Results of Proficiency Test
Fuel/Bio-ethanol
November 2011

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

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1. INTRODUCTION

Since 1995, a proficiency test for Ethanol was organised every year by the Institute for Interlaboratory Studies. During the annual proficiency testing program 2010/2011, it was decided to continue the round robin for the analysis of Fuel/Bio-ethanol. In this interlaboratory study for Fuel/Bio-ethanol, 60 laboratories in 28 different countries have participated. See appendix 2 for the number of participants per country. In this report, the results of the proficiency test are presented and discussed.

2 SET-UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. It was decided to send 2 samples of Ethanol (1 * 1 L bottle of Fuel Ethanol labelled #11120 and 1* 0.25 L bottle of Fuel Ethanol labelled #11121, especially for Gas Chromatography and Electrical Conductivity purpose). Participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system based on ISO guide 43 and ILAC-G13:2007. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Also customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' (iis-protocol, version 3.2) of January 2010. This protocol may be downloaded from the iis website http://www.iisnl.com.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

The necessary bulk material for the samples #11120 and #11121 was obtained from a local trader. The bulk material was split for preparation of both samples.

The approximately 75 litre bulk sample was, after spiking with 0.55 mg/kg Chloride, homogenised in a precleaned drum and divided over 80 amber glass bottles of 1L (labelled #11120). The homogeneity of the subsamples #11120 was checked by determination of Density in accordance with ASTM D4052:09 and Chloride in accordance with INH-SPI158 on 8 stratified random selected samples.

	Density @ 15ºC in kg/L	*Chloride in mg/kg*
Sample #11120 -1	0.79437	0.6
Sample #11120 -2	0.79437	0.6
Sample #11120 -3	0.79437	0.6
Sample #11120 -4	0.79437	0.6
Sample #11120 -5	0.79437	0.6
Sample #11120 -6	0.79437	0.6
Sample #11120 -7	0.79437	0.6
Sample #11120 -8	0.79437	0.6

Table 1: Homogeneity tests results of subsamples #11120

From the test results of table 1, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density @ 15ºC in kg/L	*Chloride in mg/kg*
r (Observed)	0.00000	0.0
reference method	D4052:11	EN15492:08
0.3 * R (ref. method)	0.00015	0.1

Table 2: Repeatability of subsamples #11120

The calculated repeatabilities for Density and Chloride were equal or less than 0.3 times the corresponding reproducibilities of the respective test method. Therefore, homogeneity of the subsamples #11120 was assumed.

From another part of the bulk material 88 subsamples were transferred to 0.25 litre brown glass bottles, and labelled #11121.The homogeneity of the subsamples #11121 was checked by determination of Density in accordance with ASTM D4052:11.

	Density @ 15°C in kg/L
Sample #11121 -1	0.79409
Sample #11121 -2	0.79409
Sample #11121 -3	0.79409
Sample #11121 -4	0.79409
Sample #11121 -5	0.79409
Sample #11121 -6	0.79409
Sample #11121 -7	0.79409
Sample #11121 -8	0.79409

Table 3: Homogeneity tests results of subsamples #11121

From the test results of table 3, the repeatabilities were calculated and compared with 0.3 times the corresponding target reproducibility in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density @ 15°C in kg/L
r (Observed)	0.00000
reference method	D4052:11
0.3 * R (ref. method)	0.00015

Table 4: Repeatability of subsamples #11121

The calculated repeatability for Density is in agreement with the 0.3 times the reproducibility of ASTM D4052:11. Therefore the homogeneity of the subsamples #11121 was assumed.

To each of the participating laboratories: 1 * 1 L bottle (labelled #11120) and 1 * 0.25 L bottle (labelled #11121) were sent on November 5, 2011.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSES

The participants were asked to determine on sample #11120 : Acidity as Acetic Acid, Aldehydes as Acetaldehyde, Appearance, Copper, Density @20^{o}C, Electrical conductivity at 25 ˚C, Inorganic Chloride as Cl, Involatile material content, Nitrogen, Phosphorous, Sulphate Organic, Total Sulphur Chloride and Water (coulometric and titrimetric).

On sample #11121 was asked to determine: Purity on dry basis, Acetaldehyde, Acetal, Acetone, Benzene, Cyclohexane, Crotonaldehyde, DEG, Dioxane, Electrical conductivity at 25 ˚C, Ethanol + higher saturated alcohols, Ethylacetate, iso-Butanol, iso-Propanol, MEG, Methanol, 3-methyl-1-Butanol, 2-methyl-1-Butanol, sum of 3-methyl-1-Butanol and 2-methyl-1-Butanol, n-Amylalcohol, n-Butanol, n-Propanol, sec-Amylalcohol, sec-Butanol, tert-Amylalcohol and tert-Butanol.

To get comparable results a detailed report form, on which the units were printed, was sent together with each set of samples. In addition, a letter of instructions and a SDS were added to the package.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were received. The original reported results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.

Directly after deadline, a reminder fax was sent to those laboratories that had not yet reported any results at that moment.

Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the results. Additional or corrected results are used for data analysis and original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

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

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…' were not used in the statistical evaluation. First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. After removal of outliers this check was repeated. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation should be used with due care.

In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test and by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test and by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of the averages and the standard deviations.

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

Finally the reproducibilities were calculated from the standard deviations by multiplying 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 under the X-axis.

The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 3, nr.14-15).

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the spread of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8.

In case no literature reproducibility was available, other target values were used. In some cases, literature repeatability is available; in other cases a reproducibility of a former iis proficiency test could be used and also the Horwitz equation can be used to estimate target reproducibility.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate the fit-for-useness of the reported test result.
The z-scores were calculated according to:

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

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:

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

4. EVALUATION

In this proficiency test major problems were encountered with despatch of the samples. Several laboratories in Brazil, Germany, India, USA and UK received the samples late or not at all. Twelve participants reported the results after the final reporting date and five participants did not report any results at all.

Not all laboratories were able to perform all analyses requested. The 55 reporting laboratories did send in 805 (numerical) results. Observed were 45 outlying results, which is 5.6%. In proficiency studies, outlier percentages of 3% - 7.5% are normal.
The concentrations of some GC-impurities were low and sometimes even below the detection limit. Consequently, many participants reported 'less than' values for these components. For these components no significant conclusions were drawn.

4.1 EVALUATION PER TEST

In this section, the results are discussed per test. The methods, which are used by the various laboratories, are taken into account for explaining the observed differences when possible and applicable. These methods are also in the tables together with the original data. The abbreviations, used in these tables, are listed in appendix 3.
Not normal distributions were found for the following determinations: Aldehydes, Acetone, Density, sum of 2-Methyl-1-Butanol and 3-Methyl-1-Butanol and sec-Butanol.

The formulae for calculating the reproducibility for Methanol and Higher alcohols mentioned in the EN15721:09 are not usable at very low concentrations. When the consensus values for these determinations in this were used in these formulae, negative reproducibilities were found. Therefore the Horwitz equation was used for evaluation for these two determinations.

Acidity: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with the requirements of EN15491:07.

Aldehydes: This determination seems problematic.
However, after comparison of the total Aldehydes results with the also reported Acetaldehyde results, only two participants reported to have used a different test method. Furthermore, it was remarkable to see that a number of participants reported two different results, while using one test method. And in some cases the total Aldehydes content was even smaller, than the Acetaldehyde result. Therefore no significant conclusions were drawn for this determination.

Appearance: This determination was not problematic. All participants agreed about the appearance of sample #11120 as clear and free of suspended matter.

Copper: Only four participants reported a numerical result. Therefore no significant conclusions were drawn

Density @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 ASTM D4052:11.

Electr. Conduct.: This determination was problematic. It was expected that the Electrical Conductivity of sample #11120 would be higher than for sample #11121, due to the addition of sodium chloride to sample #11120 (see 4.2). However, 5 laboratories reported for sample #11120 a lower conductivity than for sample #11121. Therefore these 10 test results were excluded from the statistical evaluations, together with 2 statistical outliers. After rejection of all suspect data, both calculated reproducibilities are still not at all in agreement with the requirements of EN15938:10.

Inorganic chloride: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not at all in agreement with the requirements of EN15492:08. Perhaps not all laboratories reported the test result as chloride, but as sodiumchloride.
The average recovery of the chloride content may be satisfactory (0.65 mg/kg found, while 0.51 mg/kg was added). The actual blank chloride content is unknown.

Involatile material: This determination was very problematic. The range of reported test results varies from 0 (zero) to 233 mg/100ml. Also, the test results appear to be bimodally divided.
Regretfully, EN15691 does not specify the term “dry” and neither does it mention a fixed drying time, nor does it include weighing to constant weight (as in ASTM D1353). Sample #11120 clearly was positive on involatile material. Therefore it is very unlikely to find a content of less then 5 mg/100ml. The reported results less then 5 mg/100ml were therefore excluded from the statistical evaluations. No statistical outliers were observed. The calculated reproducibility, after excluding of the 5 lowest test results is not at all in agreement with the requirements of EN15691:09.

Nitrogen: This determination was very problematic. No statistical outliers were detected. However, the calculated reproducibility is not in agreement with the requirements of D4629:09. When the D4629:09 data are evaluated separately the calculated reproducibility is again not in agreement with the requirements of D4629:09.

Phosphorous: The consensus value of the group is below the application range (0.15–1.5 mg/ l) of EN15487:07. Therefore no significant conclusions were drawn.

Sulphate: The consensus value of the group is below the application range (0.9–15.0 mg/l) of EN15492:08. Therefore no significant conclusions were drawn.

Total Sulphur: Although the consensus value of the group found was below the application range (7–20 mg/ kg) of EN15485:07, this determination seems not problematic. No statistical outliers were detected and the calculated reproducibility is in good agreement with the estimated requirements of EN15485:07.

Water: This determination was not problematic for either the coulometric or the titrimetric mode. No statistical outliers were observed for both determinations. Both the calculated reproducibilities are in full agreement with the requirements of the respective test methods EN15489:07 and ASTM E203:08.

Purity: This determination was problematic for three laboratories. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of the EN15721:09.

Acetaldehyde: This determination was problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the estimated reproducibility calculated using the Horwitz equation.

Acetal: This determination was problematic for a number of laboratories. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the estimated reproducibility calculated using the Horwitz equation.

Acetone: The consensus value of the group is near or below the detection limit. Therefore no significant conclusions were drawn.

Benzene: Only three participants reported a numerical result. Therefore no significant conclusions were drawn.

Cyclohexane: Only three participants reported a numerical result. Therefore no significant conclusions were drawn.

Crotonalhyde: Only four participants reported a numerical result. Therefore no significant conclusions were drawn.

DEG: None of the participants reported a numerical result. Therefore no significant conclusions were drawn.

Dioxane: Only one participant reported a numerical result. Therefore no significant conclusions were drawn.

Ethanol & highers: EN15721 defines “Ethanol and higher alcohols” as 100.000 – Methanol concentration – concentration of impurities (see paragraph 8.3). Therefore the result of for this test should be at least 99.765% + 0.201% (=purity on dry basis plus the sum of the average concentrations of n-Propanol, 2-methyl-1-butanol, 3 methyl-1-butanol and iso-Butanol). Laboratories that reported results less than 99.9% were excluded for statistical evaluation. This determination was problematic for a number of laboratories. Three statistical outliers were observed. However, the calculated reproducibility after rejection of all suspect test results, is in good agreement with the requirements of EN15721:09

Ethyl acetate: This determination is problematic for a number of laboratories. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility calculated using the Horwitz equation.

iso-Butanol: This determination was problematic for a number of laboratories. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN15721:09.

iso-Propanol: The consensus value of the group was near or below the detection limit. Therefore no significant conclusions were drawn.

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

3-Me-1-Butanol: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the EN15721:09. One laboratory obviously did mix up the test result for 3-Methyl-1-Butanol with the test result for 2-Methyl-1-Butanol. These test results were not excluded.

2-Me-1-Butanol: This determination was very problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the EN15721:09. One laboratory mixed up the test result for 2-Me-1-Butanol, with the test result for 3-Me-1-Butanol.

Sum of 3-Me-1-Butanol and 2-Me-1-Butanol: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the EN15721:09.

n-Butanol: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the

statistical outlier is not in agreement with the estimated reproducibility calculated using the Horwitz equation.

n-Propanol: This determination was not problematic. Only one statistical outlier was observed and the calculated reproducibility after rejection of the statistical outlier is in agreement with the EN15721:09.

sec-Butanol: The consensus value of the group was near or below the detection limit. Therefore no significant conclusions were drawn.

n-Amylalcohol: Five participants reported a numerical result. Therefore no significant conclusions were drawn.

sec-Amylalcohol: Four participants reported a numerical result. Therefore no significant conclusions were drawn.

MEG: Two participants reported a numerical result. Therefore no significant conclusions were drawn.

tert-Amylalcohol: Two participants reported a numerical result. Therefore no significant conclusions were drawn.

tert-Butanol Two participants reported a numerical result. Therefore no significant conclusions were drawn.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of participating laboratories. The average results per sample, calculated reproducibilities and reproducibilities derived from literature standards (in casu ASTM or EN standards) or the Horwitz equation are compared in the next table.

Parameter	unit	n	average	2.8 *sd_R	R (lit)
Acidity as Acetic acid	%M/M	42	0.0016	0.0014	0.0014
Aldehydes as Acetaldehyde	mg/kg	19	112.7	48.8	n.a.
Appearance		45	pass	n.a.	n.a
Copper	mg/kg	4	0.006	n.a.	n.a.
Density @ 20°C	kg/L	48	0.7901	0.0002	0.0005
Electrical conductivity #11120	µS/cm	16	0.902	0.493	0.176
Electrical conductivity #11121	µS/cm	14	0.620	0.369	0.142
Inorganic Chloride as Cl	mg/kg	29	0.654	0.796	0.380
Involatile material content	mg/100 mL	18	141	198	(26)
Nitrogen	mg/kg	17	0.85	1.40	0.754
Phosphorous	mg/l	7	0.03	0.06	(0.06)
Sulphate	mg/kg	13	0.25	0.38	(0.18)
Total Sulphur	mg/kg	31	1.4	1.3	3.4
Water coulometric	% M/M	37	0.160	0.020	0.022
Water titrimetric	% M/M	32	0.161	0.020	0.078

Table 5: Reproducibilities of sample #11120
Results between brackets should be used with care, as the average is near or below the application range

Parameter	Unit	n	average	2.8 *sd_R	R (lit)
Purity on dry basis	%M/M	29	99.765	0.076	0.093
Acetaldehyde	%M/M	28	0.010	0.009	0.002
Acetal	%M/M	24	0.006	0.001	0.002
Acetone	%M/M	17	0.0006	0.0006	(0.0002)
Benzene	%M/M	3	0.0002	n.a	n.a
Cyclohexane	%M/M	3	0.0004	n.a	n.a
Crotonaldehyde	%M/M	4	0.0004	n.a.	n.a.
DEG	%M/M	0	n.a.	n.a.	n.a.
Dioxane	%M/M	1	n.a.	n.a.	n.a.
Ethanol + Higher sutarates alcohols	%M/M	18	99.959	0.022	0.034
Ethylacetate	%M/M	32	0.017	0.004	0.003
iso-Butanol	%M/M	34	0.060	0.016	0.015
iso-Propanol	%M/M	11	0.0003	n.a.	n.a.
Methanol	%M/M	32	0.007	0.002	0.002
3-Me-1-Butanol	%M/M	19	0.030	0.007	0.006
2-Me-1-Butanol	%M/M	18	0.017	0.004	0.002
Sum 2-Me-1-BuOH + 3-Me-1-BuOH	%M/M	24	0.047	0.010	0.011
n-Butanol	%M/M	29	0.0013	0.0007	0.0004
n-Propanol	%M/M	37	0.094	0.020	0.025
sec-Butanol	%M/M	14	0.0006	0.0007	(0.0002)
n-Amylalcohol	%M/M	5	0.0004	n.a	n.a
sec-Amylalcohol	%M/M	4	0.0001	n.a	n.a
MEG	%M/M	2	0.0004	n.a	n.a
tert-Amylalcohol	%M/M	2	0.0004	n.a.	n.a.
tert-Butanol	%M/M	2	0.0001	n.a.	n.a.

Table 6: Reproducibilities of sample #11121
Results between brackets should be used with care, as the average is near or below the application range

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF NOVEMBER 2011 WITH PREVIOUS PTS

	November 2011	*December 2010*	*December 2009*	*December 2008*
Number of reporting labs	55	49	44	53
Number of results reported	805	678	616	557
Statistical outliers	45	33	44	40
Percentage outliers	5.6%	4.8%	7.1%	7.2%

Table 7: Comparison with previous proficiency tests.

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.
The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given the following table:

Determination	*November 2011*	*December 2010*	*December 2009*	*December 2008*
Acidity as Acetic Acid	+/-	-	+/-	+/-
Aldehyde as Acetaldehyde	n.e.	--	--	--
Density @ 20°C	++	++	++	++
Electric conductivity	--	n.e.	n.e.	n.e.
Inorganic Chloride as Cl	--	(++)	++	-
Involatile Matter	--	++	--	++
Nitrogen	--	--	n.e.	n.e.
Phosphorus as P	(+/-)	(-)	n.e.	n.e.
Sulphate	(--)	-	n.e.	--
Total Sulphur	++	(++)	++	+
Water coulometric	+	+	++	++
Water titrimetric	++	++	++	++
Purity on dry basis	++	++	+	(++)
Acetaldehyde	--	--	--	n.e.
Acetal	+	+/-	-	n.e.
Acetone	(--)	(-)	n.e.	(--)
Benzene	n.e.	n.e.	+	n.e.
Cyclohexane	n.e.	(--)	n.e.	n.e.
Crotonaldehyde	n.e.	n.e.	n.e.	n.e.
DEG	n.e.	n.e.	n.e.	n.e.
Dioxane	n.e.	n.e.	n.e.	n.e.
Ethylacetate	+/-	+	-	n.e.
iso-Amylalcohol	n.e.	--	--	n.e.
iso-Butanol	+/-	-	-	(-)
iso-Propanol	n.e.	--	--	n.e.
MEG	n.e.	n.e.	--	n.e.
Methanol	+/-	+	++	(--)
n-Amylalcohol	n.e.	(--)	n.e.	n.e.
n-Butanol	--	-	n.e.	n.e.
n-Propanol	++	+	-	(+/-)
sec-Amylalcohol	n.e.	n.e.	n.e.	n.e.
sec-Butanol	(--)	(--)	n.e.	(+/-)
tert-Amylalcohol	n.e.	n.e.	n.e.	n.e.
tert-Butanol	n.e.	n.e.	n.e.	n.e.
Total Impurities	n.e.	++	++	n.e.

