Results of Proficiency Test
Fuel/Bio-ethanol
November 2012

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 2012/2013, it was decided to continue the round robin for the analysis of Fuel/Bio-ethanol in agreement with EN15376:11 and ASTM D4806:11a. In this interlaboratory study for Fuel/Bio-ethanol, 72 laboratories in 31 different countries have participated. See appendix 2 for the number of participants per country. In this report, the results of the 2012 proficiency test are presented and discussed.

2 SET-UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. It was decided to send 2 samples of Ethanol (1 * 1 L bottle of Fuel Ethanol labelled #12150 and 1* 0.25 L bottle of Fuel Ethanol labelled #12151, especially for Gas Chromatography. 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/IEC 17043:2010, since January 2000, by the Dutch Accreditation Council (Raad van Accreditatie, R007). 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 presented in this report must be regarded as confidential and for use by the participating companies only. Disclosure of the information in this report is only allowed by means of the entire report. Use of the contents of this report for third parties is only allowed by written permission of the Institute for Interlaboratory Studies. Disclosure of the identity of one or more of the participating companies will be done only after receipt of a written agreement of the companies involved.

2.4 SAMPLES

The necessary bulk material for the samples #12150 and #12151 was obtained from a local trader. The bulk material was split in two for preparation of the samples. Approximately 100 litre bulk sample was homogenised in a precleaned drum and divided over 100 amber glass bottles of 1L (labelled #12150). The homogeneity of the subsamples #12150 was checked by determination of Density in accordance with ASTM ISO12185:96 and Water in accordance with E1064:12 on 8 stratified randomly selected samples.

	Density @ 15ºC in kg/L	*Water in mg/kg*
Sample #12150 -1	0.79391	930
Sample #12150 -2	0.79390	920
Sample #12150 -3	0.79390	930
Sample #12150 -4	0.79391	930
Sample #12150 -5	0.79391	920
Sample #12150 -6	0.79391	920
Sample #12150 -7	0.79391	930
Sample #12150 -8	0.79391	920

Table 1: Homogeneity tests results of subsamples #12150

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	*Water in mg/kg*
r (Observed)	0.00001	15
reference method	ISO12185:96	EN15489:07
0.3 * R (ref. method)	0.00015	62

Table 2: Repeatability of subsamples #12150

The second part of the batch, approximately 25 litres, was homogenised and divided over 90 amber glass bottles of 0.25 litres (labelled #12151). The homogeneity of the subsamples #12151 was checked by determination of Methanol in accordance with EN15721:09, proc A .

	Methanol in mg/kg
Sample #12151 -1	110
Sample #12151 -2	110
Sample #12151 -3	110
Sample #12151 -4	110
Sample #12151 -5	110
Sample #12151 -6	110
Sample #12151 -7	120
Sample #12151 -8	110

Table 3: Homogeneity tests results of subsamples #12151

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:

	Methanol in mg/kg
r (Observed)	10
reference method	D5501:09
0.3 * R (ref. method)	37

Table 4: Repeatability of subsamples #12151

The calculated repeatabilities of both samples are in agreement with the 0.3 times the reproducibility limits of the respective test methods. Therefore the homogeneity of the subsamples #12150 and #12151 was assumed.

To each of the participating laboratories: 1 * 1 L bottle (labelled #12150) and 1 * 0.25 L bottle (labelled #12151) were sent on October 31, 2012.

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 #12150 : Acidity as Acetic Acid, Appearance, Copper, Density @20^{o}C, Electrical conductivity at 25 ˚C, Inorganic Chloride as Cl, Involatile material content, Nitrogen, Phosphorous, Sulphate Organic, Total Sulphur and Water (coulometric and titrimetric).

On sample #12151 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 prescribed as well as some of the required standards and a letter of instructions were prepared and made available for download on the iis website (www.iisnl.com).
A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

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

Directly after deadline, a reminder fax was sent to those laboratories that had not yet reported 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, nos.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, France, India, Pakistan, Thailand, U.A.E. and Vietnam received the samples late or not at all. Eleven 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 67 reporting laboratories did send in 845 (numerical) results. Observed were 52 outlying results, which is 6.2%. 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 specified test methods and requirements based on EN15376:11 and ASTM D4806:11a and the test 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: Density, Involatile Material, Nitrogen, Water, Purity on dry basis, 3-Methyl-1-Butanol, 2-Methyl-1-Butanol and n-Butanol.

Acidity: This determination was not problematic. Only statistical outlier was observed and the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of EN15491:07 and ASTM D1613:12.

Appearance: This determination was not problematic. All participants agreed about the appearance of sample #12150 as clear and free of suspended matter.

Copper: Only eight participants reported a numerical result. The consensus value of the group was near or below the detection limit. Therefore no significant conclusions were drawn.

Density @20^{o}C: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Electrical Conductivity: This determination was very problematic. Three statistical outliers were observed and calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the requirements of EN15938:10.

Inorganic Chloride: The consensus value of the group was below the application range of the test methods EN15492:12 (1 – 30 mg/kg) and ASTM D7319:09 (1 – 20mg/kg). Therefore no significant conclusions were drawn.

Involatile material: The consensus value of the group was below the application range of the test methods EN15691:09 (10 – 25 mg/100ml). Therefore no significant conclusions were drawn.

Nitrogen: This determination was very problematic. No statistical outliers were detected. However, the calculated reproducibility is not at all in agreement with the requirements of D4629:09.

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

Sulphate: This determination may be problematic depending on the target method used. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of D7319:09, but is not at all in agreement with the much more strict requirements of EN15492:12.

Total Sulphur: Although, the consensus value of the group found was below the application range (7–20 mg/ kg) of EN15485:07, this determination may not problematic depending on the target method used. No statistical outliers were detected and the calculated reproducibility is in good agreement with the estimated requirements of EN15485:07. However, the calculated reproducibility is not in agreement with the requirements of EN15486:07 (application range 5-20 mg/kg) and ASTM D5453:09 (application range 1-8000 mg/kg).

Water: This determination was not problematic for either the coulometric or the titrimetric mode. In total two statistical outliers were observed. Both calculated reproducibilities are in full agreement with the requirements of the respective test methods EN15489:07 (and ASTM E1064:12) and EN15692:09 (and ASTM E203:08).

Purity: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5501:09 (application range 93 – 97%M/M).

Ethanol and higher alcohols: This determination may be problematic for a number of laboratories. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN15721:09. The large spread observed may be explained by the unclear and ambiguous definitions mentioned in EN15721:09, paragraph 8.3.

Acetal: This determination may be problematic. Six 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.

Ethyl acetate: This determination may be problematic for a number of laboratories. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility calculated using the Horwitz equation.

iso-Butanol: This determination may be 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.

Methanol: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5501:09.

3-Me-1-Butanol: This determination may be very problematic. Four 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. The concentration of this component may be near or below the detection limit. This may explain the large spread.

2-Me-1-Butanol: This determination may be very problematic. Two 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. The concentration of this component may be near or below the detection limit. This may explain the large spread.

Sum of 3-Me-1-Butanol and 2-Me-1-Butanol: This determination may be problematic. Four 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. The concentration of these components may be near or below the detection limit. This may explain the large spread.

n-Butanol: This determination may be very problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the estimated reproducibility calculated using the Horwitz equation.

n-Propanol: This determination may be problematic. Two statistical outliers were observed and the calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility using the Horwitz equation.

Other GC components: For the following components Acetaldehyde, Acetone, Benzene, Cyclohexane, Crotonaldehyde, DEG, Dioxane, iso-Propanol, sec-Butanol, n-Amylalcohol, sec-Amylalcohol, tert-Amylalcohol, tert-Butanol and MEG, the consensus value is near or below the detection limit, 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	58	0.0018	0.0015	0.0014
Appearance		58	pass	n.a.	n.a
Copper	mg/kg	8	0.003	0.007	(0.014)
Density @ 20°C	kg/L	65	0.7897	0.0004	0.0005
Electrical conductivity	µS/cm	26	0.90	0.37	0.18
Inorganic Chloride as Cl	mg/kg	26	0.22	0.43	(0.52)
Involatile material content	mg/100 mL	19	0.5	1.1	(0.1)
Nitrogen	mg/kg	23	0.49	0.99	0.56
Phosphorous	mg/l	4	0.03	0.10	(0.06)
Sulphate	mg/kg	25	1.06	1.25	1.45
Total Sulphur	mg/kg	42	2.99	2.53	3.47
Water coulometric	% M/M	52	0.097	0.017	0.021
Water titrimetric	% M/M	37	0.102	0.036	0.095

Table 5: Reproducibilities of sample #12150

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	35	99.800	0.106	0.530
Ethanol + Higher saturates alcohols	%M/M	29	99.932	0.064	0.042
Acetal	%M/M	27	0.038	0.010	0.007
Acetaldehyde	%M/M	33	<0.001	n.a.	n.a.
Acetone	%M/M	35	<0.001	n.a.	n.a.
Benzene	%M/M	18	<0.001	n.a.	n.a.
Cyclohexane	%M/M	18	<0.001	n.a.	n.a.
Crotonaldehyde	%M/M	17	<0.001	n.a.	n.a.
DEG	%M/M	11	<0.001	n.a.	n.a.
Dioxane	%M/M	14	<0.001	n.a.	n.a.
Ethylacetate	%M/M	35	0.016	0.004	0.003
iso-Butanol	%M/M	36	0.055	0.011	0.010
iso-Propanol	%M/M	26	<0.001	n.a.	n.a.
Methanol	%M/M	43	0.010	0.003	0.012
3-Me-1-Butanol	%M/M	25	0.001	0.002	<0.001
2-Me-1-Butanol	%M/M	23	0.001	0.001	<0.001
Sum 2-Me-1-BuOH +3-Me-1-BuOH	%M/M	24	0.003	0.002	0.001
n-Butanol	%M/M	26	0.001	0.001	<0.001
n-Propanol	%M/M	39	0.077	0.018	0.013
sec-Butanol	%M/M	29	<0.001	n.a.	n.a.
n-Amylalcohol	%M/M	20	<0.001	n.a.	n.a.
sec-Amylalcohol	%M/M	16	<0.001	n.a.	n.a.
MEG	%M/M	12	<0.001	n.a.	n.a.
tert-Amylalcohol	%M/M	16	<0.001	n.a.	n.a.
tert-Butanol	%M/M	18	<0.001	n.a.	n.a.

Table 6: Reproducibilities of sample #12151

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 2012 WITH PREVIOUS PTS

	November 2012	*November 2011*	*December 2010*	*December 2009*
Number of reporting labs	67	55	49	44
Number of results reported	845	805	678	616
Statistical outliers	52	45	33	44
Percentage outliers	6.2%	5.6%	4.8%	7.1%

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 2012*	*November 2011*	*December 2010*	*December 2009*
Acidity as Acetic Acid	+/-	+/-	-	+/-
Density @ 20°C	++	++	++	++
Electric conductivity	--	--	n.e.	n.e.
Inorganic Chloride as Cl	(+)	--	(++)	++
Involatile Matter	(--)	--	++	--
Nitrogen	--	--	--	n.e.
Phosphorus as P	(-)	(+/-)	(-)	n.e.
Sulphate	++	(--)	-	n.e.
Total Sulphur	++	++	(++)	++
Water coulometric	++	+	+	++
Water titrimetric	++	++	++	++
Purity on dry basis	++	++	++	+
Ethanol + higher sat.alc.	--	n.e.	n.e.	n.e.
Acetal	--	+	+/-	-
Acetaldehyde	n.e.	--	--	--
Acetone	n.e,	(--)	(-)	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	-	+/-	+	-
iso-Butanol	-	+/-	-	-
iso-Propanol	n.e.	n.e.	--	--
Methanol	++	+/-	+	++
3-Methyl-1-butanol	--	n.e.	n.e.	n.e.
2-Methyl-1-butanol	--	n.e.	n.e.	n.e.
n-Butanol	--	--	-	n.e.
n-Propanol	+	++	+	-
sec-Butanol	n.e.	(--)	(--)	n.e.
n-Amylalcohol	n.e.	n.e.	(--)	n.e.
sec-Amylalcohol	n.e.	n.e.	n.e.	n.e.
MEG	n.e.	n.e.	n.e.	--
tert-Amylalcohol	n.e.	n.e.	n.e.	n.e.
tert-Butanol	n.e.	n.e.	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 #12150; results in %M/M

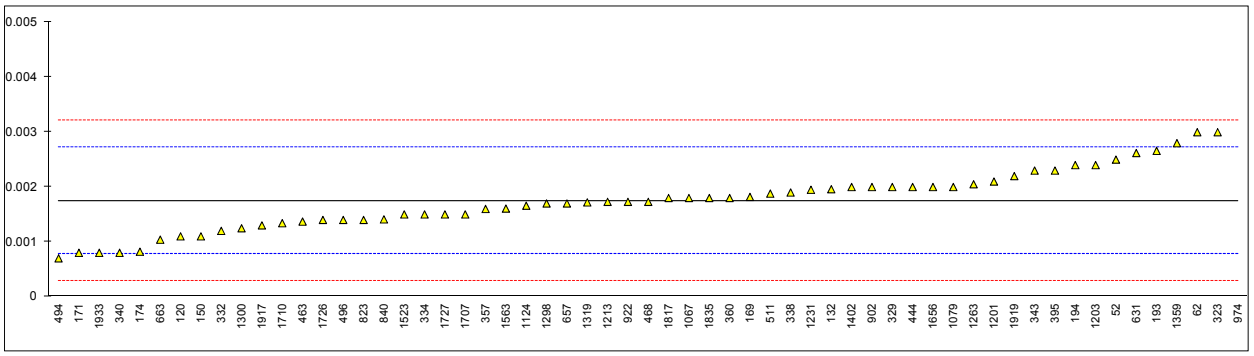
lab	method	value	mark	z(targ)	remarks
52	D1613	0.0025		1.53	
62	D1613	0.0030		2.56	
120	EN15491	0.0011		-1.33	
132	D1613	0.00196		0.43	
150	D1613	0.0011		-1.33	
169	D1613	0.00182		0.15	
171	EN15491	0.0008		-1.94	
174	EN15491	0.00082		-1.90	
193	D1613	0.002659		1.86	
194	D1613	0.0024		1.33	
311	EN15491	<0.003		-----	
323	EN15491	0.003		2.56	
329	EN15491	0.002		0.51	
332	EN15491	0.0012		-1.12	
333	EN15491	<0.003		-----	
334	EN15492	0.0015		-0.51	
338	D1613	0.0019		0.31	
340	EN15491	0.0008		-1.94	
343	EN15491	0.0023		1.13	
357	EN15491	0.0016		-0.30	
360	D1613	0.0018		0.10	
395	EN15491	0.0023		1.13	
399		-----		-----	
444	EN15491	0.002		0.51	
463	D1613	0.00137		-0.77	
468	EN15491	0.00173		-0.04	
494	EN15491	0.0007		-2.14	
495		-----		-----	
496	EN14591	0.0014		-0.71	
511	D1613	0.00188		0.27	
541	EN15491	<0.003		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D1613	0.00262		1.78	
657	D1613	0.0017		-0.10	
663	D1613	0.00104		-1.45	
823	D1613	0.0014		-0.71	
840	D1613	0.00141		-0.69	
862		-----		-----	
902	D1613	0.0020		0.51	
912		-----		-----	
913		-----		-----	
922	D1613	0.00173		-0.04	
974	D1613	0.014	G(0.01)	25.04	
1067	EN15491	0.0018		0.10	
1079	EN15491	0.002		0.51	
1124	EN15491	0.00166		-0.18	
1201	EN15491	0.0021		0.72	
1203	EN15491	0.0024		1.33	
1213	D1613	0.00173		-0.04	
1231	D1613	0.00195		0.41	
1263	D1613	0.002051		0.62	
1298	EN15491	0.0017		-0.10	
1300	EN15491	0.001248		-1.02	
1319	D1613	0.00172		-0.06	
1359	EN15491	0.0028		2.15	
1402	EN15491	0.002		0.51	
1523	ISO1388	0.0015		-0.51	
1563	EN15491	0.001607		-0.29	
1605		-----		-----	
1656	EN15491	0.002		0.51	
1707	EN15491	0.0015		-0.51	
1710	EN15491	0.00134		-0.84	
1726	EN15491	0.0014		-0.71	
1727	EN15491	0.0015		-0.51	
1817	ISO1388	0.0018		0.10	
1835	EN15491	0.0018		0.10	
1917	in house	0.0013		-0.92	
1919	D1613	0.0022		0.92	
1933	EN15491	0.0008		-1.94	

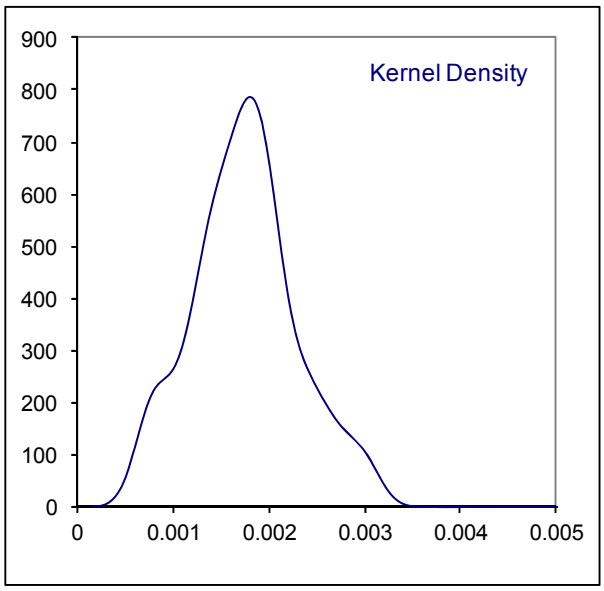
normality	OK
n	58
outliers	1
mean (n)	0.00175
st.dev. (n)	0.000540
R(calc.)	0.00151
R(EN15491:07)	0.00137

