Results of Proficiency Test
Fuel/Bio-ethanol
November 2013

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1.   INTRODUCTION

Since 1995, a proficiency test for Fuel/Bio-Ethanol was organised every year by the Institute for Interlaboratory Studies. During the annual proficiency testing program 2013/2014, it was decided to continue the round robin for the analysis of Fuel/Bio-ethanol in agreement with EN15376:11 and ASTM D4806:13a. In this interlaboratory study for Fuel/Bio-ethanol, 78 laboratories in 31 different countries have participated. See appendix 2 for the number of participants per country. In this report, the results of the Fuel/Bio-Ethanol 2013 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/Bio Ethanol labelled #13220 and 1* 0.25 L bottle of Fuel/Bio Ethanol labelled #13221, 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, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2   PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' (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 #13220 and #13221 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 92 amber glass bottles of 1L (labelled #13220). The homogeneity of the subsamples #13220 was checked by determination of Density in accordance with ASTM D4052:11 and Water in accordance with ASTM E1064 on 8 stratified randomly selected samples.

	Density @ 20ºC in kg/L	Water in mg/kg
Sample #13220-1	0.79009	1840
Sample #13220-2	0.79007	1830
Sample #13220-3	0.79007	1820
Sample #13220-4	0.79009	1840
Sample #13220-5	0.79008	1830
Sample #13220-6	0.79008	1820
Sample #13220-7	0.79009	1830
Sample #13220-8	0.79009	1830

Table 1: Homogeneity tests results of subsamples #13220

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 @ 20ºC in kg/L	Water in mg/kg
r (Observed)	0.00002	21
reference method	ISO12185:96	EN15489:07
0.3 * R (ref. method)	0.00015	67

Table 2: Repeatability of subsamples #13220

The second part of the batch, approximately 25 litres, was homogenised and divided over 92 amber glass bottles of 0.25 litres (labelled #13221). The homogeneity of the subsamples #13221 was checked by determination of Methanol in accordance with EN15721:09, proc A .

	Methanol in %M/M
Sample #13221 -1	0.0120
Sample #13221 -2	0.0121
Sample #13221 -3	0.0116
Sample #13221 -4	0.0119
Sample #13221 -5	0.0118
Sample #13221 -6	0.0119
Sample #13221 -7	0.0122
Sample #13221 -8	0.0120

Table 3: Homogeneity tests results of subsamples #13221

From the test results of table 3, the repeatability was 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 %M/M
r (Observed)	0.0005
reference method	ASTM D5501:12e1
0.3 * R (ref. method)	0.0042

Table 4: Repeatability of subsamples #13221

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 #13220 and #13221 was assumed.

To each of the participating laboratories: 1 * 1 L bottle (labelled #13220) and 1 * 0.25 L bottle (labelled #13221) were sent on October 30, 2013.

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 #13220 : Acidity as Acetic Acid, Appearance, Copper, Density @20°C, Electrical conductivity at 25 ˚C, Inorganic Chloride as Cl, Involatile material content, Nitrogen, Phosphorous, Sulphate, Total Sulphur and Water (coulometric and titrimetric).

On sample #13221 was asked to determine: Ethanol, Acetaldehyde, Acetal, Acetone, Benzene, Cyclohexane, Crotonaldehyde, DEG, Dioxane, Ethyl acetate, 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:

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

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:

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

4.   EVALUATION

In this proficiency test major problems were encountered with the despatch of the samples. Several laboratories in Brazil, Germany, India, Phlippines, Turkey, Thailand and U.S.A. received the samples late or not at all. Fourteen participants reported the results after the final reporting date and seven participants did not report any results at all.
Not all laboratories were able to perform all analyses requested. The 71 reporting laboratories did send in 880 (numerical) results. Observed were 41 outlying results, which is 4.7%. In proficiency studies, outlier percentages of 3% - 7.5% are normal.

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 D4806:13a 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, Acetal, Benzene, 3-Methyl-1-Butanol and 2-Methyl-1-Butanol.
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.

Acidity: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN15491:07 and ASTM D1613:12.

Appearance: This determination was not problematic. All participants agreed about the appearance of sample #13220 as clear and free of suspended matter.

Copper: All results, except one, were below the application range of method EN15488:07 (0.07 – 0.20 mg/kg). Therefore no statistical conclusions were drawn.

Density @20°C: This determination was problematic for a number of laboratories. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Electrical Conductivity: This determination was very problematic. Two statistical outliers were observed and three other test results were excluded because the used method was not suitable for Ethanol. The calculated reproducibility after rejection of the suspect data is not at all in agreement with the requirements of EN15938:10.

Inorganic chloride: The chloride concentration was below the application ranges of EN15492:12 (1– 30 mg/kg) and EN15484:07 (4 – 30 mg/kg), and this determination may be problematic, depending on the method used. One statistical outlier was observed and the calculated reproducibility is in good agreement with the requirements of EN15492:12 and EN15484:07, but not at all in agreement with more strict requirements of ASTM D7319:13.

Involatile matter: The consensus value of the group was below the application range of the test method EN15691:09 (10 – 25 mg/100ml) and ten "less then" test results were reported. Therefore no significant conclusions were drawn.

Nitrogen: This determination may be problematic. One statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier is not in agreement with the requirements of D4629:12. The low nitrogen content may explain the large spread.

Phosphorous: All test results, except two, were near or below the application range of method EN15487:07 (0.15 – 1.50 mg/kg). Therefore no statistical conclusions were drawn.

Sulphate: All test results, except three, were below the application ranges of the methods EN15492:12 (1–20 mg/L) and ASTM D7319:09 (1– 50 mg/L). Therefore no statistical conclusions were drawn.

Total Sulphur: Although the sulphur concentration was below the application ranges of the test methods EN15485:07 (7– 20 mg/kg) and EN15486:07 (5 – 20 mg/kg), this determination may not be problematic. No statistical outliers were observed and the calculated reproducibility is in good agreement with the requirements of EN15485:07 and EN15486:07, but not in agreement with the requirements of ASTM D5453:09. When the test results from ASTM D5453:09 are evaluated separately than the calculated reproducibility is almost in agreement with the requirements of ASTM D5453:09.

Water: The coulometric or the titrimetric method can be used for this determination and was problematic for a number of laboratories. In total eight statistical outliers were observed. The calculated reproducibilities for the coulometric method are in agreement with the requirements of EN15489:07 and in good agreement with ASTM E1064:12. For the titrimetric method the calculated reproducibility is in good agreement with the requirements of ASTM E203:08.

Ethanol: This determination may be problematic depending on the method used. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D5501:12e1, but not with the requirements of EN15721:13.

Acetal：   This determination may be 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 using the Horwitz equation.

Benzene: This determination may not be problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is almost in agreement with the estimated reproducibility using the Horwitz equation.

Ethyl acetate: This determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the estimated reproducibility using the Horwitz equation.

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

Methanol: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D5501:12e1.

3-Me-1-Butanol: This determination may be very problematic. One statistical outlier was observed and two other test results were excluded. The calculated reproducibility after rejection of the suspect data is not at all in agreement with the estimated reproducibility using the Horwitz equation.

2-Me-1-Butanol: This determination may be very problematic. No statistical outliers were observed, but two test results were excluded. The calculated reproducibility after rejection of the suspect data is not at all in agreement with the estimated reproducibility using the Horwitz equation.

Sum of 3-Me-1-Butanol and 2-Me-1-Butanol   This determination may be very problematic. Two statistical outliers were observed and one test result was excluded because the summation was not correct. The calculated reproducibility after rejection of the suspect data is not in agreement with the estimated reproducibility using the Horwitz equation.

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

n-Propanol: This determination may not be problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical

outliers is in agreement with the estimated reproducibility using the Horwitz equation.

Sum of higher ethanols: The summation of n-Butanol, n-Propanol, sec-Butanol, 2-Me-1-Butanol and 3-Me-1-Butanol according to EN15721:13 table1 was calculated by iis. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with EN15721:13.

Other GC components: The concentrations of the components Acetaldehyde, Acetone, Cyclohexane, Crotonaldehyde, DEG, Dioxane, iso-Propanol, sec-Butanol, n-Amylalcohol, sec-Amylalcohol, tert-Amylalcohol, tert-Butanol and MEG, were all 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	50	0.0019	0.0011	0.0014
Appearance		58	B&C	n.a.	n.a
Copper	mg/kg	32	<0.07	n.a	n.a
Density @ 20°C	kg/L	65	0.7901	0.0003	0.0005
Electrical conductivity	µS/cm	31	0.95	0.35	0.18
Inorganic Chloride as Cl	mg/kg	24	0.24	0.29	0.52
Involatile material content	mg/100 mL	29	6.5	17.8	(1.2)
Nitrogen	mg/kg	18	0.38	0.66	0.49
Phosphorous	mg/l	11	0.05	0.13	(0.06)
Sulphate	mg/kg	19	0.55	1.00	(0.27)
Total Sulphur	mg/kg	43	1.76	1.12	3.38
Water coulometric	% M/M	55	0.185	0.014	0.022
Water titrimetric	% M/M	33	0.184	0.019	0.078

Table 5: Reproducibilities of sample #13220

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)
Ethanol	%M/M	43	99.592	0.383	0.994
Sum of higher alcohols	%M/M	39	0.144	0.079	0.039
Acetal	%M/M	29	0.058	0.021	0.010
Acetaldehyde	%M/M	18	<0.01	n.a.	n.a.
Acetone	%M/M	24	<0.01	n.a.	n.a.
Benzene	%M/M	20	0.0024	0.0007	0.0007
Cyclohexane	%M/M	21	<0.01	n.a.	n.a.
Crotonaldehyde	%M/M	14	<0.01	n.a.	n.a.
DEG	%M/M	13	<0.01	n.a.	n.a.
Dioxane	%M/M	14	<0.01	n.a.	n.a.
Ethyl acetate	%M/M	37	0.016	0.006	0.003
iso-Butanol	%M/M	35	0.047	0.010	0.008
iso-Propanol	%M/M	25	<0.01	n.a.	n.a.
Methanol	%M/M	40	0.009	0.003	0.014
3-Me-1-Butanol	%M/M	21	0.025	0.019	0.005
2-Me-1-Butanol	%M/M	21	0.015	0.010	0.003
Sum 2-Me-1-BuOH+3-Me-1-BuOH	%M/M	30	0.038	0.016	0.010
n-Butanol	%M/M	30	0.0016	0.0008	0.0005
n-Propanol	%M/M	37	0.075	0.014	0.012
sec-Butanol	%M/M	26	<0.01	n.a.	n.a.
n-Amylalcohol	%M/M	18	<0.01	n.a.	n.a.
sec-Amylalcohol	%M/M	8	<0.01	n.a.	n.a.
MEG	%M/M	13	<0.01	n.a.	n.a.
tert-Amylalcohol	%M/M	13	<0.01	n.a.	n.a.
tert-Butanol	%M/M	13	<0.01	n.a.	n.a.