Table 8: comparison determinations against the standard
results between brackets are compared with the spread of the previous round robin

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

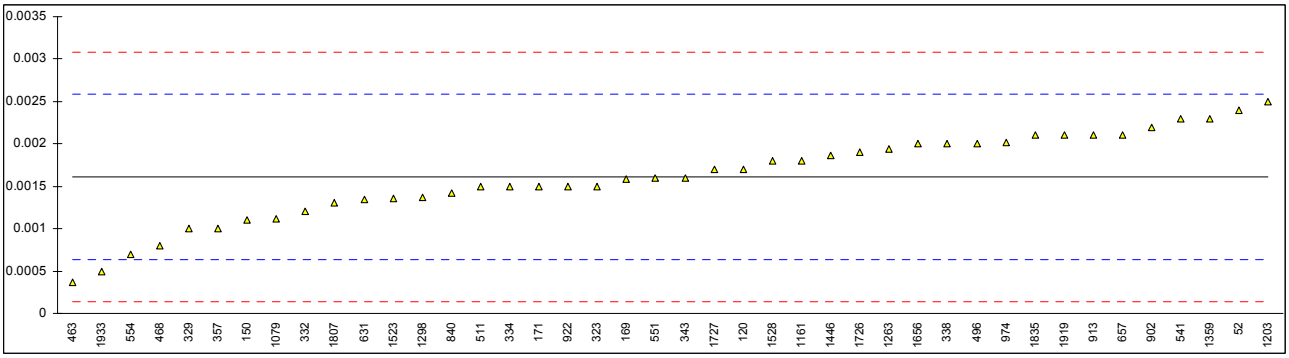
++:	group performed much better than the standard
+ :	group performed better than the standard
+/-:	group performance equals the standard
- :	group performed worse than the standard
-- :	group performed much worse than the standard
n.e.:	not evaluated

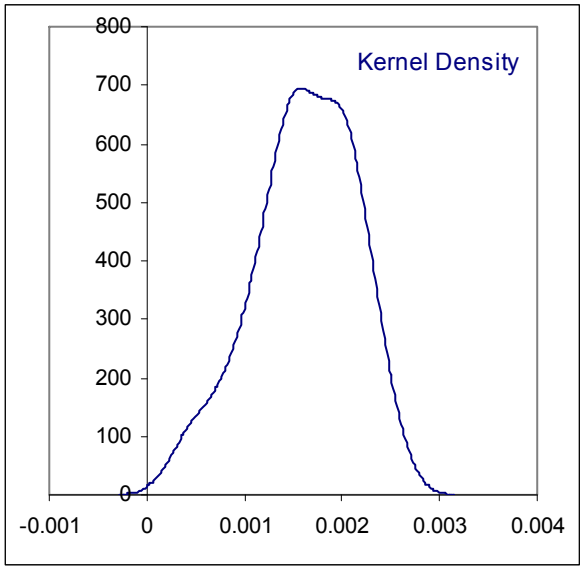
APPENDIX 1

Determination of Acidity as Acetic Acid on sample #11120; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D1613	0.0024		1.61	
62		-----		-----	
120	EN15491	0.0017		0.18	
150	D1613	0.0011		-1.05	
169	D1613	0.00159		-0.04	
171	D1613	0.0015		-0.23	
311	EN15491	<0.0030		<2.84	
323	EN15491	0.0015		-0.23	
329	EN15491	0.001		-1.25	
332	EN15491	0.0012		-0.84	
333	EN15491	<0.003		<2.84	
334	D1613	0.0015		-0.23	
338	D1613	0.0020	C	0.79	first reported:36
343	EN15491	0.0016		-0.02	
357	EN15491	0.001		-1.25	
395		-----		-----	
399		-----		-----	
444	EN15491	<0.001		<-1.25	
446		-----		-----	
463	D1613	0.00037		-2.54	
468	EN15491	0.0008		-1.66	
496	EN15491	0.0020		0.79	
511	D1613	0.0014989		-0.23	
541	EN15491	0.0023		1.41	
551	EN15491	0.0016	C	-0.02	first reported:0.000033
554	D1613	0.0007		-1.86	
556		-----		-----	
559		-----		-----	
631	D1613	0.00134		-0.56	
657	D1613	0.0021		1.00	
663		-----		-----	
840	D1613	0.00142		-0.39	
862		-----		-----	
867		-----		-----	
902	D1613	0.0022		1.20	
912		-----		-----	
913	EN15491	0.0021		1.00	
922	D1613	0.0015		-0.23	
974	D1613	0.00202		0.83	
1041		-----		-----	
1079	EN15491	0.00111	C	-1.03	first reported:0.003
1082		-----		-----	
1134		-----		-----	
1161	EN15491	0.0018		0.39	
1203	EN15491	0.0025		1.82	
1263	D1613	0.001936		0.66	
1298	EN15491	0.001373		-0.49	
1359	EN15491	0.0023		1.41	
1402		-----		-----	
1446	EN15491	0.00187		0.53	
1523	ISO1388	0.00136		-0.51	
1528	EN15491	0.0018		0.39	
1605		-----		-----	
1656	EN15491	0.002		0.79	
1726	EN15491	0.0019		0.59	
1727	EN15491	0.0017		0.18	
1807	EN15491	0.0013		-0.64	
1835	EN15491	0.0021		1.00	
1919	D1613	0.0021	U	1.00	probably reported in different unit, reported 21
1933	EN15491	0.0005		-2.27	

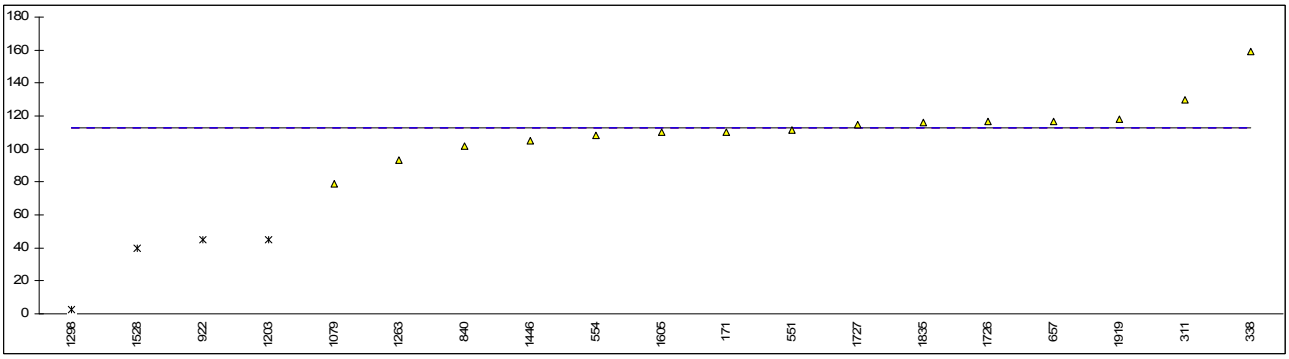
normality	OK
n	42
outliers	0
mean (n)	0.00161
st.dev. (n)	0.000511
R(calc.)	0.00143
R(EN15491:07)	0.00137

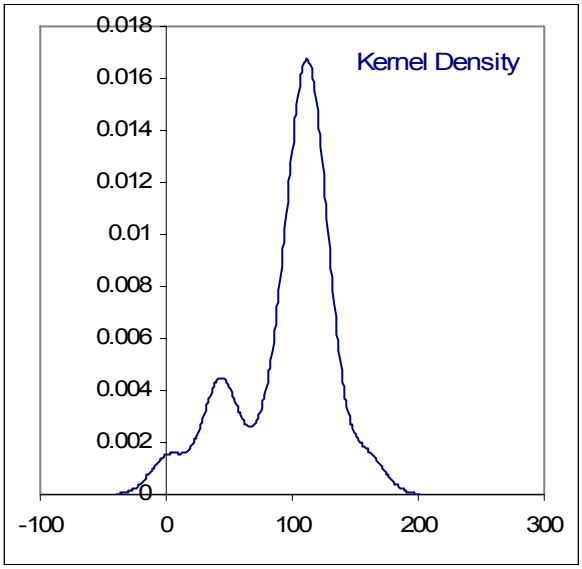

0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
463 1933 554 468 329 357 150 1079 332 1807 631 1523 1298 840 511 334 171 922 323 169 551 343 1727 120 1528 1161 1446 1726 1263 1656 338 496 974 1835 1919 913 657 902 541 1359 52 1203


Kernel Density
800
700
600
500
400
300
200
100
0
-0.001
0
0.001
0.002
0.003
0.004

Determination of Aldehydes as Acetaldehyde on sample #11120; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150		-----		-----	
169		-----		-----	
171	D5501	110.3		-----	
311	INH-529	130		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338	INH-2870	159		-----	
343		-----		-----	
357		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496		-----		-----	
511		-----		-----	
541		-----		-----	
551	INH-1313	111.25	C	-----	first reported:332
554	INH-1313	108		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	117		-----	
663		-----		-----	
840	INH-0001	102		-----	
862		-----		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	45.00	C, DG(0.01)	-----	first reported:0.0045
974		-----		-----	
1041		-----		-----	
1079	E411	79.1		-----	
1082		-----		-----	
1134		-----		-----	
1161		-----		-----	
1203	in house	45	DG(0.01)	-----	
1263	ISO1388	93.13		-----	
1298	EN15721	2.3713	G(0.01)	-----	
1359		-----		-----	
1402		-----		-----	
1446	in house	105		-----	
1523		-----		-----	
1528	EN15721	40.1	G(0.05)	-----	
1605		110		-----	
1656		-----		-----	
1726	in house	117		-----	
1727		115		-----	
1807		-----		-----	
1835	in house	116		-----	
1919		118		-----	
1933		-----		-----	
	normality	not OK			
	n	15			
	outliers	4			
	mean (n)	112.72			
	st.dev. (n)	17.418			
	R(calc.)	48.77			
	R(lit)	n.a.			


180
160
140
120
100
80
60
40
20
0
1298
1528
922
1203
1079
1263
840
1446
554
1605
171
551
1727
1835
1726
657
1919
311
338


Kernel Density
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
-100
0
100
200
300

Determination of Appearance on sample #11120;

lab	method	value	mark	z(targ)	remarks
52	D4176	pass		-----	
62	D4176	pass		-----	
120	EN15769	Colourless		-----	
150	E2680	pass		-----	
169	E2680	C&B		-----	
171	EN15769	C&F		-----	
311	EN15769	C&C		-----	
323	INH-001	pass		-----	
329	EN15769	C&C		-----	
332	EN15769	C&C		-----	
333	EN15769	C&B		-----	
334		-----		-----	
338	EN15769	CFFSM		-----	
343	EN15769	C&C		-----	
357	EN15769	Clear		-----	
395	EN15769	pass		-----	
399	EN15769	pass		-----	
444	EN15769	pass		-----	
446		-----		-----	
463	EN15769	C&C		-----	
468	EN15769	C&C		-----	
496	EN15769	C&B		-----	
511	EN15769	C&C		-----	
541	EN15769	C&B		-----	
551	visual	CFFSM		-----	
554	visual	CFFSM		-----	
556		-----		-----	
559		-----		-----	
631	visual	C&B		-----	
657	E2680	pass		-----	
663	E2680	pass		-----	
840	E2608	pass		-----	
862	visual	C&B		-----	
867	E2680	pass		-----	
902		-----		-----	
912		-----		-----	
913	EN15769	CFFSM		-----	
922	EN15769	CFFSM		-----	
974	E2680	pass		-----	
1041		-----		-----	
1079	EN15769	C&C		-----	
1082		-----		-----	
1134	EN15769	Clear		-----	
1161	EN15769	C&C		-----	
1203	EN15769	C&C		-----	
1263		-----		-----	
1298	EN15769	C&C		-----	
1359	EN15769	Clear		-----	
1402		-----		-----	
1446	EN660805	C&B		-----	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656	EN15769	pass		-----	
1726	EN15769	C&C		-----	
1727	EN15769	C&C		-----	
1807		-----		-----	
1835	EN15769	C&C		-----	
1919		-----		-----	
1933	EN15769	Clear		-----	
	n	45			

C&B = Clear and bright
C&C = Clear and Colourless
CFFSM = Clear free from suspended matter

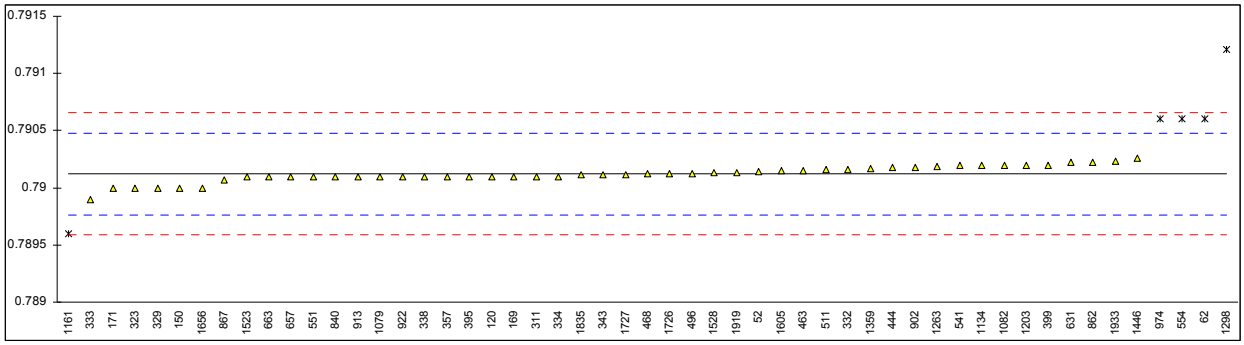
Determination of Copper on sample #11120; results in mg/kg

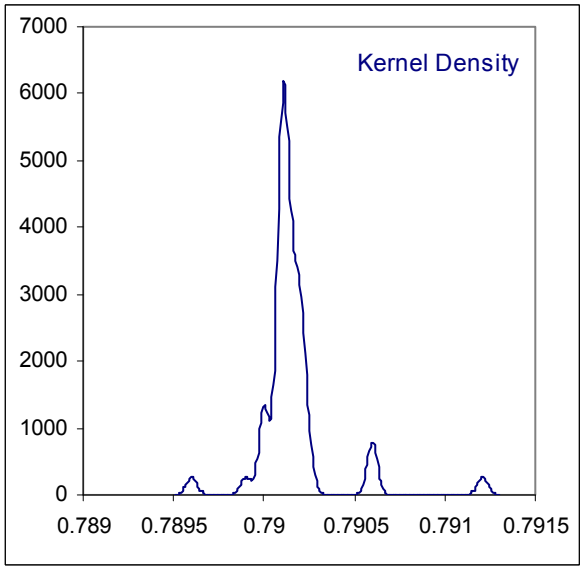
lab	method	value	mark	z(targ)	remarks
52	D1688	<0.05		-----	
62		-----		-----	
120		-----		-----	
150	EN15488	<10		-----	
169	D1688Mod.	<0.1		-----	
171	EN15488	<0.01		-----	
311	EN15837	<0.05		-----	
323	EN15488	<0.070		-----	
329	EN15488	<0.002		-----	
332		-----		-----	
333	EN15488	<0.07		-----	
334		-----		-----	
338		-----		-----	
343	EN15488	<0.07		-----	
357	EN15488	<0.07		-----	
395		-----		-----	
399		-----		-----	
444	EN15488	<0.002		-----	
446		-----		-----	
463		-----		-----	
468	EN15488	<0.07		-----	
496		-----		-----	
511		-----		-----	
541	INH-11331	<0.1		-----	
551	INH-2047	<0.04		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
840	UOP389	0.008		-----	
862		-----		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D1688	0.06	G(0.05)	-----	
974		-----		-----	
1041		-----		-----	
1079	EN15488	<0.010	C	-----	first reported:0.2
1082		-----		-----	
1134		-----		-----	
1161		-----		-----	
1203		-----		-----	
1263	INH-113	<0.1		-----	
1298		-----		-----	
1359	EN15488	0.00042		-----	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15488	0.010		-----	
1605		-----		-----	
1656	D1688	<0.05		-----	
1726		-----		-----	
1727		-----		-----	
1807	EN15488	<0.02		-----	
1835		-----		-----	
1919		-----		-----	
1933	ISO11885	<0.01		-----	
	normality	n.a			
	n	4			
	outliers	1			
	mean (n)	0.006			
	st.dev. (n)	n.a			
	R(calc.)	n.a			
	R(EN15488:07)	n.a			

Determination of Density @ 20°C on sample #11120; results in kg/L

lab	method	value	mark	z(targ)	remarks
52	D4052	0.79014		0.10	
62	D4052	0.7906	C,G(0.05)	2.68	first reported:794.4
120	D4052	0.7901		-0.12	
150	D4052	0.7900		-0.68	
169	D4052	0.7901		-0.12	
171	D4052	0.7900		-0.68	
311	D4052	0.7901		-0.12	
323	D4052	0.7900		-0.68	
329	D4052	0.7900		-0.68	
332	D4052	0.79016		0.22	
333	D4052	0.7899		-1.24	
334	D4052	0.7901	C	-0.12	first reported:0.7904
338	D4052	0.7901		-0.12	
343	D4052	0.79011		-0.06	
357	D4052	0.79010		-0.12	
395	D4052	0.7901		-0.12	
399	D4052	0.7902		0.44	
444	D4052	0.79018		0.33	
446		-----		-----	
463	D4052	0.79015		0.16	
468	D4052	0.79012		-0.01	
496	D4052	0.79012		-0.01	
511	D4052	0.79016		0.22	
541	D4052	0.7902		0.44	
551	D4052	0.7901		-0.12	
554	D4052	0.7906	G(0.01)	2.68	
556		-----		-----	
559		-----		-----	
631	D4052	0.79022		0.55	
657	D4052	0.7901		-0.12	
663	D4052	0.7901		-0.12	
840	D4052	0.79010		-0.12	
862	D4052	0.79022		0.55	
867	D4052	0.79007		-0.29	
902	D4052	0.79018		0.33	
912		-----		-----	
913	D4052	0.7901		-0.12	
922	D4052	0.7901		-0.12	
974	D4052	0.7906	G(0.01)	2.68	
1041		-----		-----	
1079	D4052	0.7901		-0.12	
1082	ISO12185	0.7902		0.44	
1134	D4052	0.7902		0.44	
1161	ISO12185	0.7896	U,G(0.01)	-2.92	probably reported in different unit, reported 789.6
1203	D4052	0.7902		0.44	
1263	ISO12185	0.79019	C	0.38	first reported:0.7878
1298	INH-90	0.79121	G(0.01)	6.10	
1359	D4052	0.79017		0.27	
1402		-----		-----	
1446	in house	0.790259	C	0.77	first reported:790.259
1523	D4052	0.790095		-0.15	
1528	D4052	0.79013		0.05	
1605	D4052	0.79015		0.16	
1656	D4052	0.7900		-0.68	
1726	D4052	0.79012		-0.01	
1727	D4052	0.79011		-0.06	
1807		-----		-----	
1835	D4052	0.79011		-0.06	
1919	D4052	0.790136		0.08	
1933	D4052	0.79023		0.61	

normality	not OK
n	48
outliers	5
mean (n)	0.79013
st.dev. (n)	0.000070
R(calc.)	0.00020
R(D4052:11)	0.00050

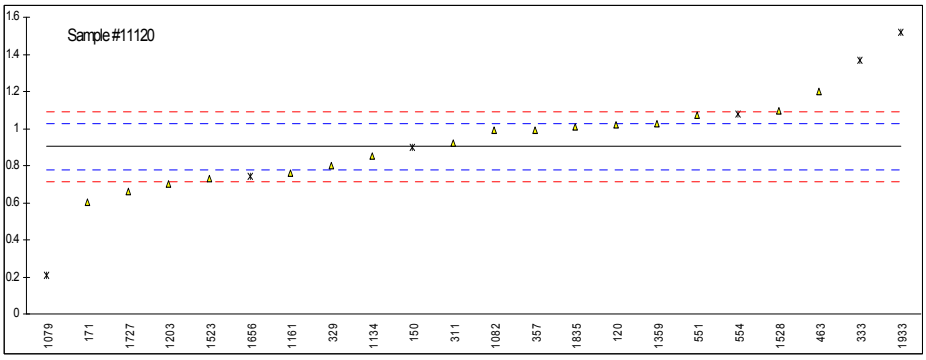

0.7915
0.791
0.7905
0.79
0.7895
0.789
1161 333 171 323 329 150 1656 867 1523 663 657 551 840 913 1079 922 338 357 395 120 169 311 334 1835 343 1727 468 1726 496 1528 1919 52 1605 463 511 332 1359 444 902 1263 541 1134 1082 1203 399 631 862 1933 1446 974 554 62 1298

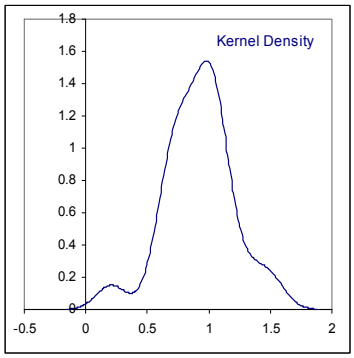

Kernel Density
7000
6000
5000
4000
3000
2000
1000
0
0.789 0.7895 0.79 0.7905 0.791 0.7915

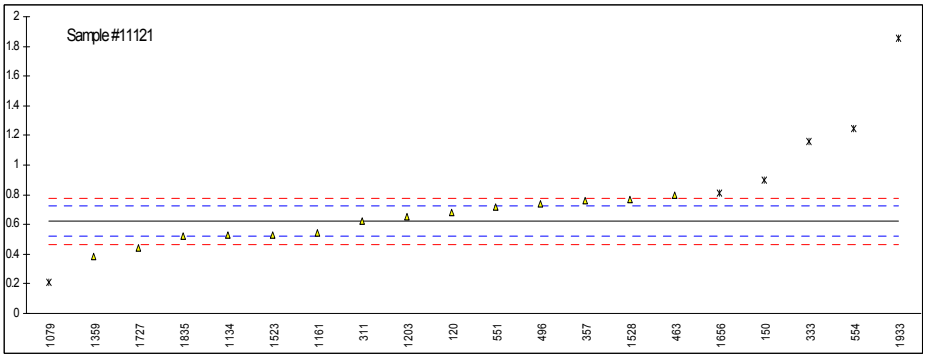
Determination of Electrical conductivity @ 25°C on sample #11120 and #11121; results in µS/cm