Application range: 0.003 – 0.015 %M/M

Compare

R(D1613:12)	0.00140





Determination of Appearance on sample #12150;

lab	method	value	mark	z(targ)	remarks
52	D4176	Pass		-----	
62	D4176	C&B		-----	
120	EN15769	C&C		-----	
132	D4176	C&B		-----	
150	EN15769	Clear		-----	
169	D4176	CFSM		-----	
171	EN15769	C&F		-----	
174	EN15769	Colorless		-----	
193	EN15769	Clear		-----	
194	D4176	Pass		-----	
311	EN15769	C&C		-----	
323	INH-001	Pass		-----	
329	EN15769	Clear		-----	
332	EN15769	C&B		-----	
333	EN15769	C&B		-----	
334	EN15491	Clear		-----	
338	INH-625	CBFFSM		-----	
340	EN15769	C&C		-----	
343	EN15769	C&B		-----	
357	EN15769	Clear		-----	
360	EN15769	C&C		-----	
395	EN15769	Pass		-----	
399	EN15769	Pass		-----	
444	EN15769	Pass		-----	
463	EN15769	C&C		-----	
468	EN15769	C&C		-----	
494	EN15769	C&C		-----	
495	EN15769	C&B		-----	
496	EN15769	C&C		-----	
511	EN15769	C&C		-----	
541	EN15769	C&B		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	E2680	Pass		-----	
663	E2860	C&B		-----	
823	E2680	Pass		-----	
840	E2680	Pass		-----	
862	Visual	C&B		-----	
902	EN15769	Pass		-----	
912		-----		-----	
913		-----		-----	
922	Visual	CFFSM		-----	
974	E2680	Pass		-----	
1067	EN15769	C&C		-----	
1079	EN15769	C&C		-----	
1124	EN15769	C&C		-----	
1201	EN15769	C&C		-----	
1203	EN15769	C&C		-----	
1213		-----		-----	
1231		-----		-----	
1263		-----		-----	
1298	EN15769	C&C		-----	
1300	EN15769	C&C		-----	
1319	in house	C&B		-----	
1359	EN15769	C&C		-----	
1402	EN15769	C&C		-----	
1523		-----		-----	
1563	EN15769	C&C		-----	
1605		-----		-----	
1656	EN15769	Pass		-----	
1707	EN15769	C&C		-----	
1710	EN15769	Clear		-----	
1726	EN15769	C&C		-----	
1727	EN15769	C&C		-----	
1817		-----		-----	
1835	EN15769	C&C		-----	
1917	Visual	OK		-----	
1919		-----		-----	
1933	EN15769	Clear		-----	

normality	n.a.
n	58
outliers	n.a.
mean (n)	Bright and clear
st.dev. (n)	n.a.
R(calc.)	n.a.
R(EN15769:09)	n.a.

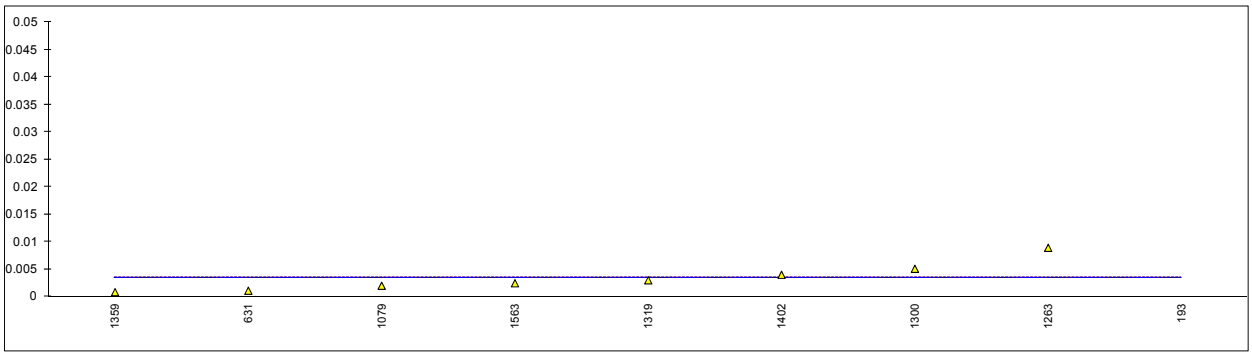
C&B = Clear and Bright
C&C = Clear and Colourless
CFFSM = Clear Free from Suspended Matter

Determination of Copper on sample #12150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D1688	<0.05		-----	
62		-----		-----	
120		-----		-----	
132	D1688	<0.05		-----	
150	EN15488	<0.07		-----	
169		-----		-----	
171	EN15488	<0.01		-----	
174	EN15488	<0.100		-----	
193	D1688	0.1813	G(0.01)	-----	False positive result?
194	D1688	<0.05		-----	
311	EN15488	<0.07		-----	
323		-----		-----	
329	EN15488	<0.07		-----	
332		-----		-----	
333	EN15488	<0.07		-----	
334		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15488	<0.07		-----	
357	EN15488	<0.07		-----	
360	EN15837	<0.050		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15488	<0.07		-----	
494		-----		-----	
495		-----		-----	
496		-----		-----	
511		-----		-----	
541	INH-11331	<0.1		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D1688	0.0011		-----	
657		-----		-----	
663		-----		-----	
823		-----		-----	
840	UOP389	<0.01		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D1688	<0.1		-----	
974		-----		-----	
1067	D1688	<0.002		-----	
1079	EN15488	0.002		-----	
1124	EN15488	<0.02		-----	
1201	EN15488	<0.07		-----	
1203		-----		-----	
1213	D1688	<0.1		-----	
1231		-----		-----	
1263	DIN33604	0.00892		-----	
1298		-----		-----	
1300	EN15837	0.0051		-----	
1319	in house	0.003		-----	
1359	EN15488	0.00083		-----	
1402	EN15488	0.004		-----	
1523		-----		-----	
1563	EN15488	0.00245		-----	
1605		-----		-----	
1656	D1688	<0.05		-----	
1707	EN15837	<0.05		-----	
1710		-----		-----	
1726		-----		-----	
1727		-----		-----	
1817		-----		-----	
1835		-----		-----	
1917		-----		-----	
1919		-----		-----	
1933	ISO11885	<0.01		-----	

normality	OK
n	8
outliers	1
mean (n)	0.0034
st.dev. (n)	0.00264
R(calc.)	0.0074
R(EN15488:07)	(0.0141)

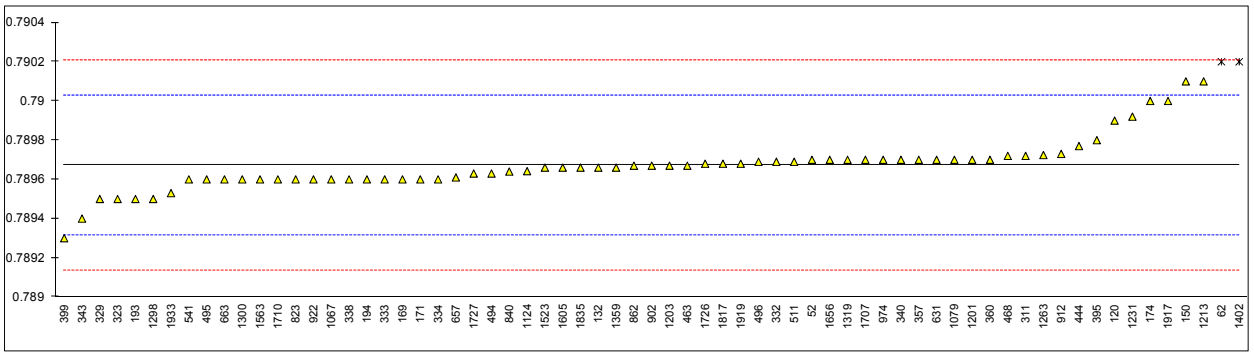
Application range: 0.07 – 0.20

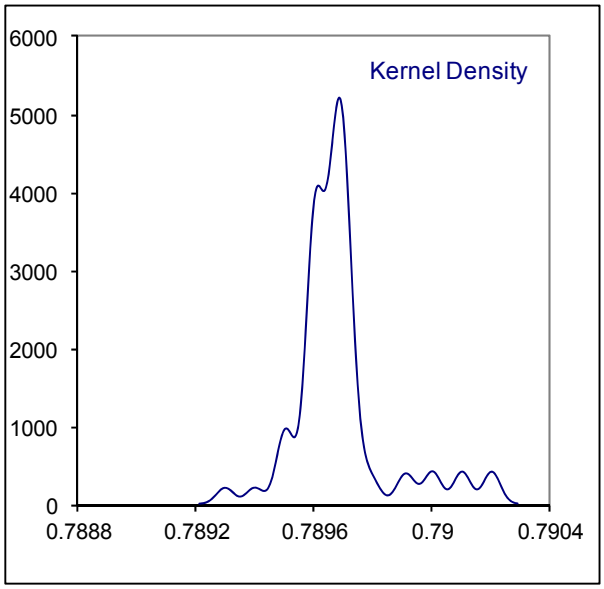


Determination of Density @ 20°C on sample #12150; results in kg/L

lab	method	value	mark	z(targ)	remarks
52	D4052	0.7897		0.16	
62	D4052	0.7902	DG(0.01)	2.96	
120	D4052	0.7899		1.28	
132	D4052	0.78966		-0.06	
150	D4052	0.7901		2.40	
169	D4052	0.7896		-0.40	
171	D4052	0.7896		-0.40	
174	D4052	0.7900		1.84	
193	D4052	0.7895		-0.96	
194	D4052	0.7896		-0.40	
311	D4052	0.78972		0.27	
323	D4052	0.7895		-0.96	
329	D4052	0.7895		-0.96	
332	D4052	0.78969		0.10	
333	D4052	0.7896		-0.40	
334	D4052	0.7896		-0.40	
338	D4052	0.7896		-0.40	
340	D4052	0.7897		0.16	
343	D4052	0.7894		-1.52	
357	D4052	0.7897		0.16	
360	D4052	0.7897		0.16	
395	D4052	0.7898		0.72	
399	D4052	0.7893		-2.08	
444	D4052	0.78977		0.55	
463	D4052	0.78967		-0.01	
468	D4052	0.78972		0.27	
494	D4052	0.78963	C	-0.23	First reported 789.63 (unit error)
495	D4052	0.7896		-0.40	
496	D4052	0.78969		0.10	
511	D4052	0.78969		0.10	
541	D4052	0.7896		-0.40	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D4052	0.7897		0.16	
657	D4052	0.78961		-0.34	
663	D4052	0.7896	C	-0.40	First reported 789.6 (unit error)
823	D4052	0.7896		-0.40	
840	D4052	0.78964		-0.18	
862	D4052	0.78967		-0.01	
902	D4052	0.78967		-0.01	
912	D4052	0.78973		0.33	
913		-----		-----	
922	D4052	0.78960		-0.40	
974	D4052	0.7897		0.16	
1067	D4052	0.7896		-0.40	
1079	D4052	0.7897		0.16	
1124	EN12185	0.789642		-0.17	
1201	D4052	0.7897		0.16	
1203	D4052	0.78967		-0.01	
1213	D1298	0.7901		2.40	
1231	D4052	0.78992		1.39	
1263	ISO12185	0.789724		0.29	
1298	D4052	0.7895		-0.96	
1300	D4052	0.7896		-0.40	
1319	in house	0.7897		0.16	
1359	D4052	0.78966		-0.06	
1402	D4052	0.7902	DG(0.01)	2.96	
1523	D4052	0.78966		-0.06	
1563	INH-035	0.7896	C	-0.40	Reported 789.6 (unit error?)
1605	D4052	0.789660		-0.06	
1656	D4052	0.7897		0.16	
1707	D4052	0.7897		0.16	
1710	D4052	0.7896		-0.40	
1726	D4052	0.78968		0.05	
1727	D4052	0.78963		-0.23	
1817	INH-26	0.78968		0.05	
1835	D4052	0.78966		-0.06	
1917	D4052	0.79		1.84	
1919	D4052	0.789680		0.05	
1933	ISO12185	0.78953		-0.79	

normality	not OK
n	65
outliers	2
mean (n)	0.78967
st.dev. (n)	0.000136
R(calc.)	0.00038
R(ISO12185:96)	0.00050

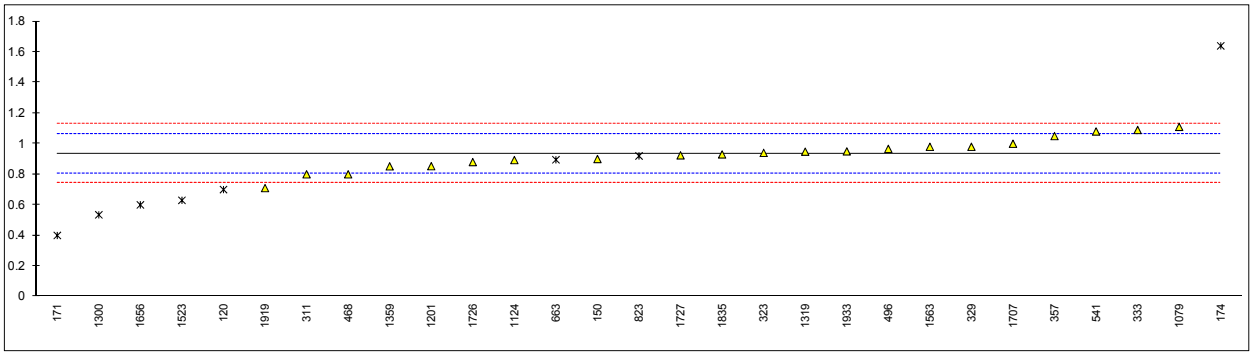


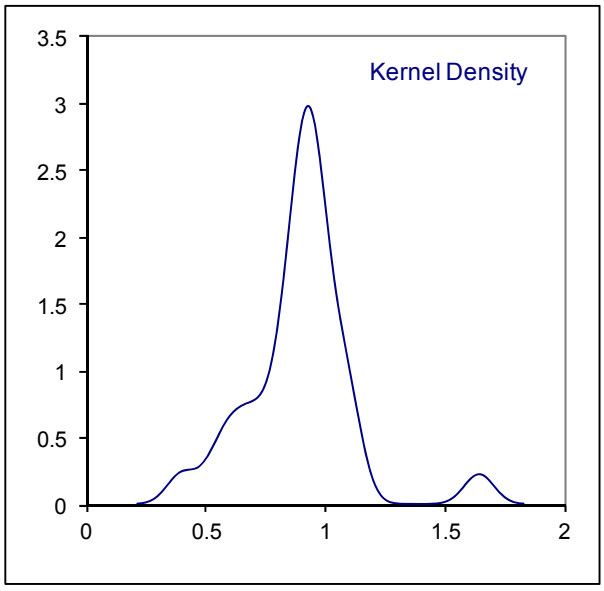


Determination of Electrical conductivity @ 25°C on sample #12150; results in µS/cm

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	D2624	>2000	ex	-----	Reported probably in a deviating unit, method not suitable for Ethanol
120	D1125	0.70	ex	-3.66	Test method is not suitable for Ethanol
132		-----		-----	
150	EN15938	0.9		-0.55	
169		-----		-----	
171	EN15938	0.4	G(0.05)	-8.33	
174	EN15938	1.64	C,G(0.01)	10.97	First reported 0.419
193		-----		-----	
194		-----		-----	
311	EN15938	0.80		-2.10	
323	EN15938	0.94		0.08	
329	EN15938	0.98		0.70	
332		-----		-----	
333	EN15938	1.09		2.41	
334		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357	EN15938	1.05		1.79	
360		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15938	0.8		-2.10	
494		-----		-----	
495		-----		-----	
496	EN15938	0.9665		0.49	
511		-----		-----	
541	INH-10547	1.08		2.26	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657		-----		-----	
663	D1125	0.895	ex	-0.62	Test method is not suitable for Ethanol
823	D1125	0.92	ex	-0.23	Test method is not suitable for Ethanol
840		-----		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067		-----		-----	
1079	EN15938	1.11		2.72	
1124	EN15938	0.893		-0.65	
1201	EN15938	0.853		-1.28	
1203		-----		-----	
1213		-----		-----	
1231		-----		-----	
1263		-----		-----	
1298		-----		-----	
1300	EN15938	0.535	C,G(0.05)	-6.23	First reported 0.46
1319	in house	0.948		0.20	
1359	EN15938	0.852		-1.29	
1402		-----		-----	
1523	D2624	0.63	ex	-4.75	Test method is not suitable for Ethanol
1563	EN15938	0.98		0.70	
1605		-----		-----	
1656	EN15938	0.6	G(0.05)	-5.22	
1707	EN15938	1.00		1.01	
1710		-----		-----	
1726	EN15938	0.880		-0.86	
1727	EN15938	0.924		-0.17	
1817		-----		-----	
1835	EN15938	0.93		-0.08	
1917		-----		-----	
1919	EN15938	0.71		-3.50	
1933	EN15938	0.95		0.23	

normality	OK
n	21
outliers	4
mean (n)	0.935
st.dev. (n)	0.1013
R(calc.)	0.284
R(EN15938:10)	0.180





