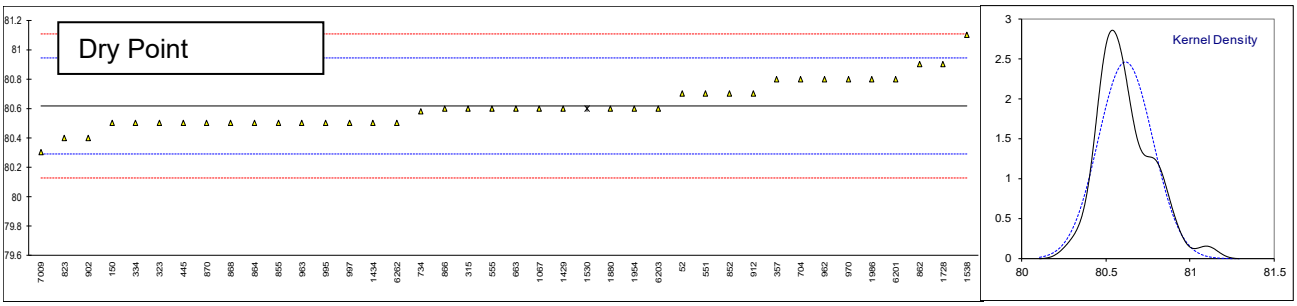
Determination of Distillation on sample #21010; results in °C

Lab	method	IBP	mark	z(targ)	50%	mark	z(targ)	DP	mark	z(targ)	range	mark
52	D850-automated	79.6		-0.27	80.1		0.00	80.7		0.51	1.1	
150	D850-automated	79.5		-0.76	80.1		0.00	80.5		-0.72	1.0	
171		-----		-----	-----		-----	-----		-----	-----	
315	D850-automated	79.5		-0.76	80.1		0.00	80.6		-0.11	1.1	
317		-----		-----	-----		-----	-----		-----	-----	
323	D850-automated	79.8		0.69	80.1		0.00	80.5		-0.72	0.5	
334	D850-automated	79.5		-0.76	80.1		0.00	80.5		-0.72	1.0	
347		-----		-----	-----		-----	-----		-----	-----	
357	D850-automated	79.7		0.21	80.1		0.00	80.8		1.12	1.1	
444		-----		-----	-----		-----	-----		-----	-----	
445	D850-manual	79.6	C	-0.27	80.1	C	0.00	80.5	C	-0.72	0.9	C
551		79.4		-1.24	80.0	R(0.01)	-1.80	80.7		0.51	1.3	C
555	D850-manual	79.8		0.69	80.2	R(0.01)	1.79	80.6		-0.11	0.8	
663	D850-automated	79.65		-0.03	80.10		0.00	80.60		-0.11	1.0	
704	D850-manual	79.7		0.21	80.1		0.00	80.8		1.12	1.1	
734	D850-automated	79.57		-0.42	80.10		0.00	80.58		-0.23	1.01	
823	D850-automated	79.7		0.21	80.1		0.00	80.4		-1.34	0.7	
846		-----		-----	-----		-----	-----		-----	-----	
852	D850-manual	79.7		0.21	80.1		0.00	80.7		0.51	1.0	
855	D850-manual	79.6		-0.27	80.1		0.00	80.5		-0.72	0.9	
862	D850-manual	79.8		0.69	80.1		0.00	80.9		1.74	1.1	
864	D850-automated	79.5		-0.76	80.1		0.00	80.5		-0.72	1.0	
866	D850-manual	79.6		-0.27	80.1		0.00	80.6		-0.11	1.0	
868	D850-manual	79.6		-0.27	80.1		0.00	80.5		-0.72	0.9	
870	D850-automated	79.6		-0.27	80.1		0.00	80.5		-0.72	0.9	
902	D850-automated	79.8		0.69	80.1		0.00	80.4		-1.34	0.6	
912	D1078	79.9		1.17	80.1		0.00	80.7		0.51	0.8	
913		-----		-----	-----		-----	-----		-----	-----	
962	D850-automated	79.3		-1.72	80.1		0.00	80.8		1.12	1.5	
963	D850-automated	79.7	C	0.21	80.1		0.00	80.5		-0.72	1.5	
970	D850-automated	79.6		-0.27	80.2	R(0.01)	1.79	80.8		1.12	1.2	
995	D850-manual	79.6		-0.27	80.1		0.00	80.5		-0.72	0.9	
997	D850-manual	79.6		-0.27	80.1		0.00	80.5		-0.72	0.9	
1011		-----		-----	-----		-----	-----		-----	-----	
1041		-----		-----	-----		-----	-----		-----	-----	
1067	D850-automated	79.7		0.21	80.1		0.00	80.6		-0.11	0.9	
1081		-----		-----	-----		-----	-----		-----	-----	
1117		-----		-----	-----		-----	-----		-----	-----	
1151		-----		-----	-----		-----	-----		-----	-----	
1264		-----		-----	-----		-----	-----		-----	-----	
1357		-----		-----	-----		-----	-----		-----	-----	
1429	D850-automated	79.4		-1.24	80.1		0.00	80.6		-0.11	1.2	
1434	D850-automated	79.8		0.69	80.1		0.00	80.5		-0.72	0.7	
1467		-----		-----	-----		-----	-----		-----	-----	
1530	D850-automated	78.9	R(0.01)	-3.65	79.8	R(0.01)	-5.38	80.6	ex	-0.11	1.7	
1538	D850-automated	79.8		0.69	80.1		0.00	81.1		2.96	1.3	
1669		-----		-----	-----		-----	-----		-----	-----	
1728	D850-manual	79.6		-0.27	80.1		0.00	80.9		1.74	1.3	
1812		-----		-----	-----		-----	-----		-----	-----	
1823		-----		-----	-----		-----	-----		-----	-----	
1880	D850-automated	79.7		0.21	80.1		0.00	80.6		-0.11	0.9	
1954	D850-automated	79.8		0.69	80.1		0.00	80.6		-0.11	1.0	C
1986	D850-manual	79.7		0.21	80.1		0.00	80.8		1.12	1.1	
6198		-----		-----	-----		-----	-----		-----	-----	
6201	D850-manual	80.0		1.65	80.1		0.00	80.8		1.12	0.8	
6203	D850-manual	79.4		-1.24	80.4	R(0.01)	5.38	80.6		-0.11	1.2	
6262	D850-automated	80.0		1.65	80.1		0.00	80.5		-0.72	0.5	
7009	D850-automated	79.8	C	0.69	80.1	C	0.00	80.3	C	-1.95	0.5	C
9008		-----		-----	-----		-----	-----		-----	-----	
	normality	OK			OK			OK				
	n	39			35			39				
	outliers	1			5			0+1ex				
	mean (n)	79.66			80.10			80.62				
	st.dev. (n)	0.157			0.000			0.162				
	R(calc.)	0.44			0.00			0.45				
	st.dev.(D850:21)	0.208			0.056			0.163				
	R(D850:21)	0.58			0.16			0.46				

Lab 445 first reported 79.8 for IBP, 80.3 for 50% recovery, 80.6 for DP and 0.8 for Distillation range
Lab 551 first reported 0.7 for Distillation range
Lab 963 first reported 79.0
Lab 1530 test result excluded as the other reported test results are statistical outliers.
Lab 1954 first reported 79.8 for Distillation range
Lab 7009 first reported 79.2 for IBP, 79.7 for 50% recovery, 80.4 for DP and 1.2 for Distillation range