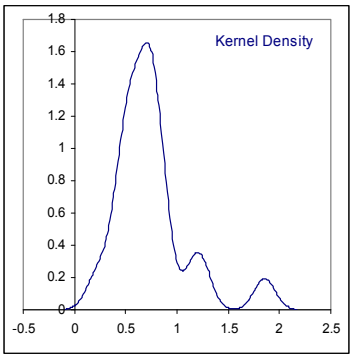
lab	method	#11120	mark	z(targ)	method	#11121	mark	z(targ)	remarks
52		-----		-----		-----		-----	
62		-----		-----		-----		-----	
120	EN15938	1.02		1.88	EN15938	0.68		1.18	
150	EN15938	0.9	ex	-0.03	INH-0001	0.9	ex	5.51	
169		-----		-----		-----		-----	
171	EN15938	0.6		-4.80		-----		-----	
311	EN15938	0.92		0.29	EN15938	0.62		0.00	
323	EN15938	<0.3	false-?	<-9.58	EN15938	<0.3	false-?	<-6.29	False negatives?
329	EN15938	0.80		-1.62		-----		-----	
332		-----		-----		-----		-----	
333	EN15938	1.37	G(0.05)	7.45	EN15938	1.16	G(0.05)	10.63	
334		-----		-----		-----		-----	
338		-----		-----		-----		-----	
343		-----		-----		-----		-----	
357	EN15938	0.99		1.41	EN15938	0.76		2.76	
395		-----		-----		-----		-----	
399		-----		-----		-----		-----	
444		-----		-----		-----		-----	
446		-----		-----		-----		-----	
463	EN15938	1.2		4.75	EN15938	0.8		3.54	
468		-----		-----		-----		-----	
496		-----		-----	EN15938	0.7400		2.36	
511		-----		-----		-----		-----	
541	INH-10547	<1		-----	INH-10547	<1		-----	
551	INH-10547	1.07		2.68	EN15938	0.72	C	1.97	first reported:1.95
554	D1125	1.08	C, ex	2.84	D1125	1.25	ex	12.40	
556		-----		-----		-----		-----	
559		-----		-----		-----		-----	
631		-----		-----		-----		-----	
657		-----		-----		-----		-----	
663		-----		-----		-----		-----	
840		-----		-----		-----		-----	
862		-----		-----		-----		-----	
867		-----		-----		-----		-----	
902		-----		-----		-----		-----	
912		-----		-----		-----		-----	
913		-----		-----		-----		-----	
922		-----		-----		-----		-----	
974		-----		-----		-----		-----	
1041		-----		-----		-----		-----	
1079	EN15938	0.206	ex	-11.07	EN15938	0.21	ex	-8.06	first reported:0.28
1082	EN15938	0.99		1.41		-----		-----	
1134	EN15938	0.853		-0.77	EN15938	0.527		-1.83	
1161	EN15938	0.760		-2.25	EN15938	0.54		-1.57	
1203	EN15938	0.70		-3.21	EN15938	0.65		0.59	
1263		-----		-----		-----		-----	
1298		-----		-----		-----		-----	
1359	EN15938	1.028		2.01	EN15938	0.383		-4.66	
1402		-----		-----		-----		-----	
1446		-----		-----		-----		-----	
1523	D2624	0.73		-2.73	D2624	0.53		-1.77	
1528	EN15938	1.096		3.09	EN15938	0.77		2.95	
1605		-----		-----		-----		-----	
1656	EN15938	0.74	ex	-2.57	EN15938	0.81	ex	3.74	
1726		-----		-----		-----		-----	
1727	EN15938	0.660		-3.84	EN15938	0.439		-3.56	
1807		-----		-----		-----		-----	
1835	EN15938	1.009		1.71	EN15938	0.519		-1.98	
1919		-----		-----		-----		-----	
1933	EN15938	1.517	ex	9.79	in house	1.855	C,ex	24.30	first reported:1.492
	normality	OK			normality	OK			
	n	16			n	14			
	outliers	1			outliers	1			
	mean (n)	0.902			mean (n)	0.620			
	st.dev. (n)	0.1760			st.dev. (n)	0.1318			
	R(calc.)	0.493			R(calc.)	0.369			
	R(EN15938:10)	0.176			R(EN15938:10)	0.142			

ex = results are excluded for statistical evaluation, as reported result for sample #11120 ≤ sample #11121, see also paragraph 4.1


Sample #11120
1079
171
1727
1203
1523
1656
1161
329
1134
150
311
1082
357
1835
120
1359
551
554
1528
463
333
1933

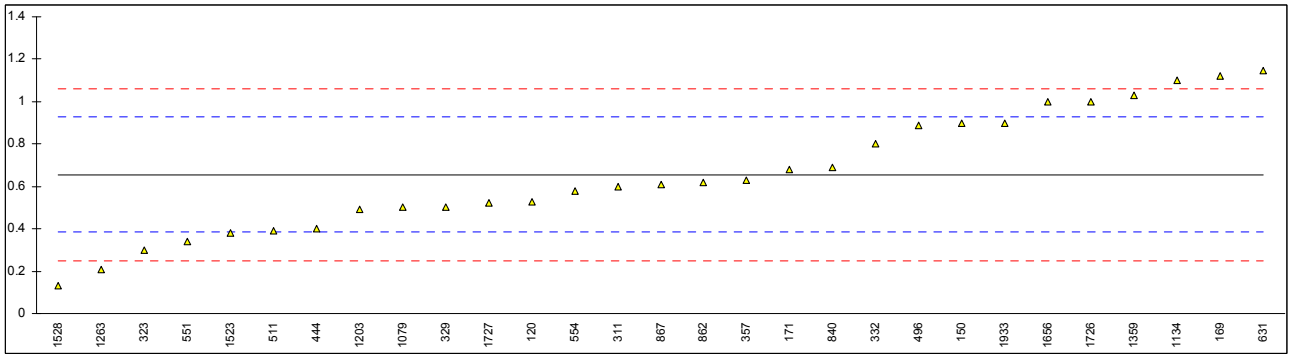

Kernel Density

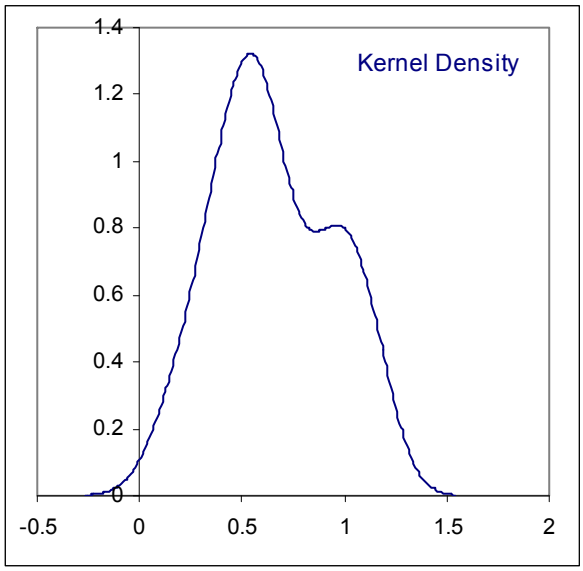

Sample #11121
1079
1359
1727
1835
1134
1523
1161
311
1203
120
551
496
357
1528
463
1656
150
333
554
1933


Kernel Density

Determination of Inorganic Chlorides as Cl on sample #11120; results in mg/kg

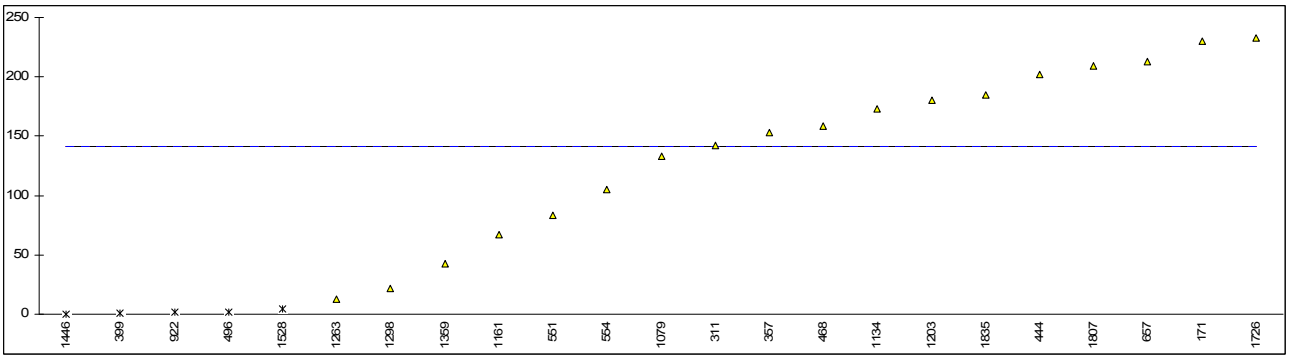
lab	method	value	mark	Z(targ)	remarks
52	D512Mod.	<1		<2.55	
62		-----		-----	
120	EN15492	0.53		-0.92	
150	D7328	0.90		1.81	
169	D7319	1.119		3.43	
171	EN15492	0.68		0.19	
311	EN15492	0.6		-0.40	
323	EN15492	0.3		-2.62	
329	EN15492	0.5		-1.14	
332	EN15484	0.8		1.07	
333		-----		-----	
334	EN15492	<2		-----	
338		-----		-----	
343	EN15492	<2		-----	
357	EN15484	0.63		-0.18	
395		-----		-----	
399		-----		-----	
444	EN15492	0.4		-1.88	
446		-----		-----	
463		-----		-----	
468	EN15492	<1.0		<2.55	
496	EN15492	0.89		1.74	
511	EN15484	0.39		-1.95	
541		-----		-----	
551	D7319	0.34		-2.32	
554	D512	0.58		-0.55	
556		-----		-----	
559		-----		-----	
631	D512	1.146		3.62	
657	D7328	<1		<2.55	
663		-----		-----	
840	IMPCA002	0.69		0.26	
862	IMPCA002	0.62		-0.26	
867	IMPCA002	0.61		-0.33	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1041		-----		-----	
1079	EN15492	0.5		-1.14	
1082		-----		-----	
1134	EN15492	1.1		3.28	reported 0.9 mg/L
1161		-----		-----	
1203	EN15492	0.49		-1.21	
1263	EN14077	0.208		-3.29	
1298		-----		-----	
1359	EN15492	1.03		2.77	
1402		-----		-----	
1446		-----		-----	
1523	D7319	0.38		-2.03	
1528	EN15484	0.13		-3.87	
1605		-----		-----	
1656	EN15492	1		2.55	
1726	in house	1		2.55	
1727	EN15492	0.52		-0.99	
1807		-----		-----	
1835	in house	<1		<2.55	
1919		-----		-----	
1933	EN15484	0.9		1.81	
	normality	OK			
	n	29			
	outliers	0	Spike:		
	mean (n)	0.654	0.51		<144% recovery
	st.dev. (n)	0.2844			
	R(calc.)	0.796			
	R(EN15492:08)	0.380			

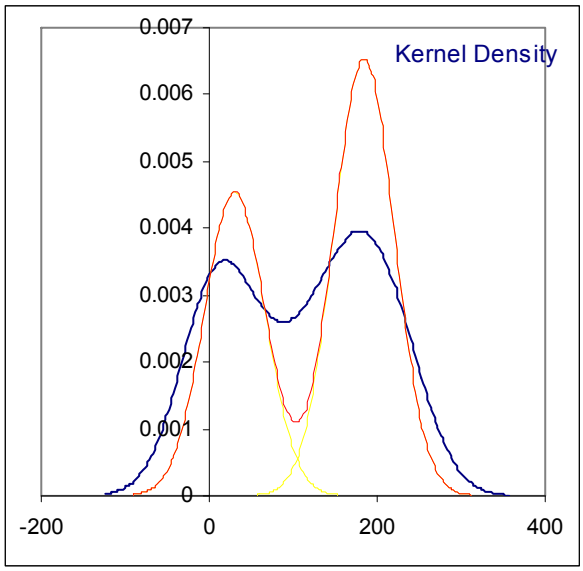

1.4
1.2
1
0.8
0.6
0.4
0.2
0
1528
1263
323
551
1523
511
444
1203
1079
329
1727
120
554
311
867
862
357
171
840
332
496
150
1933
1656
1726
1359
1134
169
631


Kernel Density
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.5
0
0.5
1
1.5
2

Determination of Involatile material content on sample #11120; results in mg/100mL

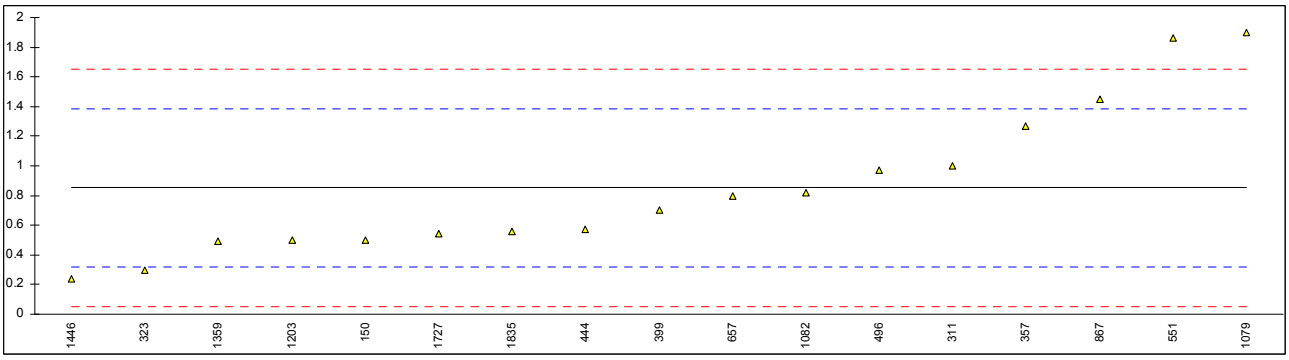
lab	method	value	mark	z(targ)	Remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150		-----		-----	
169		-----		-----	
171	EN15691	230.5		-----	
311	EN15691	142		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338		-----		-----	
343	EN15691	<10		-----	False negative?
357	EN15691	153		-----	
395		-----		-----	
399	EN15691	1	ex	-----	See paragraph 4.1
444	EN15691	202.2		-----	
446		-----		-----	
463		-----		-----	
468	EN15691	158.6		-----	
496	EN15691	1.7	ex	-----	See paragraph 4.1
511		-----		-----	
541	EN15691	<10		-----	False negative?
551	D1353	83.6		-----	
554	D1353	105.1		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D1353	212.9		-----	
663		-----		-----	
840		-----		-----	
862		-----		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D1353	1.40	ex	-----	See paragraph 4.1
974		-----		-----	
1041		-----		-----	
1079	EN15691	133		-----	
1082		-----		-----	
1134	EN15691	173.4		-----	
1161	EN15691	67		-----	
1203	EN15691	180		-----	
1263	D1353	12.95		-----	
1298	EN15691	21.88		-----	
1359	EN15691	43		-----	
1402		-----		-----	
1446	in house	0	ex	-----	Result excluded, zero not a real result
1523		-----		-----	
1528	EN15691	4.6	ex	-----	See paragraph 4.1
1605		-----		-----	
1656	EN15691	<1		-----	False negative?
1726	EN15691	233		-----	
1727		-----		-----	
1807	EN15691	209		-----	
1835	EN15691	185		-----	
1919		-----		-----	
1933	EN15691	<2		-----	False negative?
	normality	OK			
	n	18			
	outliers	0			
	mean (n)	141.45			
	st.dev. (n)	70.829			
	R(calc.)	198.32			
	R(EN15691:09)	(26.14)			

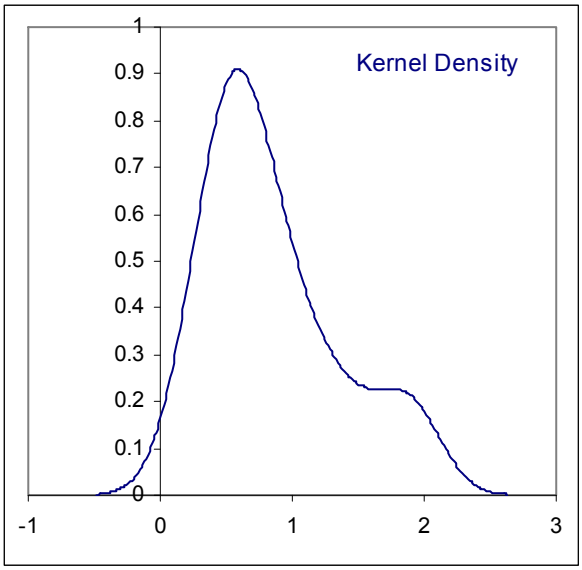

250
200
150
100
50
0
1446
399
922
496
1528
1263
1298
1369
1161
551
554
1079
311
357
468
1134
1203
1835
444
1807
657
171
1726


Kernel Density
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
-200
0
200
400

Determination of Nitrogen on sample #11120; results in mg/kg

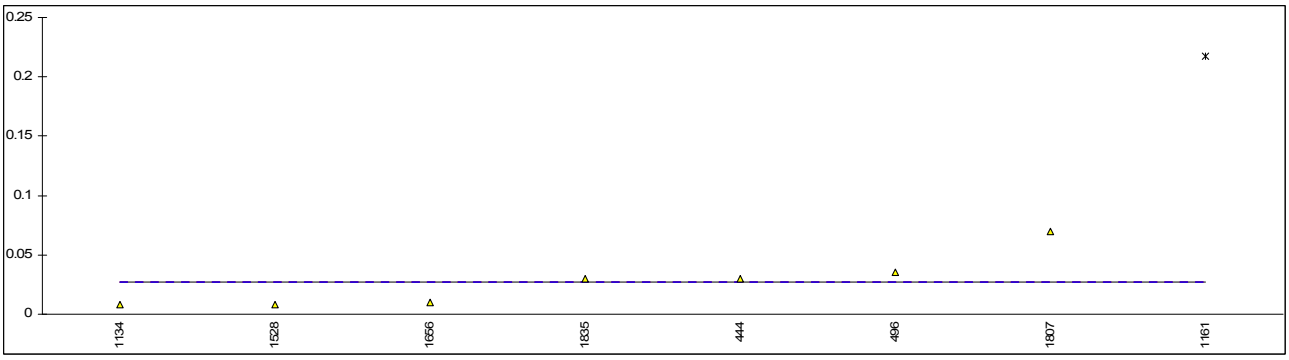
lab	method	value	mark	z(targ)	Remarks
52	D4629	<1		<0.56	
62		-----		-----	
120		-----		-----	
150	D4629	0.5		-1.32	
169		-----		-----	
171	D4629	<1		<0.56	
311	D4629	1.0		0.56	
323	D4629	0.3		-2.07	
329	D6069	<1		<0.56	
332		-----		-----	
333		-----		-----	
334	D4629	<0.3		<-2.07	False negative?
338		-----		-----	
343		-----		-----	
357	D6069	1.27		1.57	
395		-----		-----	
399	D4629	0.70		-0.57	
444	D4629	0.57		-1.06	
446		-----		-----	
463	D4629	<0.1		<-2.82	False negative?
468	D4629	<1.0		<0.56	
496	D4629	0.97		0.45	
511		-----		-----	
541		-----		-----	
551	D4629	1.86		3.79	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D4629	0.8		-0.19	
663		-----		-----	
840		-----		-----	
862		-----		-----	
867	D4629	1.45		2.25	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1041		-----		-----	
1079	D4629	1.9		3.94	
1082	D4629	0.82		-0.12	
1134		-----		-----	
1161		-----		-----	
1203	D4629	0.5	C	-1.32	first reported: 4.9
1263		-----		-----	
1298		-----		-----	
1359	D4629	0.495		-1.34	
1402		-----		-----	
1446	INH-660805	0.241		-2.29	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656		-----		-----	
1726		-----		-----	
1727	D4629	0.54		-1.17	
1807		-----		-----	
1835	D4629	0.56		-1.10	
1919		-----		-----	
1933		-----		-----	
					only D4629 data
	normality	OK			OK
	n	17			15
	outliers	0			0
	mean (n)	0.852			0.864
	st.dev. (n)	0.5015			0.4982
	R(calc.)	1.404			1.395
	R(D4629:09)	0.745			0.751 application range: 0.3-100 mg/kg

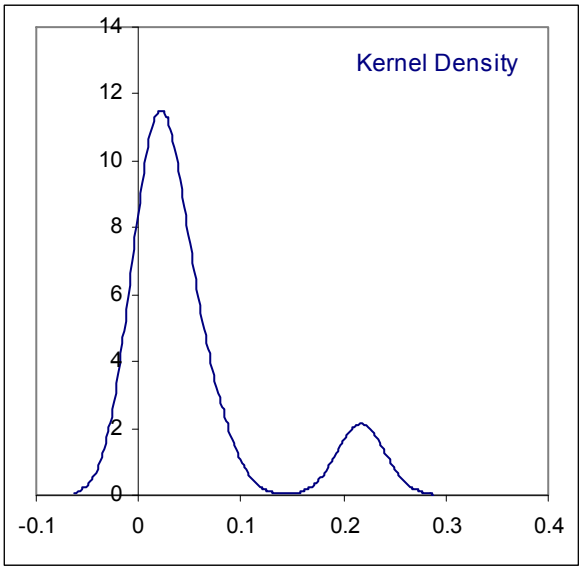

2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1446
323
1359
1203
150
1727
1835
444
399
657
1082
496
311
357
867
551
1079


Kernel Density
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-1
0
1
2
3

Determination of Phosphorus on sample #11120; results in mg/L

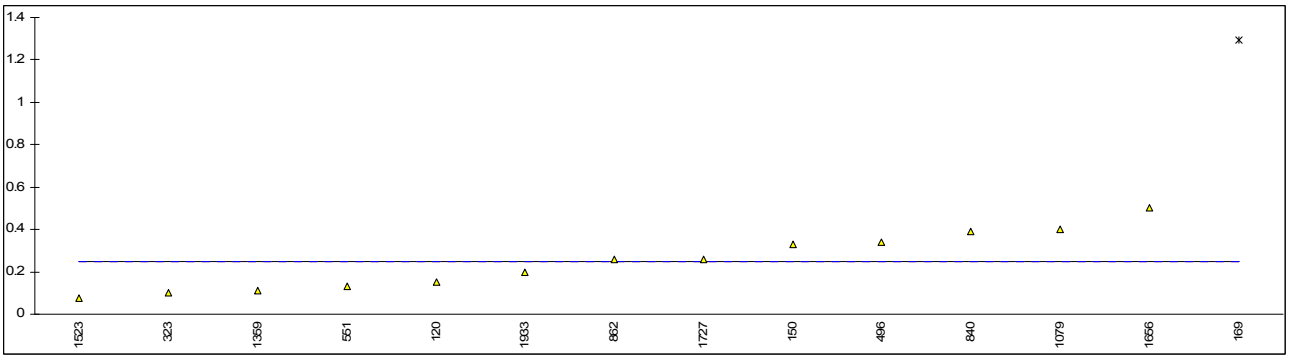
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150	D3231	<0.01		-----	
169		-----		-----	
171	EN15487	<0.01		-----	
311	D3231	<0.2		-----	
323		-----		-----	
329	EN15487	<0.15		-----	
332		-----		-----	
333	EN15487	<0.15		-----	
334		-----		-----	
338		-----		-----	
343	EN15487	<0.15		-----	
357	EN15487	<0.15		-----	
395		-----		-----	
399		-----		-----	
444	EN15487	0.030		-----	
446		-----		-----	
463		-----		-----	
468	EN15487	<0.15		-----	
496	EN15487	0.03535		-----	
511		-----		-----	
541	EN15487	<0.15		-----	
551	INH-2047	<0.04		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657		-----		-----	
663	EN15487	<0.15		-----	
840	UOP389	n.d.		-----	
862		-----		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1041		-----		-----	
1079	EN15487	<0.10		-----	
1082		-----		-----	
1134	EN15487	0.0079		-----	
1161	EN15487	0.2170	G(0.01)	-----	False positive?
1203	EN15487	<0.1		-----	
1263	EN15487	<0.1		-----	
1298		-----		-----	
1359	EN15487	<0.01		-----	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15487	0.008		-----	
1605		-----		-----	
1656	EN15487	0.01		-----	
1726	EN15487	<0.15		-----	
1727	EN15487	<0.15		-----	
1807	EN15487	0.07		-----	
1835	EN15487	0.03		-----	
1919		-----		-----	
1933	ISO11885	<0.1		-----	
	normality	OK			
	n	7			
	outliers	1			
	mean (n)	0.0273			
	st.dev. (n)	0.02218			
	R(calc.)	0.0621			
	R(EN15487:07)	(0.0624)			application range: 0.15 - 1.5 **mg/l**