Table 6: Reproducibilities of sample #13221
results between brackets should used with care, because the average was near or below the application range.

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF NOVEMBER 2013 WITH PREVIOUS PTS

	November 2013	*November 2012*	*November 2011*	*December 2010*
Number of reporting labs	71	67	55	49
Number of results reported	880	845	805	678
Statistical outliers	41	52	45	33
Percentage outliers	4.7%	6.2%	5.6%	4.8%

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 2013	November 2012	November 2011	December 2010
Acidity as Acetic Acid	+	+/-	+/-	-
Density @ 20°C	+	++	++	++
Electric conductivity	--	--	--	n.e.
Inorganic Chloride as Cl	-	(+)	--	(++)
Involatile Matter	(--)	(--)	--	++
Nitrogen	-	--	--	--
Phosphorus as P	(--)	(-)	(+/-)	(-)
Sulphate	(--)	++	(--)	-
Total Sulphur	++	++	++	(++)
Water coulometric	+	++	+	+
Water titrimetric	++	++	++	++
Purity on dry basis	++	++	++	++
Ethanol	++	n.e.	n.e.	n.e.
Higher alcohols	+/-	n.e.	n.e.	n.e.
Acetal	--	--	+	+/-
Acetaldehyde	n.e.	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.	n.e.	--
Methanol	++	++	+/-	+
3-Methyl-1-butanol	--	--	n.e.	n.e.
2-Methyl-1-butanol	--	--	n.e.	n.e.
Sum 3-Me + 2-Me 1-BuOH	-	n.e.	n.e.	n.e.
n-Butanol	-	--	--	-
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.	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 #13220; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D1613	0.0023		0.85	
62	D1613	0.00226		0.76	
120	D1613	0.0015		-0.79	
132	D7795	0.0015		-0.79	
150	D1613	0.0019		0.03	
169	D1613	0.0018		-0.18	
171	EN15491	0.0020		0.23	
174	EN15491	0.0023		0.85	
193		-----		-----	
194	D7795	0.00154		-0.71	
311	EN15491	<0.003		-----	
323	EN15491	0.002		0.23	
329	EN15491	0.0027		1.66	
332	EN15491	0.0018		-0.18	
333	EN15491	<0.003		-----	
334	D7795	0.002055		0.34	
337		-----		-----	
338	D1613	0.0022		0.64	
340	EN15491	0.0015		-0.79	
343	EN15491	0.0018		-0.18	
357	EN15491	0.0016		-0.59	
360	EN15491	0.0018		-0.18	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444	EN15491	0.0024		1.05	
463	D1613	0.00228		0.80	
468	EN15491	0.0015		-0.79	
494		-----		-----	
495		-----		-----	
496	EN15491	0.0017		-0.38	
511	D1613	0.00137		-1.06	
541	EN15491	0.0019		0.03	
551	EN15491	0.0017		-0.38	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D1613	0.00165		-0.48	
657	D1613	0.0018		-0.18	
663	D1613	0.00173		-0.32	
823	D1613	0.0015		-0.79	
840	D1613	0.00182		-0.14	
862		-----		-----	
902	D1613	0.0013		-1.20	
912		-----		-----	
913	D1613	0.00182		-0.14	
922	D1613	0.00178		-0.22	
974	D974	0.017	G(0.01)	30.89	
1067		-----		-----	
1079	EN15491	0.0017		-0.38	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	D1613	0.0037	G(0.05)	3.71	
1203	EN15491	0.00176		-0.26	
1229		-----		-----	
1231	D1613	0.002531	C	1.32	first reported:20
1263	D1613	0.0021		0.44	
1276	EN15491	0.004	G(0.05)	4.32	
1402		-----		-----	
1446	EN15491	0.00192		0.07	
1459		-----		-----	
1523	ISO1388	0.0021		0.44	
1563	EN15491	0.002		0.23	
1598	EN15491	0.00350	G(0.01)	3.30	
1605		-----		-----	
1656	EN15491	0.002		0.23	
1710	EN15491	0.001		-1.81	
1712	EN15491	0.0015		-0.79	
1726	EN15491	0.0024		1.05	

1727	EN15491	0.0021		0.44	
1835	EN15491	0.0019		0.03	
1917		-----		-----	
1919	D1613	0.00198		0.19	
1933	EN15491	0.0011	C	-1.61	first reported:0.011
2493	EN15491	0.003		2.28	
7006	D1613	0.00243		1.11	

normality	OK	
n	50	
outliers	4	
mean (n)	0.00189	
st.dev. (n)	0.000391	
R(calc.)	0.00109	
R(EN15491:07)	0.00137	Application range: 0.003 – 0.015 %M/M
Compare		
R(D1631:12)	0.00140	
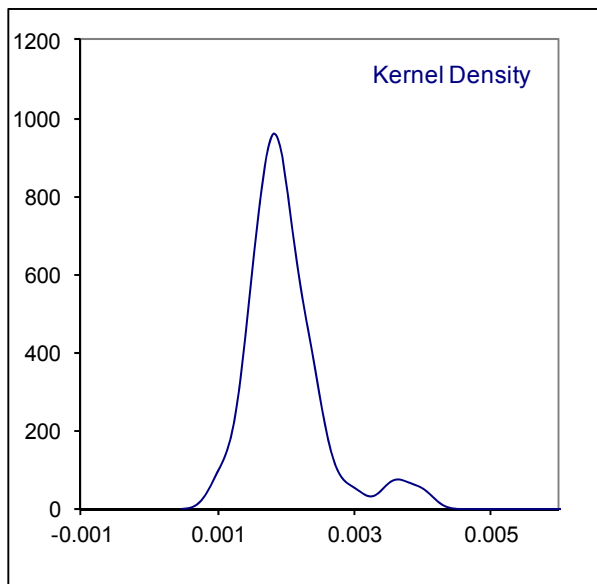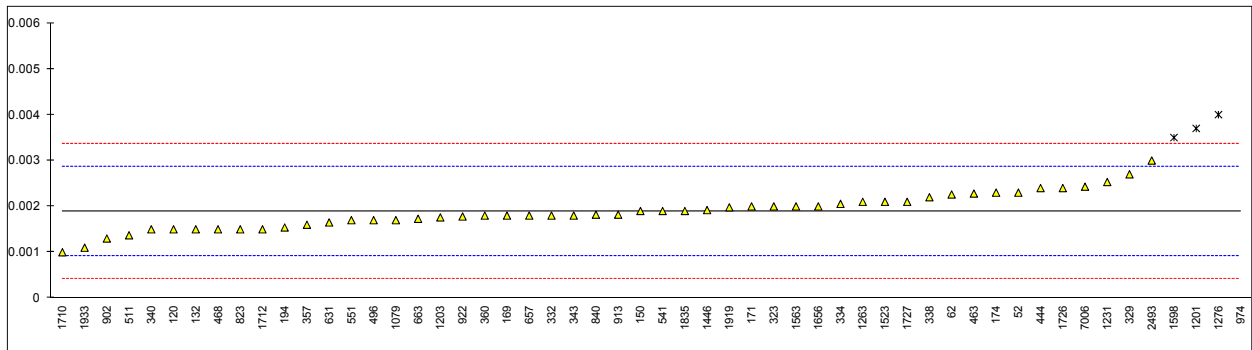
Determination of Appearance on sample #13220;

lab	method	value	mark	z(targ)	remarks
52	D4176	Pass		-----	
62	Visual	C&B		-----	
120	EN15769	Clear		-----	
132	D4176	C&B		-----	
150	EN15769	C&B		-----	
169	Visual	CBFSM		-----	
171	EN15769	Pass		-----	
174	E2680	Pass		-----	
193		-----		-----	
194	D4176	C&B		-----	
311	EN15769	C&C		-----	
323	EN15769	Pass		-----	
329	EN15769	Pass		-----	
332		-----		-----	
333	EN15769	C&C		-----	
334	EN15769	C&C		-----	
337	EN15769	C&C		-----	
338	EN15769	C&C		-----	
340	EN15769	C&B		-----	
343	EN15769	C&C		-----	
357	EN15769	Clear		-----	
360	EN15769	C&C		-----	
395	EN15769	Pass		-----	
399		-----		-----	
441	EN15769	Clear		-----	
444	EN15769	Clear		-----	
463	D4176	Pass		-----	
468	EN15769	C&C		-----	
494		-----		-----	
495	EN15769	C&B		-----	
496	EN15769	C&C		-----	
511	EN15769	C&C		-----	
541	EN15769	C&B		-----	
551	EN15769	C&C		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	Visual	C&B		-----	
657	E2680	Pass		-----	
663	E2870	Pass		-----	
823	E2680	Pass		-----	
840	E2680	Pass		-----	
862	Visual	C&B		-----	
902	EN15769	Pass		-----	
912		-----		-----	
913	E2680	Pass		-----	
922	Visual	Clear		-----	
974	Visual	C&B		-----	
1067		-----		-----	
1079		-----		-----	
1082	EN15769	C&C		-----	
1126		-----		-----	
1161		-----		-----	
1191	EN15769	C&C		-----	
1201	EN15769	C&F		-----	
1203	EN15491	C&C		-----	
1229	EN15769	C&C		-----	
1231		-----		-----	
1263		-----		-----	
1276	EN15769	C&C		-----	
1402	EN15769	C&B		-----	
1446	EN15769	CFSM		-----	
1459		-----		-----	
1523		-----		-----	
1563	EN15769	C&C		-----	
1598	EN15769	C&C		-----	
1605		-----		-----	
1656	EN15769	Pass		-----	
1710	EN15769	Clear		-----	
1712	EN15769	C&B		-----	
1726	EN15769	C&C		-----	
1727	EN15769	C&B		-----	
1835	EN15769	C&C		-----	
1917	EN15769	Pass		-----	