Initial Boiling Point
Kernel Density

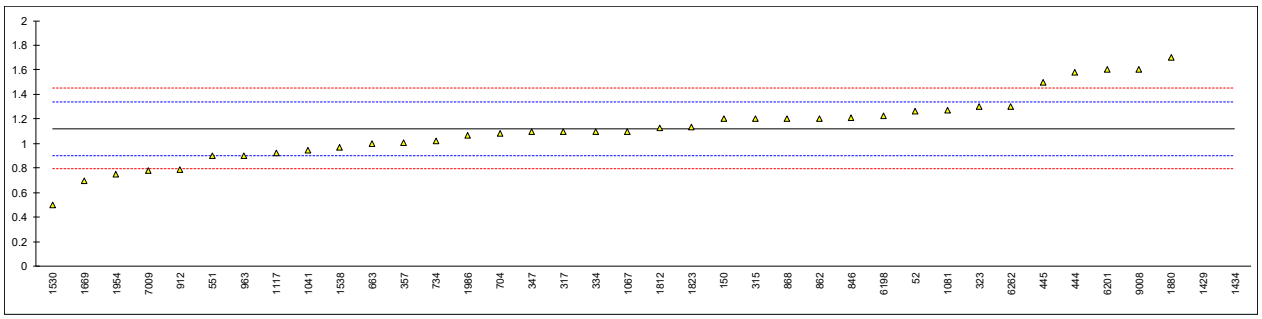

50% recovered
Kernel Density

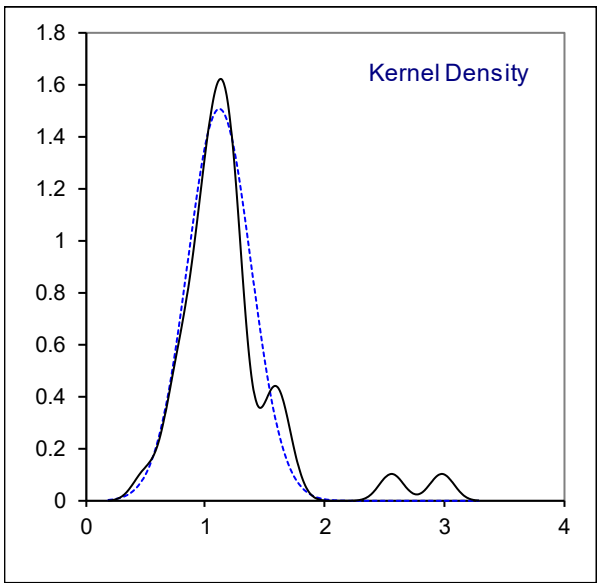

Dry Point
Kernel Density

Determination of Total Nitrogen on sample #21010; results in mg/kg

lab	method	Value	mark	z(targ)	remarks
52	D7184	1.26		1.27	
150	D7184	1.2		0.72	
171		-----		-----	
315	D7184	1.2		0.72	
317	D4629	1.1		-0.19	
323	D6069	1.3		1.64	
334	D4629	1.1		-0.19	
347	D4629	1.1		-0.19	
357	D4629	1.01		-1.01	
444	D4629	1.58		4.20	
445	D4629	1.50		3.47	
551	D4629	0.9		-2.02	
555		-----		-----	
663	D4629	1.00		-1.10	
704	D4629	1.08		-0.37	
734	D7184	1.02		-0.92	
823		-----		-----	
846	SH/T0657	1.21		0.82	
852		-----		-----	
855		-----		-----	
862	D4629	1.2		0.72	
864		-----		-----	
866		-----		-----	
868	D4629	1.2		0.72	
870		-----		-----	
902		-----		-----	
912	D4629	0.79		-3.02	
913		-----		-----	
962		-----		-----	
963	D7184	0.9		-2.02	
970		-----		-----	
995		-----		-----	
997		-----		-----	
1011		-----		-----	
1041	D6069	0.945		-1.61	
1067	D6069	1.1		-0.19	
1081	D6069	1.27		1.36	
1117	D7184	0.92		-1.83	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D4629	2.56	G(0.01)	13.15	
1434	D7184	2.98	G(0.01)	16.99	
1467		-----		-----	
1530	D6069	0.5		-5.67	
1538	D7184	0.97		-1.38	
1669	D4629	0.70		-3.84	
1728		-----		-----	
1812	D6069	1.13		0.09	
1823	D7184	1.135		0.13	
1880	D6069	1.7		5.29	
1954	D4629	0.75		-3.39	
1986	D4629	1.07		-0.46	
6198	D4629	1.225		0.95	
6201	D7184	1.6		4.38	
6203		-----		-----	
6262	D7184	1.3		1.64	
7009	D4629	0.78		-3.11	
9008	D6069	1.60		4.38	

normality	OK
n	36
outliers	2
mean (n)	1.121
st.dev. (n)	0.2651
R(calc.)	0.742
st.dev.(D7184:20)	0.1095
R(D7184:20)	0.306

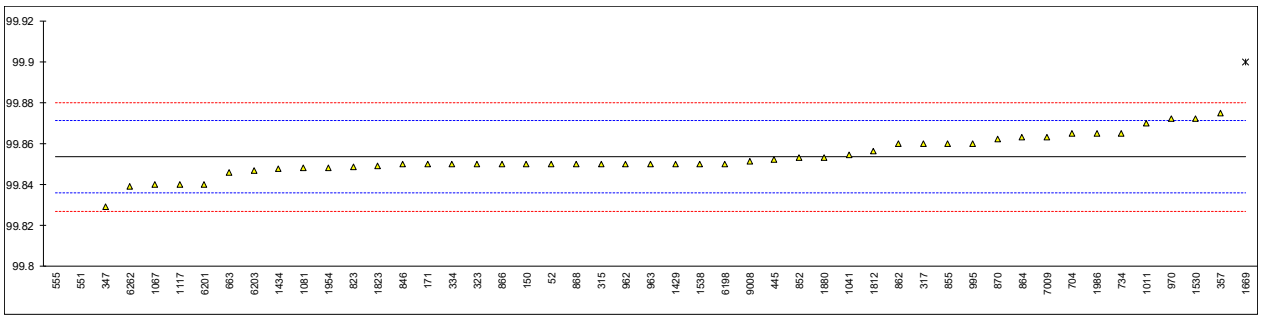

2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1530 1669 1954 7009 912 551 963 1117 1041 1538 663 357 734 1986 704 347 317 334 1067 1812 1823 150 315 868 862 846 6198 52 1081 323 6262 445 444 6201 9008 1880 1429 1434