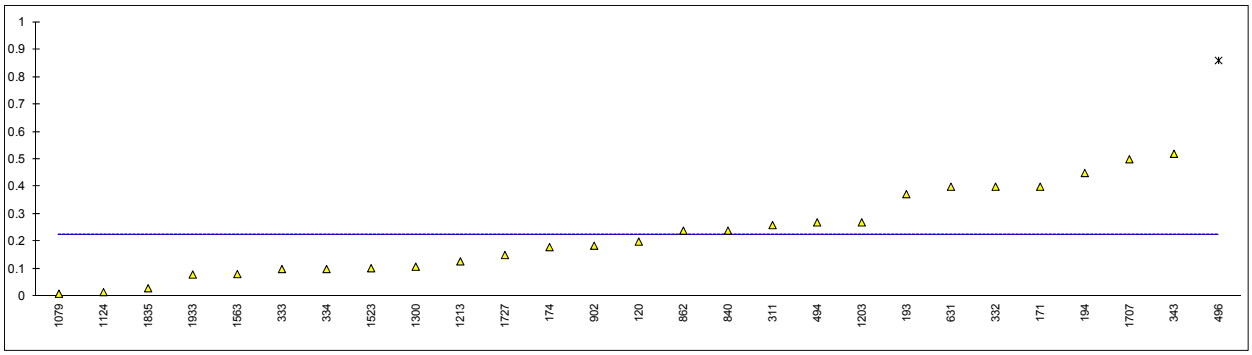
Determination of Inorganic Chlorides as Cl on sample #12150; results in mg/kg

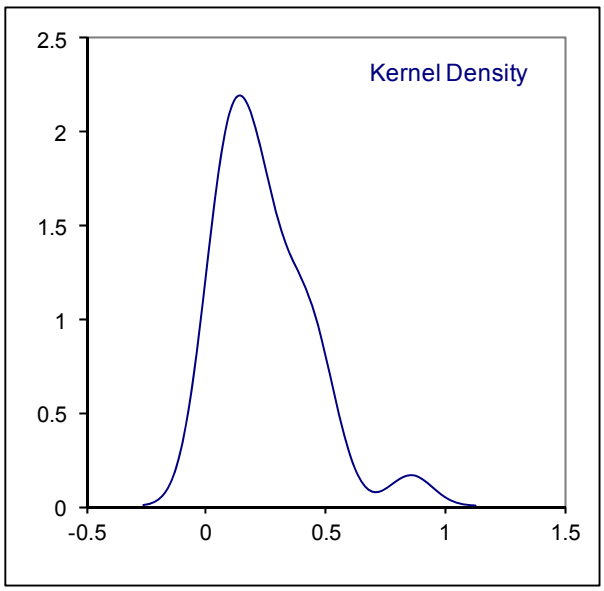
lab	method	value	mark	z(targ)	remarks
52	D512Mod.	<1		-----	
62		-----		-----	
120	EN15492	0.2		-----	
132	D7319	<1		-----	
150	D7328	<0.75		-----	
169	D7319	<1.0		-----	
171	EN15492	0.4		-----	
174	EN15492	0.18		-----	
193	D7319	0.373		-----	
194	D7319	0.45		-----	
311	INH-158	0.26		-----	
323	EN15492	<1		-----	
329	EN15492	<1		-----	
332	EN15484	0.4		-----	
333	EN15484	0.1		-----	
334	EN15492	0.1		-----	
338		-----		-----	
340	EN15484	<4		-----	
343	EN15492	0.52		-----	
357	EN15492	<2		-----	
360		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15492	<0.5		-----	
494	IMPCA98	0.27		-----	
495		-----		-----	
496	EN15492	0.86	G(0.05)	-----	
511		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D512	0.4	C	-----	First reported 2.135
657	D7328	<0.75		-----	
663	D512	<1		-----	
823		-----		-----	
840	IMPCA002	0.24		-----	
862	IMPCA002	0.24		-----	
902	EN15492	0.185		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067	EN15492	<0.1		-----	
1079	EN15492	0.01		-----	
1124	EN15492	0.016		-----	
1201	EN15492	<2.0		-----	
1203	EN15484	0.27		-----	
1213	D7328	0.128		-----	
1231		-----		-----	
1263		-----		-----	
1298		-----		-----	
1300	EN15492	0.1085		-----	
1319	in house	<1		-----	
1359	EN15492	n.d.		-----	
1402		-----		-----	
1523	D7319	0.103		-----	
1563	EN15492	0.0817		-----	
1605		-----		-----	
1656	EN15492	<1		-----	
1707	EN15484	0.50		-----	
1710		-----		-----	
1726		-----		-----	
1727	EN15492	0.151		-----	
1817		-----		-----	
1835	EN15492	0.03		-----	
1917		-----		-----	
1919		-----		-----	
1933	EN15484	0.08		-----	

normality	OK	
n	26	
outliers	1	
mean (n)	0.223	
st.dev. (n)	0.1524	
R(calc.)	0.427	
R(EN15492:12)	(0.517)	Application range 1 - 30 mg/kg

Compare

R(D7319:09)	(0.147)	Application range: 1 - 20 mg/kg
R(EN15484:07)	(1.600)	Application range: 4 - 30 mg/kg



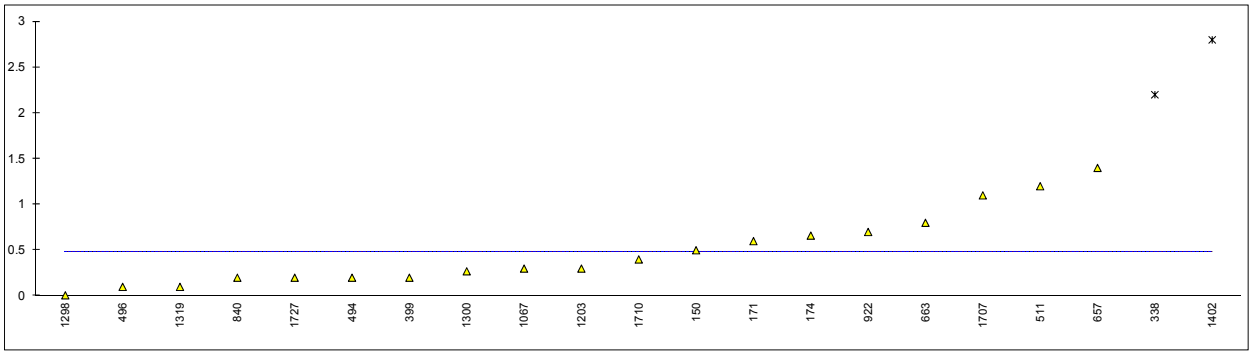


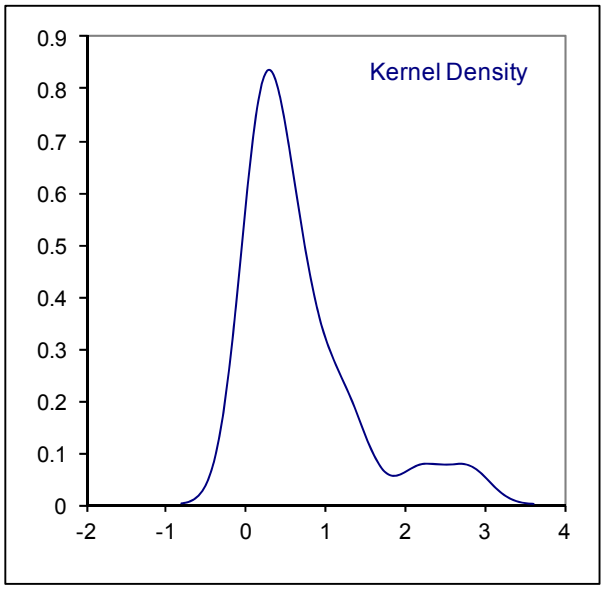
Determination of Involatile material content on sample #12150; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	EN15691	0.5		-----	
169		-----		-----	
171	EN15691	0.6		-----	
174	EN15691	0.66		-----	
193		-----		-----	
194		-----		-----	
311	EN15691	<10		-----	
323	EN15691	<1		-----	
329	EN15691	<1		-----	
332		-----		-----	
333	EN15691	<10		-----	
334		-----		-----	
338	EN15691	2.2	G(0.05)	-----	
340	EN15691	<10		-----	
343	EN15691	<10		-----	
357	EN15691	<1		-----	
360		-----		-----	
395		-----		-----	
399	EN15691	0.2	C	-----	First reported 2
444	EN15691	<0.1		-----	
463		-----		-----	
468	EN15691	<0.5		-----	
494	EN15691	0.2		-----	
495		-----		-----	
496	EN15691	0.1		-----	
511	EN15691	1.2		-----	
541	EN15691	<10		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D1353	1.4		-----	
663	D1353	0.80		-----	
823		-----		-----	
840	D1353	0.2		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D1353	0.70		-----	
974		-----		-----	
1067	EN15691	0.3		-----	
1079	EN15691	<10		-----	
1124	EN15691	<10		-----	
1201	EN15691	<10.0		-----	
1203	EN15691	0.3		-----	
1213	D1353	<1		-----	
1231		-----		-----	
1263	D1353	<1		-----	
1298	EN15691	0.0077		-----	
1300	EN15691	0.27		-----	
1319	in house	0.1		-----	
1359	EN15691	<1		-----	
1402	EN15691	2.8	G(0.05)	-----	
1523		-----		-----	
1563	EN15691	<1		-----	
1605		-----		-----	
1656	EN15691	<1		-----	
1707	EN15691	1.1		-----	
1710	EN15691	0.4		-----	
1726	EN15691	<10		-----	
1727	EN15691	0.2		-----	
1817		-----		-----	
1835	EN15691	<10		-----	
1917		-----		-----	
1919		-----		-----	
1933	D1353	<2		-----	

normality	not OK
n	19
outliers	2
mean (n)	0.486
st.dev. (n)	0.4005
R(calc.)	1.121
R(EN15691:09)	(0.091)

Application range 10 – 25 mg/100ml





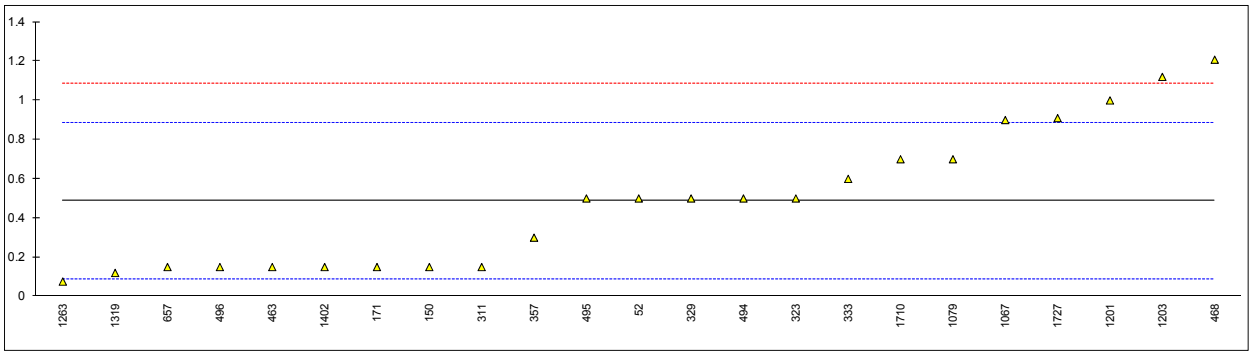
Determination of Nitrogen on sample #12150; results in mg/kg

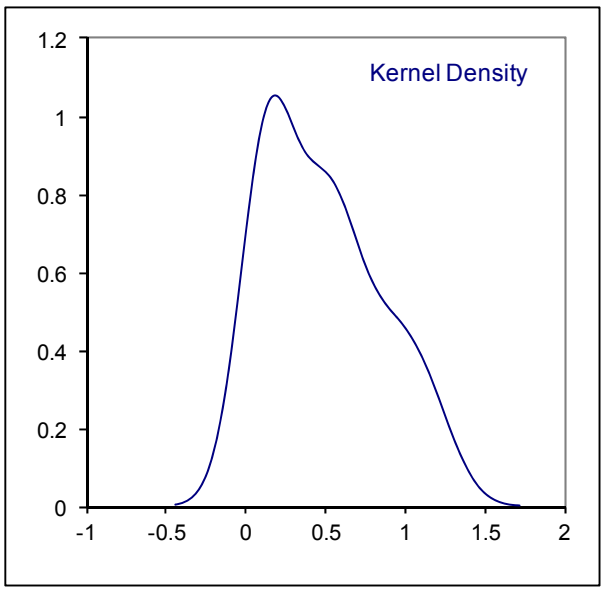
lab	method	value	mark	z(targ)	remarks
52	D4629	<1		0.07	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	D4629	<0.3		-1.69	
169		-----		-----	
171	D4629	<0.3		-1.69	
174		-----		-----	
193		-----		-----	
194		-----		-----	
311	D4629	<0.3		-1.69	
323	D4629	<1		0.07	
329	D6069	<1		0.07	
332		-----		-----	
333	D4629	0.6		0.57	
334		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357	D4629	0.3		-0.93	
360		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463	D4629	<0.3		-1.69	
468	D4629	1.208		3.62	
494	D4629	<1.0		0.07	
495	D4629	<1		0.07	
496	D4629	<0.3		-1.69	
511		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D4629	<0.30		-1.69	
663		-----		-----	
823		-----		-----	
840		-----		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067	D4629	0.9		2.07	
1079	D4629	0.7		1.07	
1124		-----		-----	
1201	D4629	1.0		2.58	
1203	D4629	1.12		3.18	
1213		-----		-----	
1231		-----		-----	
1263	D4629	0.076		-2.06	
1298		-----		-----	
1300		-----		-----	
1319	D4629	0.12		-1.84	
1359	in house	n.d.		-----	
1402	D4629	<0.3		-1.69	
1523		-----		-----	
1563		-----		-----	
1605		-----		-----	
1656		-----		-----	
1707		-----		-----	
1710	D4629	0.7		1.07	
1726		-----		-----	
1727	D4629	0.91		2.12	
1817		-----		-----	
1835		-----		-----	
1917		-----		-----	
1919		-----		-----	
1933		-----		-----	

normality	not OK
n	23
outliers	0
mean (n)	0.486
st.dev. (n)	0.3549
R(calc.)	0.994
R(D4629:09)	0.558

Application range 0.3 – 100 mg/kg

*) In the calculation of the mean, standard deviation, the reproducibility and in below graphs, a reported value of '<x' is changed into x/2 (for example <0.3 into 0.15)





Determination of Phosphorus on sample #12150; results in mg/L

lab	method	value	mark	z(targ)	Remarks
52	D3231	<0.2		-----	
62	D3231	0.08		-----	
120		-----		-----	
132		-----		-----	
150	D3231	<0.15		-----	
169		-----		-----	
171	EN15487	<0.01		-----	
174	EN15487	<0.10		-----	
193		-----		-----	
194		-----		-----	
311	EN15487	<0.15		-----	
323	EN15487	<0.15		-----	
329	EN15487	<0.15		-----	
332		-----		-----	
333	EN15487	<0.15		-----	
334		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15487	<0.15		-----	
357	EN15487	<0.15		-----	
360	EN15837	<0.15		-----	
395		-----		-----	
399		-----		-----	
444	EN15487	<0.15		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15487	<0.15		-----	
511		-----		-----	
541	EN15487	<0.15		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
823		-----		-----	
840	EN15487	<0.05		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067		-----		-----	
1079	EN15487	<0.15		-----	
1124	EN15487	<0.15		-----	
1201	EN15487	<0.15		-----	
1203	EN15487	<0.02		-----	
1213		-----		-----	
1231		-----		-----	
1263	EN15487	<0.1		-----	
1298		-----		-----	
1300	EN15837	0.042		-----	
1319		-----		-----	
1359	EN15487	<0.01		-----	
1402		-----		-----	
1523		-----		-----	
1563	EN15487	0.009		-----	
1605		-----		-----	
1656	EN15487	<0.01		-----	
1707	EN15487	<0.05		-----	
1710		-----		-----	
1726	EN15487	0.0025		-----	
1727	EN15487	<0.15		-----	
1817		-----		-----	
1835	EN15487	<0.15		-----	
1917		-----		-----	
1919		-----		-----	
1933	ISO11885	<0.1		-----	

normality	OK	
n	4	
outliers	0	
mean (n)	0.033	
st.dev. (n)	0.0356	
R(calc.)	0.100	
R(EN15487:07)	(0.063)	Application range: 0.15 – 1.50 mg/l

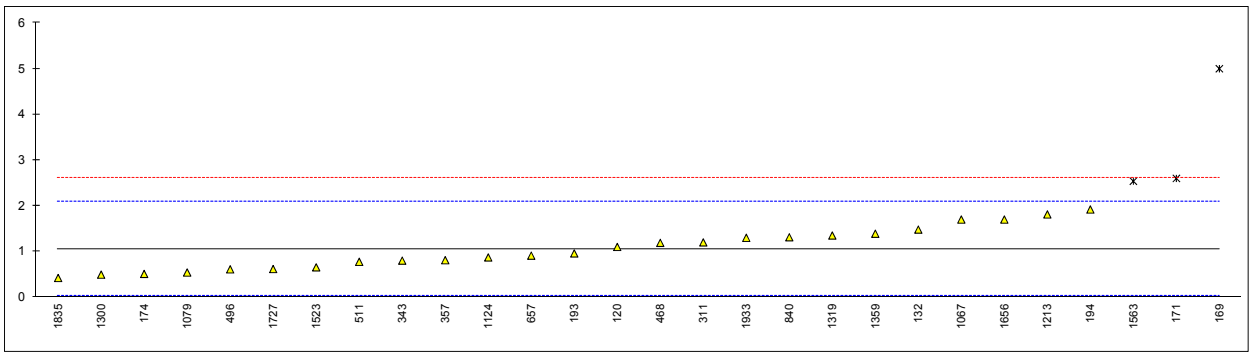
Determination of Sulphate on sample #12150; results in mg/kg