1919		-----	-----
1933	EN15769	Clear	-----
2493		-----	-----
7006		-----	-----

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 #13220; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D1688	<0.05		-----	
62		-----		-----	
120	EN15488	<0.070		-----	
132	D1688Mod.	<0.05		-----	
150	EN15488	<0.07		-----	
169	D1688	<0.01		-----	
171	EN15488	<0.01		-----	
174	EN15488	0.01		-----	
193		-----		-----	
194	D1688	0		-----	
311	EN15837	<0.0050		-----	
323	EN15488	<0.070		-----	
329	EN15488	<0.07		-----	
332		-----		-----	
333	EN15488	<0.07		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15488	<0.07		-----	
357		-----		-----	
360	EN15837	<0.050		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444	EN15488	<0.002		-----	
463		-----		-----	
468	EN15488	<0.1		-----	
494		-----		-----	
495		-----		-----	
496		-----		-----	
511	D1688	<0.05		-----	
541	INH-11331	<0.01		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D1688	0.0019		-----	
657		-----		-----	
663	D1688	<0.05		-----	
823	UOP389	<0.01		-----	
840		-----		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D1688	<0.05		-----	
974		-----		-----	
1067		-----		-----	
1079	EN15488	<0.070		-----	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15488	<0.1		-----	
1203	EN15488	<0.05		-----	
1229		-----		-----	
1231		-----		-----	
1263	DIN38406	<0.1		-----	
1276	EN15488	0.000		-----	
1402	EN15488	0.004		-----	
1446		-----		-----	
1459		-----		-----	
1523		-----		-----	
1563	EN15488	0.0007098		-----	
1598	EN15488	0.097	C	-----	first reported:0.077, false positive test result?
1605		-----		-----	
1656	D1688	<0.05		-----	
1710		-----		-----	
1712	EN15488	<0.07		-----	
1726		-----		-----	
1727		-----		-----	
1835		-----		-----	
1917		-----		-----	

1919		-----	-----
1933	ISO11885	<0.01	-----
2493	EN15837	<0.05	-----
7006		-----	-----

| normality | n.a |
n	32
outliers	n.a
mean (n)	<0.07
st.dev. (n)	n.a
R(calc.)	n.a
R(EN15488:07)	n.a

Application range: 0.07 -0.20 mg/kg
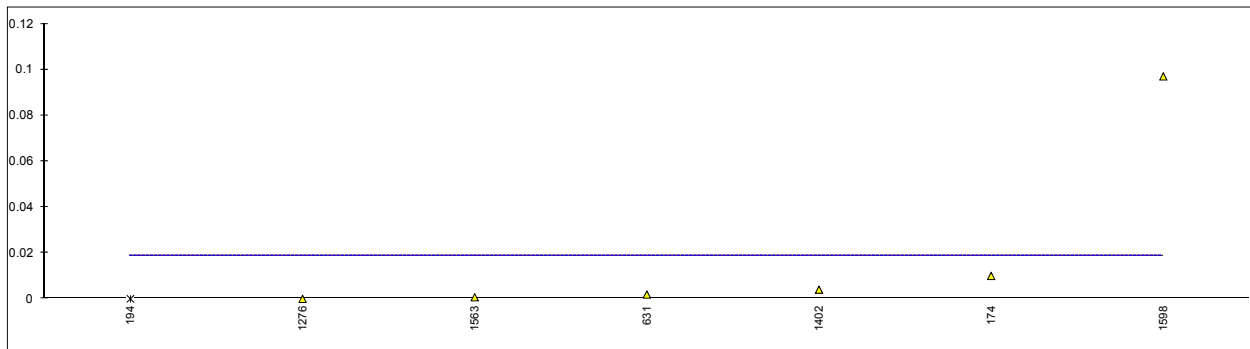
Determination of Density @ 20°C on sample #13220; results in kg/L

lab	method	value	mark	z(targ)	remarks
52	D4052	0.7901		0.14	
62	D4052	0.79011		0.20	
120	ISO12185	0.7903	C	1.26	first reported:0.7905, reported: 790.3
132	D4052	0.79008		0.03	
150	ISO12185	0.7902		0.70	
169	D4052	0.7904		1.82	
171	D4052	0.7904		1.82	
174	D4052	0.7900		-0.42	
193		-----		-----	
194	D4052	0.79003		-0.25	
311	ISO12185	0.79014		0.37	
323	ISO12185	0.7900		-0.42	
329	D4052	0.7899		-0.98	
332	ISO12185	0.79013		0.31	
333	ISO12185	0.7901		0.14	
334	ISO12185	0.7901		0.14	
337	ISO12185	0.7902		0.70	
338	ISO12185	0.7901		0.14	
340	ISO12185	0.79011		0.20	
343	ISO12185	0.7900		-0.42	
357	ISO12185	0.7900		-0.42	
360	ISO12185	0.7900		-0.42	
395	D4052	0.7900		-0.42	
399	ISO12185	0.7900		-0.42	
441	D4052	0.7900		-0.42	
444	ISO12185	0.79002		-0.30	
463	ISO12185	0.79011		0.20	
468	ISO12185	0.790		-0.42	
494		-----		-----	
495	ISO12185	0.7901		0.14	
496	ISO12185	0.79008		0.03	
511	D4052	0.79018		0.59	
541	D4052	0.7898		-1.54	
551	ISO12185	0.7901		0.14	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D4052	0.79009		0.09	
657	D4052	0.79006		-0.08	
663	D4052	0.7900		-0.42	
823	D4052	0.79011		0.20	
840	D4052	0.79007		-0.02	
862	D4052	0.79005		-0.14	
902	D4052	0.7901		0.14	
912		-----		-----	
913	D4052	0.7901		0.14	
922	D4052	0.79003	C	-0.25	first reported: 790.3
974	D4052	0.7900		-0.42	
1067	ISO12185	0.7900		-0.42	
1079	ISO12185	0.7901		0.14	
1082	ISO12185	0.7943	G(0.01)	23.66	probably unit error, reported:794.3
1126	ISO12185	0.79008		0.03	
1161		-----		-----	
1191	ISO12185	0.7943	G(0.01)	23.66	probably unit error, reported:794.3
1201	D4052	0.7901		0.14	
1203	ISO12185	0.79008		0.03	
1229	ISO12185	0.79437	G(0.01)	24.06	probably unit error, reported:794.37
1231	D4052	0.7901		0.14	
1263	ISO12185	0.7900786		0.02	
1276	ISO12185	0.79414	G(0.01)	22.77	probably unit error, reported: 794.14
1402		-----		-----	
1446	ISO12185	0.790063		-0.06	
1459	ISO12185	0.7901		0.14	
1523	D4052	0.79009		0.09	
1563	ISO12185	0.79005		-0.14	
1598	ISO12185	0.790	C	-0.08	first reported:790.060
1605	ISO12185	0.790060		-0.08	
1656	ISO12185	0.7900		-0.42	
1710	ISO12185	0.7900		-0.42	
1712	ISO12185	0.7903		1.26	
1726	D4052	0.79001		-0.36	
1727	ISO12185	0.79002		-0.30	
1835	D4052	0.79011		0.20	
1917	ISO12185	0.79012		0.26	

1919	D4052	0.79010		0.14
1933	ISO12185	0.79105	G(0.01)	5.46
2493	ISO12185	0.7901		0.14
7006	D4052	0.7897		-2.10

|	
normality	not OK
n	65
outliers	5
mean (n)	0.79007
st.dev. (n)	0.000106
R(calc.)	0.00030
R(ISO12185:96)	0.00050
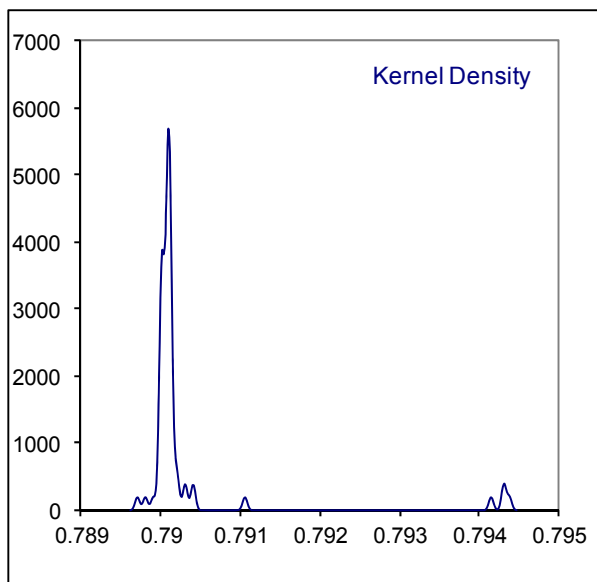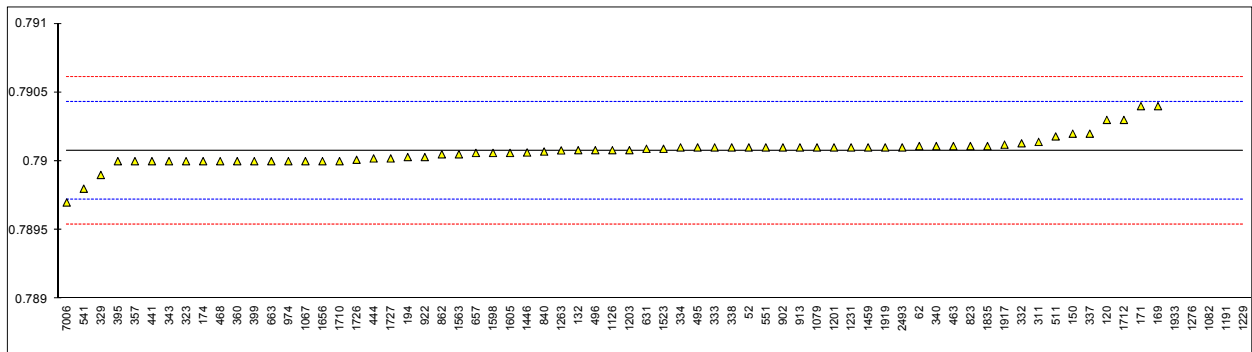
Determination of Electrical conductivity @ 25°C on sample #13220; results in µS/cm