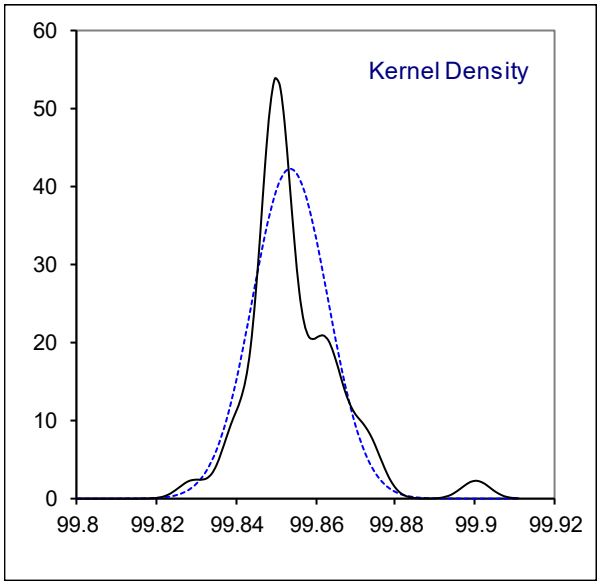

Kernel Density
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4

Determination of Purity by GC on sample #21010; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	99.85		-0.39	
150	D4492	99.85		-0.39	
171	D7504	99.85		-0.39	
315	D7504	99.85		-0.39	
317	D7504	99.86		0.75	
323	D7504	99.85		-0.39	
334	D4492	99.85	C	-0.39	first reported 99.78
347	D4492	99.829		-2.77	
357	D7504	99.875		2.45	
444		-----		-----	
445	D4492	99.8522		-0.14	
551	D4492	99.6104	R(0.01)	-27.54	
555	D7504	99.6097	R(0.01)	-27.62	
663	D7504	99.846		-0.84	
704	D7504	99.865		1.31	
734	D7360	99.8651		1.33	
823	D4492	99.8488		-0.52	
846	D4492	99.8499		-0.40	
852	D7504	99.853		-0.05	
855	D7504	99.86		0.75	
862	D7504	99.860		0.75	
864	D7504	99.863		1.09	
866	D7504	99.85		-0.39	
868	D7504	99.85		-0.39	
870	D7504	99.862		0.97	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962	D4492	99.85		-0.39	
963	D4492	99.85		-0.39	
970	D7504	99.872		2.11	
995	D7504	99.860		0.75	
997		-----		-----	
1011	D7360	99.87		1.88	
1041		99.8544		0.11	
1067	In house	99.84		-1.52	
1081	D7504	99.848		-0.61	
1117	D4492	99.84		-1.52	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D7504	99.85		-0.39	
1434	D7504	99.84770		-0.65	
1467		-----		-----	
1530	D7504	99.872		2.11	
1538	D7504	99.85		-0.39	
1669	D5713	99.90	R(0.01)	5.28	
1728		-----		-----	
1812		99.8564		0.34	
1823	D7504	99.8492		-0.48	
1880	D4492	99.853		-0.05	
1954	D7504	99.8481		-0.60	
1986	D7504	99.865		1.31	
6198	D7504	99.85		-0.39	
6201	D7504	99.84		-1.52	
6203	D7504	99.8470		-0.73	
6262	D7504	99.8390		-1.63	
7009	D7504	99.863		1.09	
9008	D4492	99.8515		-0.22	

normality	OK
n	46
outliers	3
mean (n)	99.85341
st.dev. (n)	0.009448
R(calc.)	0.02645
st.dev.(D7504:20)	0.008823
R(D7504:20)	0.02471

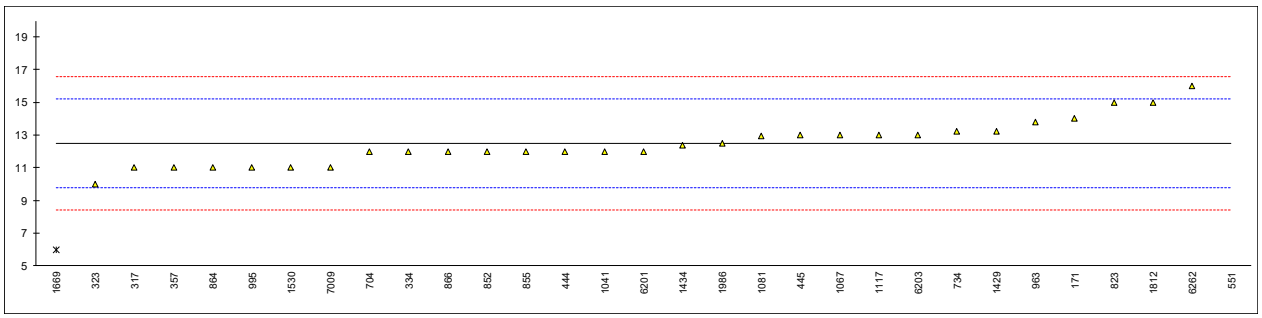

99.92
99.9
99.88
99.86
99.84
99.82
99.8
555 551 347 6262 1067 1117 6201 663 6203 1434 1081 1954 823 1823 846 171 334 323 866 150 52 868 315 982 963 1429 1538 6198 9008 445 852 1880 1041 1812 882 317 855 995 870 864 7009 704 1986 734 1011 970 1530 357 1669

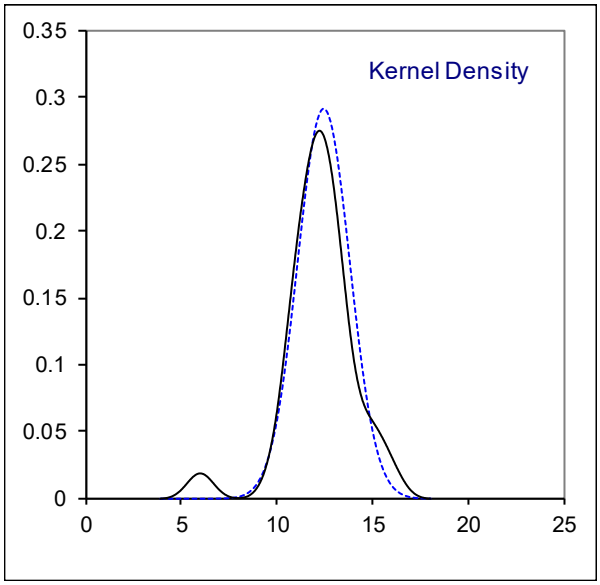

Kernel Density
60
50
40
30
20
10
0
99.8 99.82 99.84 99.86 99.88 99.9 99.92

Determination of Methylcyclohexane on sample #21010 in mg/kg

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
150		-----		-----	
171	D7504	14		1.11	
315	D7504	<6		<-4.75	possibly a false negative test result?
317	D5713	11		-1.09	
323	D7504	10		-1.82	
334	D4492	12		-0.36	
347		-----		-----	
357	D7504	11		-1.09	
444	D5713	12		-0.36	
445	D4492	13		0.38	
551	D4492	2012	R(0.01)	1463.64	
555		-----		-----	
663		-----		-----	
704	INH-0041	12.0		-0.36	
734	D7360	13.2		0.52	
823	D5713	15		1.84	
846		-----		-----	
852	D7504	12		-0.36	
855	D7504	12		-0.36	
862		-----		-----	
864	D7504	11		-1.09	
866	D5713	12		-0.36	
868	D7504	<10		-----	
870		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963	D4492	13.81	C	0.97	first reported 20
970	D7504	<2	C	<-7.68	first reported <0.0002 mg/kg, possibly a false negative test result?
995	D7504	11		-1.09	
997		-----		-----	
1011	D5134	<14		-----	
1041		12		-0.36	
1067	In house	13		0.38	
1081	D7504	12.96		0.35	
1117	D4492	13		0.38	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D7504	13.2		0.52	
1434	D7504	12.4	C	-0.06	first reported 0.00124 mg/kg
1467		-----		-----	
1530	D7504	11		-1.09	
1538		-----		-----	
1669	D5713	6	R(0.01)	-4.75	
1728		-----		-----	
1812		15		1.84	
1823		-----		-----	
1880		-----		-----	
1954		-----		-----	
1986	D7504	12.5		0.01	
6198		-----		-----	
6201	D7504	12		-0.36	
6203	D7504	13		0.38	
6262	D5713	16	C	2.57	first reported 21
7009	D7504	11	C	-1.09	first reported 0.001 mg/kg
9008		-----		-----	

normality	OK
n	29
outliers	2
mean (n)	12.49
st.dev. (n)	1.371
R(calc.)	3.84
st.dev.(Horwitz)	1.366
R(Horwitz)	3.83