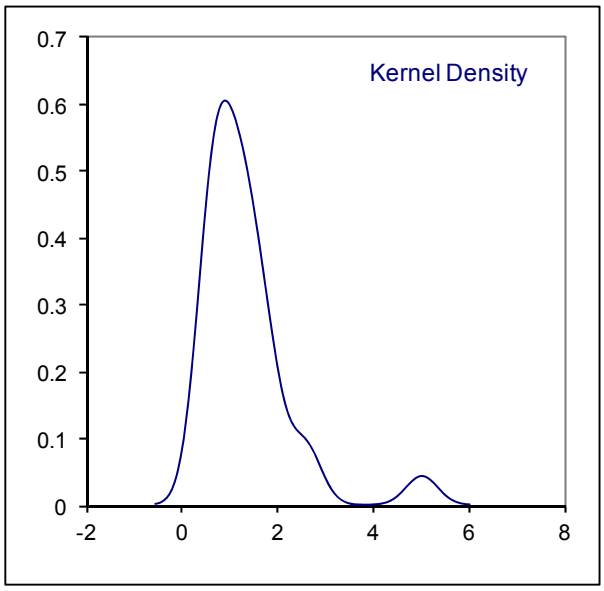
lab	method	value	mark	z(targ)	remarks
52	D7318	<1		-----	
62		-----		-----	
120	EN15492	1.1		0.08	
132	D7319	1.48		0.82	
150	D7328	<0.55		-----	
169	D7319	5.0	G(0.01)	7.61	
171	EN15492	2.6	DG(0.05)	2.98	
174	EN15492	0.51		-1.05	
193	D7319	0.9585		-0.19	
194	D7319	1.92		1.66	
311	EN15492	1.2		0.28	
323	EN15492	<4		-----	
329	EN15492	<4		-----	
332		-----		-----	
333	D7318	<1		-----	
334	EN15492	<1		-----	
338		-----		-----	
340		-----		-----	
343	EN15492	0.8		-0.50	
357	EN15492	0.81		-0.48	
360		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15492	1.190		0.26	
494		-----		-----	
495		-----		-----	
496	EN15492	0.61		-0.86	
511	D7318	0.775		-0.54	
541	in house	<2.5		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D7328	0.91		-0.28	
663		-----		-----	
823		-----		-----	
840	D7318	1.312		0.49	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067	EN15492	1.7		1.24	
1079	EN15492	0.54		-1.00	
1124	EN15492	0.87		-0.36	
1201	EN15492	<0.9		-----	
1203		-----		-----	
1213	D7328	1.812		1.46	
1231		-----		-----	
1263		-----		-----	
1298		-----		-----	
1300	EN15492	0.4940		-1.09	
1319	in house	1.35		0.57	
1359	EN15492	1.39		0.64	
1402		-----		-----	
1523	D7319	0.653		-0.78	
1563	EN15492	2.5389	DG(0.05)	2.86	
1605		-----		-----	
1656	EN15492	1.7		1.24	
1707	in house	<1.0		-----	
1710		-----		-----	
1726		-----		-----	
1727	EN15492	0.616		-0.85	
1817		-----		-----	
1835	EN15492	0.42		-1.23	
1917		-----		-----	
1919		-----		-----	
1933	in house	1.3		0.47	

normality	OK	
n	25	
outliers	3	
mean (n)	1.057	
st.dev. (n)	0.4473	
R(calc.)	1.252	
R(D7319:09)	1.452	Application range: 1 – 50 mg/kg

Compare

R(EN15492:12)	0.372	Application range: 1 – 20 mg/kg

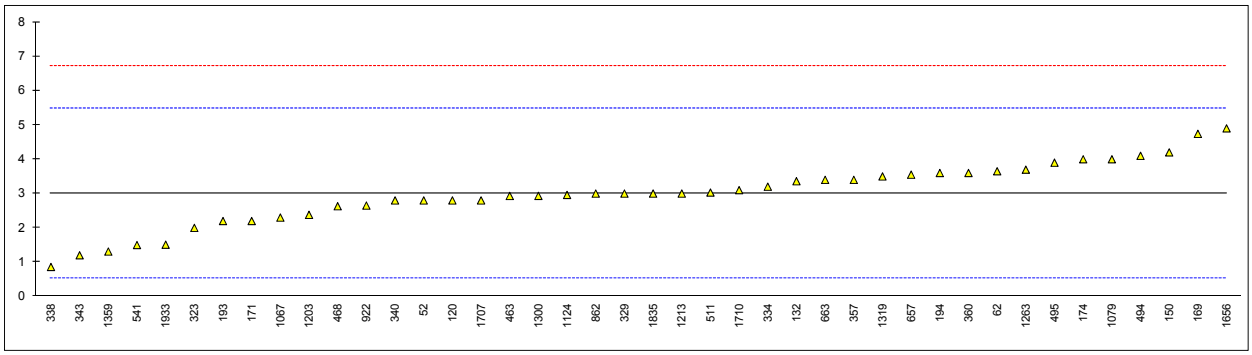


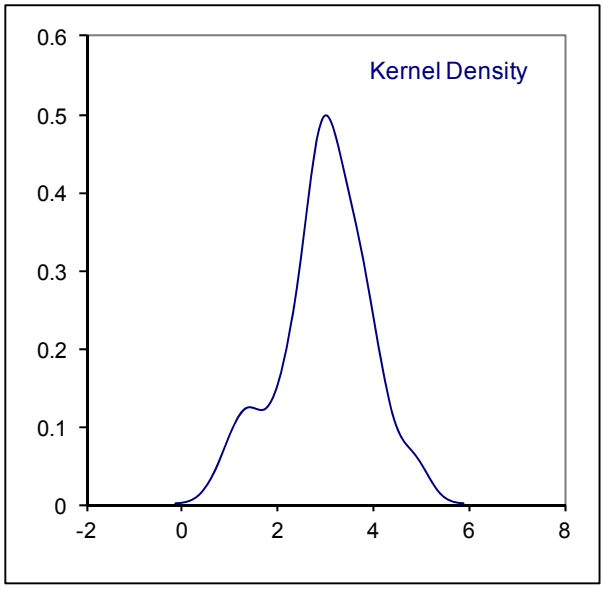


Determination of total Sulphur on sample #12150; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	2.8		-0.16	
62	D5453	3.65		0.53	
120	D7039	2.8		-0.16	
132	D5453	3.36		0.30	
150	D5453	4.2		0.97	
169	D5453	4.74		1.41	
171	EN15485	2.2		-0.64	
174	EN15485	4.0		0.81	
193	D7039	2.2		-0.64	
194	D5453	3.6		0.49	
311	EN15486	<5		-----	
323	EN15486	2		-0.80	
329	EN15485	3		0.01	
332		-----		-----	
333	EN15486	<5		-----	
334	EN15485	3.2		0.17	
338	D5453	0.86		-1.72	
340	EN15486	2.8		-0.16	
343	EN15486	1.2		-1.45	
357	EN15485	3.4		0.33	
360	EN15486	3.6		0.49	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463	ISO20846	2.93		-0.05	
468	EN15485	2.63		-0.29	
494	EN15486	4.1		0.89	
495	EN15485	3.9		0.73	
496	EN15485	<7		-----	
511	D5453	3.03		0.03	
541	D5453	1.5		-1.20	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D5453	3.55		0.45	
663	D5453	3.4		0.33	
823		-----		-----	
840		-----		-----	
862	D5453	3.0		0.01	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D5453	2.65		-0.28	
974		-----		-----	
1067	EN15485	2.3		-0.56	
1079	ISO20884	4.0		0.81	
1124	EN15486	2.96		-0.03	
1201	EN15485	<7.0		-----	
1203	EN15486	2.38		-0.49	
1213	D5453	3.0		0.01	
1231		-----		-----	
1263	ISO20846	3.697		0.57	
1298		-----		-----	
1300	EN15486	2.933		-0.05	
1319	D3961	3.5		0.41	
1359	in house	1.31		-1.36	
1402		-----		-----	
1523		-----		-----	
1563		-----		-----	
1605		-----		-----	
1656	EN15485	4.9		1.54	
1707	EN15486	2.8		-0.16	
1710	ISO20846	3.1		0.09	
1726		-----		-----	
1727		-----		-----	
1817		-----		-----	
1835	EN15485	3.0		0.01	
1917		-----		-----	
1919		-----		-----	
1933	EN15485	1.51		-1.20	

normality	OK	
n	42	
outliers	0	
mean (n)	2.993	
st.dev. (n)	0.9040	
R(calc.)	2.531	
R(EN15485:07)	3.469	Application range: 7 – 20 mg/kg
Compare		
R(EN15486:07)	2.149	Application range: 5 – 20 mg/kg
R(D5453:09)	1.319	Application range: 1 – 8000 mg/kg





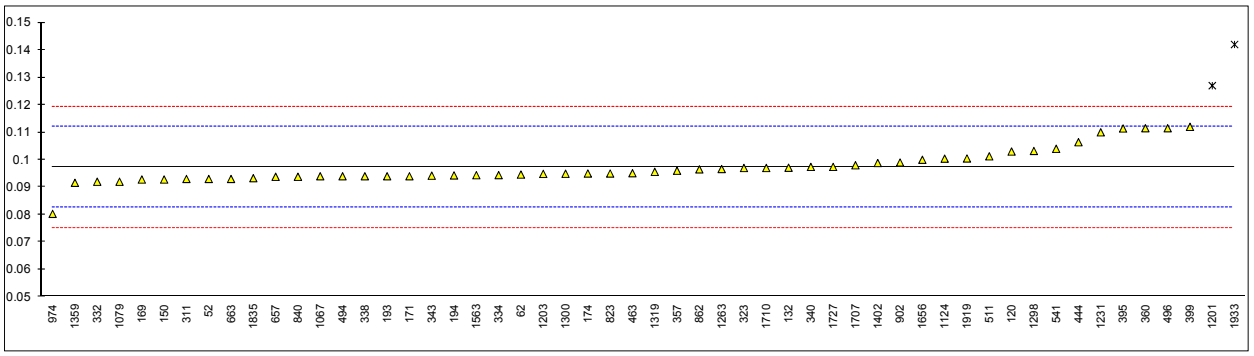
Determination of Water (coulometric) on sample #12150; results in %M/M

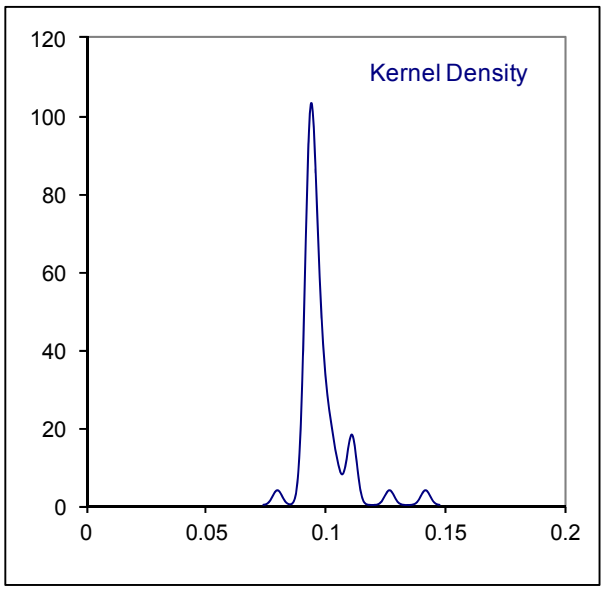
lab	method	value	mark	z(targ)	remarks
52	E1064	0.093		-0.58	
62	E1064	0.0946		-0.37	
120	E1064	0.103		0.77	
132	E1064	0.0971		-0.03	
150	EN15489	0.0928		-0.61	
169	E1064	0.0928		-0.61	
171	EN15489	0.094		-0.45	
174	EN15489	0.095		-0.31	
193	D6304	0.094		-0.45	
194	E1064	0.0943		-0.41	
311	EN15489	0.093		-0.58	
323	EN15489	0.097		-0.04	
329		-----		-----	
332	EN15489	0.0920		-0.72	
333		-----		-----	
334	EN15489	0.0944		-0.39	
338	D1364	0.094		-0.45	
340	EN15489	0.0974		0.01	
343	EN15489	0.0942		-0.42	
357	EN15489	0.096		-0.18	
360	EN15489	0.1115		1.93	
395	EN15489	0.1114		1.91	
399	EN15489	0.112		2.00	
444	EN15489	0.1064		1.23	
463	ISO12937	0.0951		-0.30	
468		-----		-----	
494	EN15489	0.0940		-0.45	
495		-----		-----	
496	EN15489	0.1115		1.93	
511	E1064	0.10125		0.54	
541	E1064	0.104		0.91	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	E1064	0.0938		-0.48	
663	E1064	0.093		-0.58	
823	E1064	0.095		-0.31	
840	E1064	0.0938		-0.48	
862	E1064	0.0965		-0.11	
902	E1064	0.0990		0.23	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974	E1064	0.0803		-2.31	
1067	EN15489	0.094		-0.45	
1079	EN15489	0.092		-0.72	
1124	EN15489	0.1004		0.42	
1201	EN15489	0.127	G(0.01)	4.03	
1203	EN15489	0.09485	C	-0.33	Reported 948.5 (unit error?)
1213		-----		-----	
1231	D6304	0.110		1.72	
1263	ISO12937	0.09661		-0.09	
1298	EN15489	0.1032		0.80	
1300	EN15489	0.0949		-0.33	
1319	in house	0.0956		-0.23	
1359	EN15489	0.0916		-0.77	
1402	EN15489	0.0988		0.20	
1523		-----		-----	
1563	EN15489	0.094374		-0.40	
1605		-----		-----	
1656	EN15489	0.10		0.37	
1707	EN15489	0.098		0.09	
1710	EN15489	0.097		-0.04	
1726		-----		-----	
1727	EN15489	0.0974		0.01	
1817		-----		-----	
1835	EN15489	0.0933		-0.54	
1917		-----		-----	
1919	EN15489	0.10048		0.43	
1933	EN15489	0.142	G(0.01)	6.07	

normality	not OK	
n	52	
outliers	2	
mean (n)	0.0973	
st.dev. (n)	0.00605	
R(calc.)	0.0169	
R(EN15489:07)	0.0206	Application range: 0.039 – 0.500

Compare

R(E1064:12)	0.0165	Application range: 0 – 2





Determination of Water (titrimetric) on sample #12150; results in %M/M

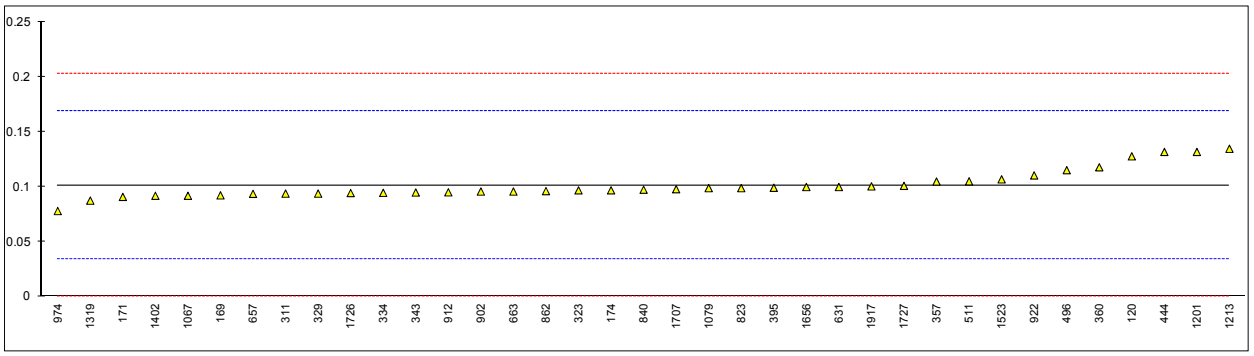
lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	E203	0.128		0.78	
132		-----		-----	
150		-----		-----	
169	E203	0.0924		-0.27	
171	E203	0.091		-0.31	
174	E203	0.097		-0.14	
193		-----		-----	
194		-----		-----	
311	E203	0.094		-0.22	
323	E203	0.097		-0.14	
329	E203	0.094		-0.22	
332		-----		-----	
333		-----		-----	
334	E203	0.0947		-0.20	
338		-----		-----	
340		-----		-----	
343	E203	0.095		-0.19	
357	E203	0.105		0.10	
360	E203	0.118		0.48	
395	E203	0.0993		-0.07	
399		-----		-----	
444	E203	0.132		0.90	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	E203	0.1154		0.41	
511	E203	0.1052		0.11	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	E203	0.100		-0.05	
657	E203	0.0938		-0.23	
663	E203	0.0959		-0.17	
823	D1364	0.099		-0.08	
840	E203	0.0976		-0.12	
862	E203	0.0963		-0.16	
902	E203	0.0959		-0.17	
912	E203	0.0952		-0.19	
913		-----		-----	
922	E203	0.1106		0.27	
974	E203	0.0781		-0.69	
1067	E203	0.092		-0.28	
1079	E203	0.099		-0.08	
1124		-----		-----	
1201	E203	0.132		0.90	
1203		-----		-----	
1213	E203	0.1349		0.98	
1231		-----		-----	
1263		-----		-----	
1298		-----		-----	
1300		-----		-----	
1319	in house	0.0876		-0.41	
1359		-----		-----	
1402	E203	0.092		-0.28	
1523	E203	0.107		0.16	
1563		-----		-----	
1605		-----		-----	
1656	E203	0.10		-0.05	
1707	E203	0.098		-0.11	
1710		-----		-----	
1726	E203	0.0945		-0.21	
1727	E203	0.1011		-0.01	
1817		-----		-----	
1835		-----		-----	
1917	in house	0.1006		-0.03	
1919		-----		-----	
1933		-----		-----	