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15938	1.01		0.90	
132		-----		-----	
150	EN15938	1.1		2.28	
169		-----		-----	
171	EN15938	0.901		-0.78	
174	EN15938	0.55	DG(0.05)	-6.19	
193		-----		-----	
194		-----		-----	
311	EN15938	0.70		-3.88	
323	EN15938	0.87		-1.26	
329	EN15938	1.03		1.20	
332		-----		-----	
333	EN15938	1.03		1.20	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357	EN15938	1.02		1.05	
360	EN15938	1.05		1.51	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15938	0.90		-0.80	
494		-----		-----	
495	EN15938	1.3		5.36	
496	EN15938	0.9775		0.39	
511		-----		-----	
541	INH-10547	<1		-----	
551	EN15938	0.91		-0.64	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657		-----		-----	
663	D1152	0.98		0.43	
823	D1125	0.88	ex	-1.11	test method is not suitable for ethanol
840		-----		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067	EN15938	1.111		2.45	
1079	EN15938	0.876		-1.17	
1082	EN15938	0.926		-0.40	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15938	0.965		0.20	
1203	EN15938	0.87		-1.26	
1229	EN15938	0.79		-2.49	
1231	D1125	1.24	ex,C	4.44	test method is not suitable for ethanol,first reported:366
1263	EN15938	0.93		-0.34	
1276	EN15938	0.50	DG(0.05)	-6.96	
1402		-----		-----	
1446	EN15938	1.2		3.82	
1459		-----		-----	
1523	D2624	0.65	ex	-4.65	test method is not suitable for ethanol
1563	EN15938	0.87		-1.26	
1598	EN15938	0.786		-2.55	
1605		-----		-----	
1656	EN15938	0.89		-0.95	
1710		-----		-----	
1712		-----		-----	
1726	EN15938	0.987		0.54	
1727	EN15938	0.878		-1.14	
1835	EN15938	0.95		-0.03	
1917		-----		-----	

1919	EN15938	0.78	-2.65
1933	EN15938	0.92	-0.49
2493	EN15938	1.0	0.74
7006		-----	-----

normality	OK
n	31
outliers	2 + 3 excl.
mean (n)	0.952
st.dev. (n)	0.1233
R(calc.)	0.345
R(EN15938:10)	0.182
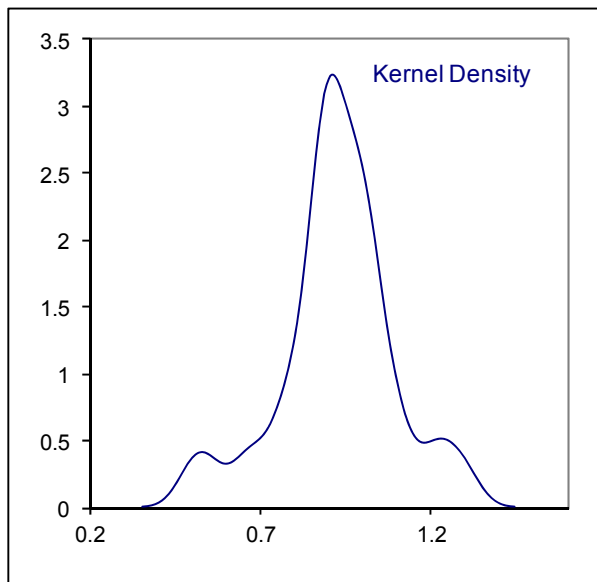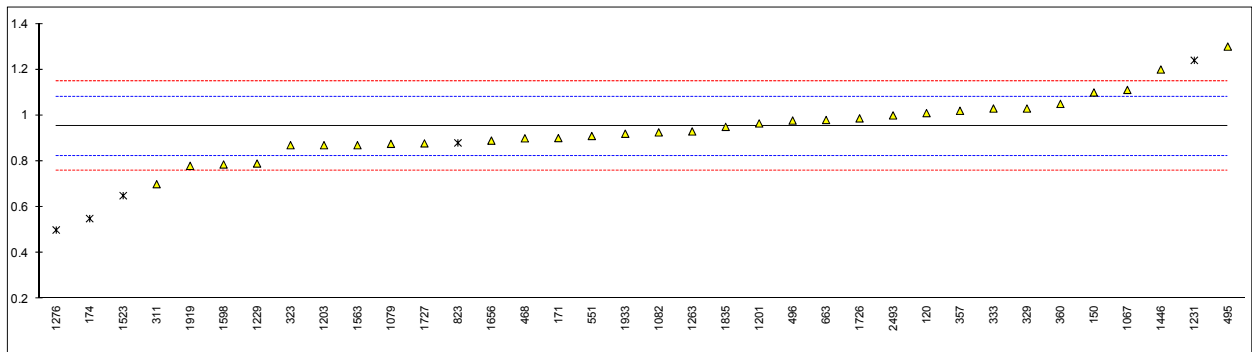
Determination of Inorganic Chlorides as Cl on sample #13220; results in mg/kg

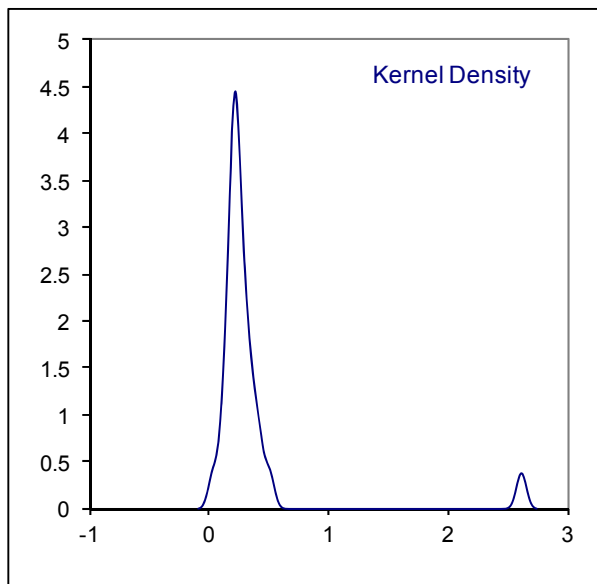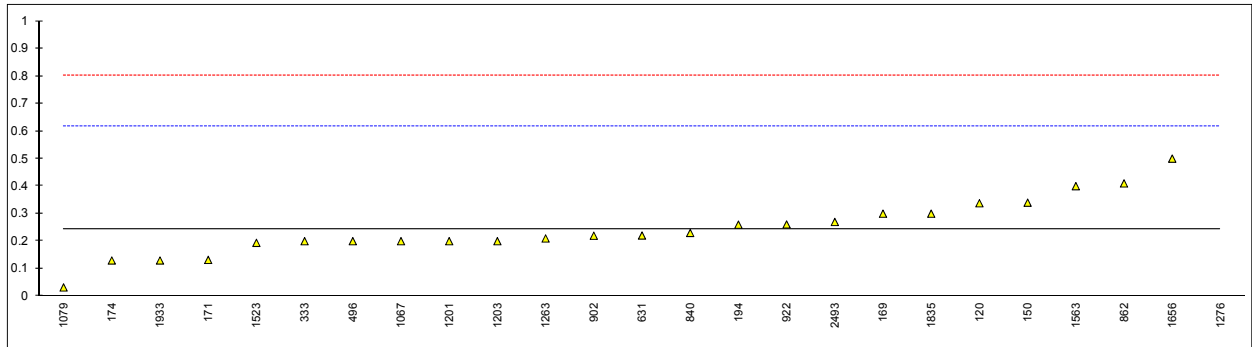| lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15492	0.338		0.50	
132	D7319	<1.0		-----	
150	D7328	0.34		0.51	
169	D7319	0.30		0.30	
171	EN15492	0.132		-0.61	
174	E2369	0.13		-0.62	
193		-----		-----	
194	D7319	0.26		0.08	
311	EN15492	<1.0		-----	
323	EN15492	<1.0		-----	
329	EN15492	<1		-----	
332	EN15484	<0.1		-----	
333	EN15484	0.2		-0.24	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340	EN15492	<5		-----	
343	EN15492	<1.0		-----	
357	EN15492	<2		-----	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15492	<0.5		-----	
494		-----		-----	
495		-----		-----	
496	EN15492	0.20		-0.24	
511		-----		-----	
541		-----		-----	
551	EN15492	<1		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D512	0.22065		-0.13	
657	D7328	<0.75		-----	
663	D512	<1		-----	
823		-----		-----	
840	IMPCA002	0.23		-0.08	
862	IMPCA002	0.41		0.89	
902	EN15492	0.220		-0.13	
912		-----		-----	
913		-----		-----	
922	D7319	0.2608		0.09	
974		-----		-----	
1067	in house	0.2		-0.24	
1079	EN15492	0.032		-1.15	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15492	0.2		-0.24	
1203	EN15492	0.2		-0.24	
1229		-----		-----	
1231		-----		-----	
1263	EN15492	0.21		-0.19	
1276	EN15484	2.612	G(0.01)	12.79	
1402		-----		-----	
1446		-----		-----	
1459		-----		-----	
1523	D7319	0.194		-0.27	
1563	EN15492	0.4		0.84	
1598	EN15492	<1		-----	
1605		-----		-----	
1656	EN15492	0.5		1.38	
1710		-----		-----	
1712	EN15484	<4	C	-----	first reported: 5.2
1726		-----		-----	
1727	EN15492	<1		-----	
1835	EN15492	0.3		0.30	
1917		-----		-----	