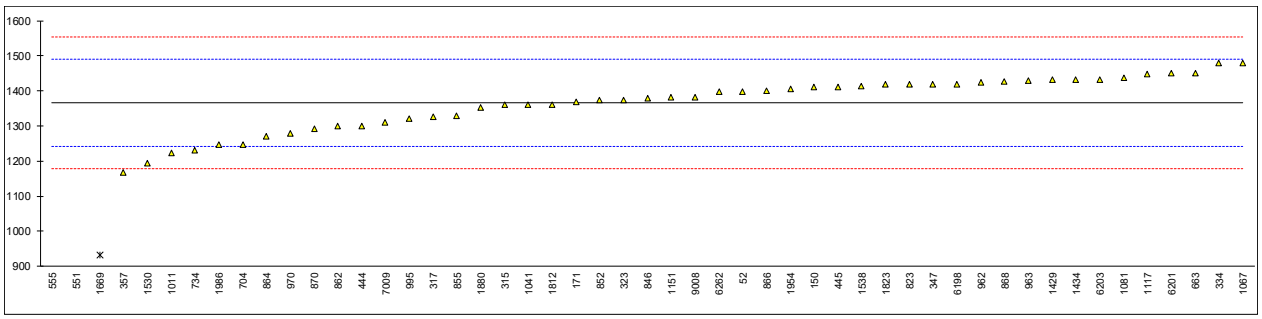

19
17
15
13
11
9
7
5
1669
323
317
357
864
995
1530
7009
704
334
866
852
855
444
1041
6201
1434
1986
1081
445
1067
1117
6203
734
1429
963
171
823
1812
6262
551

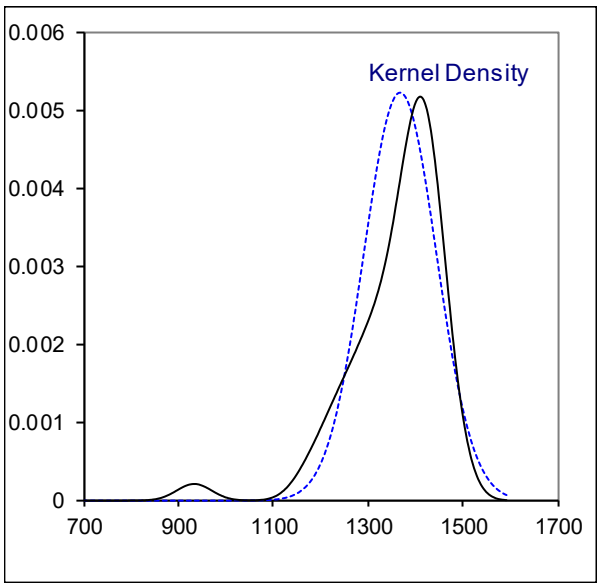

Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20
25

Determination of Toluene on sample #21010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D7504	1398		0.51	
150	D4492	1410		0.70	
171	D7504	1368		0.03	
315	D7504	1360		-0.10	
317	D7504	1325		-0.66	
323	D7504	1374		0.13	
334	D4492	1480	C	1.82	first reported 2077
347	D4492	1420	C	0.86	first reported 1640
357	D7504	1168		-3.16	
444	D5713	1301		-1.04	
445	D4492	1411		0.72	
551	D4492	266	R(0.01)	-17.57	
555	D7504	250	R(0.01)	-17.82	
663	D7504	1451.5	C	1.36	first reported 0.14515 mg/kg
704	D7504	1247.9		-1.89	
734	D7360	1231.5		-2.15	
823	D4492	1419		0.85	
846	D4492	1379		0.21	
852	D7504	1373		0.11	
855	D7504	1330		-0.58	
862	D7504	1300		-1.05	
864	D7504	1271		-1.52	
866	D7504	1400		0.54	
868	D7504	1427		0.97	
870	D7504	1292		-1.18	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962	D4492	1425	C	0.94	first reported 0.1425 mg/kg
963	D4492	1430		1.02	
970	D7504	1280	C	-1.37	first reported 0.1280 mg/kg
995	D7504	1321		-0.72	
997		-----		-----	
1011	D7360	1222		-2.30	
1041		1361		-0.08	
1067	In house	1480		1.82	
1081	D7504	1437.16		1.14	
1117	D4492	1449		1.32	
1151	In house	1380.55		0.23	
1264		-----		-----	
1357		-----		-----	
1429	D7504	1432.1		1.05	
1434	D7504	1432.2	C	1.06	first reported 0.14322 mg/kg
1467		-----		-----	
1530	D7504	1195		-2.73	
1538	D7504	1413		0.75	
1669	D5713	932	R(0.01)	-6.93	
1728		-----		-----	
1812		1361		-0.08	
1823	D7504	1418.0964		0.83	
1880	D4492	1352		-0.22	
1954	D7504	1406.6		0.65	
1986	D7504	1245.65		-1.92	
6198	D7504	1420.1		0.86	
6201	D7504	1450		1.34	
6203	D7504	1433		1.07	
6262	D7504	1397	C	0.49	first reported 0.1397 mg/kg
7009	D7504	1310	C	-0.90	first reported 0.131 mg/kg
9008	D4492	1382		0.25	

normality	OK
n	48
outliers	3
mean (n)	1366.05
st.dev. (n)	76.427
R(calc.)	213.99
st.dev.(D7504:20)	62.621
R(D7504:20)	175.34

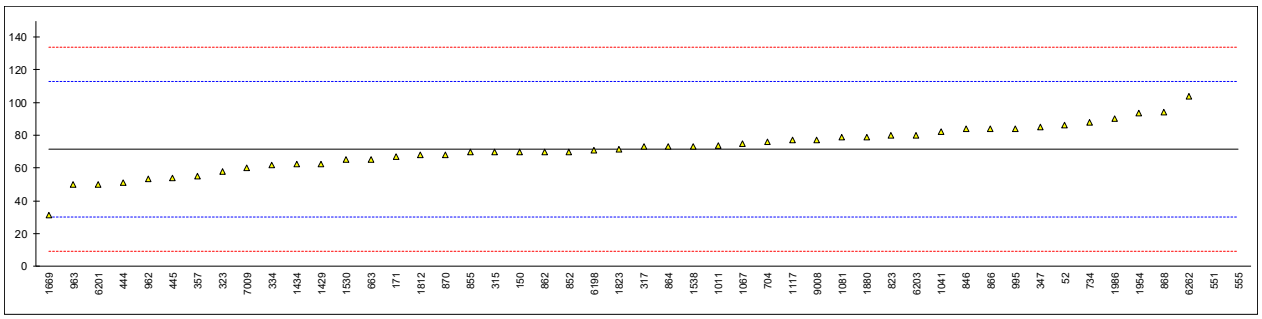

1600
1500
1400
1300
1200
1100
1000
900
555 551 1669 357 1530 1011 734 1986 704 864 970 870 862 444 7009 995 317 855 1880 315 1041 1812 171 852 323 846 1151 9008 6262 52 866 1954 150 445 1538 1823 823 347 6198 962 868 963 1429 1434 6203 1081 1117 6201 663 334 1067