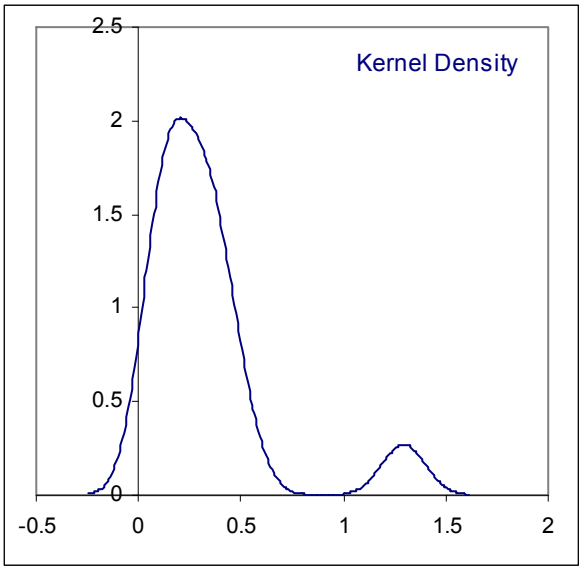

0.25
0.2
0.15
0.1
0.05
0
1134
1528
1656
1835
444
496
1807
1161


Kernel Density
14
12
10
8
6
4
2
0
-0.1
0
0.1
0.2
0.3
0.4

Determination of Sulphate on sample #11120; results in mg/kg

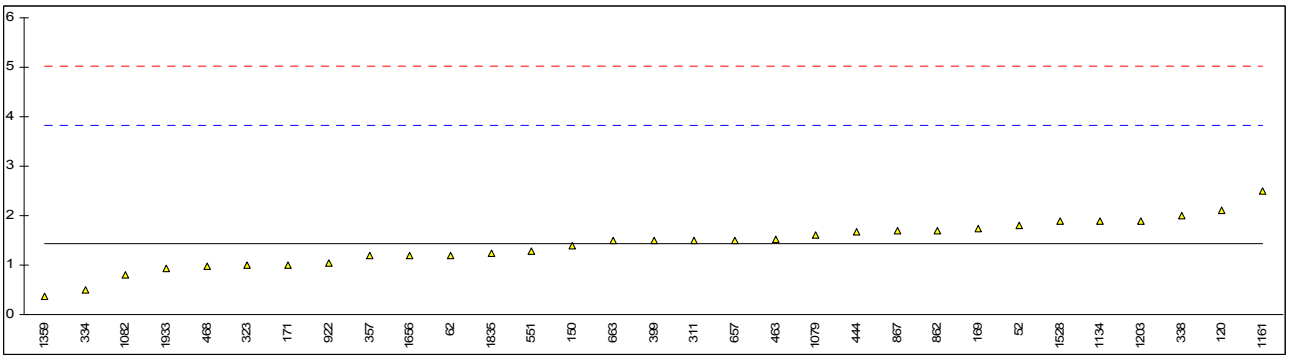
lab	method	value	mark	z(targ)	remarks
52	D7318	<1		-----	
62		-----		-----	
120	EN15492	0.15		-----	
150	D7328	0.33		-----	
169	D7319	1.294	G(0.01)	-----	
171		-----		-----	
311	INH-634	<1.0		-----	
323	EN15492	0.1		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334	EN15492	<0.9		-----	
338		-----		-----	
343	EN15492	<0.9		-----	
357		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
446		-----		-----	
463		-----		-----	
468	EN15492	<0.5		-----	
496	EN15492	0.34		-----	
511		-----		-----	
541		-----		-----	
551	D7319	0.13		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D7328	<1		-----	
663		-----		-----	
840	D7318	0.392		-----	
862	EN15492	0.26		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1041		-----		-----	
1079	EN15492	0.4		-----	
1082		-----		-----	
1134		-----		-----	
1161		-----		-----	
1203		-----		-----	
1263		-----		-----	
1298		-----		-----	
1359	EN15492	0.11		-----	
1402		-----		-----	
1446		-----		-----	
1523	D7319	0.074		-----	
1528		-----		-----	
1605		-----		-----	
1656	EN15492	0.5		-----	
1726		-----		-----	
1727	EN15492	0.261		-----	
1807		-----		-----	
1835		-----		-----	
1919		-----		-----	
1933	in house	0.2		-----	
	normality	OK			
	n	13			
	outliers	1			
	mean (n)	0.250			
	st.dev. (n)	0.1354			
	R(calc.)	0.379			
	R(EN15492:08)	(0.176)			application range: 0.9 - 15.0 **mg/l**

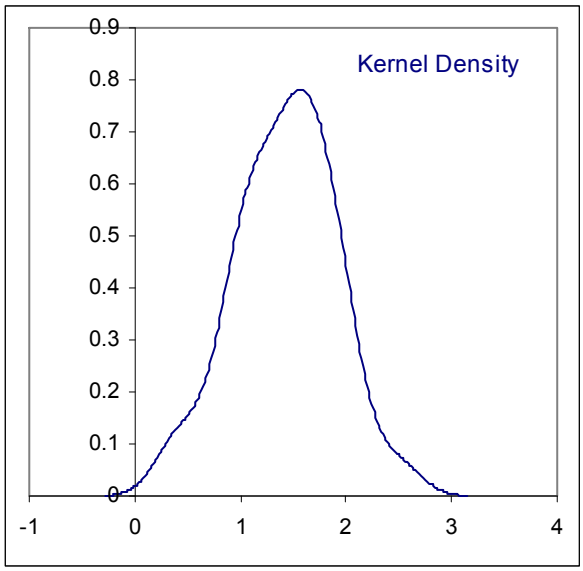

1.4
1.2
1
0.8
0.6
0.4
0.2
0
1523
323
1359
551
120
1933
862
1727
150
496
840
1079
1656
169


Kernel Density
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5
2

Determination of total Sulphur on sample #11120; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	1.8		0.31	
62	D5453	1.2		-0.19	
120	EN15485	2.1		0.56	
150	D5453	1.4		-0.02	
169	D5453	1.75		0.27	
171	EN15485	1		-0.35	
311	EN15485	1.5		0.06	
323	EN15486	1.0		-0.35	
329	EN15486	<5		-----	
332		-----		-----	
333	EN15486	<5		-----	
334	ISO20846	0.5		-0.77	
338	EN15485	2.0		0.48	
343		-----		-----	
357	EN15486	1.2		-0.19	
395		-----		-----	
399	EN15485	1.5		0.06	
444	EN15486	1.67		0.20	
446		-----		-----	
463	D5453	1.52		0.08	
468	EN15485	0.97		-0.38	
496	EN15485	<7		-----	
511		-----		-----	
541	D5453	<1		<-0.35	
551	D5453	1.29		-0.11	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D5453	1.51		0.07	
663	D5453	1.5		0.06	
840		-----		-----	
862	D5453	1.7		0.23	
867	D3120	1.69		0.22	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D5453	1.05		-0.31	
974		-----		-----	
1041		-----		-----	
1079	EN15486	1.6		0.15	
1082	EN15486	0.8		-0.52	
1134	EN15485	1.9		0.40	
1161	EN15485	2.5		0.90	
1203	EN15485	1.9		0.40	
1263		-----		-----	
1298		-----		-----	
1359	EN15485	0.36		-0.89	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15486	1.9		0.40	
1605		-----		-----	
1656	EN15485	1.2		-0.19	
1726		-----		-----	
1727		-----		-----	
1807		-----		-----	
1835	EN15485	1.24		-0.15	
1919		-----		-----	
1933	EN15485	0.937		-0.41	
	normality	OK			
	n	31			
	outliers	0			
	mean (n)	1.425			
	st.dev. (n)	0.4714			
	R(calc.)	1.320			
	R(EN15485:07)	3.360			application range 7 – 20 mg/kg

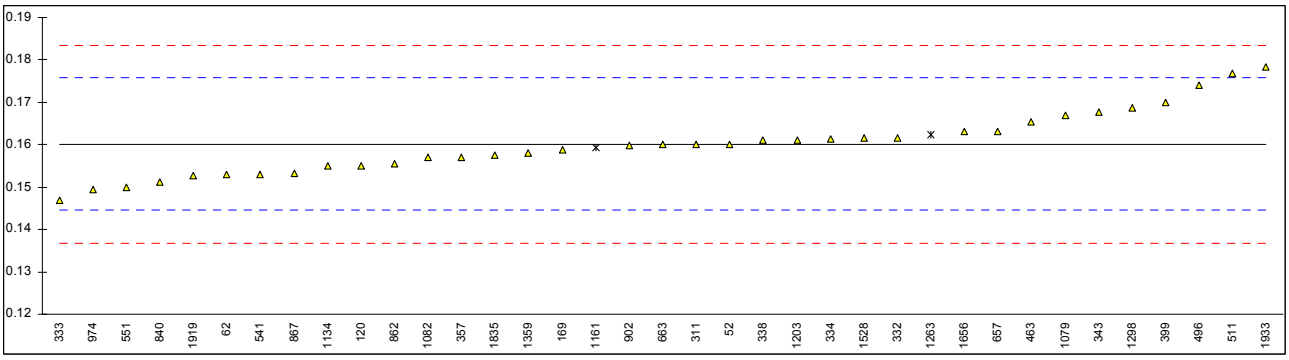

6
5
4
3
2
1
0
1359
334
1082
1933
468
323
171
922
357
1656
62
1835
551
150
663
399
311
657
463
1079
444
867
862
169
52
1528
1134
1203
338
120
1161

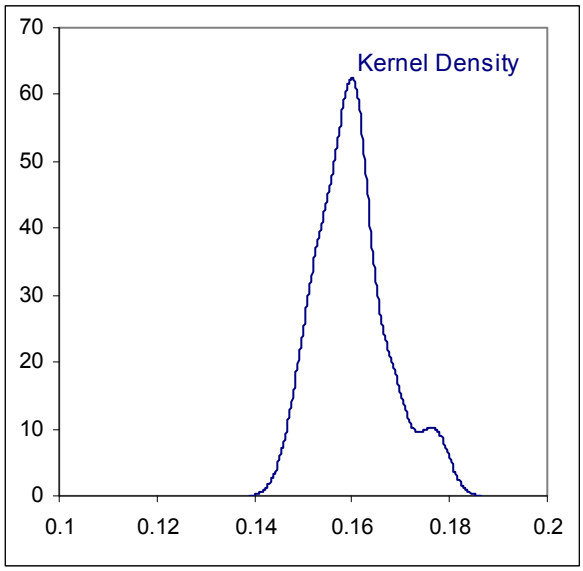

Kernel Density
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-1
0
1
2
3
4

Determination of Water (coulometric) on sample #11120; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	E1064	0.16		-0.02	
62	E1064	0.153		-0.92	
120	EN15489	0.155		-0.66	
150		-----		-----	
169	E1064	0.1589		-0.16	
171		-----		-----	
311	EN15489	0.160		-0.02	
323		-----		-----	
329		-----		-----	
332	EN15489	0.1617		0.20	
333	EN15489	0.147		-1.69	
334	E1064	0.1613		0.15	
338	EN15489	0.161		0.11	
343	EN15489	0.1677		0.97	
357	EN15489	0.157		-0.40	
395		-----		-----	
399	EN15489	0.1700		1.26	
444		-----		-----	
446		-----		-----	
463	D6304	0.1654		0.67	
468		-----		-----	
496	EN15489	0.1741		1.79	
511	E1064	0.17693		2.15	
541	EN15489	0.153		-0.92	
551	D6304	0.15		-1.30	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	E1064	0.1631		0.38	
663	E1064	0.160		-0.02	
840	E1064	0.1512		-1.15	
862	E1064	0.1554		-0.61	
867	E1064	0.1532		-0.89	
902	E1064	0.1598		-0.05	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974	E1064	0.1494		-1.38	
1041		-----		-----	
1079	EN15489	0.167		0.88	
1082	EN15489	0.157		-0.40	
1134	IP539	0.155		-0.66	
1161	EN15489	0.159224	U	-0.12	probably reported in different unit, reported 1592.24
1203	EN15489	0.1610		0.11	
1263	ISO12937	0.16227	U	0.27	probably reported in different unit, reported 1622.7
1298	EN15489	0.16869		1.10	
1359	EN15489	0.1580		-0.28	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15489	0.1616		0.19	
1605		-----		-----	
1656	EN15489	0.163	C	0.37	first reported:1627
1726		-----		-----	
1727		-----		-----	
1807		-----		-----	
1835	EN15489	0.1575		-0.34	
1919	EN15489	0.15280		-0.94	
1933	EN15489	0.1784		2.34	

normality	OK
n	37
outliers	0
mean (n)	0.16015
st.dev. (n)	0.007313
R(calc.)	0.02048
R(EN15489:07)	0.02181

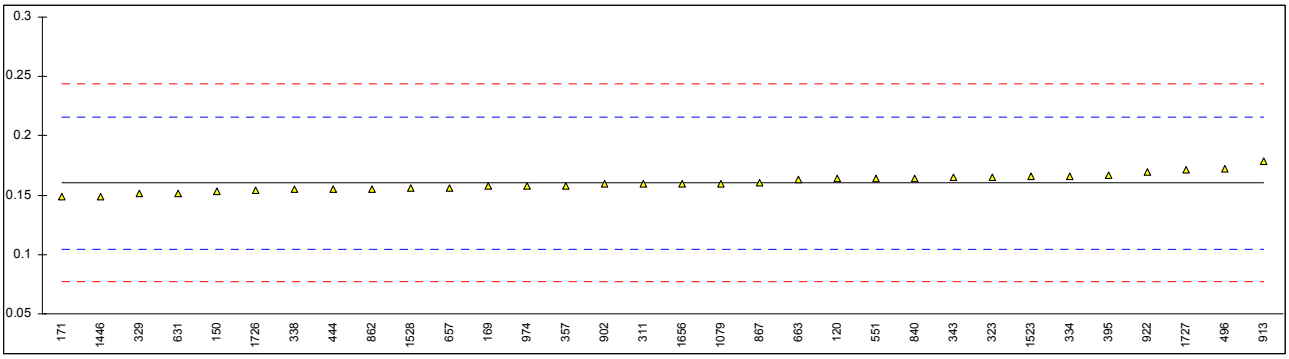

0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
333 974 551 840 1919 62 541 867 1134 120 862 1082 357 1835 1359 169 1161 902 663 311 52 338 1203 334 1528 332 1263 1656 657 463 1079 343 1298 399 496 511 1933

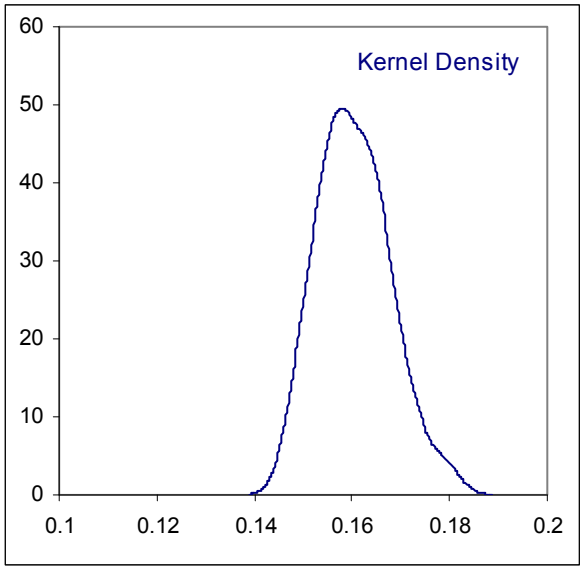

Kernel Density
70
60
50
40
30
20
10
0
0.1
0.12
0.14
0.16
0.18
0.2

Determination of Water (titrimetric) on sample #11120; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	E203	0.164		0.13	
150	E203	0.153		-0.27	
169	E203	0.1575		-0.11	
171	E203	0.1487		-0.42	
311	E203	0.160		-0.02	
323	E203	0.165		0.16	
329	E203	0.151		-0.34	
332		-----		-----	
333		-----		-----	
334	E203	0.1662		0.21	
338	E203	0.155		-0.20	
343	E203	0.165		0.16	
357	E203	0.158		-0.09	
395	E203	0.16706		0.24	
399		-----		-----	
444	E203	0.1552		-0.19	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	E203	0.1724		0.43	
511		-----		-----	
541		-----		-----	
551	E203	0.164		0.13	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	E203	0.151		-0.34	
657	E203	0.1559		-0.16	
663	E203	0.163		0.09	
840	E203	0.1644		0.14	
862	E203	0.1554		-0.18	
867	E203	0.1602		-0.01	
902	E203	0.1600		-0.02	
912		-----		-----	
913	E203	0.1789		0.66	
922	E203	0.17	C	0.34	first reported:0.24
974	E203	0.1576		-0.10	
1041		-----		-----	
1079	E203	0.16		-0.02	
1082		-----		-----	
1134		-----		-----	
1161		-----		-----	
1203		-----		-----	
1263		-----		-----	
1298		-----		-----	
1359		-----		-----	
1402		-----		-----	
1446	ISO760	0.149		-0.41	
1523	E203	0.166		0.20	
1528	E203	0.1557		-0.17	
1605		-----		-----	
1656	E203	0.160		-0.02	
1726	E203	0.15406		-0.23	
1727	E203	0.1717		0.40	
1807		-----		-----	
1835		-----		-----	
1919		-----		-----	
1933		-----		-----	

normality	OK
n	32
outliers	0
mean (n)	0.1605
st.dev. (n)	0.00716
R(calc.)	0.0201
R(E203:08)	0.0780

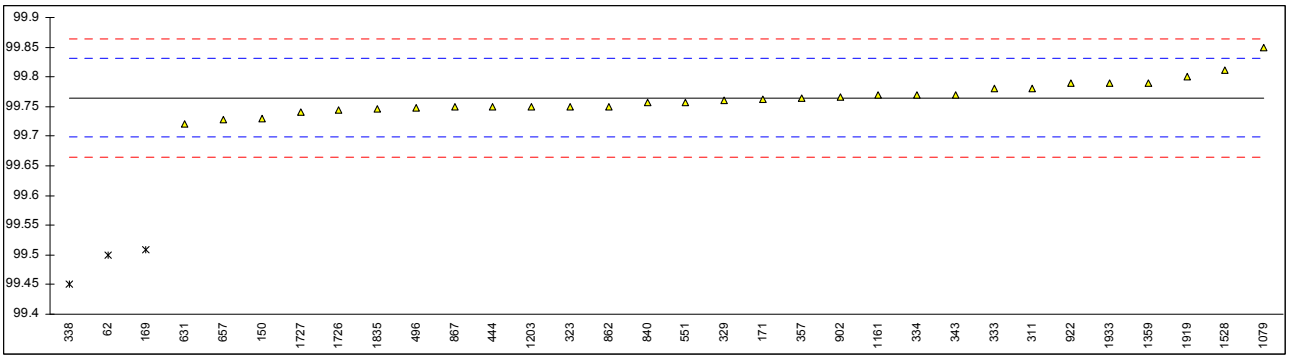

0.3
0.25
0.2
0.15
0.1
0.05
171
1446
329
631
150
1726
338
444
862
1528
657
169
974
357
902
311
1656
1079
867
663
120
551
840
343
323
1523
334
395
922
1727
496
913