1919		-----	-----
1933	EN15484	0.13	-0.62
2493	EN15492	0.27	0.14
7006		-----	-----

|	
normality	OK
n	24
outliers	1
mean (n)	0.245
st.dev. (n)	0.1024
R(calc.)	0.287
R(EN15492:12)	0.518	Application range: 1-30 mg/kg
Compare	
R(D7319:13)	0.156	Application range: 0.75-50 mg/kg
R(EN15484:07)	1.600	Application range: 4-30 mg/kg

Kernel Density

Determination of Involatile material content on sample #13220; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D1353	2.6		-----	
62		-----		-----	
120	EN15691	0.5		-----	
132	D381	<0.5		-----	
150	D1353	<0.1		-----	
169		-----		-----	
171		-----		-----	
174	EN15691	1.8		-----	
193		-----		-----	
194		-----		-----	
311	EN15691	<10		-----	
323	EN15691	<10		-----	
329	EN15691	<10		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338	D1353	0.1		-----	
340	EN15691	3		-----	
343	EN15691	12.4		-----	false positive test result?
357	EN15691	1		-----	
360	EN15691	<10		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444	EN15691	4		-----	
463		-----		-----	
468	EN15691	18.0		-----	false positive test result?
494		-----		-----	
495		-----		-----	
496	EN15691	4.6		-----	
511	EN15691	0.0025		-----	
541		-----		-----	
551	EN15691	2.2		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D1353	1.9		-----	
663	D1353	11.6		-----	
823	D1353	0.4		-----	
840		-----		-----	
862	D1353	<0.1		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D1353	1.20		-----	
974	D1353	1		-----	
1067	EN15691	9.5		-----	
1079	EN15691	1.8		-----	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15691	11.0		-----	
1203		-----		-----	
1229		-----		-----	
1231		-----		-----	
1263	D1353	<1.0		-----	
1276	EN15691	2.60		-----	
1402		-----		-----	
1446		-----		-----	
1459	EN15691	8.0		-----	
1523		-----		-----	
1563	EN15691	9		-----	
1598	EN15691	3.2		-----	
1605		-----		-----	
1656	EN15691	<1		-----	
1710	EN15691	16.8		-----	false positive test result?
1712	EN15691	5.4		-----	
1726	EN15691	18.9		-----	false positive test result?
1727	EN15691	17.5		-----	false positive test result?
1835	EN15691	17.8		-----	false positive test result?
1917		-----		-----	

1919		-----	-----
1933	D1353	<2	-----
2493		-----	-----
7006		-----	-----

|	
normality	not OK
n	29
outliers	0
mean (n)	6.476
st.dev. (n)	6.3605
R(calc.)	17.810
R(EN15691:09)	(1.198)

Application range: 10 – 25 mg/100ml

Kernel Density
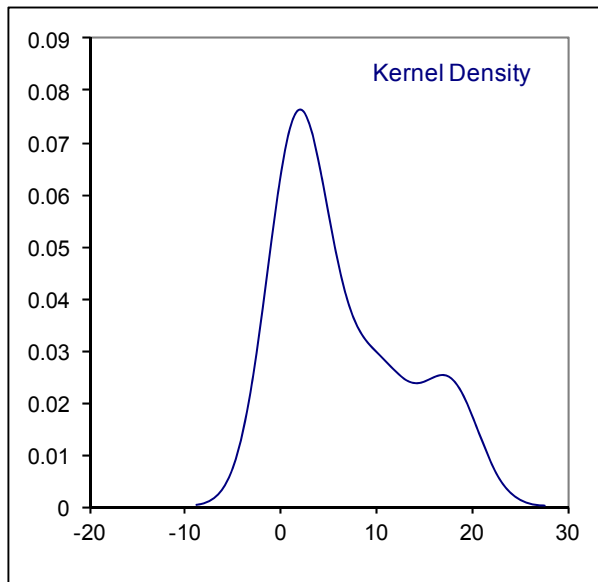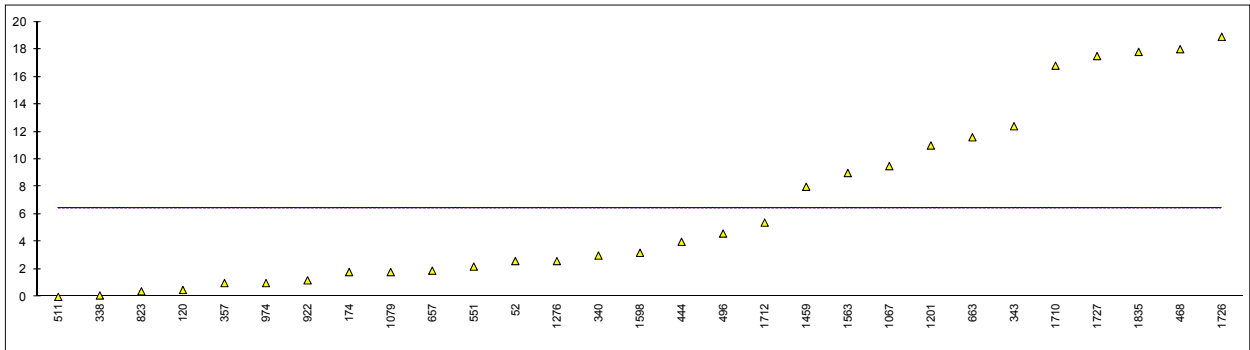
Determination of Nitrogen on sample #13220; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D4629	<1		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	D4629	0.3		-0.47	
169		-----		-----	
171	D4629	<0.01		-----	
174		-----		-----	
193		-----		-----	
194		-----		-----	
311	D4629	0.6		1.23	
323	D4629	<1		-----	
329	D6069	<1		-----	
332		-----		-----	
333	D4629	0.1		-1.60	
334	D4629	0.2		-1.04	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357	D4629	0.65		1.52	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444	D4629	0.08		-1.72	
463		-----		-----	
468	D4629	0.40		0.10	
494		-----		-----	
495	D4629	0.3		-0.47	
496	D4629	0.37		-0.07	
511		-----		-----	
541		-----		-----	
551	D4629	1.00		3.50	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D4629	<0.30		-----	
663	D4629	0.2		-1.04	
823		-----		-----	
840		-----		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067	D4629	<1		-----	
1079	D4629	0.334		-0.27	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	D4629	0.6		1.23	
1203	D4629	2.3	G(0.01)	10.88	
1229		-----		-----	
1231		-----		-----	
1263	D4629	0.36		-0.13	
1276		-----		-----	
1402	D4629	0.3		-0.47	
1446	INH-805	0.09		-1.66	
1459		-----		-----	
1523		-----		-----	
1563		-----		-----	
1598		-----		-----	
1605		-----		-----	
1656		-----		-----	
1710	D4629	0.6	C	1.23	first reported:1.1
1712		-----		-----	
1726		-----		-----	
1727		-----		-----	
1835	D4629	0.4		0.10	
1917		-----		-----	

1919		-----		-----
1933		-----		-----
2493		-----		-----
7006	D4629	<1.2		-----

|	
normality	OK
n	18
outliers	1
mean (n)	0.382
st.dev. (n)	0.2354
R(calc.)	0.659
R(D4629:12)	0.493

Application range: 0.3 -100 mg/kg

Kernel Density
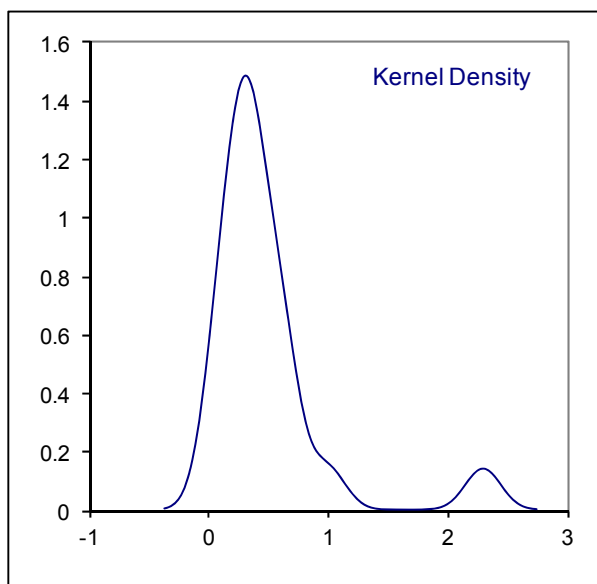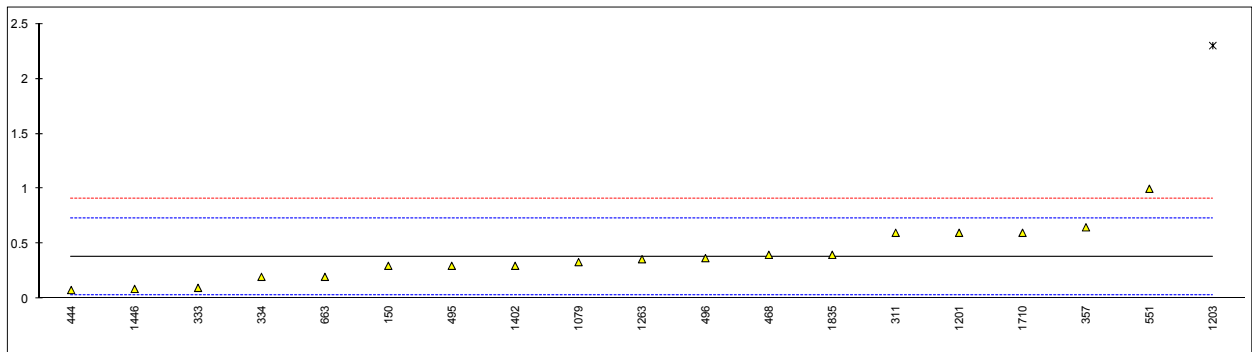
Determination of Phosphorus on sample #13220; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3231	<0.02		-----	
62	D3231	0.0003		-----	
120	EN15487	<0.15		-----	
132		-----		-----	
150	D3231	0.016		-----	
169		-----		-----	
171		-----		-----	
174		-----		-----	
193		-----		-----	
194		-----		-----	
311	EN15837	<0.13		-----	
323	EN15487	<0.15		-----	
329	EN15487	<0.15		-----	
332		-----		-----	
333	EN15487	<0.15		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15487	0.08		-----	
357	EN15487	<0.15		-----	
360	EN15837	<0.15		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444	EN15487	0.03		-----	
463		-----		-----	
468	EN15487	<0.15		-----	
494		-----		-----	
495		-----		-----	
496		-----		-----	
511	EN15487	0.30	G(0.01)	-----	false positive test result?
541	EN15487	<0.15		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
823	UOP389	<0.11		-----	
840		-----		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		-----		-----	
974		-----		-----	
1067		-----		-----	
1079	EN15487	0.1361		-----	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15487	<0.2		-----	
1203	EN15487	<0.15		-----	
1229		-----		-----	
1231		-----		-----	
1263	EN15487	<0.1		-----	
1276	EN15487	0.11		-----	
1402		-----		-----	
1446		-----		-----	
1459		-----		-----	
1523		-----		-----	
1563	EN15487	0.037		-----	
1598	EN15487	0.0182		-----	
1605		-----		-----	
1656	EN15487	0.01		-----	
1710		-----		-----	
1712	EN15487	0.01		-----	
1726	EN15487	0.083		-----	
1727	EN15487	<0.15		-----	
1835	EN15487	<0.15		-----	
1917		-----		-----	