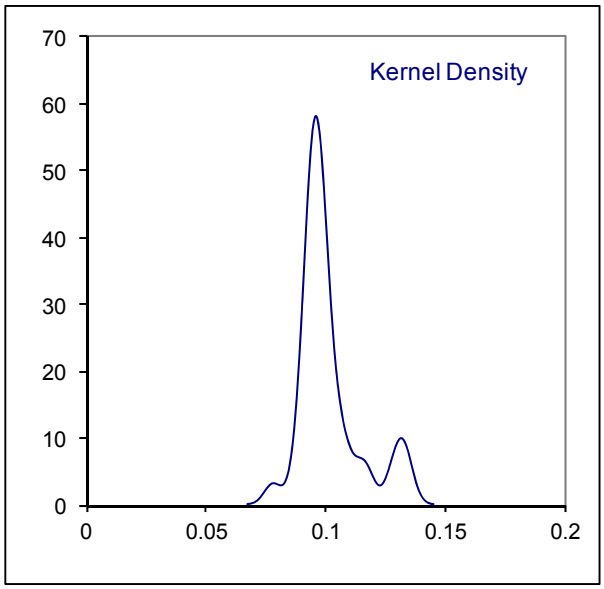
normality	not OK
n	37
outliers	0
mean (n)	0.1016
st.dev. (n)	0.01283
R(calc.)	0.0359
R(EN15692:09)	0.0950

Application range: 0.05 - 0.54%M/M

Compare

R(E203:08)	0.0780



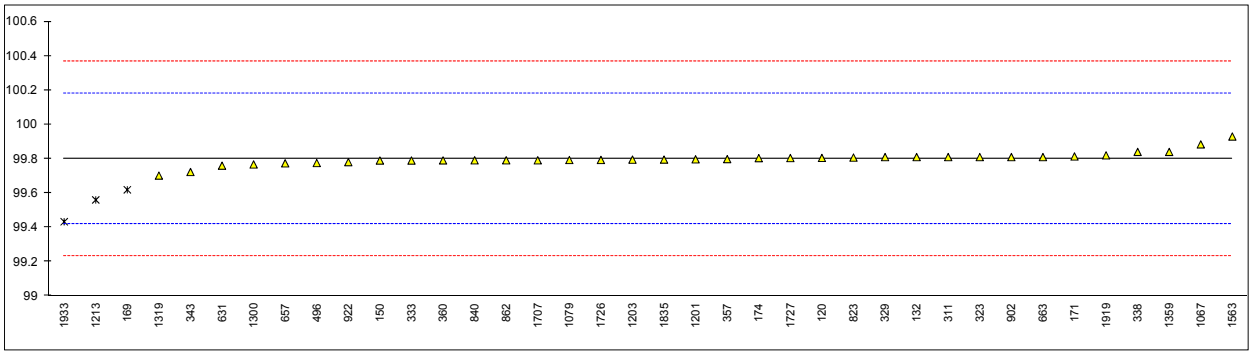


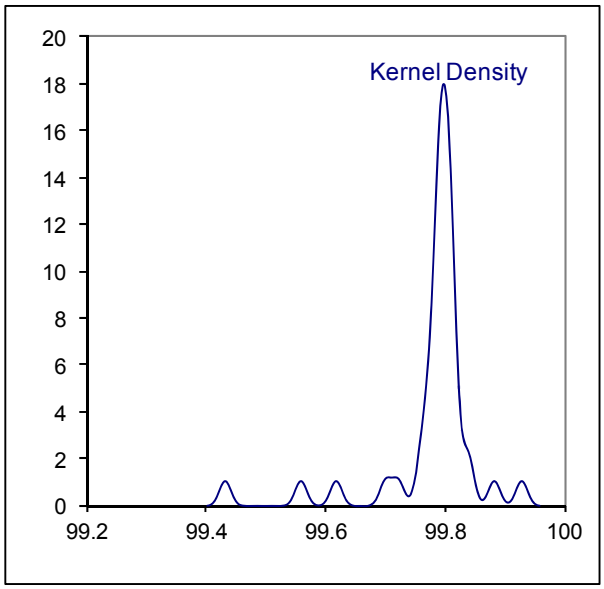
Determination of Purity on dry basis on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	INH-GC	99.805		0.03	
132	D5501	99.81		0.05	
150	INH-0001	99.79		-0.05	
169	D5501Mod.	99.6191	G(0.01)	-0.96	
171	EN15721	99.8136		0.07	
174	D5501	99.804		0.02	
193		-----		-----	
194		-----		-----	
311	INH-529	99.81		0.05	
323	INH-0001	99.81		0.05	
329	INH-0001	99.81		0.05	
332		-----		-----	
333	EN15721	99.79		-0.05	
334		-----		-----	
338	INH-2870	99.84		0.21	
340		-----		-----	
343	INH-9777	99.723		-0.41	
357	INH-001	99.798		-0.01	
360	EN15721	99.7906		-0.05	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	99.7755		-0.13	
511		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D5501	99.76		-0.21	
657	INH-001	99.7736		-0.14	
663	INH-001	99.81	C	0.05	First reported 99.693
823	INH-0001	99.8072		0.04	
840	EN15721	99.791		-0.05	
862	INH-0001	99.791		-0.05	
902	INH-0001	99.81		0.05	
912		-----		-----	
913		-----		-----	
922	INH-0001	99.7807		-0.10	
974		-----		-----	
1067		99.884		0.44	
1079	EN15721Mod.	99.793		-0.04	
1124		-----		-----	
1201		99.797		-0.02	
1203	EN15721	99.795		-0.03	
1213	D5501	99.56	G(0.01)	-1.27	
1231		-----		-----	
1263		-----		-----	
1298		-----		-----	
1300	D5501	99.767		-0.18	
1319	in house	99.702		-0.52	
1359		99.84		0.21	
1402		-----		-----	
1523		-----		-----	
1563	INH-052	99.93		0.69	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	99.791		-0.05	
1710		-----		-----	
1726	EN15721	99.7932		-0.04	
1727	EN15721	99.8043		0.02	
1817		-----		-----	
1835	in house	99.7954		-0.03	
1917		-----		-----	
1919		99.82		0.10	
1933	in house	99.433	G(0.01)	-1.94	

normality	not OK
n	35
outliers	3
mean (n)	99.8002
st.dev. (n)	0.03797
R(calc.)	0.1063
R(D5501:09)	0.5300

Application range: 93 – 97%M/M

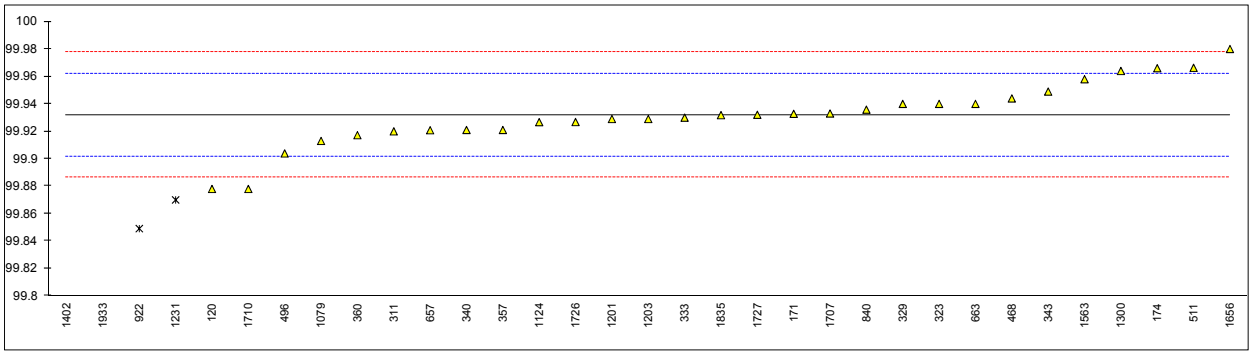


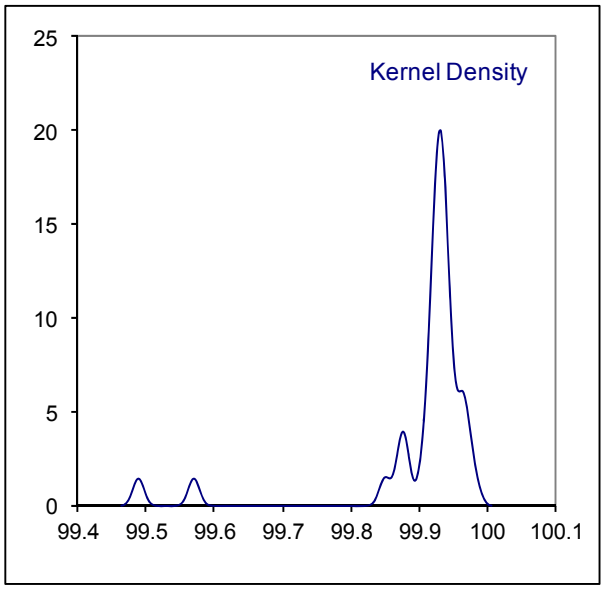


Determination of Ethanol + Higher saturated alcohols on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	99.878		-3.57	
132		-----		-----	
150		-----		-----	
169		-----		-----	
171	EN15721	99.9328		0.05	
174	D5501	99.966		2.25	
193		-----		-----	
194		-----		-----	
311	INH-529	99.92		-0.79	
323	INH-0001	99.94		0.53	
329	INH-0001	99.94		0.53	
332		-----		-----	
333	EN15721	99.93		-0.13	
334		-----		-----	
338		-----		-----	
340	EN15721	99.921		-0.73	
343	INH-1	99.949	C	1.12	First reported 99.855
357	EN15721	99.921		-0.73	
360	EN15721	99.9172		-0.98	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15721	99.944		0.79	
494		-----		-----	
495		-----		-----	
496	EN15721	99.9039		-1.86	
511	EN15721	99.9663		2.27	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	99.9208		-0.74	
663	INH-001	99.94	C	0.53	First reported 99.821
823		-----		-----	
840	EN15721	99.9358		0.25	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	99.8491	G(0.05)	-5.48	
974		-----		-----	
1067		-----		-----	
1079	EN15721	99.913		-1.25	
1124	EN15721	99.9267		-0.35	
1201	EN15721	99.929		-0.20	
1203	EN15721	99.929		-0.20	
1213		-----		-----	
1231	EN2870	99.87	G(0.05)	-4.10	
1263		-----		-----	
1298		-----		-----	
1300	EN15721	99.9640		2.12	
1319		-----		-----	
1359		-----		-----	
1402	EN15721	99.489	G(0.01)	-29.27	
1523		-----		-----	
1563	EN15721	99.958		1.72	
1605		-----		-----	
1656	EN15721	99.98		3.17	
1707	INH-2870	99.933		0.07	
1710	D5501	99.878		-3.57	
1726	EN15721	99.9268		-0.34	
1727		99.9321		0.01	
1817		-----		-----	
1835	EN15721	99.9318		-0.01	
1917		-----		-----	
1919		-----		-----	
1933	in house	99.57	C,G(0.01)	-23.92	First reported 99.49

normality	OK
n	29
outliers	4
mean (n)	99.9320
st.dev. (n)	0.02297
R(calc.)	0.0643
R(EN15721:09)	0.0424

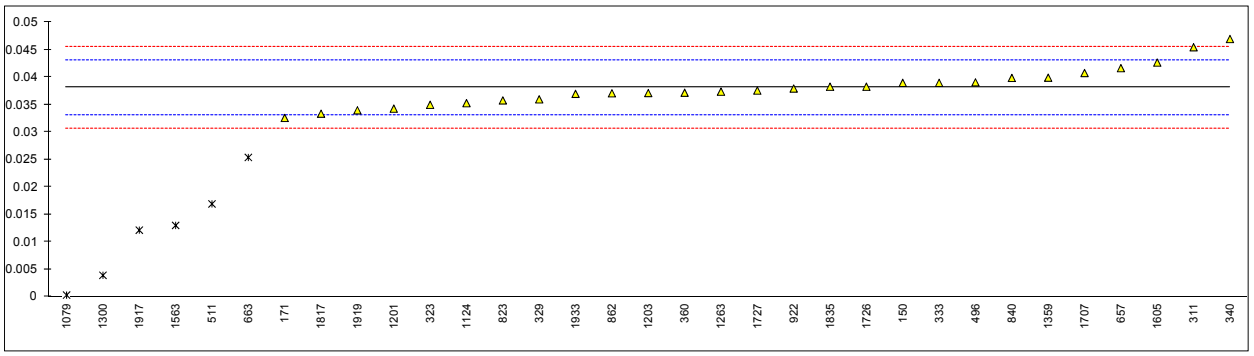


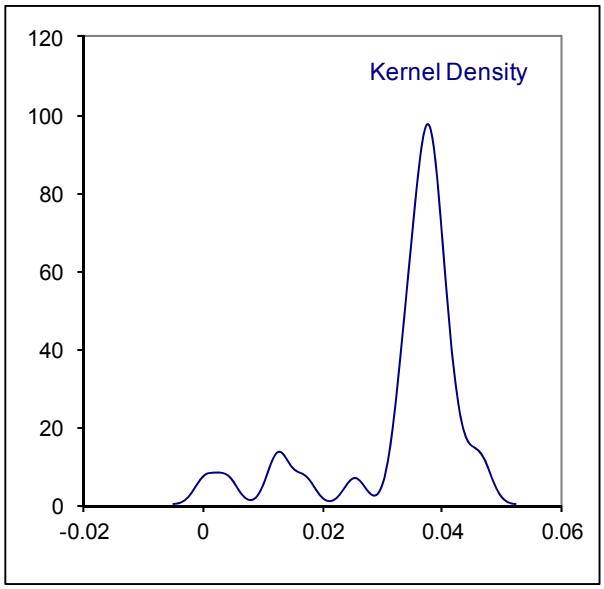


Determination of Acetal on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	INH-0001	0.0390		0.36	
169		-----		-----	
171	INH-001	0.0326		-2.21	
174		-----		-----	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0455		2.96	
323	INH-0001	0.0350		-1.25	
329	INH-0001	0.0360		-0.85	
332		-----		-----	
333	EN15721	0.039		0.36	
334		-----		-----	
338		-----		-----	
340	EN15721	0.047		3.57	
343		-----		-----	
357		-----		-----	
360	EN15721	0.0372		-0.37	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0391		0.40	
511	EN15721	0.01692	G(0.01)	-8.50	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.04168		1.43	
663	INH-001	0.0254	C,G(0.05)	-5.10	First reported <0.0002
823	INH-0001	0.0358		-0.93	
840	EN15721	0.0399	C	0.72	First reported <0.0002
862	INH-0001	0.0371		-0.41	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.03797		-0.06	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0003	DG(0.01)	-15.17	
1124	EN15721	0.0353		-1.13	
1201		0.0343		-1.53	
1203	EN15721	0.03715		-0.39	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0374		-0.29	
1298		-----		-----	
1300	EN15721	0.0039	C,DG(0.01)	-13.72	First reported 0.002463
1319		-----		-----	
1359		0.03995		0.74	
1402		-----		-----	
1523		-----		-----	
1563	EN15721	0.013	DG(0.01)	-10.07	
1605		0.04270		1.84	
1656		-----		-----	
1707	INH-2870	0.0408		1.08	
1710		-----		-----	
1726	EN15721	0.0383		0.08	
1727		0.0376		-0.21	
1817	INH-2008	0.033378		-1.90	
1835	in house	0.0383		0.08	
1917	in house	0.012138	DG(0.01)	-10.42	
1919		0.0340		-1.65	
1933	in house	0.037		-0.45	

normality	OK
n	27
outliers	6
mean (n)	0.0381
st.dev. (n)	0.00340
R(calc.)	0.0095
R(Horwitz)	0.0070