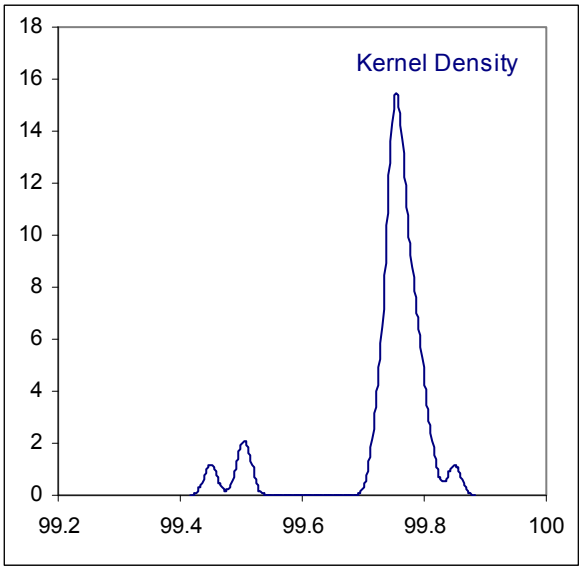

Kernel Density
60
50
40
30
20
10
0
0.1
0.12
0.14
0.16
0.18
0.2

Determination of Purity on dry basis on sample #11121; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	D5501	99.5	G(0.01)	-7.97	
120		-----		-----	
150	INH-0001	99.73		-1.04	
169	D5501	99.5096	G(0.01)	-7.68	
171	D5501	99.762		-0.08	
311	INH-529	99.78		0.46	
323	INH-001	99.75		-0.44	
329	INH-001	99.76		-0.14	
332		-----		-----	
333	EN15721	99.78		0.46	
334	INH-5001	99.77	C	0.16	first reported:99.62
338	EN15721	99.45	G(0.01)	-9.47	
343	EN15721	99.770		0.16	
357	EN15721	99.765		0.01	
395		-----		-----	
399		-----		-----	
444	EN15721	99.7493		-0.46	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	99.7484		-0.49	
511		-----		-----	
541		-----		-----	
551	INH-1313	99.7563		-0.25	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D5501	99.72		-1.34	
657	INH-0001	99.7272		-1.13	
663		-----		-----	
840	INH-0001	99.756		-0.26	
862	INH-0001	99.75		-0.44	
867	INH-0001	99.749		-0.47	
902	INH-0001	99.766		0.04	
912		-----		-----	
913		-----		-----	
922	INH-0001	99.79		0.76	
974		-----		-----	
1041		-----		-----	
1079	EN15721	99.85	C	2.57	first reported:99.58
1082		-----		-----	
1134		-----		-----	
1161	EN15721	99.77		0.16	
1203	in house	99.75		-0.44	
1263		-----		-----	
1298		-----		-----	
1359		99.79		0.76	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15721	99.812		1.43	
1605		-----		-----	
1656		-----		-----	
1726	in house	99.7451		-0.59	
1727	in house	99.7405		-0.73	
1807		-----		-----	
1835	in house	99.7465		-0.55	
1919		99.80		1.07	
1933	in house	99.79		0.76	

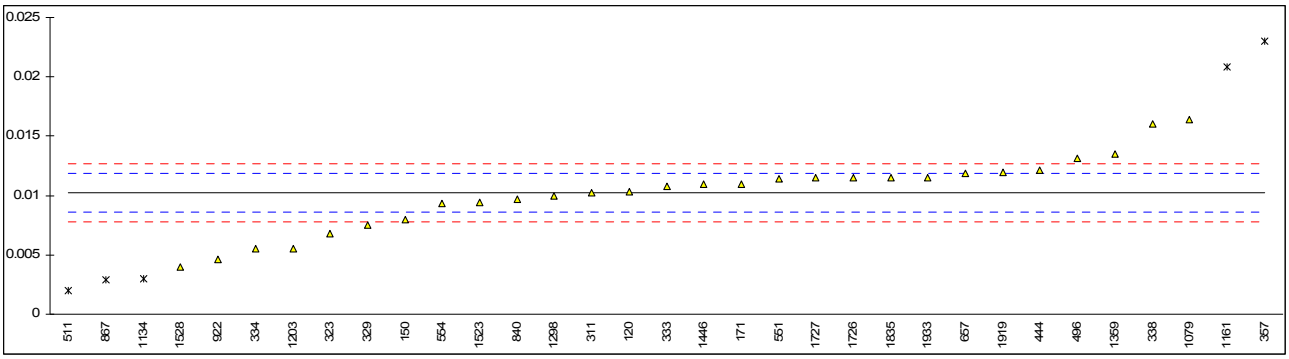
normality	OK
n	29
outliers	3
mean (n)	99.765
st.dev. (n)	0.0272
R(calc.)	0.076
R(EN15721:09)	0.093

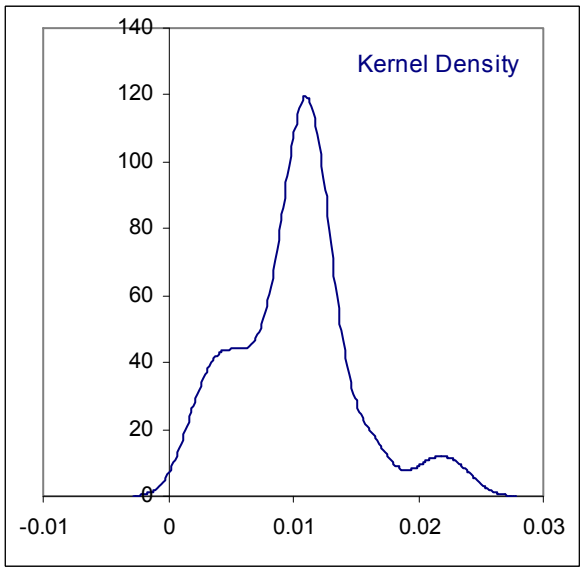

99.9
99.85
99.8
99.75
99.7
99.65
99.6
99.55
99.5
99.45
99.4
338
62
169
631
657
150
1727
1726
1835
496
867
444
1203
323
862
840
551
329
171
357
902
1161
334
343
333
311
922
1933
1359
1919
1528
1079


Kernel Density
18
16
14
12
10
8
6
4
2
0
99.2
99.4
99.6
99.8
100

Determination of Acetaldehyde on sample #11121; results in %M/M

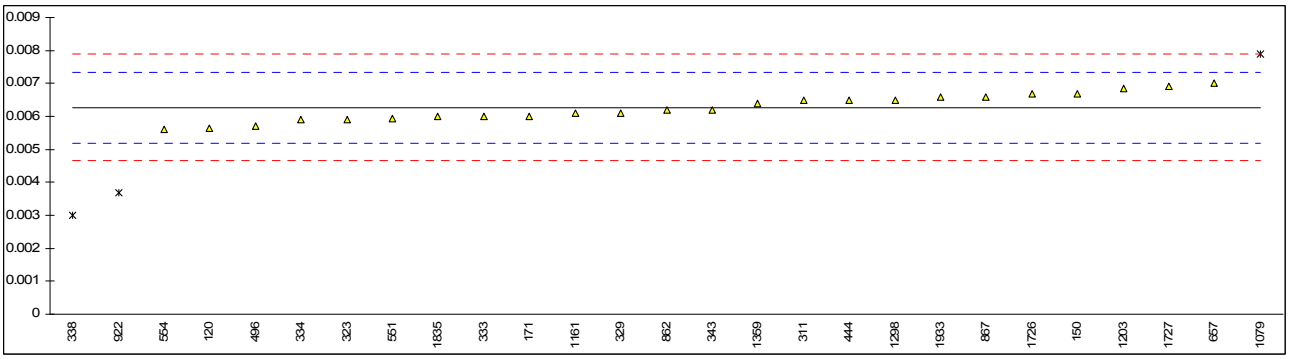
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.01037		0.18	
150	INH-0001	0.0080		-2.72	
169		-----		-----	
171	D5501	0.011		0.96	
311	INH-529	0.0102		-0.02	
323	INH-001	0.0068		-4.20	
329	INH-001	0.0075		-3.34	
332		-----		-----	
333	EN15721	0.0108		0.71	
334	INH-5001	0.0055		-5.79	
338	EN15721	0.016		7.09	
343		-----		-----	
357	EN15721Mod.	0.023	DG(0.05)	15.68	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0121		2.31	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0131		3.53	
511	INH-0001	0.00197	G(0.05)	-10.12	
541		-----		-----	
551	INH-1313	0.011377		1.42	
554	INH-1313	0.0093		-1.13	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0119		2.06	
663		-----		-----	
840	INH-0001	0.0097		-0.64	
862		-----		-----	
867	INH-0001	0.0029	DG(0.05)	-8.98	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0046		-6.90	
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.0164		7.58	
1082		-----		-----	
1134		0.003	DG(0.05)	-8.86	
1161	EN15721	0.0208	DG(0.05)	12.98	
1203	in house	0.00554		-5.74	
1263		-----		-----	
1298	EN15721	0.010		-0.27	
1359		0.0135		4.02	
1402		-----		-----	
1446	in house	0.0110		0.96	
1523	D5501	0.009442		-0.95	
1528	EN15721	0.00403		-7.60	
1605		-----		-----	
1656	EN15721	<0.01		<-0.27	
1726	in house	0.0115		1.57	
1727	in house	0.0115		1.57	
1807		-----		-----	
1835	in house	0.0115		1.57	
1919		0.0120	C	2.18	first reported:120
1933	in house	0.0115		1.57	
	normality	OK			
	n	28			
	outliers	5			
	mean (n)	0.0102			
	st.dev. (n)	0.00304			
	R(calc.)	0.0085			
	R(Horwitz)	0.0023			

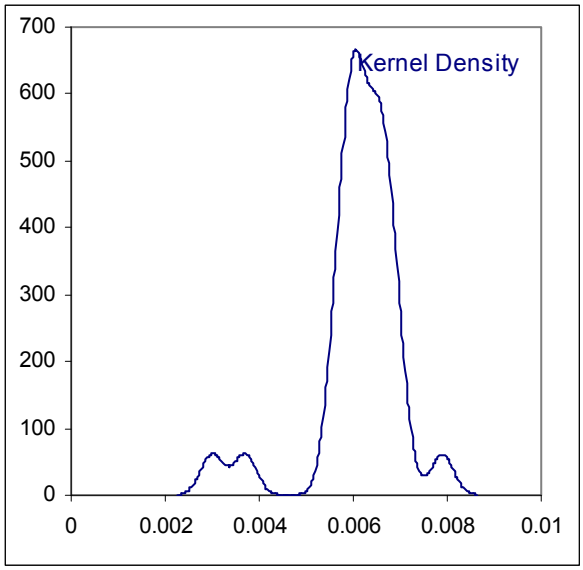

0.025
0.02
0.015
0.01
0.005
0
511
867
1134
1528
922
334
1203
323
329
150
554
1523
840
1298
311
120
333
1446
171
551
1727
1726
1835
1933
657
1919
444
496
1359
338
1079
1161
357


Kernel Density
140
120
100
80
60
40
20
0
-0.01
0
0.01
0.02
0.03

Determination of Acetal on sample #11121; results in %M/M

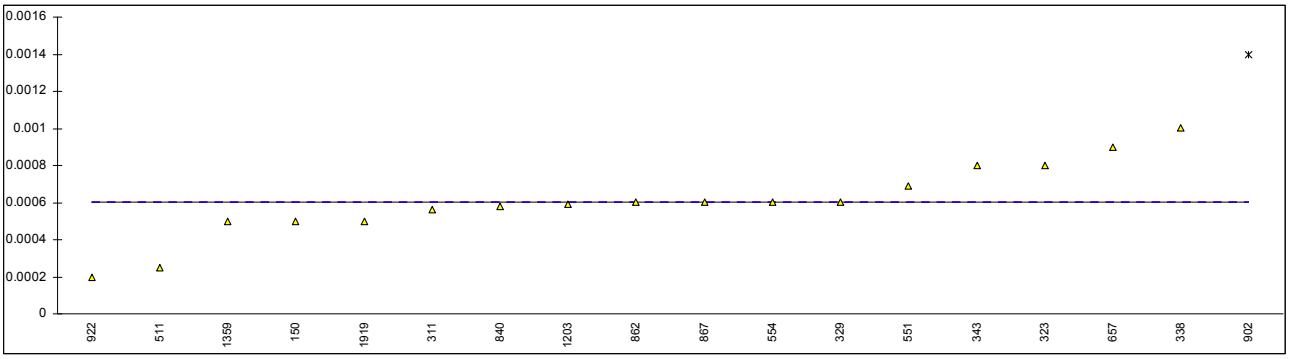
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.005625		-1.20	
150	INH-0001	0.0067		0.80	
169		-----		-----	
171	D5501	0.006		-0.50	
311	INH-529	0.0065		0.42	
323	INH-001	0.0059		-0.69	
329	INH-001	0.0061		-0.32	
332		-----		-----	
333	EN15721	0.0060		-0.50	
334	INH-5001	0.0059		-0.69	
338	EN15721	0.003	G(0.01)	-6.08	
343	EN15721	0.0062		-0.13	
357		-----		-----	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0065		0.42	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0057		-1.06	
511		-----		-----	
541		-----		-----	
551	INH-1313	0.00593		-0.63	
554	INH-1313	0.0056		-1.25	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0070		1.35	
663		-----		-----	
840		-----		-----	
862	INH-0001	0.0062		-0.13	
867	INH-0001	0.0066		0.61	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0037	G(0.01)	-4.78	
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.0079	G(0.05)	3.03	
1082		-----		-----	
1134		-----		-----	
1161		0.0061		-0.32	
1203	in house	0.00686		1.09	
1263		-----		-----	
1298	EN15721	0.0065		0.42	
1359		0.0064		0.24	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656	EN15721	<0.01		-----	
1726	in house	0.0067		0.80	
1727	in house	0.0069		1.17	
1807		-----		-----	
1835	in house	0.0060		-0.50	
1919		n.d.		-----	
1933	in house	0.0066		0.61	
	normality	OK			
	n	24			
	outliers	3			
	mean (n)	0.00627			
	st.dev. (n)	0.000412			
	R(calc.)	0.00115			
	R(Horwitz)	0.00151			

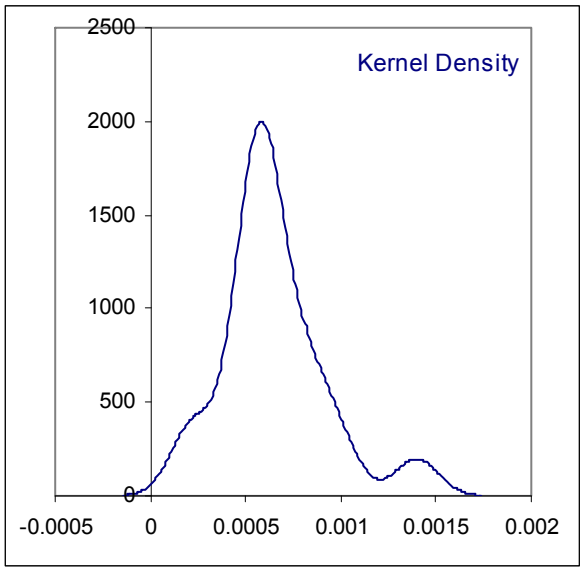

0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
338
922
554
120
496
334
323
551
1635
333
171
1161
329
862
343
1359
311
444
1298
1933
867
1726
150
1203
1727
657
1079


Kernel Density
700
600
500
400
300
200
100
0
0
0.002
0.004
0.006
0.008
0.01

Determination of Acetone on sample #11121; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150	INH-0001	0.0005		-----	
169		-----		-----	
171	D5501	<0.001		-----	
311	INH-529	0.00056		-----	
323	INH-001	0.0008		-----	
329	INH-001	0.0006		-----	
332		-----		-----	
333		-----		-----	
334	INH-5001	<0.002		-----	
338	EN15721	0.001		-----	
343	INH-01	0.0008		-----	
357	EN15721Mod.	<0.001		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496		-----		-----	
511	INH-0001	0.00025		-----	
541		-----		-----	
551	INH-1313	0.00069		-----	
554	INH-1313	0.0006		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0009		-----	
663		-----		-----	
840	INH-0001	0.00058		-----	
862	INH-0001	0.0006		-----	
867	INH-0001	0.0006		-----	
902	INH-0001	0.0014	C,G(0.05)	-----	first reported:14.4
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0002		-----	
974		-----		-----	
1041		-----		-----	
1079	in house	<0.001		-----	
1082		-----		-----	
1134		-----		-----	
1161		-----		-----	
1203	in house	0.00059		-----	
1263		-----		-----	
1298		-----		-----	
1359		0.0005		-----	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656		-----		-----	
1726	in house	n.d.		-----	
1727	in house	<0.0010		-----	
1807		-----		-----	
1835	in house	n.d.		-----	
1919		0.0005	C	-----	first reported:5
1933	in house	<0.0001		-----	
	normality	not OK			
	n	17			
	outliers	1			
	mean (n)	0.00060			
	st.dev. (n)	0.000202			
	R(calc.)	0.00056			
	R(Horwitz)	(0.00022)			


0.0016
0.0014
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
922
511
1359
150
1919
311
840
1203
862
867
554
329
551
343
323
657
338
902


Kernel Density
2500
2000
1500
1000
500
0
-0.0005
0
0.0005
0.001
0.0015
0.002

Determination of Benzene and Cyclohexane on sample #11120; results in %M/M

lab	method	Benzene	z(targ)	remarks	method	Cyclohexane	z(targ)	remarks
52		-----	-----			-----	-----	
62	D5501	0.0	-----			-----	-----	
120		-----	-----			-----	-----	
150	INH-0001	<0.0005	-----			-----	-----	
169		-----	-----			-----	-----	
171	D5501	<0.001	-----		D5501	<0.001	-----	
311	INH-529	<0.0005	-----		INH-529	<0.0005	-----	
323	INH-001	<0.0005	-----		INH-001	<0.0005	-----	
329	INH-001	<0.0005	-----		INH-001	<0.0005	-----	
332		-----	-----			-----	-----	
333	EN15721	<0.0010	-----		EN15721	<0.0010	-----	
334		-----	-----			-----	-----	
338	EN15721	0.000	-----		EN15721	0.001	-----	
343	INH-01	<0.0005	-----		INH-01	<0.0005	-----	
357	EN15721Mod.	<0.001	-----		EN15721Mod.	<0.001	-----	
395		-----	-----			-----	-----	
399		-----	-----			-----	-----	
444		-----	-----			-----	-----	
446		-----	-----			-----	-----	
463		-----	-----			-----	-----	
468		-----	-----			-----	-----	
496		-----	-----			-----	-----	
511		-----	-----		INH-0001	0.00000	-----	
541		-----	-----			-----	-----	
551	INH-1313	<0.0006	-----		INH-1312	<0.0006	-----	
554	INH-1299	<0.001	-----		INH-1312	0.00018	-----	
556		-----	-----			-----	-----	
559		-----	-----			-----	-----	
631		-----	-----			-----	-----	
657	INH-0001	<0.0002	-----		INH-0001	<0.0002	-----	
663		-----	-----			-----	-----	
840	INH-0001	n.d.	-----		INH-0001	n.d.	-----	
862	INH-0001	0.0005	-----		INH-0001	<0.0005	-----	
867	INH-0001	<0.0005	-----		INH-0001	<0.0005	-----	
902		-----	-----			-----	-----	
912		-----	-----			-----	-----	
913		-----	-----			-----	-----	
922	INH-0001	n.d.	-----		INH-0001	n.d.	-----	
974		-----	-----			-----	-----	
1041		-----	-----			-----	-----	
1079		-----	-----		in house	<0.001	-----	
1082		-----	-----			-----	-----	
1134		-----	-----			-----	-----	
1161		-----	-----			-----	-----	
1203	in house	<0.0005	-----		in house	<0.0005	-----	
1263		-----	-----			-----	-----	
1298		-----	-----			-----	-----	
1359		-----	-----			-----	-----	
1402		-----	-----			-----	-----	
1446		-----	-----			-----	-----	
1523		-----	-----			-----	-----	
1528		-----	-----			-----	-----	
1605		-----	-----			-----	-----	
1656		-----	-----			-----	-----	
1726	in house	<0.0003	-----		in house	<0.0006	-----	
1727	in house	<0.0003	-----		in house	<0.0010	-----	
1807		-----	-----			-----	-----	
1835	in house	n.d.	-----		in house	n.d.	-----	
1919		-----	-----			-----	-----	
1933		-----	-----			-----	-----	
	normality	n.a			normality	n.a		
	n	3			n	3		
	outliers	n.a			outliers	n.a		
	mean (n)	0.00017			mean (n)	0.00039		
	st.dev. (n)	n.a			st.dev. (n)	n.a		
	R(calc.)	n.a			R(calc.)	n.a		
	R(lit)	n.a			R(lit)	n.a		

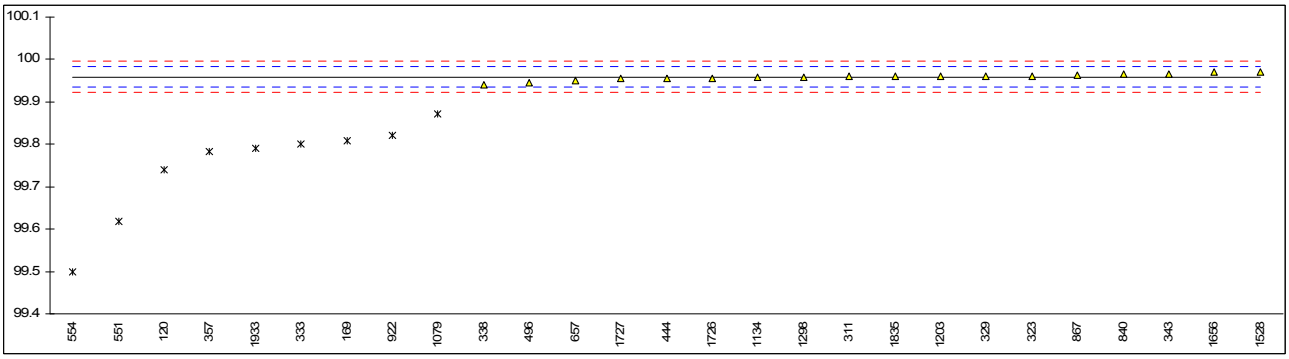
Determination of Crotonaldehyde, DEG and Dioxane on sample #11121; results in %M/M.