1919		-----		-----	
1933	ISO11885	<0.1		-----	
2493	EN15837	1.74	G(0.01)	-----	false positive test result?
7006		-----		-----	

normality	OK
n	11
outliers	2
mean (n)	0.048
st.dev. (n)	0.0462
R(calc.)	0.129
R(EN15487:07)	(0.064)

Application range: 0.15 – 1.50 mg/l
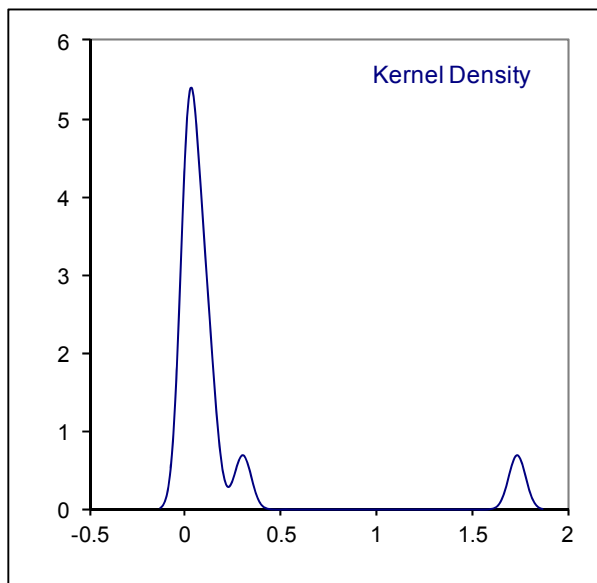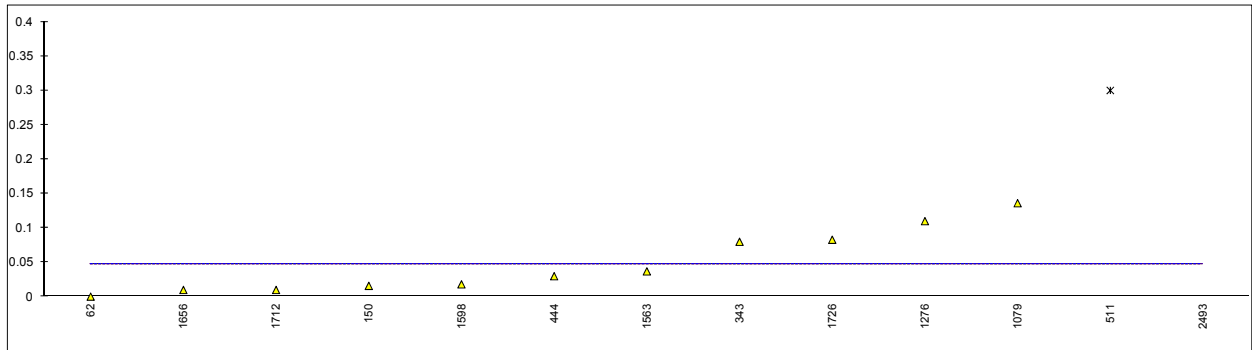
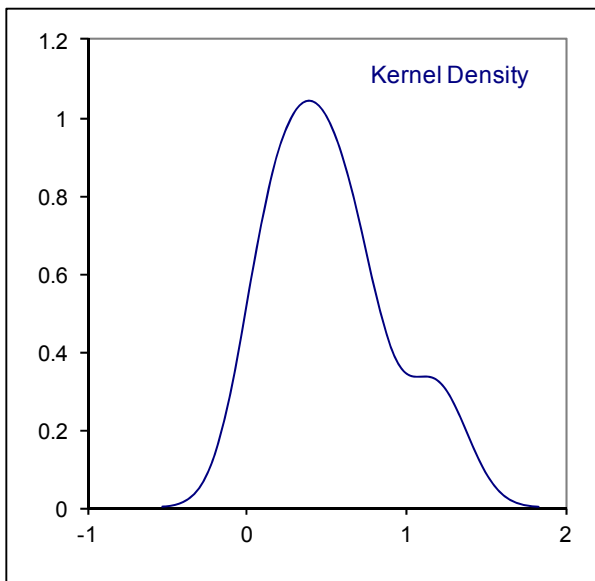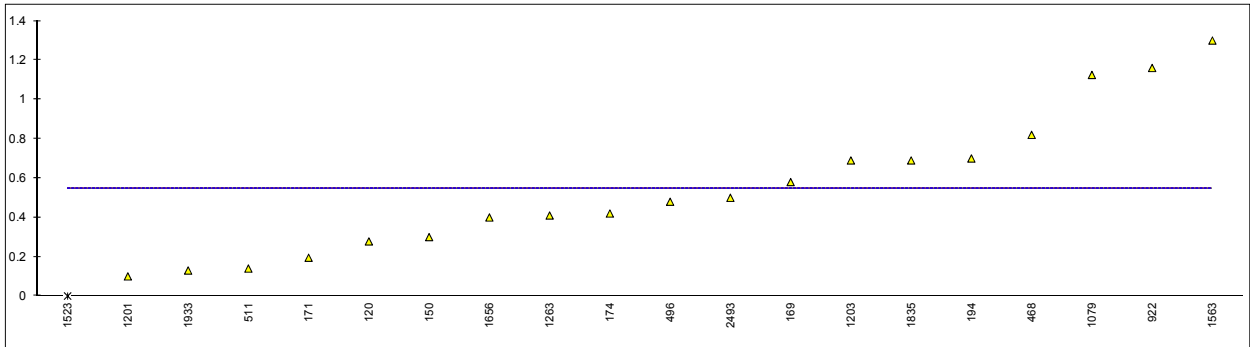Determination of Sulphate on sample #13220; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D7318	<1		-----	
62		-----		-----	
120	EN15492	0.278		-----	
132	D7319	<1.0		-----	
150	D7328	0.3		-----	
169	D7319	0.58		-----	
171	EN15492	0.195		-----	
174	EN15492	0.42		-----	
193		-----		-----	
194	D7319	0.7		-----	
311	EN15492	<1.0		-----	
323	EN15492	<1.0		-----	
329	EN15492	<1		-----	
332		-----		-----	
333	EN15492	<1		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15492	<0.5		-----	
357	EN15492	<0.9		-----	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468	EN15492	0.82		-----	
494		-----		-----	
495		-----		-----	
496	EN15492	0.48		-----	
511	D7318	0.14		-----	
541		-----		-----	
551	EN15492	<1		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D7328	<0.55		-----	
663		-----		-----	
823		-----		-----	
840	D7318	<1.0		-----	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D7319	1.1604		-----	false positive test result?
974		-----		-----	
1067		-----		-----	
1079	EN15492	1.125		-----	false positive test result?
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15492	0.1		-----	
1203	EN15492	0.69		-----	
1229		-----		-----	
1231		-----		-----	
1263	EN15492	0.41		-----	
1276		-----		-----	
1402		-----		-----	
1446		-----		-----	
1459		-----		-----	
1523	D7319	0	ex	-----	result excluded, zero is not a real value
1563	EN15492	1.3		-----	false positive test result?
1598		-----		-----	
1605		-----		-----	
1656	EN15492	0.4		-----	
1710		-----		-----	
1712		-----		-----	
1726		-----		-----	
1727	EN15492	<1		-----	
1835	EN15492	0.69		-----	
1917		-----		-----	

1919		-----	-----
1933	in house	0.13	-----
2493	EN15492	0.50	-----
7006		-----	-----

|		
normality	OK	
n	19	
outliers	0 + 1 excl	
mean (n)	0.548	
st.dev. (n)	0.3557	
R(calc.)	0.996	
R(EN15492:12)	(0.267)	Application range: 1 - 20 mg/kg
Compare		
R(D7319:09)	(1.056)	Application range: 1- 50 mg/kg