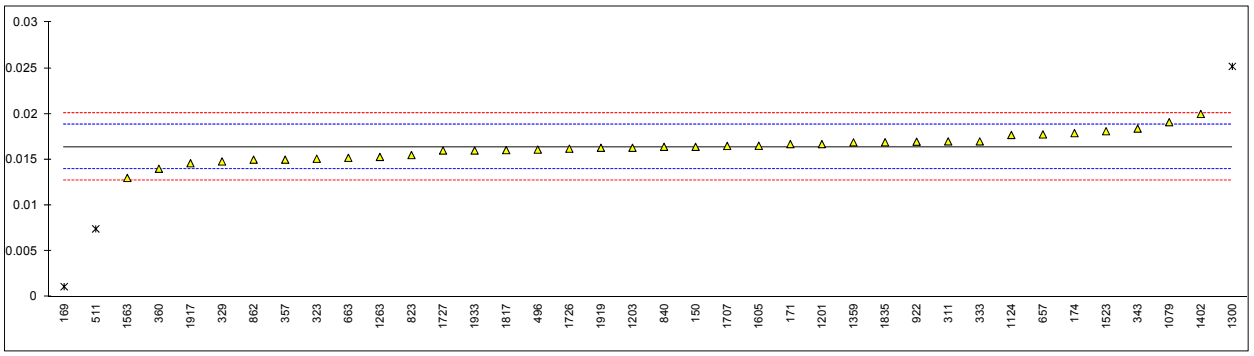


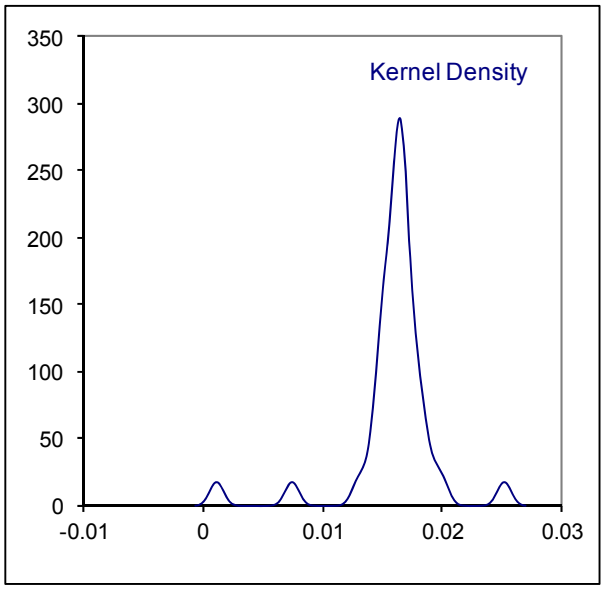


Determination of Ethylacetate on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	INH-0001	0.0164		0.01	
169	D5501Mod.	0.0011	G(0.01)	-12.56	
171	INH-001	0.0167		0.26	
174	D5501	0.0179		1.25	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0170		0.51	
323	INH-0001	0.0151		-1.05	
329	INH-0001	0.0148		-1.30	
332		-----		-----	
333	EN15721	0.017		0.51	
334		-----		-----	
338		-----		-----	
340		-----		-----	
343	INH-1	0.0184		1.66	
357	INH-001	0.015		-1.14	
360	EN15721	0.0140		-1.96	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0161		-0.23	
511	EN15721	0.00742	G(0.01)	-7.37	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.01776		1.13	
663	INH-001	0.0152	C	-0.97	First reported 0.0161
823	INH-0001	0.0155		-0.73	
840	EN15721	0.0164		0.01	
862	INH-0001	0.0150		-1.14	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.01696		0.47	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0191		2.23	
1124	EN15721	0.0177		1.08	
1201		0.0167		0.26	
1203	EN15721	0.01630		-0.07	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0153		-0.89	
1298		-----		-----	
1300	EN15721	0.0252	C,G(0.01)	7.25	First reported 0.02087
1319		-----		-----	
1359		0.01689		0.42	
1402	EN15721	0.020		2.97	
1523	D5501	0.018110		1.42	
1563	EN15721	0.013		-2.78	
1605		0.01652		0.11	
1656		-----		-----	
1707	INH-2870	0.0165		0.10	
1710		-----		-----	
1726	EN15721	0.0162		-0.15	
1727		0.0160		-0.31	
1817	INH-2008	0.016041		-0.28	
1835	in house	0.0169		0.43	
1917	in house	0.0146037		-1.46	
1919		0.0163		-0.07	
1933	in house	0.016		-0.31	

normality	OK
n	35
outliers	3
mean (n)	0.0164
st.dev. (n)	0.00141
R(calc.)	0.0039
R(Horwitz)	0.0034

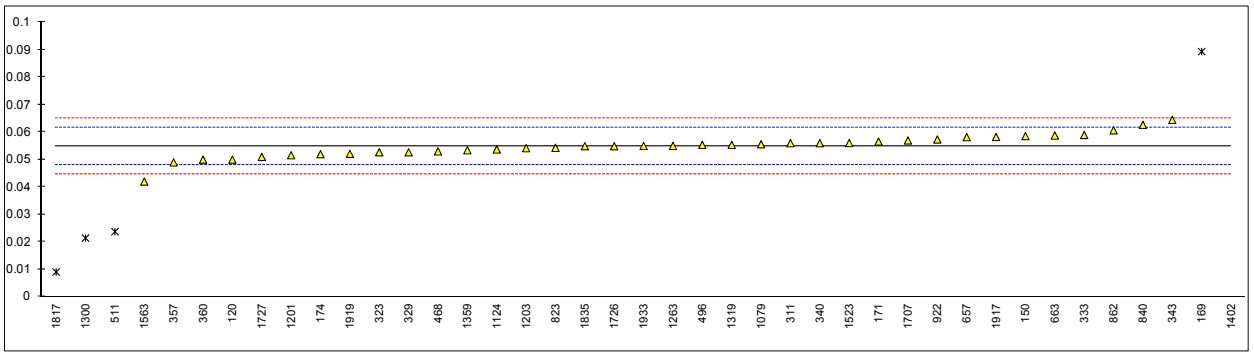


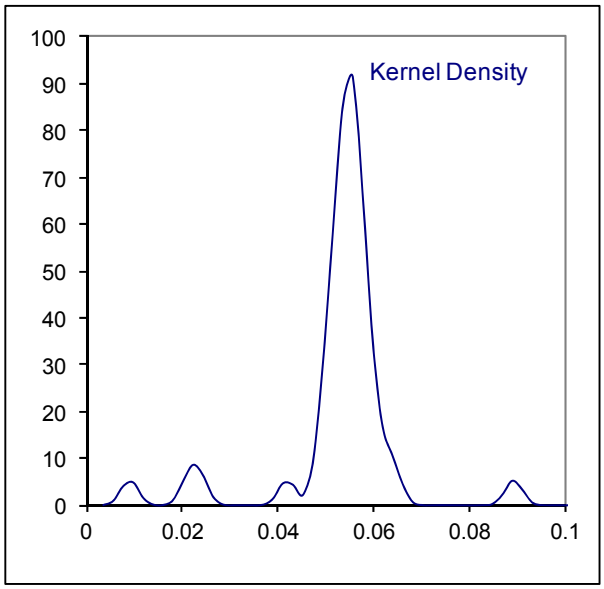


Determination of iso-Butanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.050		-1.45	
132		-----		-----	
150	INH-0001	0.0586		1.08	
169	D5501Mod.	0.0894	G(0.01)	10.13	
171	EN15721	0.0566		0.49	
174	D5501	0.0520		-0.86	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0560		0.31	
323	INH-0001	0.0527		-0.66	
329	INH-0001	0.0527		-0.66	
332		-----		-----	
333	EN15721	0.059		1.20	
334		-----		-----	
338		-----		-----	
340	EN15721	0.056		0.31	
343	INH-1	0.0645		2.81	
357	EN15721	0.049		-1.75	
360	EN15721	0.0500		-1.45	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463	EN13132	<0.2		-----	
468	EN15721	0.053		-0.57	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0554		0.14	
511	EN15721	0.02373	G(0.01)	-9.18	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.05820		0.96	
663	INH-001	0.0588	C	1.14	First reported 0.0522
823	INH-0001	0.0543		-0.19	
840	EN15721	0.0627		2.28	
862	INH-0001	0.0607		1.70	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.05735		0.71	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0556		0.20	
1124	EN15721	0.0537		-0.36	
1201	EN15721	0.0516		-0.98	
1203	EN15721	0.05418		-0.22	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0550		0.02	
1298		-----		-----	
1300	EN15721	0.0214	C,G(0.05)	-9.86	First reported 0.0279
1319	in house	0.0554		0.14	
1359	EN15721	0.05343		-0.44	
1402	EN15721	0.53	G(0.01)	139.69	
1523	D5501	0.056052		0.33	
1563	EN15721	0.042		-3.80	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	0.057		0.61	
1710		-----		-----	
1726	EN15721	0.0549		-0.01	
1727		0.0510		-1.16	
1817	INH-2008	0.009013	G(0.01)	-13.50	
1835	in house	0.0549		-0.01	
1917	in house	0.058254		0.98	
1919	EN15721	0.0521		-0.83	
1933	in house	0.055		0.02	

normality	OK
n	36
outliers	5
mean (n)	0.0549
st.dev. (n)	0.00408
R(calc.)	0.0114
R(Horwitz)	0.0095



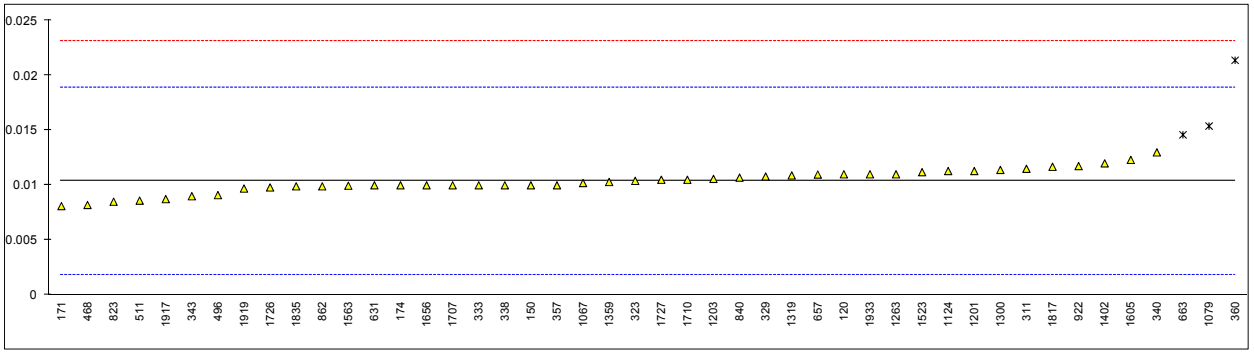


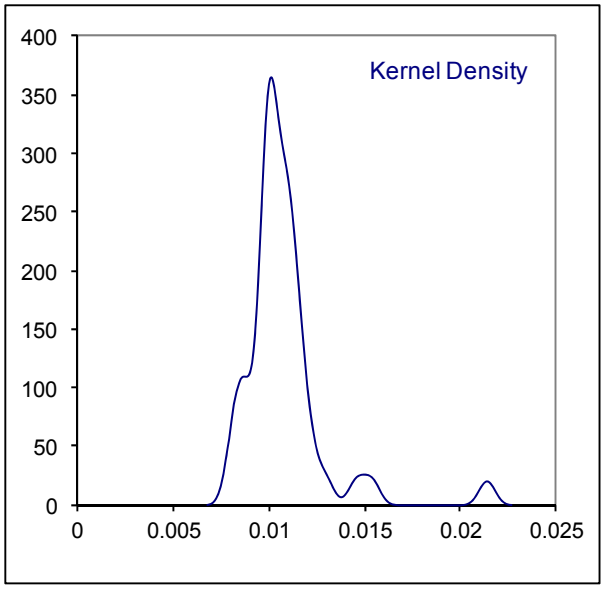
Determination of Methanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.011		0.15	
132	D5501	<0.01		-----	
150	INH-0001	0.0100		-0.09	
169	D5501Mod.	<0.01		-----	
171	EN15721	0.0081		-0.53	
174	D5501	0.010		-0.09	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0115		0.27	
323	INH-0001	0.0104		0.01	
329	INH-0001	0.0108		0.10	
332		-----		-----	
333	EN15721	0.010		-0.09	
334		-----		-----	
338	INH-2870	0.010		-0.09	
340	EN15721	0.013		0.62	
343	EN15721	0.009		-0.32	
357	EN15721	0.010		-0.09	
360	EN15721	0.0214	G(0.01)	2.59	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463	EN13132	<0.2		-----	
468	EN15721	0.0082		-0.51	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0091		-0.30	
511	EN15721	0.0086		-0.41	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D5501	0.01		-0.09	
657	INH-001	0.01098		0.14	
663	INH-001	0.0146	C,G(0.05)	0.99	First reported 0.0094
823	INH-0001	0.0085		-0.44	
840	EN15721	0.0107		0.08	
862	INH-0001	0.0099		-0.11	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.01175		0.32	
974		-----		-----	
1067	EN15721	0.0102		-0.04	
1079	EN15721Mod.	0.0154	G(0.05)	1.18	
1124	EN15721	0.0113		0.22	
1201	EN15721	0.0113		0.22	
1203	EN15721	0.01058		0.05	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0110		0.15	
1298		-----		-----	
1300	EN15721	0.0114		0.24	
1319	in house	0.0109		0.12	
1359	EN15721	0.0103		-0.02	
1402	EN15721	0.012		0.38	
1523	D5501	0.011195		0.19	
1563	EN15721	0.009958		-0.10	
1605	EN15721	0.01231		0.46	
1656	EN15721	0.01		-0.09	
1707	INH-2870	0.01		-0.09	
1710	D5501	0.0105		0.03	
1726	EN15721	0.0098		-0.13	
1727		0.0105		0.03	
1817	INH-2008	0.011685		0.31	
1835	in house	0.0099		-0.11	
1917	in house	0.008738		-0.38	
1919	EN15721	0.0097		-0.16	
1933	in house	0.011		0.15	

normality	OK
n	43
outliers	3
mean (n)	0.0104
st.dev. (n)	0.00108
R(calc.)	0.0030
R(D5501:09)	0.0119

Compare R(EN15721:09) = **-0.0028**
Compare R(Horwitz) = 0.0023

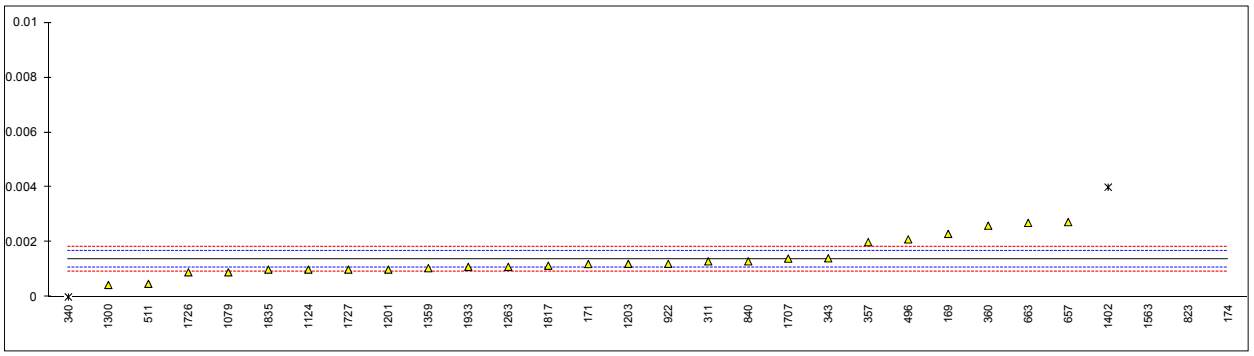


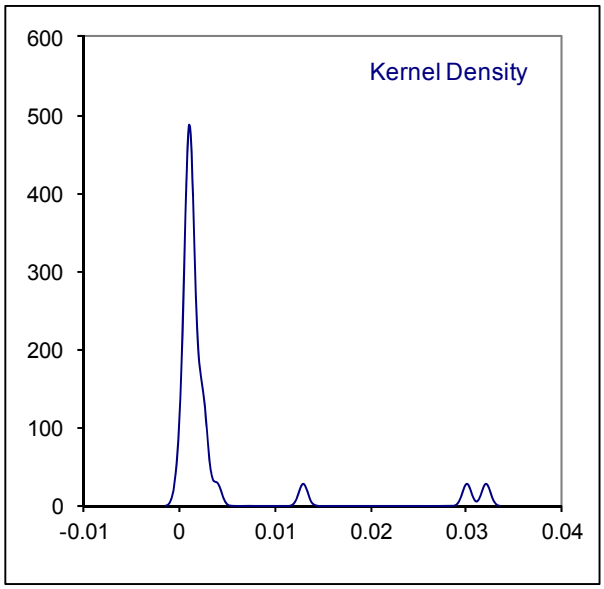


Determination of 3-Methyl-1-butanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	<0.001		-----	
132		-----		-----	
150		-----		-----	
169	D5501Mod.	0.0023		6.16	
171	EN15721	0.0012		-1.23	
174	D5501	0.0321	G(0.01)	206.15	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0013		-0.56	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338		-----		-----	
340	EN15721	0.000	ex	-9.28	Result excluded, zero is not a real result
343	INH-1	0.00141		0.18	
357	EN15721	0.002		4.14	
360	EN15721	0.0026		8.17	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0021		4.81	
511	EN15721	0.00048		-6.06	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.00273		9.04	
663	INH-001	0.0027	C	8.84	First reported 0.0012
823	INH-0001	0.0301	G(0.01)	192.73	
840	EN15721	0.0013		-0.56	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.00121		-1.16	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0009		-3.24	
1124	EN15721	0.0010		-2.57	
1201	EN15721	0.0010		-2.57	
1203	EN15721	0.00121		-1.16	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0011		-1.90	
1298		-----		-----	
1300	EN15721	0.00044		-6.33	
1319		-----		-----	
1359	EN15721	0.00105		-2.23	
1402	EN15721	0.004	G(0.05)	17.56	
1523		-----		-----	
1563	EN15721	0.013	G(0.01)	77.97	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	0.0014		0.12	
1710		-----		-----	
1726	EN15721	0.0009		-3.24	
1727		0.0010		-2.57	
1817	INH-2008	0.001141		-1.62	
1835	in house	0.0010		-2.57	
1917		-----		-----	
1919	EN15721	<0.00016		<-8.13	False negative?
1933	in house	0.0011		-1.90	

normality	not OK
n	25
outliers	4
mean (n)	0.00138
st.dev. (n)	0.000644
R(calc.)	0.00180
R(Horwitz)	0.00042