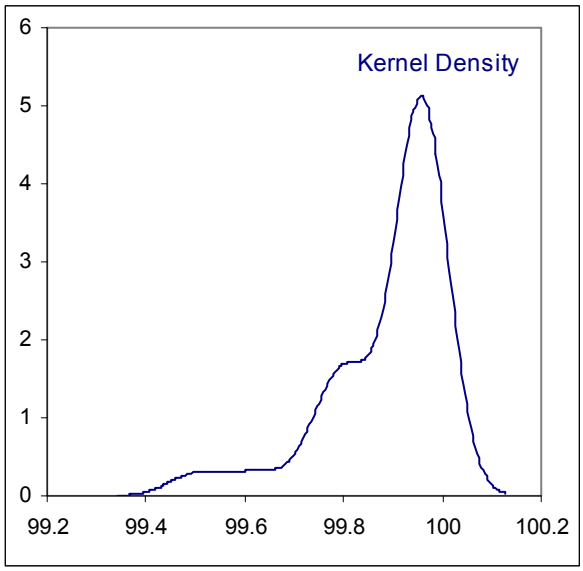
lab	method	Crotonaldehyde	z(targ)	method	DEG	z(targ)	method	Dioxane	z(targ)
52		-----			-----			-----	
62		-----			-----			-----	
120		-----			-----			-----	
150		-----			-----			-----	
169		-----			-----			-----	
171	D5501	<0.001		D5501	<0.001		D5501	<0.001	
311	INH-529	<0.0005		INH-270	<0.001		INH-529	<0.001	
323	INH-001	<0.0005			-----			-----	
329	INH-001	<0.0005			-----			-----	
332		-----			-----			-----	
333		-----			-----			-----	
334		-----			-----			-----	
338		-----			-----			-----	
343	INH-01	0.0006			-----			-----	
357	EN15721Mod.	<0.001			-----			-----	
395		-----			-----			-----	
399		-----			-----			-----	
444		-----			-----			-----	
446		-----			-----			-----	
463		-----			-----			-----	
468		-----			-----			-----	
496		-----			-----			-----	
511		-----			-----			-----	
541		-----			-----			-----	
551	INH-1346	0.0000586		INH-1379	<0.0006		INH-2179	0.0000345	
554	INH-1346	<0.0006		INH-1379	<0.006			-----	
556		-----			-----			-----	
559		-----			-----			-----	
631		-----			-----			-----	
657	INH-0001	0.0004		INH-0001	<0.0002		INH-0001	<0.0002	
663		-----			-----			-----	
840	INH-0001	n.d.		INH-0001	n.d.		INH-0001	n.d.	
862	INH-0001	0.0004		INH-0001	<0.0005		INH-0001	<0.0005	
867	INH-0001	<0.0005		INH-0001	<0.0005		INH-0001	<0.0005	
902		-----			-----			-----	
912		-----			-----			-----	
913		-----			-----			-----	
922		-----		INH-0001	n.d.		INH-0001	n.d.	
974		-----			-----			-----	
1041		-----			-----			-----	
1079		-----			-----			-----	
1082		-----			-----			-----	
1134		-----			-----			-----	
1161		-----			-----			-----	
1203	in house	<0.0005		in house	<0.0005		in house	<0.0005	
1263		-----			-----			-----	
1298		-----			-----			-----	
1359		-----			-----			-----	
1402		-----			-----			-----	
1446		-----			-----			-----	
1523		-----			-----			-----	
1528		-----			-----			-----	
1605		-----			-----			-----	
1656		-----			-----			-----	
1726	in house	n.d.		in house	n.d.		in house	n.d.	
1727		-----			-----			-----	
1807		-----			-----			-----	
1835		-----			-----			-----	
1919		-----			-----			-----	
1933		-----			-----			-----	
	normality	n.a		normality	n.a		normality	n.a.	
	n	4		n	0		n	1	
	outliers	n.a		outliers	n.a		outliers	n.a	
	mean (n)	0.00036		mean (n)	n.a		mean (n)	n.a	
	st.dev. (n)	n.a		st.dev. (n)	n.a		st.dev. (n)	n.a	
	R(calc.)	n.a		R(calc.)	n.a		R(calc.)	n.a	
	R(lit)	n.a		R(lit)	n.a		R(lit)	n.a	

Determination of Ethanol + Higher saturated alcohols on sample #11121; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	99.7404	G(0.01)	-17.84	
150		-----		-----	
169	D5501	99.8095	ex	-12.20	See paragraph 4.1
171		-----		-----	
311	INH-529	99.96		0.10	
323	INH-001	99.96		0.10	
329	INH-001	99.96		0.10	
332		-----		-----	
333	EN15721	99.80	ex	-12.97	See paragraph 4.1
334		-----		-----	
338	EN15721	99.94		-1.53	
343	EN15721	99.966		0.59	
357	EN15721	99.784	ex	-14.28	See paragraph 4.1
395		-----		-----	
399		-----		-----	
444	EN15721	99.9560		-0.23	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	99.9460		-1.04	
511		-----		-----	
541		-----		-----	
551	INH-1313	99.618	G(0.05)	-27.85	
554	INH-1313	99.50	G(0.01)	-37.49	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	99.9491		-0.79	
663		-----		-----	
840	INH-0001	99.966		0.59	
862		-----		-----	
867	INH-0001	99.964		0.43	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	99.8200	ex	-11.34	See paragraph 4.1
974		-----		-----	
1041		-----		-----	
1079	EN15721	99.871	ex	-7.17	See paragraph 4.1
1082		-----		-----	
1134	EN15721	99.958		-0.06	
1161		-----		-----	
1203	EN15721	99.96		0.10	
1263		-----		-----	
1298	EN15721	99.959		0.02	
1359		-----		-----	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15721	99.97192		1.07	
1605		-----		-----	
1656	EN15721	99.97		0.92	
1726	in house	99.9566		-0.18	
1727	EN15721	99.9556		-0.26	
1807		-----		-----	
1835	EN15721	99.96		0.10	
1919		-----		-----	
1933	in house	99.79	G(0.01)	-13.79	

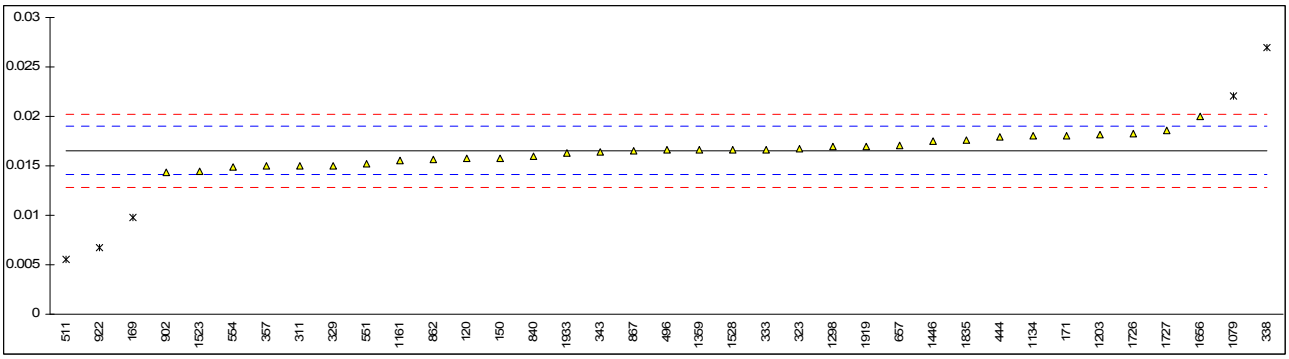
normality	OK
n	18
outliers	4
mean (n)	99.9588
st.dev. (n)	0.00794
R(calc.)	0.0222
R(EN15721:09)	0.0343

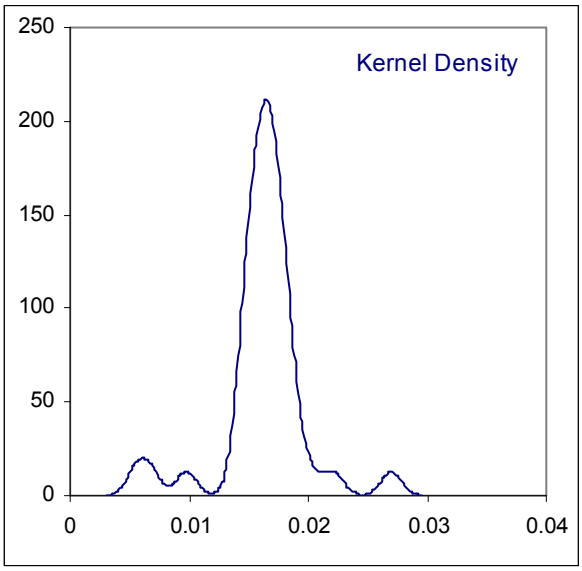

100.1
100
99.9
99.8
99.7
99.6
99.5
99.4
554
551
120
357
1933
333
169
922
1079
338
496
657
1727
444
1726
1134
1298
311
1835
1203
329
323
867
840
343
1656
1528


Kernel Density
6
5
4
3
2
1
0
99.2
99.4
99.6
99.8
100
100.2

Determination of Ethylacetate on sample #11121; results in %M/M

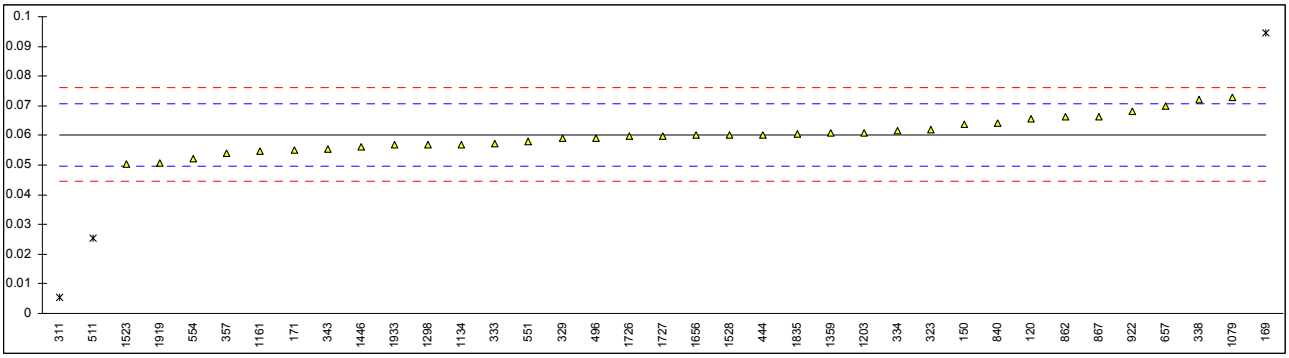
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.015731		-0.68	
150	EN15721	0.0158		-0.62	
169	D5501	0.00978	G(0.01)	-5.52	
171	D5501	0.018		1.17	
311	INH-529	0.0150		-1.27	
323	INH-001	0.0167		0.11	
329	INH-001	0.0150		-1.27	
332		-----		-----	
333	EN15721	0.0166		0.03	
334		-----		-----	
338	EN15721	0.027	G(0.05)	8.50	
343	EN15721	0.0164		-0.13	
357	EN15721Mod.	0.015		-1.27	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0179		1.09	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0166		0.03	
511	INH-0001	0.00555	G(0.05)	-8.97	
541		-----		-----	
551	INH-1313	0.01519		-1.12	
554	INH-1313	0.0149		-1.35	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0171		0.44	
663		-----		-----	
840	INH-0001	0.0160		-0.46	
862	INH-0001	0.0156		-0.78	
867	INH-0001	0.0165		-0.05	
902	INH-0001	0.0143	C	-1.84	first reported:143
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0067	C,G(0.01)	-8.03	first reported:0.0081
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.0221	G(0.01)	4.51	
1082		-----		-----	
1134		0.018		1.17	
1161	EN15721	0.0155		-0.86	
1203	in house	0.01820		1.33	
1263		-----		-----	
1298	EN15721	0.017		0.36	
1359	EN15721	0.0166		0.03	
1402		-----		-----	
1446	in house	0.0175		0.76	
1523	D5501	0.01445		-1.72	
1528	EN15721	0.01660		0.03	
1605		-----		-----	
1656	EN15721	0.02		2.80	
1726	in house	0.0183		1.42	
1727		0.0186		1.66	
1807		-----		-----	
1835	in house	0.0176		0.85	
1919		0.0170	C	0.36	first reported:170
1933	in house	0.0163		-0.21	
	normality	OK			
	n	32			
	outliers	5			
	mean (n)	0.01656			
	st.dev. (n)	0.001338			
	R(calc.)	0.00375			
	R(Horwitz)	0.00344			

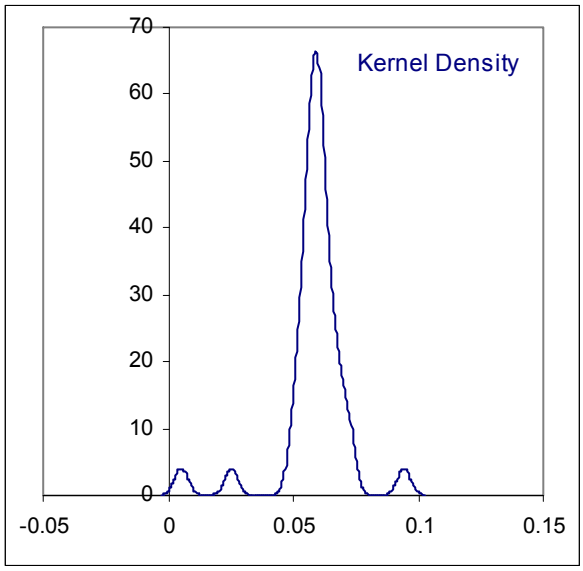

0.03
0.025
0.02
0.015
0.01
0.005
0
511
922
169
902
1523
554
357
311
329
551
1161
862
120
150
840
1933
343
867
496
1359
1528
333
323
1298
1919
657
1446
1835
444
1134
171
1203
1726
1727
1666
1079
338


Kernel Density
250
200
150
100
50
0
0
0.01
0.02
0.03
0.04

Determination of iso-Butanol on sample #11121; results in %M/M

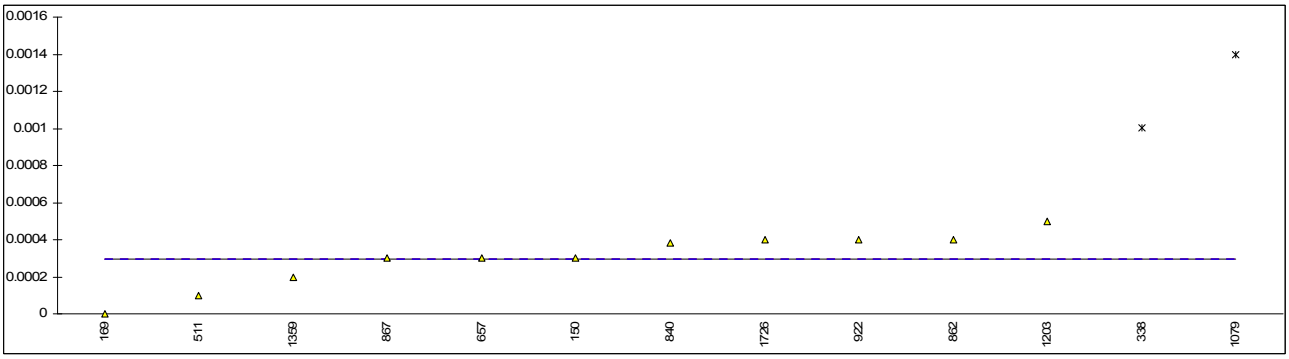
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.065701		1.05	
150	EN15721	0.0636		0.65	
169	D5501	0.09445	G(0.01)	6.52	
171	D5501	0.055		-0.99	
311	INH-529	0.005328	G(0.01)	-10.46	
323	INH-001	0.0618		0.30	
329	INH-001	0.0590		-0.23	
332		-----		-----	
333	EN15721	0.0571		-0.59	
334	INH-5001	0.0615		0.25	
338	EN15721	0.072		2.25	
343	EN15721	0.0555		-0.90	
357	EN15721	0.054		-1.18	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0603		0.02	
446		-----		-----	
463	EN13132	<0.2		-----	
468		-----		-----	
496	EN15721	0.0591		-0.21	
511	INH-0001	0.02532	G(0.01)	-6.65	
541		-----		-----	
551	INH-1313	0.05807		-0.41	
554	INH-1313	0.0522		-1.53	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0698		1.83	
663		-----		-----	
840	INH-0001	0.0643		0.78	
862	INH-0001	0.0662		1.14	
867	INH-0001	0.0662		1.14	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0680		1.48	
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.0728		2.40	
1082		-----		-----	
1134		0.057		-0.61	
1161	EN15721	0.0547		-1.05	
1203	EN15721	0.06101		0.15	
1263		-----		-----	
1298	EN15721	0.057		-0.61	
1359	EN15721	0.0610		0.15	
1402		-----		-----	
1446	in house	0.0560		-0.80	
1523	D5501	0.050192		-1.91	
1528	EN15721	0.06010		-0.02	
1605		-----		-----	
1656	EN15721	0.06		-0.04	
1726	in house	0.0598		-0.08	
1727	EN15721	0.0599		-0.06	
1807		-----		-----	
1835	in house	0.0606		0.07	
1919	EN15721	0.0506	C	-1.83	first reported:506
1933	in house	0.0570		-0.61	
	normality	OK			
	n	34			
	outliers	3			
	mean (n)	0.06021			
	st.dev. (n)	0.005578			
	R(calc.)	0.01562			
	R(EN15721:09)	0.01470			Compare R(Horwitz) = 0.01029

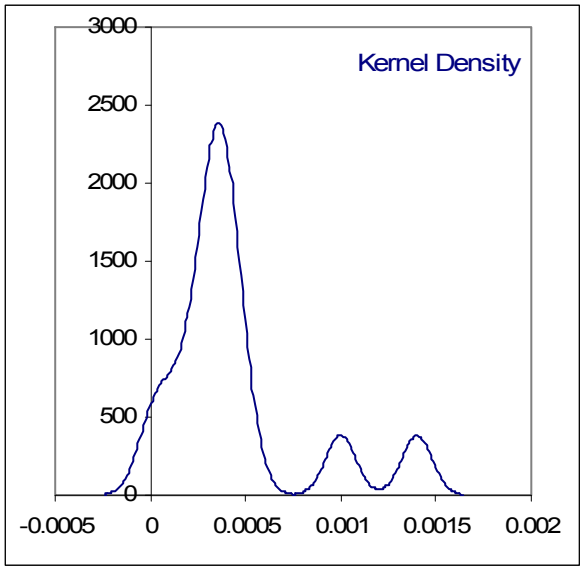

0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
311
511
1523
1919
554
357
1161
171
343
1446
1933
1298
1134
333
551
329
496
1726
1727
1656
1528
444
1835
1359
1203
334
323
150
840
120
862
867
922
657
338
1079
169


Kernel Density
70
60
50
40
30
20
10
0
-0.05
0
0.05
0.1
0.15

Determination of iso-Propanol on sample #11121; results in %M/M

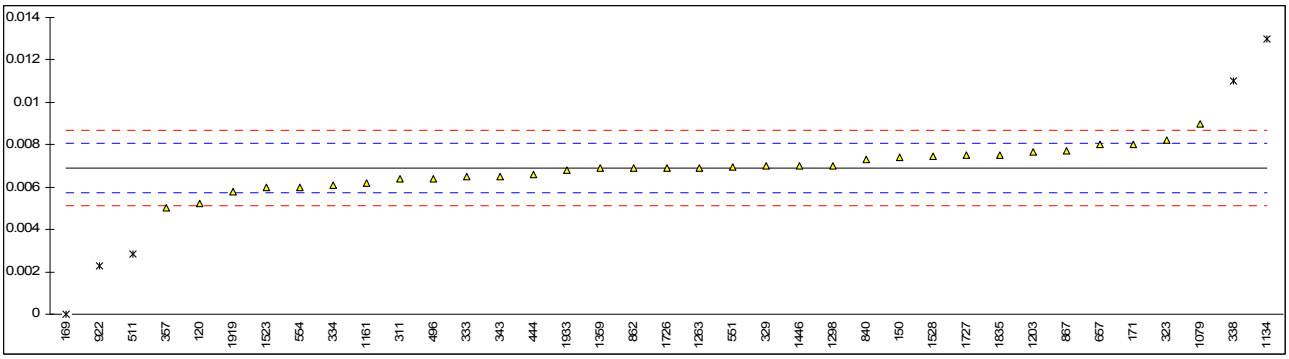
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150	INH-0001	0.0003		-----	
169	D5501	0.000		-----	
171	D5501	<0.001		-----	
311	INH-529	<0.0005		-----	
323	INH-001	<0.0005		-----	
329	INH-001	<0.0005		-----	
332		-----		-----	
333		-----		-----	
334	INH-5001	<0.002		-----	
338	EN15721	0.001	G(0.05)	-----	
343	INH-01	<0.0005		-----	
357	EN15721	<0.001		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
446		-----		-----	
463	EN13132	<0.2		-----	
468		-----		-----	
496		-----		-----	
511	INH-0001	0.00010		-----	
541		-----		-----	
551	INH-1313	<0.0006		-----	
554	INH-1313	<0.0006		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0003		-----	
663		-----		-----	
840	INH-0001	0.00038		-----	
862	INH-0001	0.0004		-----	
867	INH-0001	0.0003		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0004		-----	
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.0014	G(0.05)	-----	
1082		-----		-----	
1134	EN15721	<0.001		-----	
1161		-----		-----	
1203	EN15721	0.00050		-----	
1263		-----		-----	
1298		-----		-----	
1359	EN15721	0.0002		-----	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656		-----		-----	
1726	in house	0.0004		-----	
1727	EN15721	<0.0010		-----	
1807		-----		-----	
1835	in house	n.d.		-----	
1919	EN15721	n.d.		-----	
1933		-----		-----	
	normality	OK			
	n	11			
	outliers	2			
	mean (n)	0.00030			
	st.dev. (n)	n.a.			
	R(calc.)	n.a.			
	R(lit)	n.a.			