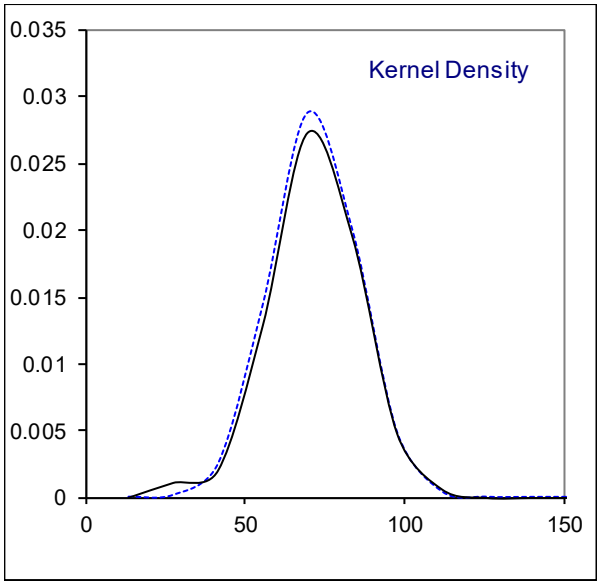

Kernel Density
0.006
0.005
0.004
0.003
0.002
0.001
0
700 900 1100 1300 1500 1700

Determination of Nonaromatics on sample #21010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D7504	86		0.69	
150	D4492	70		-0.08	
171	D7504	67		-0.22	
315	D7504	70		-0.08	
317	D7504	73		0.07	
323	D7504	58		-0.66	
334	D4492	62		-0.46	
347	D4492	85		0.65	
357	D7504	55		-0.80	
444	D4492	51	C	-0.99	first reported 18
445	D4492	54		-0.85	
551	D4492	3564	R(0.01)	168.32	
555	D7504	3580	R(0.01)	169.09	
663	D7504	65.5	C	-0.29	first reported 0.00655 mg/kg
704	D7504	75.8		0.20	
734	D7360	88.2		0.80	
823	D4492	80		0.40	
846	D4492	84		0.60	
852	D7504	70		-0.08	
855	D7504	70		-0.08	
862	D7504	70		-0.08	
864	D7504	73		0.07	
866	D7504	84		0.60	
868	D7504	94		1.08	
870	D7504	68		-0.17	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962	D4492	53.47		-0.87	
963	D4492	50		-1.04	
970	D7504	<2	C	<-3.36	first reported <0.0002 mg/kg, possibly a false negative test result?
995	D7504	84		0.60	
997		-----		-----	
1011	D7360	74		0.12	
1041		82		0.50	
1067	In house	75		0.16	
1081	D7504	78.70		0.34	
1117	D4492	77		0.26	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D7504	62.5		-0.44	
1434	D7504	62.2	C	-0.45	first reported 0.00622 mg/kg
1467		-----		-----	
1530	D7504	65		-0.32	
1538	D7504	73		0.07	
1669	D5713	31		-1.96	
1728		-----		-----	
1812		67.9		-0.18	
1823	D7504	71.5227		0.00	
1880	D4492	79		0.36	
1954	D7504	93.6		1.06	
1986	D7504	90.0		0.89	
6198	D7504	71.1		-0.02	
6201	D7504	50		-1.04	
6203	D7504	80		0.40	
6262	D7504	104	C	1.56	first reported 0.0104 mg/kg
7009	D7504	60	C	-0.56	first reported 0.005 mg/kg
9008	D4492	77		0.26	

normality	OK
n	47
outliers	2
mean (n)	71.61
st.dev. (n)	13.670
R(calc.)	38.28
st.dev.(D7504:20)	20.748
R(D7504:20)	58.10


140
120
100
80
60
40
20
0
1669 963 6201 444 962 445 357 323 7009 334 1434 1429 1530 663 171 1812 870 855 315 150 862 852 6198 1823 317 884 1538 1011 1067 704 1117 9008 1081 1880 823 6203 1041 846 866 995 347 52 734 1986 1954 868 6262 551 555


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

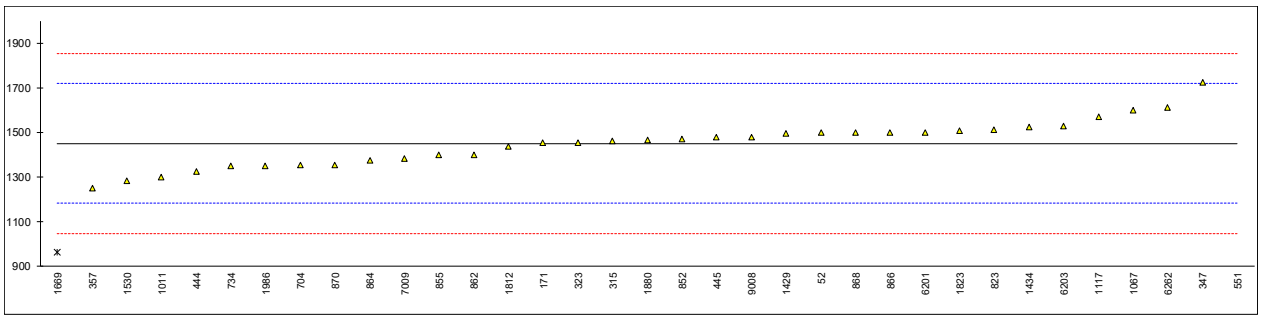
Determination of 1,4-Dioxane on sample #21010; results in mg/kg

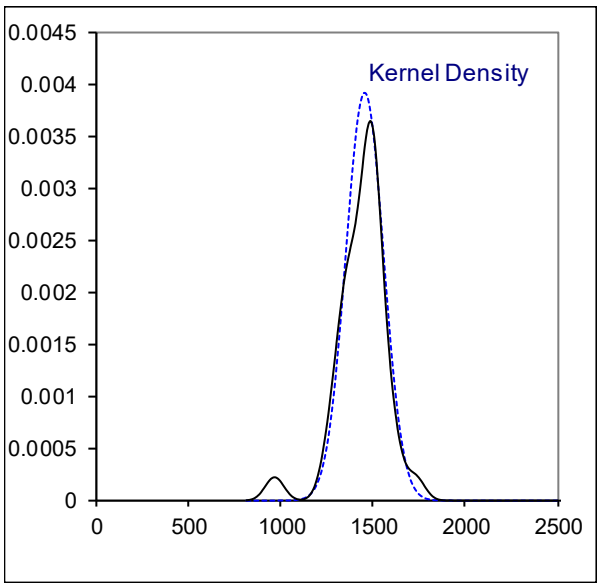
lab	method	value	mark	z(targ)	remarks
52	D7504	<2		-----	
150		-----		-----	
171	D7504	<2		-----	
315	D7504	<6		-----	
317		-----		-----	
323	D7504	<5		-----	
334		-----		-----	
347		-----		-----	
357	D7504	< 2		-----	
444		-----		-----	
445	D4492	<5		-----	
551	D4492	55		-----	possibly a false positive test result?
555		-----		-----	
663	UOP921	0.0		-----	
704	D7504	< 2		-----	
734	D7360	<2.7		-----	
823	D4492	<5		-----	
846	D4492	<5		-----	
852	D7504	<2		-----	
855	D7504	<2		-----	
862	D7504	<2		-----	
864	D7504	<10		-----	
866	D7504	<5		-----	
868	D7504	<10		-----	
870	D7504	<5		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962	D4492	<5		-----	
963	D4492	<5		-----	
970	D7504	<2	C	-----	first reported 0.0002 mg/kg
995	D7504	1		-----	
997		-----		-----	
1011	D7360	<10		-----	
1041		-----		-----	
1067		-----		-----	
1081		-----		-----	
1117		-----		-----	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429		-----		-----	
1434	D7504	0.0000		-----	
1467		-----		-----	
1530	D7504	<5		-----	
1538		-----		-----	
1669	D4492	<5		-----	
1728		-----		-----	
1812		-----		-----	
1823	D7504	<10		-----	
1880		-----		-----	
1954		-----		-----	
1986	D7504	<2		-----	
6198		-----		-----	
6201	D7504	<5		-----	
6203	D7504	0		-----	
6262	D7504	<2		-----	
7009		-----		-----	
9008		-----		-----	
	n	31			
	mean (n)	<10			