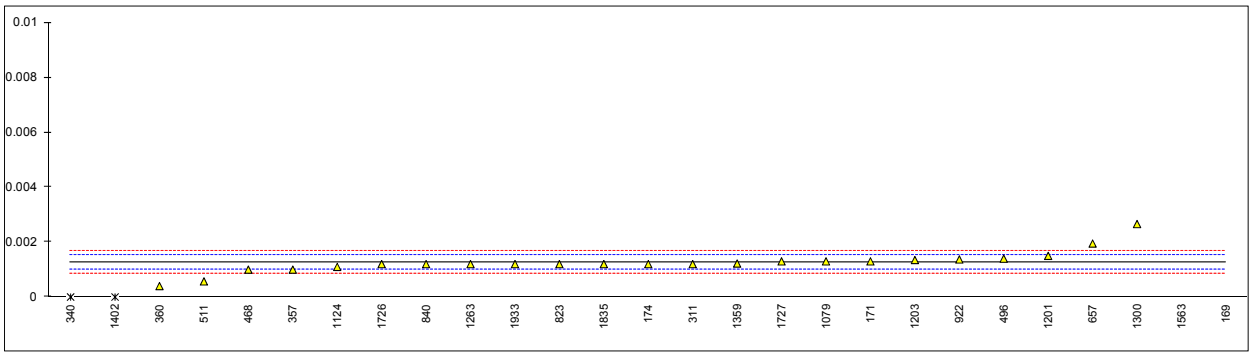


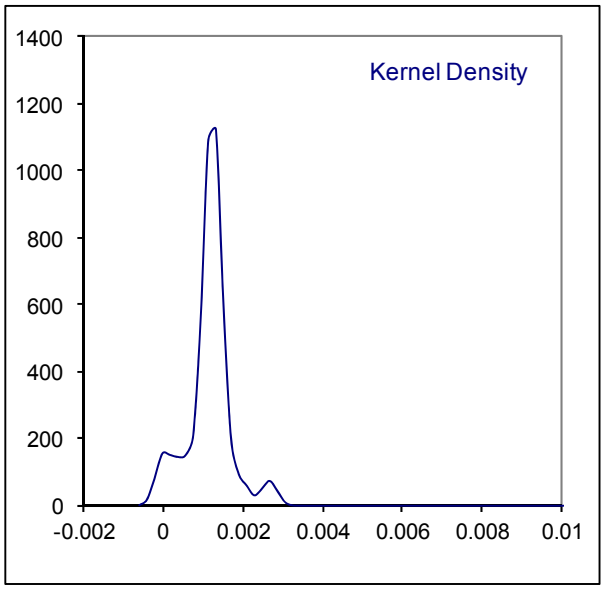


Determination of 2-Methyl-1-butanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	<0.001		-----	
132		-----		-----	
150		-----		-----	
169	D5501Mod.	0.0478	G(0.01)	337.62	
171	EN15721	0.0013		0.28	
174	D5501	0.0012		-0.45	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0012		-0.45	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338		-----		-----	
340	EN15721	0.000	ex	-9.15	Result excluded, zero is not a real result
343		-----		-----	
357	EN15721	0.001		-1.90	
360	EN15721	0.0004		-6.25	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15721	0.001		-1.90	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0014		1.00	
511	EN15721	0.00057		-5.02	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.00195		4.99	
663	INH-001	<0.0002		-----	
823	INH-0001	0.0012		-0.45	
840	EN15721	0.0012		-0.45	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.00137		0.79	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0013		0.28	
1124	EN15721	0.0011		-1.17	
1201	EN15721	0.0015		1.73	
1203	EN15721	0.00135		0.64	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0012		-0.45	
1298		-----		-----	
1300	EN15721	0.00266		10.14	
1319		-----		-----	
1359	EN15721	0.00122		-0.30	
1402	EN15721	0.00	ex	-9.15	Result excluded, zero is not a real result
1523		-----		-----	
1563	EN15721	0.042	G(0.01)	295.55	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	<0.005		-----	
1710		-----		-----	
1726	EN15721	0.0012		-0.45	
1727		0.0013		0.28	
1817		-----		-----	
1835	in house	0.0012		-0.45	
1917		-----		-----	
1919	EN15721	<0.00021		<-7.54	False negative?
1933	in house	0.0012		-0.45	

normality	not OK
n	23
outliers	2
mean (n)	0.00126
st.dev. (n)	0.000423
R(calc.)	0.00119
R(Horwitz)	0.00039



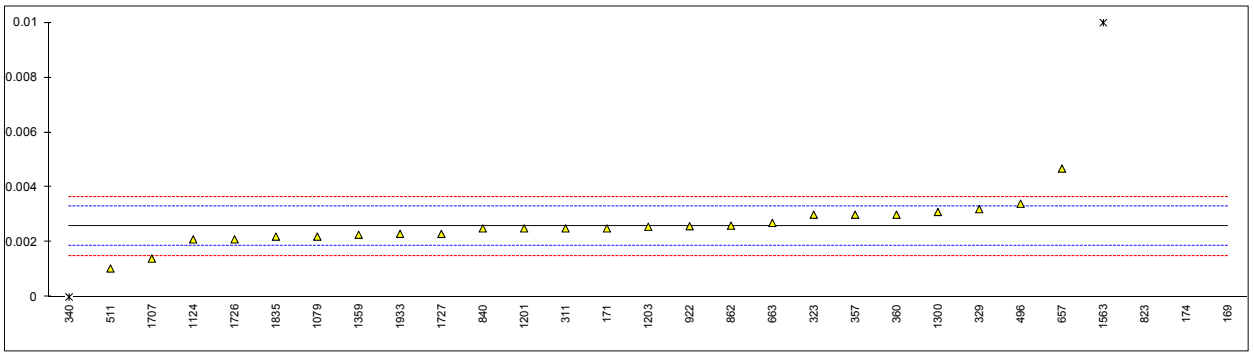


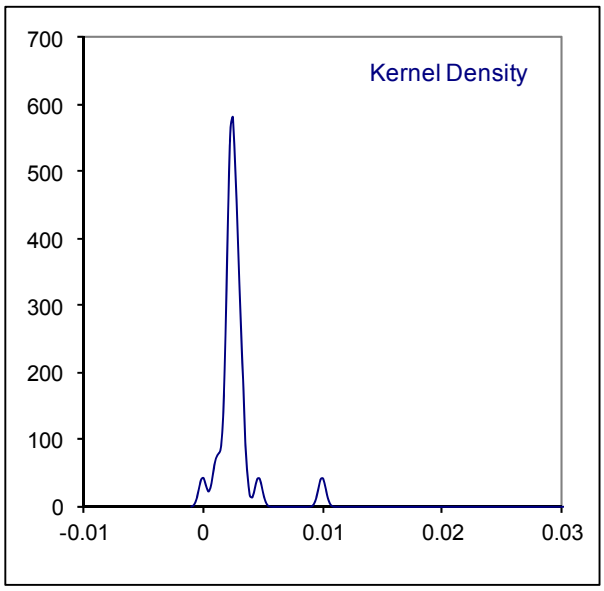
Determination of sum 2-Methyl-1-butanol + 3-Methyl-1-butanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	<0.001		<-4.40	False negative?
132		-----		-----	
150		-----		-----	
169	D5501Mod.	0.0502	G(0.01)	133.36	
171	EN15721	0.0025		-0.20	
174	D5501	0.0333	G(0.01)	86.04	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0025		-0.20	
323	INH-0001	0.0030		1.20	
329	INH-0001	0.0032		1.76	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338		-----		-----	
340	EN15721	0.000	ex	-7.20	Result excluded, zero is not a real result
343		-----		-----	
357	Calc.	0.003		1.20	
360	EN15721	0.0030		1.20	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0034		2.32	
511	EN15721	0.00104		-4.29	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.00468		5.90	
663	INH-001	0.0027	C	0.36	First reported 0.0012
823	INH-0001	0.0313	G(0.01)	80.44	
840	EN15721	0.0025		-0.20	
862	INH-0001	0.0026		0.08	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.00258		0.02	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0022		-1.04	
1124	EN15721	0.0021		-1.32	
1201		0.0025		-0.20	
1203	EN15721	0.00256		-0.03	
1213		-----		-----	
1231		-----		-----	
1263		-----		-----	
1298		-----		-----	
1300	EN15721	0.0031		1.48	
1319		-----		-----	
1359		0.00227		-0.85	
1402		-----		-----	
1523		-----		-----	
1563	EN15721	0.0099958	G(0.01)	20.79	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	0.0014		-3.28	
1710		-----		-----	
1726		0.0021		-1.32	
1727		0.0023		-0.76	
1817		-----		-----	
1835	in house	0.0022		-1.04	
1917		-----		-----	
1919		<0.0002		<-6.64	False negative?
1933	in house	0.0023		-0.76	

normality	OK
n	24
outliers	4
mean (n)	0.00257
st.dev. (n)	0.000694
R(calc.)	0.00194
R (Horwitz)	0.00100

Compare R(EN15721:09) = -0.00234

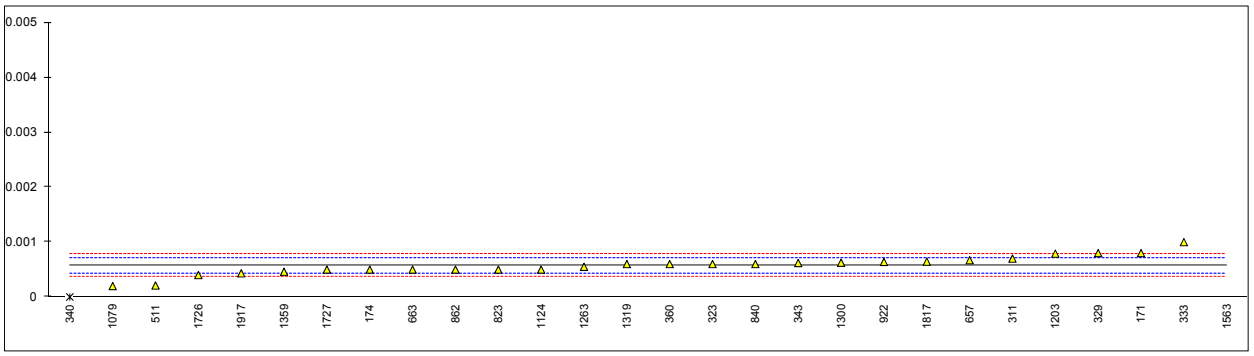


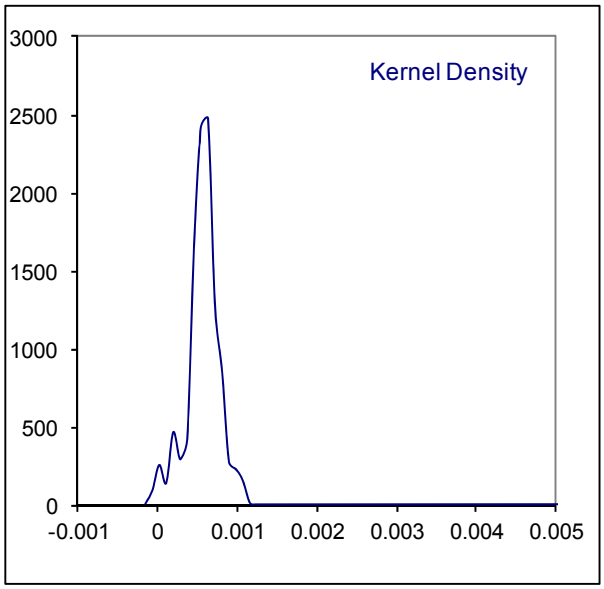


Determination of n-Butanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	<0.001		-----	
132		-----		-----	
150	INH-0001	<0.0005		-----	
169	D5501Mod.	<0.01		-----	
171	EN15721	0.0008		3.19	
174	D5501	0.0005		-1.06	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0007		1.77	
323	INH-0001	0.0006		0.36	
329	INH-0001	0.0008		3.19	
332		-----		-----	
333	EN15721	0.001		6.02	
334		-----		-----	
338		-----		-----	
340	EN15721	0.000	ex	-8.13	Result excluded, zero is not a real result
343	INH-1	0.00062		0.64	
357	EN15721	<0.001		-----	
360	EN15721	0.0006		0.36	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15721	<0.0001		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	<0.001		-----	
511	EN15721	0.00021		-5.16	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.00067		1.35	
663	INH-001	0.0005		-1.06	
823	INH-0001	0.0005		-1.06	
840	EN15721	0.0006		0.36	
862	INH-0001	0.0005		-1.06	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.00064		0.92	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0002		-5.30	
1124	EN15721	0.0005		-1.06	
1201	EN15721	<0.001		-----	
1203	EN15721	0.00079		3.05	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.00055	C	-0.35	First reported 0.0055
1298		-----		-----	
1300	EN15721	0.000625		0.71	
1319	in house	0.0006		0.36	
1359	EN15721	0.00046		-1.62	
1402		-----		-----	
1523		-----		-----	
1563	EN15721	0.022	G(0.01)	303.18	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	<0.005		-----	
1710		-----		-----	
1726	EN15721	0.0004		-2.47	
1727	EN15721	0.0005		-1.06	
1817	INH-2008	0.000644		0.98	
1835	in house	<0.0010		-----	
1917	in house	0.000432		-2.02	
1919	EN15721	<0.00023		-----	
1933	in house	<0.001		-----	

normality	OK
n	26
outliers	1
mean (n)	0.00057
st.dev. (n)	0.000172
R(calc.)	0.00048
R(Horwitz)	0.00020

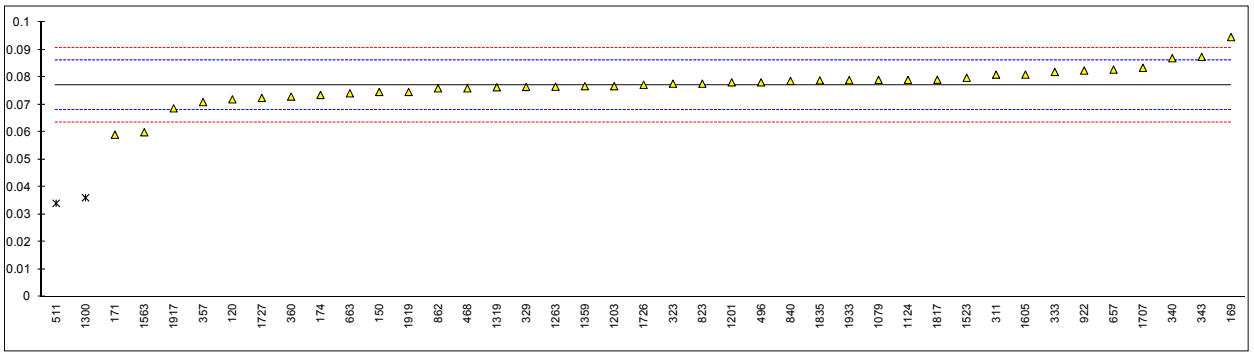


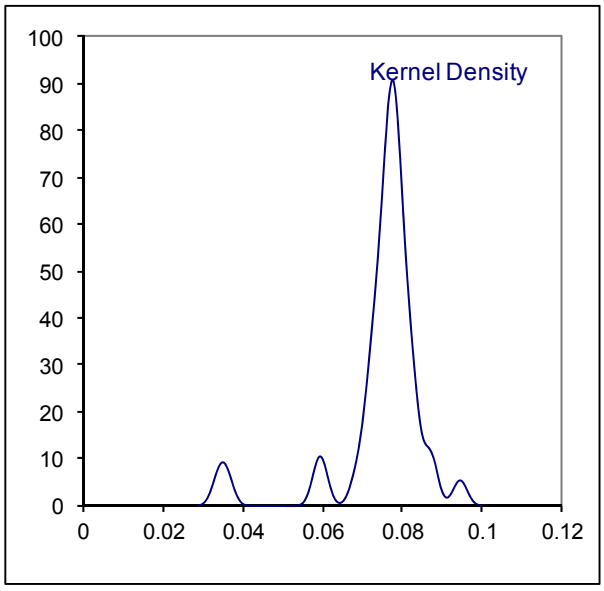


Determination of n-Propanol on sample #12151; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.072		-1.16	
132		-----		-----	
150	INH-0001	0.0747		-0.57	
169	D5501Mod.	0.0947		3.84	
171	EN15721	0.0591		-4.00	
174	D5501	0.0736		-0.81	
193		-----		-----	
194		-----		-----	
311	INH-529	0.0810	C	0.82	First reported 0.046
323	INH-0001	0.0777		0.09	
329	INH-0001	0.0765		-0.17	
332		-----		-----	
333	EN15721	0.082		1.04	
334		-----		-----	
338		-----		-----	
340	EN15721	0.087		2.14	
343	INH-1	0.0875		2.25	
357	EN15721	0.071		-1.38	
360	EN15721	0.0730		-0.94	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15721	0.076		-0.28	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0782		0.20	
511	EN15721	0.03408	G(0.01)	-9.50	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.08283		1.22	
663	INH-001	0.0742		-0.68	
823	INH-0001	0.0777		0.09	
840	EN15721	0.0787		0.31	
862	INH-0001	0.0760		-0.28	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.08250		1.15	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0791		0.40	
1124	EN15721	0.0791		0.40	
1201	EN15721	0.0782		0.20	
1203	EN15721	0.07681		-0.10	
1213		-----		-----	
1231		-----		-----	
1263	D5501	0.0766		-0.15	
1298		-----		-----	
1300	EN15721	0.0361	C,G(0.01)	-9.06	First reported 0.04225
1319	in house	0.0764		-0.19	
1359	EN15721	0.0768		-0.10	
1402		-----		-----	
1523	D5501	0.079870		0.57	
1563	EN15721	0.060		-3.80	
1605		0.08103		0.83	
1656		-----		-----	
1707	INH-2870	0.0835		1.37	
1710		-----		-----	
1726	EN15721	0.0773		0.01	
1727	EN15721	0.0725		-1.05	
1817	INH-2008	0.079131		0.41	
1835	in house	0.0789		0.36	
1917	in house	0.068709		-1.88	
1919	EN15721	0.0747		-0.57	
1933	in house	0.079		0.38	

normality	OK
n	39
outliers	2
mean (n)	0.0773
st.dev. (n)	0.00634
R(calc.)	0.0178
R(Horwitz)	0.0127