Determination of total Sulphur on sample #13220; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	1.7		-0.05	
62	D5453	1.44		-0.27	
120	EN15485	2.477		0.59	
132	D5453	<1.0		-----	
150	D5453	2.05		0.24	
169	D5453	2.13		0.30	
171	EN15485	<10		-----	
174	D5453	1.9		0.11	
193		-----		-----	
194	D5453	1.898		0.11	
311	D5453	2.1		0.28	
323	EN15485	1.7		-0.05	
329	EN15486	2		0.20	
332		-----		-----	
333	EN15486	2.2		0.36	
334	EN15486	1.8		0.03	
337	EN15486	0.7		-0.88	
338	D5453	0.7		-0.88	
340	EN15485	2		0.20	
343		-----		-----	
357	EN15485	1.53		-0.19	
360	EN15486	2.2		0.36	
395		-----		-----	
399	EN15485	1.4		-0.30	
441		-----		-----	
444	IP554	2.20		0.36	
463	D5453	1.69		-0.06	
468	EN15485	1.61		-0.13	
494		-----		-----	
495	EN15486	1.9		0.11	
496	EN15485	2.5		0.61	
511	D5453	1.40		-0.30	
541		-----		-----	
551	D5453	1.901		0.11	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	D5453	2.14		0.31	
663	D5453	2.0		0.20	
823		-----		-----	
840		-----		-----	
862	D5453	1.7		-0.05	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	D5453	1.80		0.03	
974		-----		-----	
1067	EN15485	1.3		-0.38	
1079	D5453	2.16		0.33	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191	EN15485	1.5		-0.22	
1201	EN15485	1.8		0.03	
1203	EN15485	1.7		-0.05	
1229	ISO20846	1.68		-0.07	
1231	D5453	1.50		-0.22	
1263	ISO20846	1.63		-0.11	
1276	EN15486	1.58		-0.15	
1402		-----		-----	
1446		-----		-----	
1459	in house	<2		-----	
1523		-----		-----	
1563	EN15485	<7.0		-----	
1598		-----		-----	
1605		-----		-----	
1656	EN15486	2.2		0.36	
1710	ISO20846	1.3		-0.38	
1712	EN15486	<5		-----	
1726		-----		-----	
1727		-----		-----	
1835	EN15485	2.0		0.20	
1917		-----		-----	

1919		-----		-----
1933	EN15485	0.98		-0.65
2493	EN14582	<7		-----
7006	D5453	1.74		-0.02

		Only D5453 data:	
normality	OK	OK	
n	43	19	
outliers	0	0	
mean (n)	1.764	1.813	
st.dev. (n)	0.3999	0.3865	
R(calc.)	1.120	1.082	
R(EN15485:07)	3.383	0.906	Application range: 7 - 20 mg/kg
Compare			
R(EN15486:07)	1.952		Application range: 5 - 20 mg/kg
R(D5453:09)	0.887		Application range: 1 - 8000 mg/kg
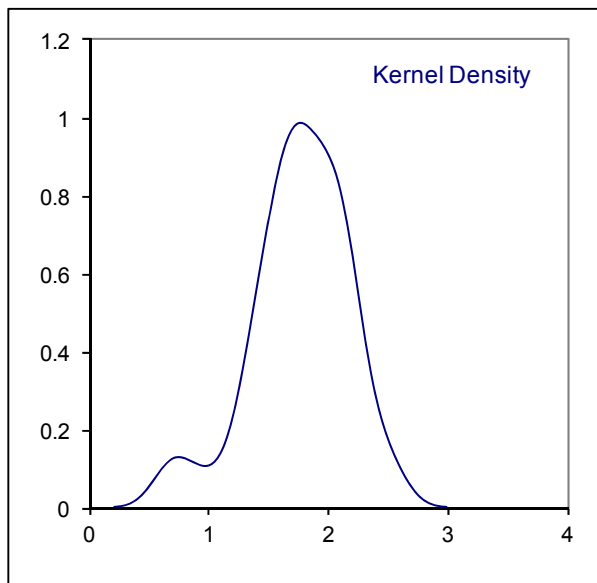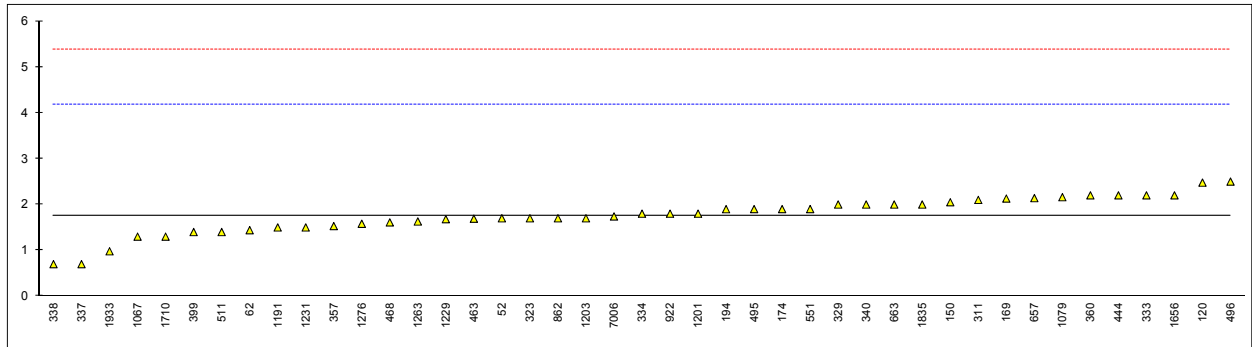
Determination of Water (coulometric) on sample #13220; results in %M/M
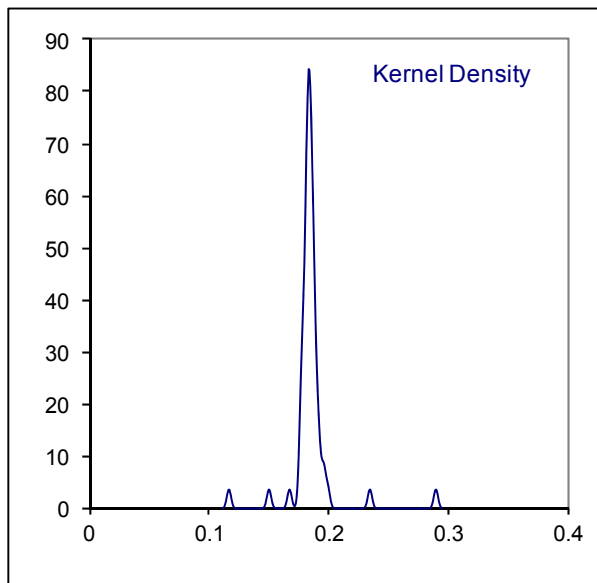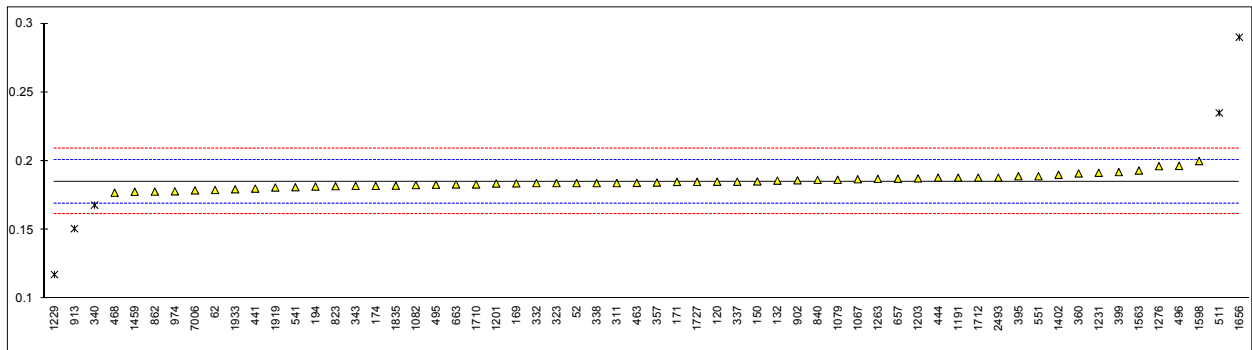
lab	method	value	mark	z(targ)	remarks
52	D1064	0.184		-0.15	
62	E1064	0.179		-0.78	
120	EN15489	0.185		-0.02	
132	E1064	0.1858		0.08	
150	E1064	0.1852		0.00	
169	E1064	0.1838		-0.17	
171	EN15489	0.18485		-0.04	
174	EN15489	0.182		-0.40	
193		-----		-----	
194	D1064	0.1815		-0.46	
311	EN15489	0.184		-0.15	
323	EN15489	0.184		-0.15	
329		-----		-----	
332	EN15489	0.1840		-0.15	
333		-----		-----	
334		-----		-----	
337	EN15489	0.185	C	-0.02	first reported:0.210
338	E1064	0.184	C	-0.15	first reported:1842.81
340	EN15489	0.168	G(0.05)	-2.16	
343	EN15489	0.1820		-0.40	
357	EN15489	0.1844		-0.10	
360	EN15489	0.191		0.73	
395	EN15489	0.1890		0.48	
399	EN15489	0.1920		0.86	
441	EN15489	0.180		-0.65	
444	EN15489	0.1880		0.35	
463	ISO12937	0.18415	C	-0.13	first reported:1841.5
468	EN15489	0.177		-1.03	
494		-----		-----	
495	EN15489	0.1828		-0.30	
496	EN15489	0.1965		1.42	
511	E1064	0.235	G(0.01)	6.26	
541	E1064	0.181		-0.52	
551	EN15489	0.1890		0.48	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	E1064	0.1872		0.25	
663	E1064	0.183		-0.27	
823	E1064	0.1818		-0.42	
840	E1064	0.1863		0.14	
862	E1064	0.1778		-0.93	
902	E1064	0.186		0.10	
912		-----		-----	
913	E1064	0.1509	G(0.01)	-4.31	
922		-----		-----	
974	D6304	0.178		-0.90	
1067	EN15489	0.1868		0.20	
1079	EN15489	0.1864		0.15	
1082	EN15489	0.1826		-0.32	
1126		-----		-----	
1161		-----		-----	
1191	EN15489	0.188		0.35	
1201	EN15489	0.1837		-0.19	
1203	EN15489	0.1874		0.28	
1229	EN15489	0.1175	G(0.01)	-8.50	
1231	D6304	0.1915		0.79	
1263	ISO12937	0.1871		0.24	
1276	EN15489	0.1963		1.40	
1402	EN15489	0.19		0.61	
1446		-----		-----	
1459	EN15489	0.1777		-0.94	
1523		-----		-----	
1563	EN15489	0.19309		0.99	
1598	EN15489	0.20		1.86	
1605		-----		-----	
1656	EN15489	0.29	C,G(0.01)	13.17	first reported:0.21
1710	EN15489	0.183	C	-0.27	first reported:0.103
1712	EN15489	0.188		0.35	
1726		-----		-----	
1727	EN15489	0.1849		-0.03	
1835	EN15489	0.1821		-0.39	
1917		-----		-----	