Determination of Total Impurities on sample #21010; results in mg/kg

lab	method	Value	mark	z(targ)	remarks
52	D7504	1500		0.36	
150		-----		-----	
171	D7504	1452		0.01	
315	D7504	1460		0.07	
317		-----		-----	
323	D7504	1454		0.02	
334		-----		-----	
347	D4492	1725		2.04	
357	D7504	1250		-1.50	
444	D4492	1323		-0.95	
445	D4492	1478		0.20	
551	D4492	3896	R(0.01)	18.19	
555		-----		-----	
663		-----		-----	
704	D7504	1354.0		-0.72	
734	D7360	1349		-0.76	
823	D4492	1512		0.45	
846		-----		-----	
852	D7504	1470		0.14	
855	D7504	1400		-0.38	
862	D7504	1400		-0.38	
864	D7504	1375		-0.57	
866	D7504	1500		0.36	
868	D7504	1500		0.36	
870	D7504	1354		-0.72	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963		-----		-----	
970	D7504	<2	C	<-10.78	first reported <0.0002 mg/kg, possibly a false negative test result?
995		-----		-----	
997		-----		-----	
1011	D7360	1300		-1.12	
1041		-----		-----	
1067	In house	1600		1.11	
1081		-----		-----	
1117	D4492	1570		0.89	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D7504	1495		0.33	
1434	D7504	1523	C	0.54	first reported 0.1523 mg/kg
1467		-----		-----	
1530	D7504	1282		-1.26	
1538		-----		-----	
1669	D5713	963	R(0.01)	-3.63	
1728		-----		-----	
1812		1436		-0.11	
1823	D7504	1508.5864		0.43	
1880	D4492	1465		0.10	
1954		-----		-----	
1986	D7504	1349		-0.76	
6198		-----		-----	
6201	D7504	1500		0.36	
6203	D7504	1530		0.59	
6262	D7504	1610	C	1.18	first reported 0.1610 mg/kg
7009	D7504	1381	C	-0.52	first reported 0.137 mg/kg
9008	D4492	1478		0.20	

normality	OK
n	33
outliers	2
mean (n)	1451.02
st.dev. (n)	101.966
R(calc.)	285.50
st.dev.(Horwitz 3 comp)	134.423
R(Horwitz 3 comp)	376.38

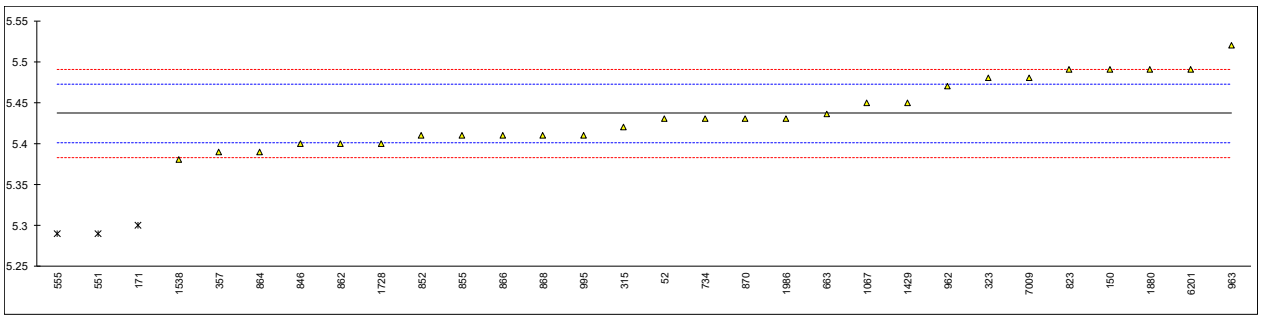

1900
1700
1500
1300
1100
900
1669
357
1530
1011
444
734
1986
704
870
864
7009
855
862
1812
171
323
315
1880
852
445
9008
1429
52
868
866
6201
1823
823
1434
6203
1117
1067
6262
347
551

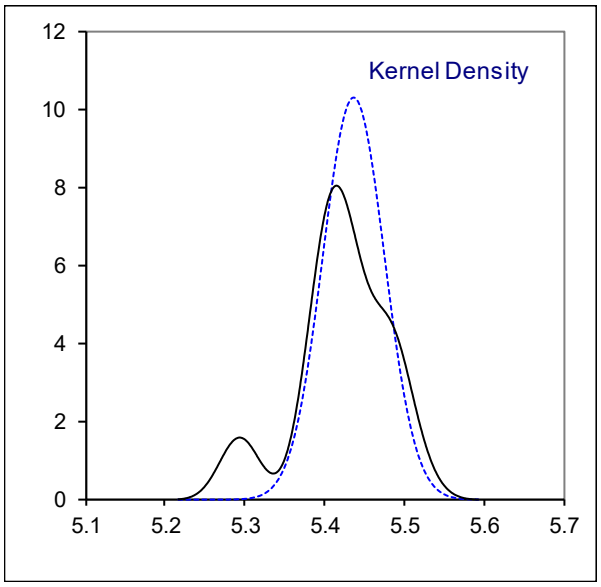

Kernel Density
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
0
500
1000
1500
2000
2500

Determination of Solidification Point (anhydrous basis) on sample #21010; results in °C

lab	method	value	mark	z(targ)	remarks
52	D852	5.43		-0.39	
150	D852	5.49		2.97	
171	D852	5.3	D(0.05)	-7.67	
315	D852	5.42		-0.95	
317		-----		-----	
323	D852	5.48		2.41	
334		-----		-----	
347		-----		-----	
357	D852	5.39		-2.63	
444		-----		-----	
445		-----		-----	
551	D852	5.29	ex	-8.23	test result excluded as outlier in Purity
555	D852	5.29	ex	-8.23	test result excluded as outlier in Purity
663	D852	5.436		-0.05	
704		-----		-----	
734	D852	5.43		-0.39	
823	D852	5.49		2.97	
846	GB/T3145	5.40		-2.07	
852	D852	5.41		-1.51	
855	D852	5.41		-1.51	
862	D852	5.40		-2.07	
864	D852	5.39		-2.63	
866	D852	5.41		-1.51	
868	D852	5.41		-1.51	
870	D852	5.43		-0.39	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962	D852	5.47	C	1.85	first reported 5.63
963	D852	5.52	C	4.65	first reported 5.59
970		-----		-----	
995	D852	5.41		-1.51	
997		-----		-----	
1011		-----		-----	
1041		-----		-----	
1067	D852	5.45		0.73	
1081		-----		-----	
1117		-----		-----	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D852	5.45		0.73	
1434		-----		-----	
1467		-----		-----	
1530		-----		-----	
1538	D852	5.38		-3.19	
1669		-----		-----	
1728	D852	5.40	C	-2.07	first reported 5.08
1812		-----		-----	
1823		-----		-----	
1880	D852	5.49		2.97	
1954		-----		-----	
1986	D852	5.43		-0.39	
6198		-----		-----	
6201	D852	5.49		2.97	
6203		-----		-----	
6262		-----		-----	
7009	D852	5.48	C	2.41	first reported 5.3
9008		-----		-----	

normality	OK
n	27
outliers	1+2ex
mean (n)	5.437
st.dev. (n)	0.0388
R(calc.)	0.109
st.dev.(D852:20)	0.0179
R(D852:20)	0.05