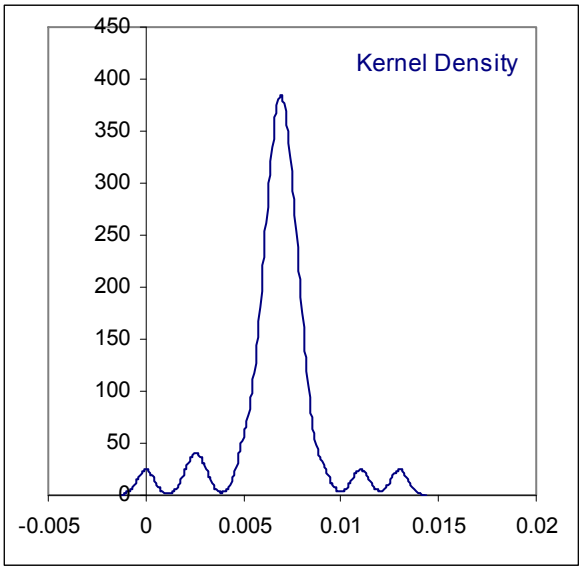

0.0016
0.0014
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
169
511
1399
867
657
150
840
1726
922
862
1203
338
1079


Kernel Density
3000
2500
2000
1500
1000
500
0
-0.0005
0
0.0005
0.001
0.0015
0.002

Determination of Methanol on sample #11121; results in %M/M

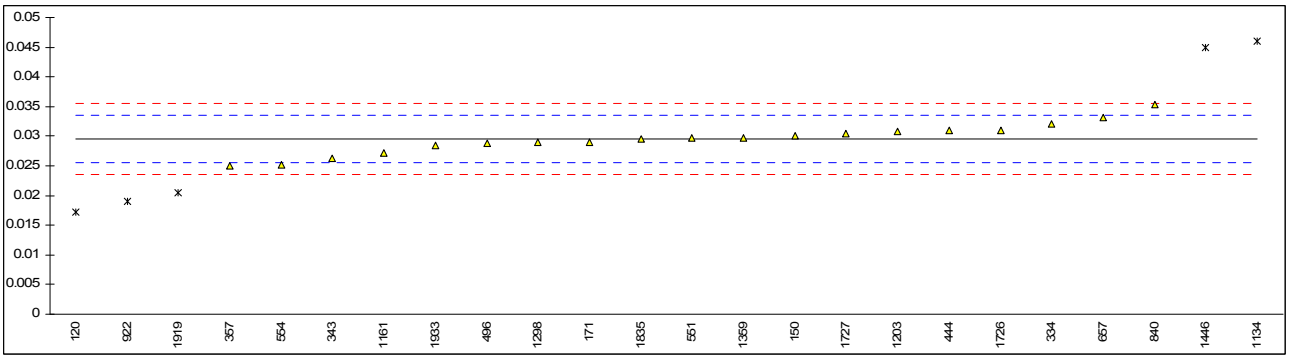
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.00524		-2.84	
150	INH-0001	0.0074		0.86	
169	D5501	0.000	G(0.05)	-11.82	
171	D5501	0.008		1.89	
311	INH-529	0.00639		-0.87	
323	INH-001	0.0082		2.23	
329	INH-001	0.0070		0.17	
332		-----		-----	
333	EN15721	0.0065		-0.68	
334	INH-5001	0.0061		-1.37	
338	EN15721	0.011	G(0.05)	7.03	
343	EN15721	0.0065		-0.68	
357	EN15721	0.005		-3.25	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0066		-0.51	
446		-----		-----	
463	EN13132	<0.2		-----	
468		-----		-----	
496	EN15721	0.0064		-0.85	
511	INH-0001	0.00285	G(0.05)	-6.94	
541		-----		-----	
551	INH-1313	0.00693		0.05	
554	INH-1313	0.0060		-1.54	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0080		1.89	
663		-----		-----	
840	INH-0001	0.0073		0.69	
862	INH-0001	0.0069		0.00	
867	INH-0001	0.0077		1.37	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0023	CG(0.05)	-7.88	first reported:0.0042
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.009		3.60	
1082		-----		-----	
1134	EN15721	0.013	G(0.01)	10.45	
1161	EN15721	0.0062		-1.20	
1203	EN15721	0.00767		1.32	
1263	D5501	0.006903		0.01	
1298	EN15721	0.007		0.17	
1359	EN15721	0.0069		0.00	
1402		-----		-----	
1446	in house	0.0070		0.17	
1523	D5501	0.00597		-1.59	
1528	EN15721	0.00745		0.94	
1605		-----		-----	
1656	EN15721	<0.01		-----	
1726	in house	0.0069		0.00	
1727	EN15721	0.0075		1.03	
1807		-----		-----	
1835	in house	0.0075		1.03	
1919	EN15721	0.0058	C	-1.88	first reported:58
1933	in house	0.0068		-0.17	
	normality	OK			
	n	32			
	outliers	5			
	mean (n)	0.00690			
	st.dev. (n)	0.000852			
	R(calc.)	0.00239			
	R(Horwitz)	0.00163			

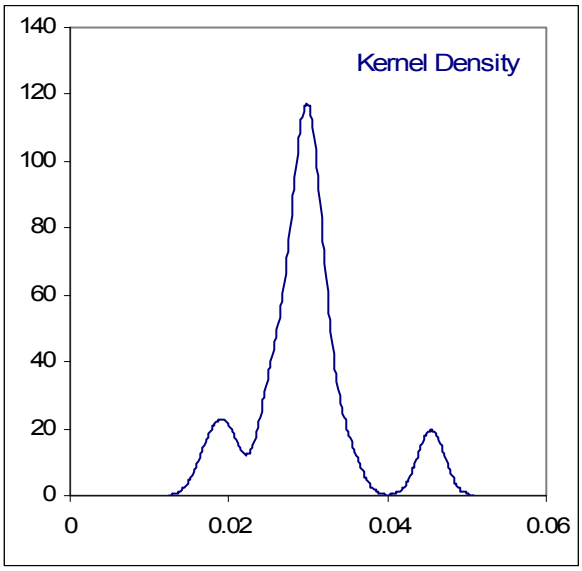

0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
169
922
511
357
120
1919
1523
554
334
1161
311
496
333
343
444
1933
1359
862
1726
1263
551
329
1446
1238
840
150
1528
1727
1835
1203
867
657
171
323
1079
338
1134


Kernel Density
450
400
350
300
250
200
150
100
50
0
-0.005
0
0.005
0.01
0.015
0.02

Determination of 3-Methyl-1-Butanol on sample #11121; results in %M/M.

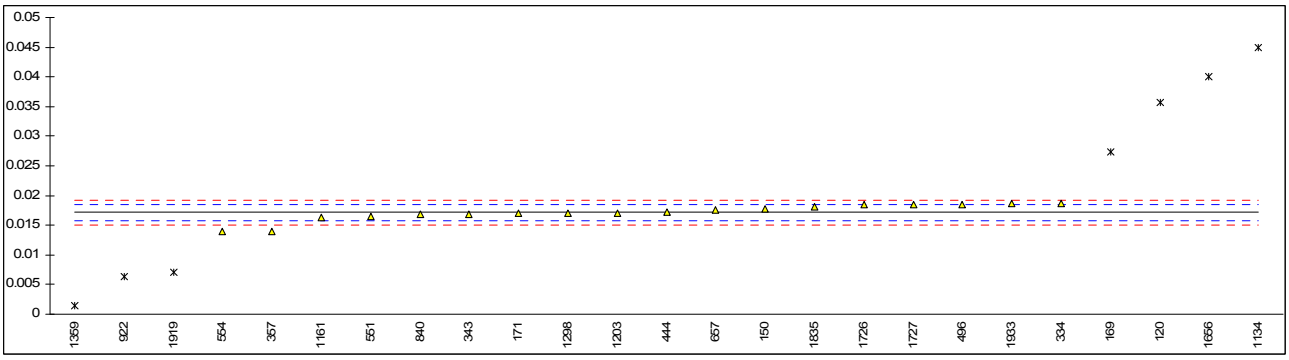
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.017194	ex	-6.14	Result excluded; probably mixed up with 2-methyl-1-butanol
150	EN15721	0.0301		0.27	
169		-----		-----	
171	D5501	0.029		-0.28	
311		-----		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334	INH-5001	0.0320		1.22	
338		-----		-----	
343	EN15721	0.0262		-1.67	
357	EN15721	0.025		-2.26	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0309		0.67	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0288		-0.37	
511		-----		-----	
541		-----		-----	
551	INH-1313	0.02968		0.06	
554	INH-1313	0.0251		-2.21	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0332		1.81	
663		-----		-----	
840	INH-0001	0.0353		2.85	
862		-----		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0191	C,DG(0.05)	-5.19	First reported 0.0200
974		-----		-----	
1041		-----		-----	
1079	EN15721	<0.001		<-14.17	False negative?
1082		-----		-----	
1134	EN15721	0.046	DG(0.01)	8.17	
1161	EN15721	0.0271		-1.22	
1203	EN15721	0.03085		0.64	
1263		-----		-----	
1298	EN15721	0.029		-0.28	
1359	EN15721	0.0298		0.12	
1402		-----		-----	
1446	in house	0.0450	DG(0.01)	7.67	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656	EN15721	<0.01		<-9.71	False negative?
1726	in house	0.0310		0.72	
1727	EN15721	0.0305		0.47	
1807		-----		-----	
1835	in house	0.0296		0.02	
1919	EN15721	0.0204	C,DG(0.05)	-4.55	First reported 204
1933	in house	0.0284		-0.57	
	normality	OK			
	n	19			
	outliers	4			
	mean (n)	0.02955			
	st.dev. (n)	0.002577			
	R(calc.)	0.00722			
	R(EN15721:09)	0.00564			Compare R(Horwitz) = 0.00562

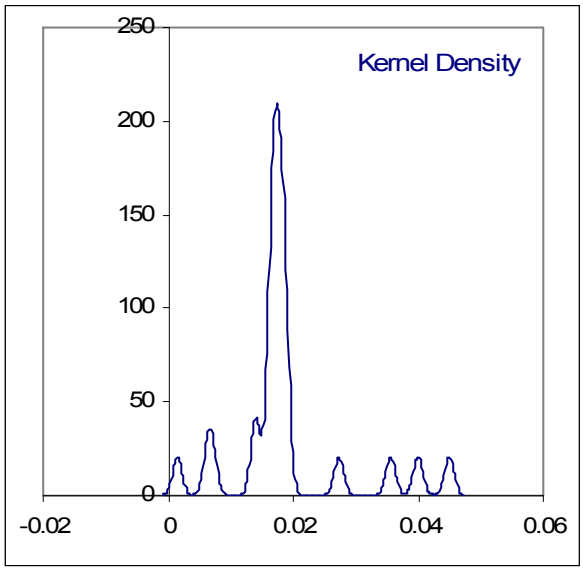

0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
120
922
1919
357
554
343
1161
1933
496
1238
171
1835
551
1359
150
1727
1203
444
1726
334
657
840
1446
1134


Kernel Density
140
120
100
80
60
40
20
0
0
0.02
0.04
0.06

Determination of 2-Methyl-1-Butanol on sample #11121; results in %M/M.

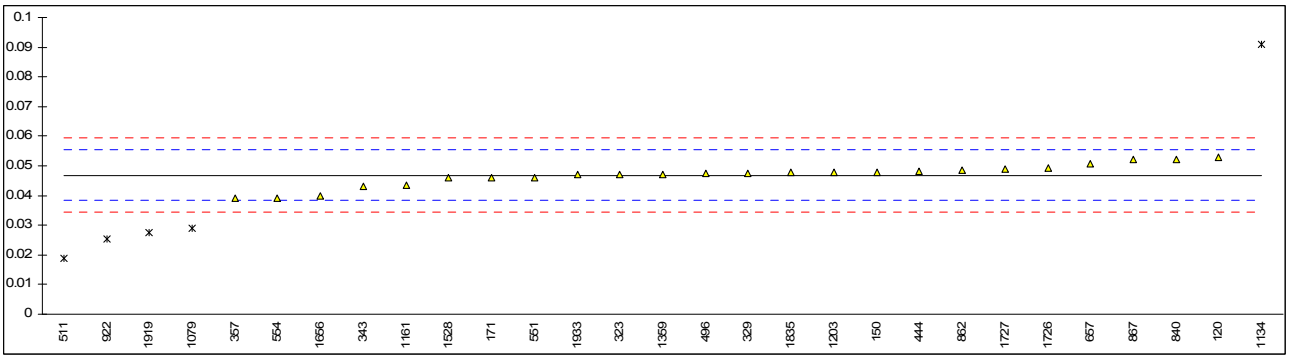
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.035637	ex	26.28	Result excluded; probably mixed up with 3-methyl-1-butanol
150	EN15721	0.0178		0.92	
169	D5501	0.02734	G(0.01)	14.49	
171	D5501	0.017		-0.21	
311		-----		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334	INH-5001	0.0187		2.20	
338		-----		-----	
343	EN15721	0.0168		-0.50	
357	EN15721	0.014		-4.48	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0172		0.07	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0185		1.92	
511		-----		-----	
541		-----		-----	
551	INH-1313	0.01645		-1.00	
554	INH-1313	0.0140		-4.48	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0175		0.50	
663		-----		-----	
840	INH-0001	0.0168		-0.50	
862		-----		-----	
867		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0063	C,DG(0.01)	-15.42	First reported 0.0700
974		-----		-----	
1041		-----		-----	
1079	EN15721	<0.001		<-22.95	False negative?
1082		-----		-----	
1134	EN15721	0.045	G(0.05)	39.59	
1161	EN15721	0.0163		-1.21	
1203	EN15721	0.01705		-0.14	
1263		-----		-----	
1298	EN15721	0.0170		-0.21	
1359	EN15721	0.0015	G(0.05)	-22.25	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528		-----		-----	
1605		-----		-----	
1656	EN15721	0.04	G(0.01)	32.48	
1726	in house	0.0184		1.78	
1727	EN15721	0.0184		1.78	
1807		-----		-----	
1835	in house	0.0181		1.35	
1919	EN15721	0.0071	C,DG(0.01)	-14.29	First reported 71
1933	in house	0.0187		2.20	
	normality	OK			
	n	18			
	outliers	6			
	mean (n)	0.01715			
	st.dev. (n)	0.001384			
	R(calc.)	0.00388			
	R(EN15721:09)	0.00197			Compare R(Horwitz) = 0.00354

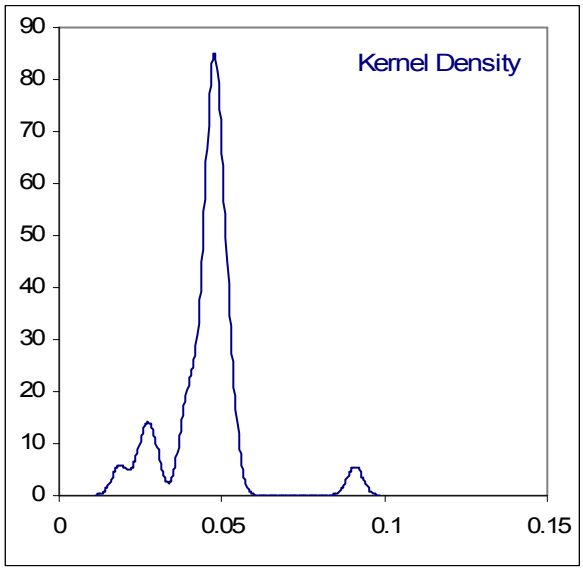

0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1359
922
1919
554
357
1161
551
840
343
171
1238
1203
444
657
150
1835
1726
1727
496
1933
334
169
120
1656
1134


Kernel Density
250
200
150
100
50
0
-0.02
0
0.02
0.04
0.06

Determination of sum: 2-Methyl-1-Butanol and 3-Methyl-1-Butanol on sample #11121; results in %M/M.

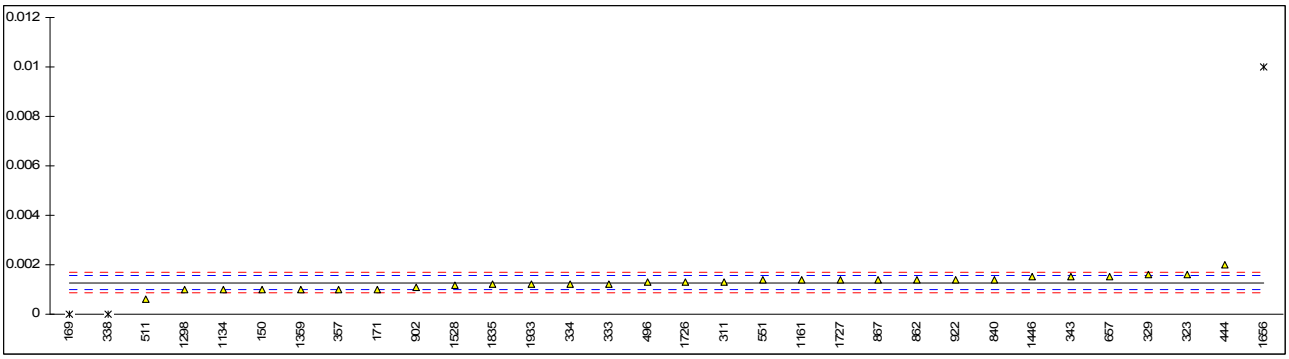
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		0.052824		1.55	
150	INH-0001	0.0479		0.27	
169		-----		-----	
171	D5501	0.046		-0.23	
311		-----		-----	
323	INH-001	0.0472		0.08	
329	INH-001	0.0476		0.19	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338		-----		-----	
343	CALC	0.0430		-1.01	
357	CALC	0.039		-2.05	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0481		0.32	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0473		0.11	
511	INH-0001	0.01874	G(0.05)	-7.32	
541		-----		-----	
551		0.04613		-0.19	
554	INH-1313	0.0391		-2.02	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0507		1.00	
663		-----		-----	
840	INH-0001	0.0521		1.36	
862	INH-0001	0.0486		0.45	
867	INH-0001	0.0520		1.33	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0254	C,DG(0.05)	-5.59	First reported 0.0270
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.029	C,G(0.01)	-4.65	First reported 0.0008
1082		-----		-----	
1134		0.091	G(0.01)	11.49	
1161	EN15721	0.0434		-0.91	
1203		0.04790		0.27	
1263		-----		-----	
1298		-----	W	-----	Result withdrawn, reported 11.6128 area counts
1359		0.0472		0.08	
1402		-----		-----	
1446		-----		-----	
1523		-----		-----	
1528	EN15721	0.04590		-0.25	
1605		-----		-----	
1656	EN15721	0.04		-1.79	
1726	in house	0.0494		0.66	
1727		0.0489		0.53	
1807		-----		-----	
1835	in house	0.0477		0.21	
1919		0.0275	C,DG(0.05)	-5.04	First reported 275
1933	in house	0.0471		0.06	
	normality	not OK			
	n	24			
	outliers	5			
	mean (n)	0.04688			
	st.dev. (n)	0.003738			
	R(calc.)	0.01047			
	R(EN15721:09)	0.01076			

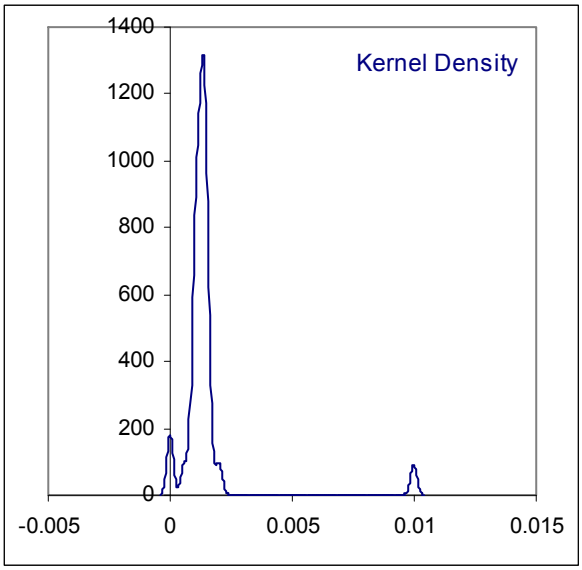

0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
511
922
1919
1079
357
554
1656
343
1161
1528
171
551
1933
323
1359
496
329
1835
1203
150
444
862
1727
1726
657
867
840
120
1134