Determination of Acetaldehyde, Acetone, Benzene and Cyclohexane on sample #12151; results in %M/M

lab	method	Acetaldehyde	mark	Acetone	mark	Benzene	mark	Cyclohexane	mark
52		-----		-----		-----		-----	
62		-----		-----		-----		-----	
120		-----		-----		-----		-----	
132		-----		-----		-----		-----	
150	INH-0001	<0.0005		<0.0005		-----		-----	
169	D5501Mod.	0.0043	False +?	-----		<0.01		<0.01	
171	EN15721	0.0003		0.0002		<0.001		<0.001	
174	D5501	<0.001		0.0008		<0.001		<0.001	
193		-----		-----		-----		-----	
194		-----		-----		-----		-----	
311	INH-529	<0.0005		<0.0005		<0.0005		<0.0005	
323	INH-0001	<0.0010		<0.0005		<0.0005		<0.0005	
329	INH-0001	<0.0010		<0.0005		<0.0005		<0.0005	
332		-----		-----		-----		-----	
333		-----		-----		-----		-----	
334		-----		-----		-----		-----	
338		-----		-----		-----		-----	
340	EN15721	0.012	False +?	-----		-----		-----	
343	INH-1	<0.0005		0.00056		<0.0005		<0.0005	
357	INH-0001	<0.001		<0.001		<0.001		<0.001	
360	EN15721	0.0006		0.0006		-----		-----	
395		-----		-----		-----		-----	
399		-----		-----		-----		-----	
444		-----		-----		-----		-----	
463		-----		-----		-----		-----	
468		-----		-----		-----		-----	
494		-----		-----		-----		-----	
495		-----		-----		-----		-----	
496	EN15721	<0.001		-----		-----		-----	
511	EN15721	0.00081		-----		-----		-----	
541		-----		-----		-----		-----	
551		-----		-----		-----		-----	
554		-----		-----		-----		-----	
556		-----		-----		-----		-----	
559		-----		-----		-----		-----	
631		-----		-----		-----		-----	
657	INH-001	<0.0002		<0.00032		<0.0005		<0.0002	
663	INH-001	<0.0002		<0.0002		<0.0002		<0.0002	
823	INH-0001	<0.0002		-----		<0.0001		<0.0001	
840	EN15721	0.0003		0.0002		<0.0001		<0.0001	
862		-----		<0.0005		<0.0005		<0.0005	
902		-----		<0.001		<0.001		-----	
912		-----		-----		-----		-----	
913		-----		-----		-----		-----	
922	INH-0001	0.00043		0.00068		<0.0002		<0.0002	
974		-----		-----		-----		-----	
1067		-----		-----		-----		-----	
1079	EN15721Mod.	0.0013	False +?	0.0005		0.0005		<0.0010	
1124	EN15721	0.0003		-----		-----		-----	
1201		0.0005		<0.001		<0.001		<0.001	
1203	EN15721	<0.0005		<0.0005		<0.0005		<0.0005	
1213		-----		-----		-----		-----	
1231		-----		-----		-----		-----	
1263	D5501	<0.0010		<0.0010		-----		-----	
1298		-----		-----		-----		-----	
1300	EN15721	0.00125	False +?	-----		-----		-----	
1319	in house	0.0003		-----		-----		-----	
1359		0.00065		0.00025		-----		-----	
1402		-----		-----		-----		-----	
1523	D5501	0.000205		-----		-----		-----	
1563	EN15721	<0.001		-----		-----		-----	
1605		0.00017		-----		-----		-----	
1656		-----		-----		-----		-----	
1707	INH-2870	<0.005		<0.005		<0.005		<0.005	
1710		-----		0.0002		-----		-----	
1726	EN15721	0.0003		n.d.		n.d.		n.d.	
1727		0.0003		n.d.		n.d.		n.d.	
1817	INH-26	0.001320	False +?	0.000476		0.015421	False +?	0.000207	
1835	in house	n.d.		n.d.		n.d.		n.d.	
1917	in house	0.000221		-----		-----		-----	
1919		0.0007		0.0004		-----		-----	
1933	in house	<0.001		<0.001		-----		-----	

normality	n.a.	n.a.	n.a.	n.a.
n	33	35	18	18
outliers	0	0	0	0
mean (n)	<0.001	<0.001	<0.001	<0.001
st.dev. (n)	n.a.	n.a.	n.a.	n.a.
R(calc.)	n.a.	n.a.	n.a.	n.a.
R(lit)	n.a.	n.a.	n.a.	n.a.

Determination of Crotonaldehyde, DEG, Dioxane and Isopropanol on sample #12151; results in %M/M

lab	method	Crotonaldehyde	mark	DEG	mark	Dioxane	mark	Isopropanol	mark
52		-----		-----		-----		-----	
62		-----		-----		-----		-----	
120	EN15721	-----		-----		-----		<0.001	
132		-----		-----		-----		-----	
150	INH-0001	<0005		<0.0005		<0.0005		<0.0005	
169	D5501Mod.	<0.01		-----		<0.01		0.0023	False +
171	EN15721	<0.001		<0.001		<0.001		0.0002	
174	D5501	<0.001		<0.001		-----		0.0018	False +
193		-----		-----		-----		-----	
194		-----		-----		-----		-----	
311	INH-529	<0.0005		<0.0010		<0.0005		<0.0005	
323	INH-0001	<0.0005		-----		-----		<0.0005	
329	INH-0001	<0.0005		<0.0005		<0.0005		<0.0005	
332		-----		-----		-----		-----	
333		-----		-----		-----		-----	
334		-----		-----		-----		-----	
338		-----		-----		-----		-----	
340		-----		-----		-----		-----	
343	INH-1	<0.0005		-----		-----		<0.0005	
357	EN15721	<0.001		-----		-----		<0.001	
360		-----		-----		-----		-----	
395		-----		-----		-----		-----	
399		-----		-----		-----		-----	
444		-----		-----		-----		-----	
463		-----		-----		-----		<0.2	
468	EN15721	-----		-----		-----		<0.0001	
494		-----		-----		-----		-----	
495		-----		-----		-----		-----	
496	EN15721	-----		-----		-----		-----	
511	EN15721	-----		-----		-----		-----	
541		-----		-----		-----		-----	
551		-----		-----		-----		-----	
554		-----		-----		-----		-----	
556		-----		-----		-----		-----	
559		-----		-----		-----		-----	
631		-----		-----		-----		-----	
657	INH-001	<0.0002		<0.0002		<0.0002		0.00029	
663	INH-001	<0.0002		<0.0002		<0.0002		<0.0002	
823	INH-0001	<0.0002		-----		<0.0001		0.0002	
840	EN15721	<0.0002		<0.0002		<0.0002		0.0002	
862	INH-0001	0.0003		<0.0005		<0.0005		0.0002	
902		-----		-----		-----		-----	
912		-----		-----		-----		-----	
913		-----		-----		-----		-----	
922	INH-0001	0.00037		<0.0002		<0.0002		<0.0002	
974		-----		-----		-----		-----	
1067		-----		-----		-----		-----	
1079	EN15721Mod.	0.0339	False +?	-----		-----		-----	
1124	EN15721	-----		-----		-----		-----	
1201	EN15721	<0.001		<0.001		<0.001		0.0002	
1203	EN15721	-----		-----		<0.0005		<0.0005	
1213		-----		-----		-----		-----	
1231		-----		-----		-----		-----	
1263	D5501	-----		-----		-----		<0.0010	
1298		-----		-----		-----		-----	
1300	EN15721	-----		-----		-----		-----	
1319	in house	0.0004		-----		-----		-----	
1359	EN15721	-----		-----		-----		0.00018	
1402		-----		-----		-----		-----	
1523		-----		-----		-----		-----	
1563	EN15721	-----		-----		-----		-----	
1605		-----		-----		-----		-----	
1656		-----		-----		-----		-----	
1707	INH-2870	<0.005		-----		<0.005		<0.005	
1710		-----		-----		-----		-----	
1726	EN15721	n.d.		n.d.		0.0004		0.0006	
1727		-----		-----		-----		0.0004	
1817	INH-2008	-----		-----		-----		0.000320	
1835	in house	-----		-----		-----		n.d.	
1917		-----		-----		-----		0.000508	
1919	EN15721	-----		-----		-----		<0.00028	
1933		-----		-----		-----		<0.001	

normality	n.a.	n.a.	n.a.	n.a.
n	17	11	14	26
outliers	0	0	0	0
mean (n)	<0.001	<0.001	<0.001	<0.001
st.dev. (n)	n.a.	n.a.	n.a.	n.a.
R(calc.)	n.a.	n.a.	n.a.	n.a.
R(lit)	n.a.	n.a.	n.a.	n.a.

Determination of MEG, n-Amylalcohol, sec-Amylalcohol and sec-Butanol on sample #12151; results in %M/M

lab	method	MEG	mark	n-Amylalcohol	mark	Sec-Amylalcohol	mark	Sec-butanol	mark
52		-----		-----		-----		-----	
62		-----		-----		-----		-----	
120	EN15721	-----		-----		<0.001		<0.001	
132		-----		-----		-----		-----	
150	INH-0001	<0.0005		<0.0005		<0.0005		<0.0005	
169		-----		-----		-----		-----	
171	EN15721	<0.001		<0.001		<0.001		<0.001	
174	D5501	<0.001		<0.001		<0.001		<0.001	
193		-----		-----		-----		-----	
194		-----		-----		-----		-----	
311	INH-529	<0.0010		<0.0005		<0.0005		<0.0005	
323	INH-0001	-----		<0.0005		<0.0005		<0.0005	
329	INH-0001	<0.0005		<0.0005		<0.0005		<0.0005	
332		-----		-----		-----		-----	
333		-----		-----		-----		-----	
334		-----		-----		-----		-----	
338		-----		-----		-----		-----	
340		-----		-----		-----		-----	
343	INH-1	-----		<0.0005		<0.0005		<0.0005	
357	EN15721	-----		<0.001		<0.001		<0.001	
360		-----		-----		-----		-----	
395		-----		-----		-----		-----	
399		-----		-----		-----		-----	
444		-----		-----		-----		-----	
463		-----		-----		-----		-----	
468	EN15721	-----		-----		-----		<0.0001	
494		-----		-----		-----		-----	
495		-----		-----		-----		-----	
496	EN15721	-----		-----		-----		<0.001	
511	EN15721	-----		-----		0.00048		0.00000	
541		-----		-----		-----		-----	
551		-----		-----		-----		-----	
554		-----		-----		-----		-----	
556		-----		-----		-----		-----	
559		-----		-----		-----		-----	
631		-----		-----		-----		-----	
657	INH-001	<0.0002		<0.0002		<0.0002		<0.0002	
663	INH-001	<0.0002		0.0002		<0.0002		<0.0002	
823	INH-0001	-----		0.0001		0.0001		0.0001	
840	EN15721	<0.0002		0.0002		<0.0002		<0.0002	
862	INH-0001	<0.0005		<0.0005		<0.0005		0.0001	
902		-----		-----		-----		-----	
912		-----		-----		-----		-----	
913		-----		-----		-----		-----	
922	INH-0001	<0.0002		<0.0002		-----		<0.0002	
974		-----		-----		-----		-----	
1067		-----		-----		-----		-----	
1079	EN15721Mod.	-----		-----		-----		0.0001	
1124	EN15721	-----		-----		-----		<0.001	
1201	EN15721	<0.001		<0.001		<0.001		<0.001	
1203	EN15721	<0.0005		<0.0005		-----		<0.0005	
1213		-----		-----		-----		-----	
1231		-----		-----		-----		-----	
1263	D5501	-----		<0.0010		-----		<0.0005	
1298		-----		-----		-----		-----	
1300	EN15721	-----		-----		-----		0.00056	
1319	in house	-----		-----		-----		<0.0001	
1359	EN15721	-----		-----		-----		n.d.	
1402		-----		-----		-----		-----	
1523		-----		-----		-----		-----	
1563	EN15721	-----		-----		-----		<0.001	
1605		-----		-----		-----		-----	
1656		-----		-----		-----		-----	
1707	INH-2870	-----		<0.005		-----		<0.005	
1710		-----		-----		-----		-----	
1726	EN15721	n.d.		0.0003		n.d.		n.d.	
1727		-----		-----		-----		-----	
1817	INH-2008	-----		-----		n.d.		0.000102	
1835	in house	-----		-----		-----		n.d.	
1917		-----		-----		-----		-----	
1919	EN15721	-----		<0.00020		-----		<0.00022	
1933		-----		-----		-----		-----	

normality	n.a.	n.a.	n.a.	n.a.
n	12	20	16	29
outliers	0	0	0	0
mean (n)	<0.001	<0.001	<0.001	<0.001
st.dev. (n)	n.a.	n.a.	n.a.	n.a.
R(calc.)	n.a.	n.a.	n.a.	n.a.
R(lit)	n.a.	n.a.	n.a.	n.a.

Determination of Tert-Amylalcohol and tert-Butanol on sample #12150; results in %M/M

lab	method	Tert-Amylacohol	mark	Tert-butanol	mark
52		-----		-----	
62		-----		-----	
120	EN15721	-----		-----	
132		-----		-----	
150	INH-0001	<0.0005		<0.0005	
169		-----		<0.01	
171	EN15721	<0.001		<0.001	
174	D5501	<0.001		<0.001	
193		-----		-----	
194		-----		-----	
311	INH-529	<0.0005		<0.0005	
323	INH-0001	<0.0005		<0.0005	
329	INH-0001	<0.0005		<0.0005	
332		-----		-----	
333		-----		-----	
334		-----		-----	
338		-----		-----	
340		-----		-----	
343	INH-1	<0.0005		<0.0005	
357	EN15721	<0.001		<0.001	
360		-----		-----	
395		-----		-----	
399		-----		-----	
444		-----		-----	
463		-----		<0.2	
468	EN15721	-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	-----		-----	
511	EN15721	-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	<0.0002		<0.0002	
663	INH-001	<0.0002		<0.0002	
823	INH-0001	<0.0002		<0.0002	
840	EN15721	<0.0002		<0.0002	
862	INH-0001	<0.0005		<0.0005	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	-----		<0.0002	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	-----		-----	
1124	EN15721	-----		-----	
1201	EN15721	<0.001		<0.001	
1203	EN15721	<0.0005		<0.0005	
1213		-----		-----	
1231		-----		-----	
1263	D5501	-----		<0.0010	
1298		-----		-----	
1300	EN15721	-----		-----	
1319	in house	-----		-----	
1359	EN15721	-----		-----	
1402		-----		-----	
1523		-----		-----	
1563	EN15721	-----		-----	
1605		-----		-----	
1656		-----		-----	
1707	INH-2870	-----		<0.005	
1710		-----		-----	
1726	EN15721	n.d.		n.d.	
1727		-----		-----	
1817	INH-2008	n.d.		n.d.	
1835	in house	-----		-----	
1917		-----		-----	
1919	EN15721	<0.00019		-----	
1933		-----		-----	

normality	n.a.	n.a.
n	16	18
outliers	0	0
mean (n)	<0.001	<0.001
st.dev. (n)	n.a.	n.a.
R(calc.)	n.a.	n.a.
R(lit)	n.a.	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
1 lab in BULGARIA
2 labs in CANADA
1 lab in DENMARK
1 lab in ESTONIA
1 lab in FINLAND
7 labs in FRANCE
3 labs in GERMANY
2 labs in HUNGARY
2 labs in INDIA
2 labs in ITALY
1 lab in JAPAN
1 lab in KOREA
1 lab in LATVIA
1 lab in P.R. of CHINA
1 lab in PAKISTAN
1 lab in PERU
1 lab in PHILIPPINES
1 lab in SINGAPORE
5 labs in SPAIN
3 labs in SWEDEN
3 labs in THAILAND
5 labs in THE NETHERLANDS
2 labs in TURKEY
1 lab in U.A.E.
8 labs in U.S.A.
4 labs in UNITED KINGDOM
2 labs 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:

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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)
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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/)