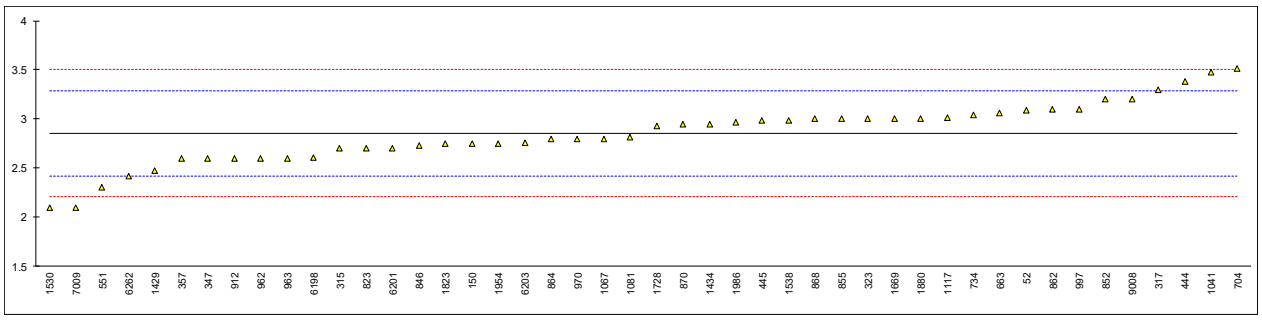

5.55
5.5
5.45
5.4
5.35
5.3
5.25
555
551
171
1538
357
864
846
862
1728
852
855
866
868
995
315
52
734
870
1986
663
1067
1429
962
323
7009
823
150
1880
6201
963

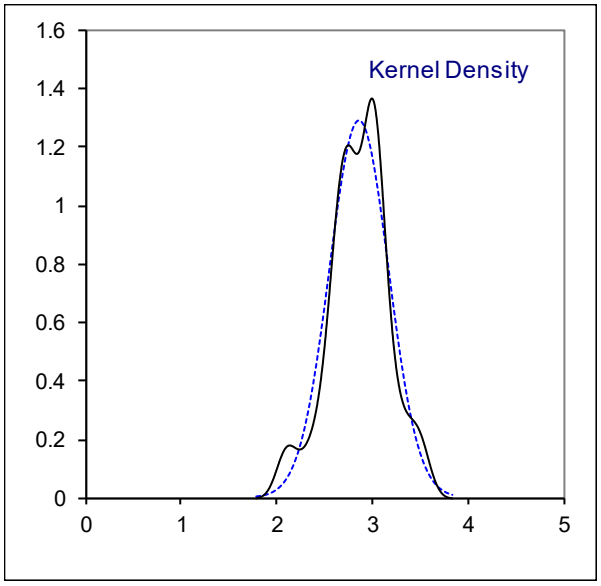

Kernel Density
12
10
8
6
4
2
0
5.1
5.2
5.3
5.4
5.5
5.6
5.7

Determination of Sulfur on sample #21010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D7183	3.09		1.10	
150	D7183	2.75		-0.48	
171		-----		-----	
315	D7183	2.7		-0.71	
317	D5453	3.3		2.07	
323	D5453	3		0.68	
334		-----		-----	
347	D5453	2.6		-1.18	
357	D5453	2.60		-1.18	
444	D7183	3.38		2.44	
445	D5453	2.98		0.59	
551	D5453	2.3		-2.57	
555		-----		-----	
663	D5453	3.06		0.96	
704	D5453	3.51		3.04	
734	D7183	3.04		0.86	
823	D7183	2.7		-0.71	
846	SH/T0689	2.73		-0.57	
852	D5453	3.2		1.61	
855	D7183	3.0		0.68	
862	D5453	3.1		1.14	
864	D7183	2.8		-0.25	
866		-----		-----	
868	D5453	3.0		0.68	
870	D3120	2.95		0.45	
902		-----		-----	
912	D5453	2.6		-1.18	
913		-----		-----	
962	D7183	2.6		-1.18	
963	D7183	2.6		-1.18	
970	D5453	2.8		-0.25	
995		-----		-----	
997	D7183	3.10		1.14	
1011		-----		-----	
1041	D5453	3.48		2.91	
1067	D5453	2.8		-0.25	
1081	ISO20846	2.81		-0.20	
1117	D5453	3.01		0.73	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	D5453	2.47		-1.78	
1434	D7183	2.95		0.45	
1467		-----		-----	
1530	ISO20846	2.1		-3.50	
1538	D7183	2.98		0.59	
1669	ISO20846	3.00		0.68	
1728	D5453	2.93		0.35	
1812		-----		-----	
1823	D5453	2.744		-0.51	
1880	D5453	3.0		0.68	
1954	D5453	2.75		-0.48	
1986	D5453	2.97		0.54	
6198	D5453	2.605		-1.15	
6201	D7183	2.7		-0.71	
6203	D5453	2.76		-0.43	
6262	D5453	2.416		-2.03	
7009	D5453	2.1		-3.50	
9008	D5453	3.2		1.61	

normality	OK
n	46
outliers	0
mean (n)	2.854
st.dev. (n)	0.3091
R(calc.)	0.865
st.dev.(D7183:18)	0.2156
R(D7183:18)	0.604

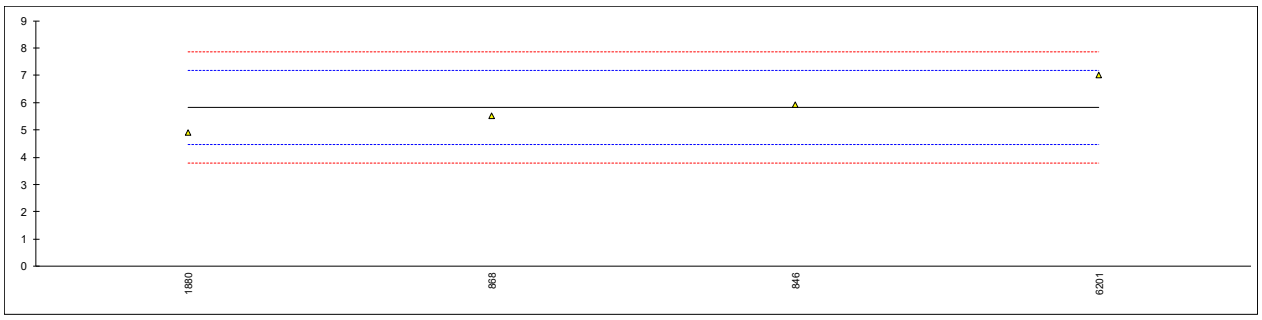

4
3.5
3
2.5
2
1.5
1530
7009
551
6282
1429
357
347
912
962
963
6198
315
823
6201
846
1823
150
1954
6203
864
970
1067
1081
1728
870
1434
1986
445
1538
868
855
323
1669
1880
1117
734
663
52
862
997
852
9008
317
444
1041
704