Kernel Density
90
80
70
60
50
40
30
20
10
0
0
0.05
0.1
0.15

Determination of n-Butanol on sample #11121; results in %M/M

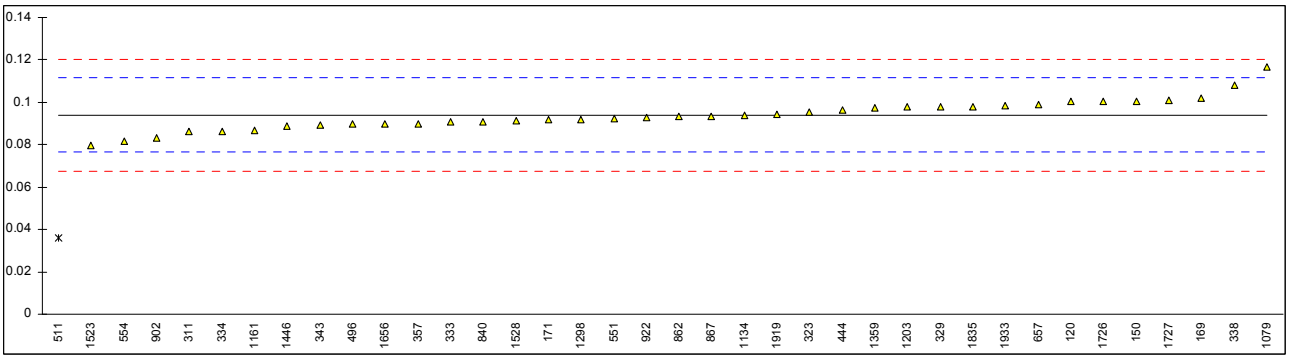
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150	INH-0001	0.0010		-2.00	
169	D5501	0.000	ex	-9.17	zero is not a real value
171	D5501	0.001		-2.00	
311	INH-529	0.0013		0.15	
323	INH-001	0.0016		2.31	
329	INH-001	0.0016		2.31	
332		-----		-----	
333	EN15721	0.0012		-0.56	
334	INH-5001	0.0012		-0.56	
338	EN15721	0.000	ex	-9.17	zero is not a real value
343	EN15721	0.0015		1.59	
357	EN15721	0.001		-2.00	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0020		5.17	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0013		0.15	
511	INH-0001	0.00059		-4.94	
541		-----		-----	
551	INH-1313	0.00139		0.80	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0015		1.59	
663		-----		-----	
840	INH-0001	0.00141		0.94	
862	INH-0001	0.0014		0.87	
867	INH-0001	0.0014		0.87	
902	INH-0001	0.0011	C	-1.28	first reported:10.6
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0014		0.87	
974		-----		-----	
1041		-----		-----	
1079	EN15721	<0.001		<-2.00	
1082		-----		-----	
1134	EN15721	0.001		-2.00	
1161	EN15721	0.0014		0.87	
1203	EN15721	<0.0005		<-5.60	
1263		-----		-----	
1298	EN15721	0.001		-2.00	
1359	EN15721	0.001		-2.00	
1402		-----		-----	
1446	in house	0.0015		1.59	
1523		-----		-----	
1528	EN15721	0.00119		-0.64	
1605		-----		-----	
1656	EN15721	0.01	G(0.01)	62.56	
1726	in house	0.0013		0.15	
1727	EN15721	0.0014		0.87	
1807		-----		-----	
1835	in house	0.0012		-0.56	
1919	EN15721	n.d.		-----	
1933	in house	0.0012		-0.56	
	normality	OK			
	n	29			
	outliers	1			
	mean (n)	0.00128			
	st.dev. (n)	0.000266			
	R(calc.)	0.00074			
	R(Horwitz)	0.00039			

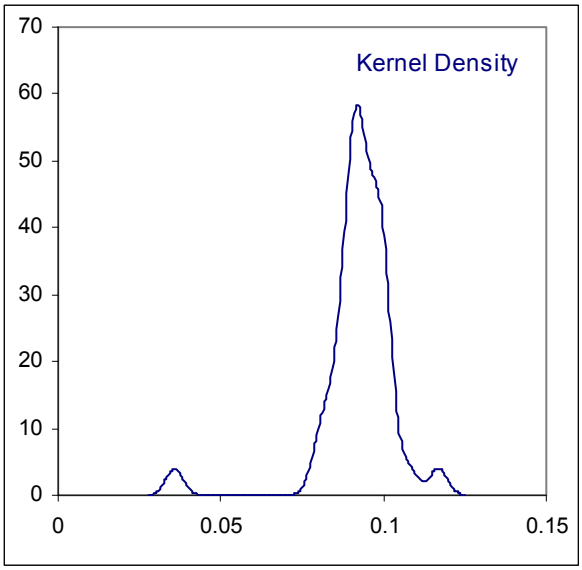

0.012
0.01
0.008
0.006
0.004
0.002
0
169
338
511
1298
1134
150
1359
357
171
902
1528
1835
1933
334
333
496
1726
311
551
1161
1727
867
862
922
840
1446
343
657
329
323
444
1656


Kernel Density
1400
1200
1000
800
600
400
200
0
-0.005
0
0.005
0.01
0.015

Determination of n-Propanol on sample #11121; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.10052		0.74	
150	INH-0001	0.1006		0.75	
169	D5501	0.10195		0.90	
171	D5501	0.092		-0.22	
311	INH-529	0.0860		-0.91	
323	INH-001	0.0952		0.14	
329	INH-001	0.0980		0.46	
332		-----		-----	
333	EN15721	0.0906		-0.38	
334	INH-5001	0.0864		-0.86	
338	EN15721	0.108		1.59	
343	EN15721	0.0894		-0.52	
357	EN15721	0.090		-0.45	
395		-----		-----	
399		-----		-----	
444	EN15721	0.0963		0.26	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	0.0899		-0.46	
511	INH-0001	0.03579	G(0.01)	-6.60	
541		-----		-----	
551	INH-1313	0.09208		-0.22	
554	INH-1313	0.0816		-1.40	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0989		0.56	
663		-----		-----	
840	INH-0001	0.0908		-0.36	
862	INH-0001	0.0933		-0.08	
867	INH-0001	0.0935		-0.05	
902	INH-0001	0.0831	C	-1.23	first reported:831
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0930		-0.11	
974		-----		-----	
1041		-----		-----	
1079	EN15721	0.1169		2.60	
1082		-----		-----	
1134	EN15721	0.094		0.00	
1161	EN15721	0.0866		-0.84	
1203	EN15721	0.09766		0.42	
1263		-----		-----	
1298	EN15721	0.092		-0.22	
1359	EN15721	0.0976		0.41	
1402		-----		-----	
1446	in house	0.0890		-0.57	
1523	D5501	0.07964		-1.63	
1528	EN15721	0.09110		-0.33	
1605		-----		-----	
1656	EN15721	0.09		-0.45	
1726	in house	0.1006		0.75	
1727	EN15721	0.1007		0.76	
1807		-----		-----	
1835	in house	0.0980		0.46	
1919	EN15721	0.0941	C	0.01	first reported:941
1933	in house	0.0983		0.49	
	normality	OK			
	n	37			
	outliers	1			
	mean (n)	0.09398			
	st.dev. (n)	0.007187			
	R(calc.)	0.02014			
	R(EN15721:09)	0.02468			Compare R(Horwitz) = 0.0150

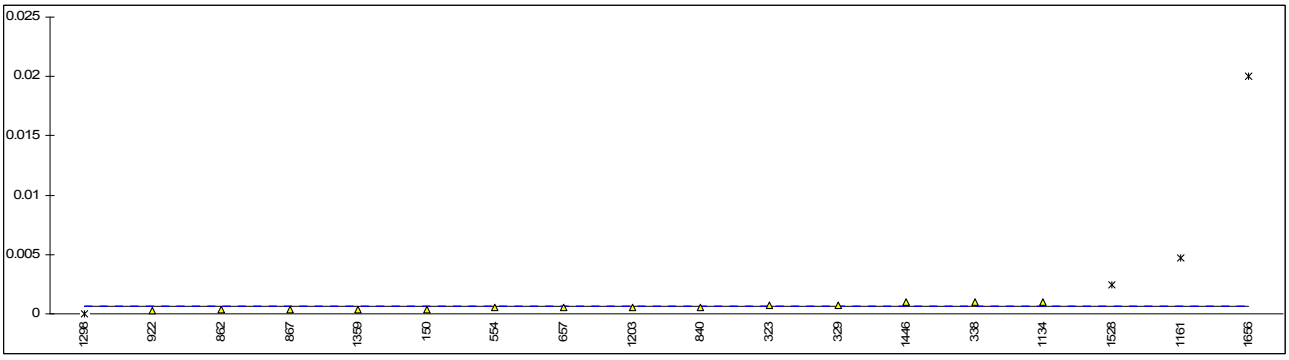

0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
511 1523 554 902 311 334 1161 1446 343 496 1656 357 333 840 1528 171 1298 551 922 862 867 1134 1919 323 444 1359 1203 329 1835 1933 657 120 1726 150 1727 169 338 1079

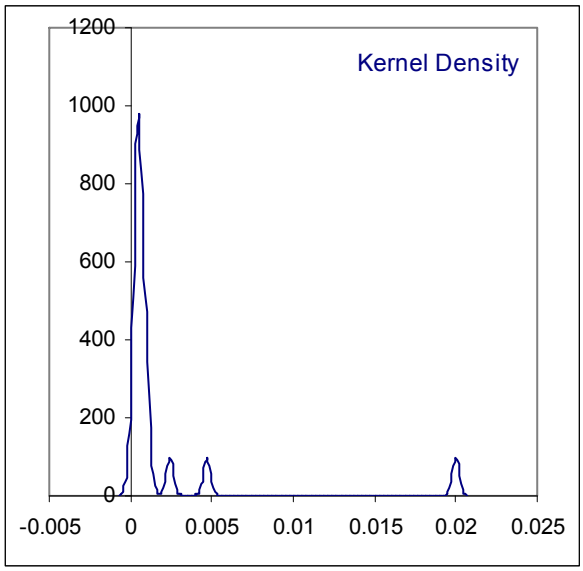

Kernel Density
70
60
50
40
30
20
10
0
0
0.05
0.1
0.15

Determination of sec-Butanol on sample #11121; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
150	INH-0001	0.0004		-----	
169		-----		-----	
171	D5501	<0.001		-----	
311	INH-529	<0.0005		-----	
323	INH-001	0.0007		-----	
329	INH-001	0.0007		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338	EN15721	0.001		-----	
343	EN15721	<0.001		-----	
357	EN15721	<0.001		-----	
395		-----		-----	
399		-----		-----	
444	EN15721	<0.001		-----	
446		-----		-----	
463		-----		-----	
468		-----		-----	
496	EN15721	<0.001		-----	
511		-----		-----	
541		-----		-----	
551	INH-1313	<0.0006		-----	
554	INH-1313	0.0005		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-0001	0.0005		-----	
663		-----		-----	
840	INH-0001	0.00054		-----	
862	INH-0001	0.0004		-----	
867	INH-0001	0.0004		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.0003		-----	
974		-----		-----	
1041		-----		-----	
1079	EN15721	<0.001		-----	
1082		-----		-----	
1134	EN15721	0.001		-----	
1161	EN15721	0.0047	G(0.01)	-----	
1203	EN15721	0.00051		-----	
1263		-----		-----	
1298	EN15721	0.0000		-----	
1359	EN15721	0.0004		-----	
1402		-----		-----	
1446	in house	0.0010		-----	
1523		-----		-----	
1528	EN15721	0.00241	G(0.01)	-----	
1605		-----		-----	
1656	EN15721	0.02	G(0.01)	-----	
1726	in house	n.d.		-----	
1727		-----		-----	
1807		-----		-----	
1835	in house	n.d.		-----	
1919	EN15721	n.d.		-----	
1933		-----		-----	

normality	Not OK
n	14
outliers	3
mean (n)	0.00060
st.dev. (n)	0.000245
R(calc.)	0.00069
R(Horwitz)	(0.00020)


0.025
0.02
0.015
0.01
0.005
0
1298
922
862
867
1359
150
554
657
1203
840
323
329
1446
338
1134
1528
1161
1655


Kernel Density
1200
1000
800
600
400
200
0
-0.005
0
0.005
0.01
0.015
0.02
0.025

Determination of n-Amylalcohol, sec-Amylalcohol and MEG on sample #11121; results in %M/M

lab	method	n-Amylalcohol	z(targ)	method	sec-Amylalcohol	z(targ)	method	MEG	z(targ)
52		-----	-----		-----	-----		-----	-----
62		-----	-----		-----	-----		-----	-----
120		-----	-----		-----	-----		-----	-----
150	INH-100	<0.0005	-----	EN15721	<0.0005	-----	INH-0001	<0.0005	-----
169		-----	-----		-----	-----		-----	-----
171	D5501	<0.001	-----	D5501	<0.001	-----	D5501	<0.001	-----
311	INH-529	0.0013	-----	INH-529	<0.0005	-----	INH-270	<0.001	-----
323	INH-001	<0.0005	-----	INH-001	<0.0005	-----		-----	-----
329	INH-001	<0.0005	-----	INH-001	<0.0005	-----	INH-001	<0.0005	-----
332		-----	-----		-----	-----		-----	-----
333		-----	-----		-----	-----		-----	-----
334	INH-5001	<0.002	-----		-----	-----		-----	-----
338		-----	-----		-----	-----		-----	-----
343		-----	-----	INH-01	<0.0005	-----		-----	-----
357	EN15721Mod.	<0.001	-----	EN15721	<0.001	-----		-----	-----
395		-----	-----		-----	-----		-----	-----
399		-----	-----		-----	-----		-----	-----
444		-----	-----		-----	-----		-----	-----
446		-----	-----		-----	-----		-----	-----
463		-----	-----		-----	-----		-----	-----
468		-----	-----		-----	-----		-----	-----
496		-----	-----		-----	-----		-----	-----
511		-----	-----		-----	-----		-----	-----
541		-----	-----		-----	-----		-----	-----
551	INH-1313	<0.006	-----		-----	-----	INH-1379	<0.0006	-----
554		-----	-----		-----	-----	INH-1379	<0.0006	-----
556		-----	-----		-----	-----		-----	-----
559		-----	-----		-----	-----		-----	-----
631		-----	-----		-----	-----		-----	-----
657	INH-0001	0.0001	-----	INH-0001	0.0001	-----	INH-0001	0.0003	-----
663		-----	-----		-----	-----		-----	-----
840	INH-0001	n.d.	-----	INH-0001	0.00026	-----	INH-0001	n.d.	-----
862	INH-0001	0.0001	-----	INH-0001	0.0001	-----	INH-0001	<0.0005	-----
867	INH-0001	0.0002	-----	INH-0001	0.0001	-----	INH-0001	0.0005	-----
902		-----	-----		-----	-----		-----	-----
912		-----	-----		-----	-----		-----	-----
913		-----	-----		-----	-----		-----	-----
922	INH-0001	<0.0002	-----		-----	-----	INH-0001	n.d.	-----
974		-----	-----		-----	-----		-----	-----
1041		-----	-----		-----	-----		-----	-----
1079		-----	-----		-----	-----		-----	-----
1082		-----	-----		-----	-----		-----	-----
1134		-----	-----		-----	-----		-----	-----
1161		-----	-----		-----	-----		-----	-----
1203	in house	<0.0005	-----	EN15721	<0.0005	-----	in house	<0.0005	-----
1263		-----	-----		-----	-----		-----	-----
1298		-----	-----		-----	-----		-----	-----
1359		-----	-----		-----	-----		-----	-----
1402		-----	-----		-----	-----		-----	-----
1446	in house	0.0003	-----		-----	-----		-----	-----
1523		-----	-----		-----	-----		-----	-----
1528		-----	-----		-----	-----		-----	-----
1605		-----	-----		-----	-----		-----	-----
1656		-----	-----		-----	-----		-----	-----
1726		-----	-----	in house	n.d.	-----	in house	n.d.	-----
1727		-----	-----		-----	-----		-----	-----
1807		-----	-----		-----	-----		-----	-----
1835		-----	-----		-----	-----		-----	-----
1919		n.d.	-----		-----	-----		-----	-----
1933		-----	-----		-----	-----		-----	-----
	normality	n.a		normality	n.a		normality	n.a	
	n	5		n	4		n	2	
	outliers	n.a		outliers	n.a		outliers	n.a	
	mean (n)	0.0004		mean (n)	0.00014		mean (n)	0.00040	
	st.dev. (n)	n.a		st.dev. (n)	n.a		st.dev. (n)	n.a	
	R(calc.)	n.a		R(calc.)	n.a		R(calc.)	n.a	
	R(Horwitz)	n.a		R(Horwitz)	n.a		R(Horwitz)	n.a	

Determination of tert-Amylalcohol and tert-Butanol on sample #11121; results in %M/M

lab	method	tert-Amyl	z(targ)	remarks	method	tert-Butanol	z(targ)	remarks
52		-----	-----			-----	-----	
62		-----	-----			-----	-----	
120		-----	-----			-----	-----	
150	EN15721	<0.0005	-----		INH-0001	<0.0005	-----	
169		-----	-----			-----	-----	
171	D5501	<0.001	-----		D5501	<0.001	-----	
311	INH-529	<0.0005	-----		INH-529	<0.0005	-----	
323	INH-001	<0.0005	-----		INH-001	<0.0005	-----	
329	INH-001	<0.0005	-----		INH-001	<0.0005	-----	
332		-----	-----			-----	-----	
333		-----	-----			-----	-----	
334		-----	-----			-----	-----	
338		-----	-----			-----	-----	
343	INH-01	<0.0005	-----			-----	-----	
357	EN15721Mod.	<0.001	-----		EN15721	<0.001	-----	
395		-----	-----			-----	-----	
399		-----	-----			-----	-----	
444		-----	-----			-----	-----	
446		-----	-----			-----	-----	
463		-----	-----		EN13132	<0.2	-----	
468		-----	-----			-----	-----	
496		-----	-----			-----	-----	
511		-----	-----			-----	-----	
541		-----	-----			-----	-----	
551	INH-1313	<0.0006	-----		INH-1313	<0.0006	-----	
554		-----	-----			-----	-----	
556		-----	-----			-----	-----	
559		-----	-----			-----	-----	
631		-----	-----			-----	-----	
657	INH-0001	<0.0002	-----		INH-0001	<0.0002	-----	
663		-----	-----			-----	-----	
840	INH-0001	n.d.	-----		INH-0001	0.00017	-----	
862	INH-0001	0.0001	-----		INH-0001	<0.0005	-----	
867	INH-0001	0.0001	-----		INH-0001	<0.0005	-----	
902		-----	-----			-----	-----	
912		-----	-----			-----	-----	
913		-----	-----			-----	-----	
922		-----	-----			-----	-----	
974		-----	-----			-----	-----	
1041		-----	-----			-----	-----	
1079		-----	-----		EN15721	<0.001	-----	
1082		-----	-----			-----	-----	
1134		-----	-----		EN15721	<0.01	-----	
1161		-----	-----			-----	-----	
1203	in house	<0.0005	-----		EN15721	<0.0005	-----	
1263		-----	-----			-----	-----	
1298		-----	-----			-----	-----	
1359		-----	-----			-----	-----	
1402		-----	-----			-----	-----	
1446		-----	-----			-----	-----	
1523		-----	-----			-----	-----	
1528		-----	-----		EN15721	0.00005	-----	
1605		-----	-----			-----	-----	
1656		-----	-----			-----	-----	
1726	in house	n.d.	-----		in house	n.d.	-----	
1727		-----	-----			-----	-----	
1807		-----	-----			-----	-----	
1835		-----	-----			-----	-----	
1919	EN15721	n.d.	-----		EN15721	n.d.	-----	
1933		-----	-----			-----	-----	
	normality	n.a			normality	n.a		
	n	2			n	2		
	outliers	n.a			outliers	n.a		
	mean (n)	0.0004			mean (n)	0.00011		
	st.dev. (n)	n.a			st.dev. (n)	n.a		
	R(calc.)	n.a			R(calc.)	n.a		
	R(Horwitz)	n.a			R(Horwitz)	n.a		

APPENDIX 2

Number of participating laboratories per country:

1 lab in ARGENTINA
1 lab in AUSTRIA
4 labs in BELGIUM
4 labs in BRAZIL
2 labs in CANADA
1 lab in CZECH REPUBLIC
1 lab in DENMARK
2 labs in FINLAND
5 labs in FRANCE
2 labs in GERMANY
1 lab in HUNGARY
2 labs in INDIA
2 labs in ITALY
2 labs in P.R. of CHINA
1 lab in PAKISTAN
1 lab in PERU
1 lab in PHILIPPINES
1 lab in ROMANIA
1 lab in SINGAPORE
5 labs in SPAIN
3 labs in SWEDEN
1 lab in THAILAND
3 labs in THE NETHERLANDS
2 labs in TURKEY
1 lab in U.A.E.
4 labs in U.S.A.
5 labs in UNITED KINGDOM
1 lab in VIETNAM

APPENDIX 3

Abbreviations:

C	= final result after checking of first reported suspect result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
E	= error in calculations
ex	= excluded from calculations
n.a.	= not applicable
U	= unit error
SDS	= Safety Data Sheet

Literature:

1 i.i.s. Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010
2 W. Horwitz and R. Albert, J. AOAC Int., Vol. 79, 3, p. 589, (1996)
3 ASTM E178-02
4 ASTM E1301-03
5 ISO 5725-86
6 ISO 5725, parts 1-6, 1994
7 ISO 13528
8 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
9 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
10 IP 367/84
11 DIN 38402 T41/42
12 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
13 J.N. Miller, Analyst, 118, 455, (1993)
14 Analytical Methods Committee Technical brief, No 4.January 2001
15 The Royal Society of Chemistry 2002, Analyst, 2002, 127, page 1359-1364, P.J. Lowthian and M. Thompson. (see http://www.rsc.org/suppdata/an/b2/b205600n/)