Kernel Density
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5

Determination of Thiophene on sample #21010; results in mg/kg

lab	Method	value	mark	z(targ)	remarks
52		-----		-----	
150	D4735	<0.80		<-7.41	possibly a false negative test result?
171		-----		-----	
315		-----		-----	
317		-----		-----	
323		-----		-----	
334		-----		-----	
347		-----		-----	
357		-----		-----	
444		-----		-----	
445		-----		-----	
551		-----		-----	
555		-----		-----	
663		-----		-----	
704		-----		-----	
734		-----		-----	
823	D4735	<0.8		<-7.41	possibly a false negative test result?
846	D4735	5.93		0.14	
852		-----		-----	
855		-----		-----	
862		-----		-----	
864		-----		-----	
866		-----		-----	
868	D7011	5.5		-0.49	
870		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
962		-----		-----	
963		-----		-----	
970		-----		-----	
995		-----		-----	
997		-----		-----	
1011		-----		-----	
1041		-----		-----	
1067		-----		-----	
1081		-----		-----	
1117		-----		-----	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429		-----		-----	
1434		-----		-----	
1467		-----		-----	
1530		-----		-----	
1538	D4735	>2.61		-----	
1669		-----		-----	
1728		-----		-----	
1812		-----		-----	
1823		-----		-----	
1880	D4735	4.9		-1.37	
1954		-----		-----	
1986		-----		-----	
6198		-----		-----	
6201	D7011	7		1.72	
6203		-----		-----	
6262	D6228	<0.1		<-8.44	possibly a false negative test result?
7009		-----		-----	
9008		-----		-----	

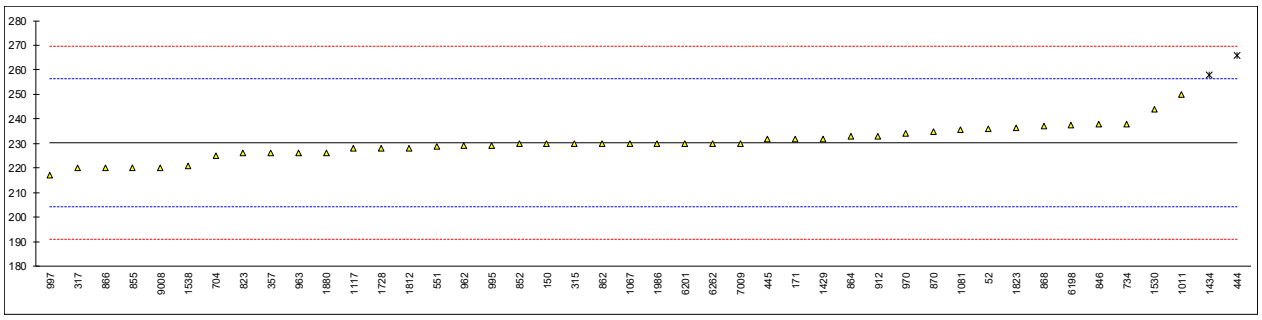
normality	unknown
n	4
outliers	0
mean (n)	5.832
st.dev. (n)	0.8856
R(calc.)	2.480
st.dev.(D7011:15)	0.6792
R(D7011:15)	1.902

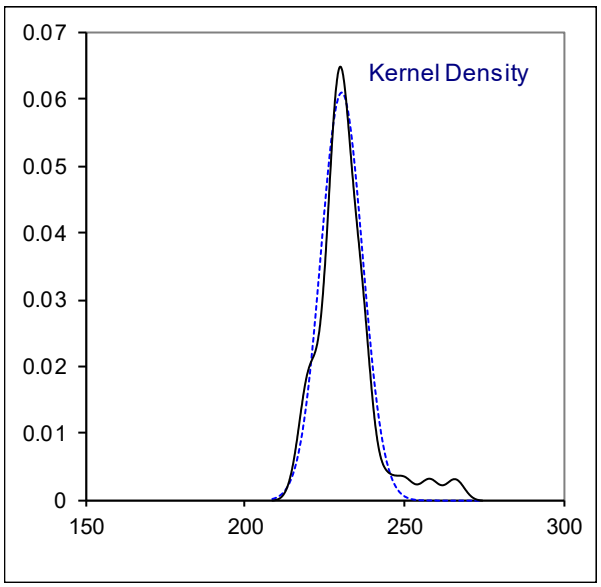

9
8
7
6
5
4
3
2
1
0
1880
868
846
6201

Determination of Water on sample #21010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	E1064	236		0.44	
150	E1064	230		-0.02	
171	E1064	232		0.13	
315	E1064	230		-0.02	
317	E1064	220		-0.78	
323		-----		-----	
334		-----		-----	
347		-----		-----	
357	E1064	226		-0.33	
444	E203	266	C,R(0.01)	2.73	first reported 386
445	E1064	232		0.13	
551	E1064	228.7		-0.12	
555		-----		-----	
663		-----		-----	
704	E1064	225.0		-0.40	
734	E1064	238.0		0.59	
823	E1064	226		-0.33	
846	SH/T0246	237.8		0.58	
852	E1064	230		-0.02	
855	D6304	220		-0.78	
862	E1064	230		-0.02	
864	E1064	233		0.21	
866	E1064	220		-0.78	
868	E1064	237		0.52	
870	E1064	235		0.36	
902		-----		-----	
912	E1064	233		0.21	
913		-----		-----	
962	E1064	229		-0.10	
963	E1064	226		-0.33	
970	D6304	234		0.29	
995	E1064	229		-0.10	
997	E1064	217		-1.01	
1011	E1064	250		1.51	
1041		-----		-----	
1067	E1064	230		-0.02	
1081	D6304	235.75		0.42	
1117	D4672	228		-0.17	
1151		-----		-----	
1264		-----		-----	
1357		-----		-----	
1429	E1064	232		0.13	
1434	D6304	257.9	R(0.01)	2.11	
1467		-----		-----	
1530	E1064	244.1		1.06	
1538	D6304	221		-0.71	
1669		-----		-----	
1728	E1064	228		-0.17	
1812		228		-0.17	
1823	E1064	236.18		0.45	
1880	D6304	226		-0.33	
1954		-----		-----	
1986	D4017	230		-0.02	
6198	E1064	237.55		0.56	
6201	E1064	230		-0.02	
6203		-----		-----	
6262	E1064	230		-0.02	
7009	D6304	230		-0.02	
9008	E1064	220		-0.78	

normality	Suspect
n	42
outliers	2
mean (n)	230.3
st.dev. (n)	6.55
R(calc.)	18.3
st.dev.(E1064:16)	13.08
R(E1064:16)	36.6


280
270
260
250
240
230
220
210
200
190
180
997 317 866 855 9008 1538 704 823 357 963 1880 1117 1728 1812 551 962 995 852 150 315 862 1067 1986 6201 6262 7009 445 171 1429 864 912 970 870 1081 52 1823 868 6198 846 734 1530 1011 1434 444


Kernel Density
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
150
200
250
300

APPENDIX 2

Number of participants per country

2 labs in	BELGIUM
2 labs in	BRAZIL
1 lab in	CANADA
10 labs in	CHINA, People's Republic
1 lab in	FINLAND
1 lab in	FRANCE
2 labs in	GEORGIA
3 labs in	GERMANY
3 labs in	INDIA
1 lab in	IRAN, Islamic Republic of
1 lab in	ISRAEL
1 lab in	KAZAKHSTAN
2 labs in	KUWAIT
6 labs in	NETHERLANDS
2 labs in	OMAN
1 lab in	POLAND
1 lab in	PORTUGAL
2 labs in	ROMANIA
5 labs in	SAUDI ARABIA
1 lab in	SOUTH KOREA
2 labs in	SPAIN
1 lab in	THAILAND
1 lab in	TURKEY
2 labs in	UKRAINE
3 labs in	UNITED KINGDOM
2 labs in	UNITED STATES OF AMERICA

APPENDIX 3

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	= calculation difference between reported test result and result calculated by iis
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
SDS	= Safety Data Sheet

Literature

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