1919	EN15489	0.1808		-0.55
1933	EN15489	0.1795		-0.71
2493	ISO12937	0.188		0.35
7006	E1064	0.1787		-0.81

|		
normality	OK	
n	55	
outliers	5	
mean (n)	0.1852	
st.dev. (n)	0.00482	
R(calc.)	0.0135	
R(EN15489:07)	0.0223	Application range: 0.039 – 0.050 %M/M
Compare		
R(E1064:12)	0.0315	Application range: 0.2 %M/M

Kernel Density

Determination of Water (titrimetric) on sample #13220; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	E203	0.189		0.20	
132		-----		-----	
150	E203	0.1938		0.37	
169	E203	0.1814		-0.08	
171	E203	0.1855		0.07	
174	E203	0.188		0.16	
193		-----		-----	
194		-----		-----	
311	E203	0.183		-0.02	
323	E203	0.180		-0.13	
329	E203	0.180		-0.13	
332		-----		-----	
333		-----		-----	
334	E203	0.181		-0.09	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	E203	0.1873		0.14	
357	E203	0.1825		-0.04	
360		-----		-----	
395	E203	0.1921		0.31	
399		-----		-----	
441		-----		-----	
444	E203	0.1897		0.22	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	E203	0.2145	G(0.01)	1.11	
511	E203	0.240	G(0.01)	2.03	
541		-----		-----	
551	E203	0.1883		0.17	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	E203	0.184		0.02	
657	E203	0.1825		-0.04	
663	E203	0.1745		-0.32	
823	D1363	0.1835		0.00	
840	E203	0.1954		0.43	
862	E203	0.1764		-0.26	
902	E203	0.177		-0.23	
912		-----		-----	
913	E203	0.1632		-0.73	
922	E203	0.1825		-0.04	
974		-----		-----	
1067	E203	0.1880		0.16	
1079	E203	0.188		0.16	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	E203	0.1918		0.30	
1203		-----		-----	
1229		-----		-----	
1231		-----		-----	
1263		-----		-----	
1276		-----		-----	
1402	E203	0.17		-0.49	
1446	ISO760	0.1789		-0.17	
1459		-----		-----	
1523	E203	0.186		0.09	
1563		-----		-----	
1598		-----		-----	
1605		-----		-----	
1656	E203	0.27	C,G(0.01)	3.10	first reported:0.21
1710		-----		-----	
1712		-----		-----	
1726	EN15692	0.1821		-0.05	
1727	E203	0.1868		0.12	
1835		-----		-----	
1917	E203	0.18		-0.13	

1919		-----		-----
1933		-----		-----
2493		-----		-----
7006	E203	0.1845		0.03

| normality	OK
n	33
outliers	3
mean (n)	0.1835
st.dev. (n)	0.00667
R(calc.)	0.0189
R(E203:08)	0.0780
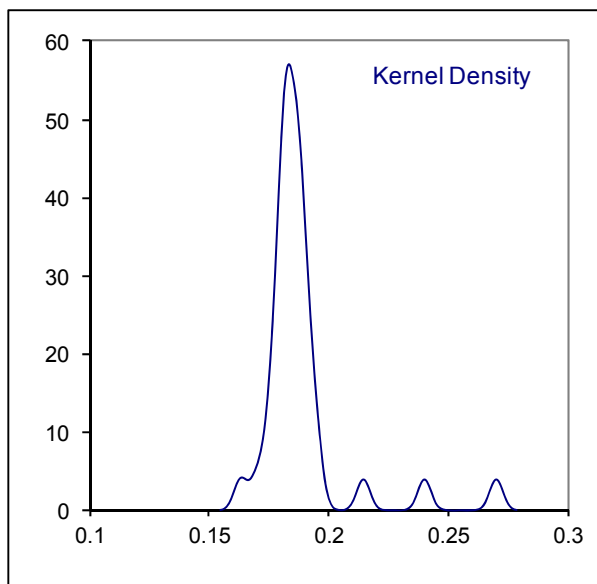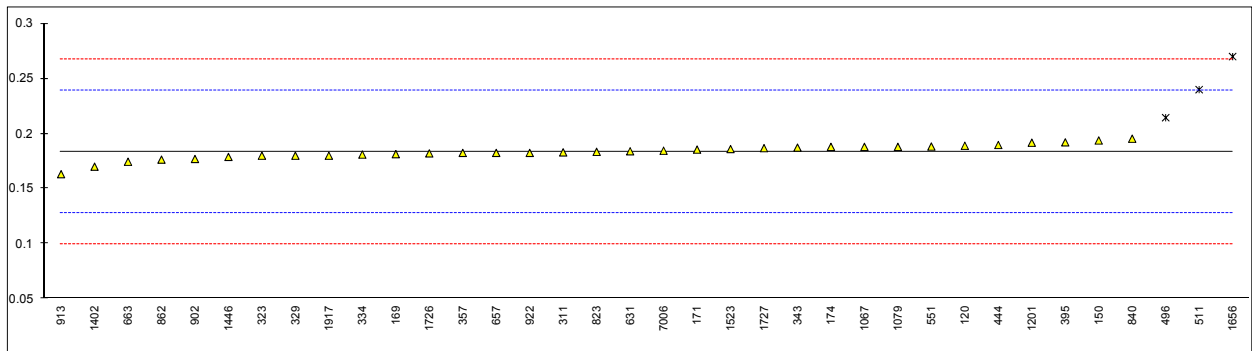
Determination of Ethanol on sample #13220 in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	D5501	99.38		-0.60	
132	D5501	99.53		-0.17	
150	INH-001	99.57		-0.06	
169	D5501	99.692		0.28	
171	INH-0001	99.45		-0.40	
174	INH-1582	99.619		0.08	
193		-----		-----	
194	D5501	99.59		-0.01	
311	INH-529	99.681		0.25	
323	INH-0001	99.60		0.02	
329		99.57		-0.06	
332		-----		-----	
333	EN15721	99.77		0.50	
334	EN15721	99.591		0.00	
337		-----		-----	
338	INH-2870	99.70		0.30	
340		-----		-----	
343	INH-01	99.756		0.46	
357	EN15721	99.5057		-0.24	
360	EN15721	99.5928		0.00	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	99.72857		0.38	
511		-----		-----	
541		-----		-----	
551	D5501	99.56276		-0.08	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D5501	99.60		0.02	
657	INH-001	99.5801		-0.03	
663	INH-001	99.400		-0.54	
823	INH-0001	99.6747		0.23	
840	INH-0001	99.404		-0.53	
862	INH-0001	99.592		0.00	
902		99.66		0.19	
912		-----		-----	
913	INH-0001	99.49		-0.29	
922	INH-0001	99.4925		-0.28	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	99.7421		0.42	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191	D5501	99.525		-0.19	
1201		99.6078		0.04	
1203		99.757		0.46	
1229	D5501	99.358		-0.66	
1231	D5501	99.55		-0.12	
1263		-----		-----	
1276	EN15721	99.648		0.16	
1402	EN15721	99.427		-0.47	
1446	ISO12185	99.73		0.39	
1459	in house	99.570		-0.06	
1523		-----		-----	
1563		-----		-----	
1598		99.4352		-0.44	
1605		-----		-----	
1656	EN15721	99.88		0.81	
1710		-----		-----	
1712		-----		-----	
1726	EN15721	99.7487		0.44	
1727	EN15721	99.73		0.39	
1835	EN15721	99.7661		0.49	
1917		-----		-----	

1919		-----		-----
1933	in house	99.20		-1.10
2493		85.116	G(0.01)	-40.80
7006		-----		-----

|	
normality	OK
n	43
outliers	1
mean (n)	99.5920
st.dev. (n)	0.13680
R(calc.)	0.3830
R(D5501:12e1)	0.9935
compare	
R(EN15721:13)	0.1452

Application range: 20 -100 %M/M

Kernel Density
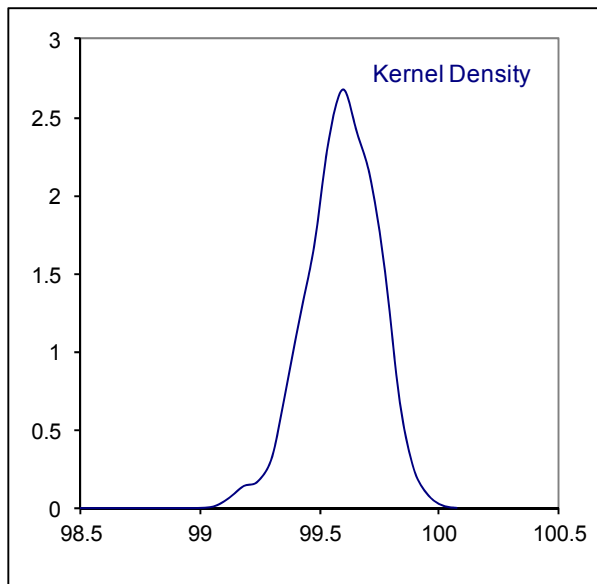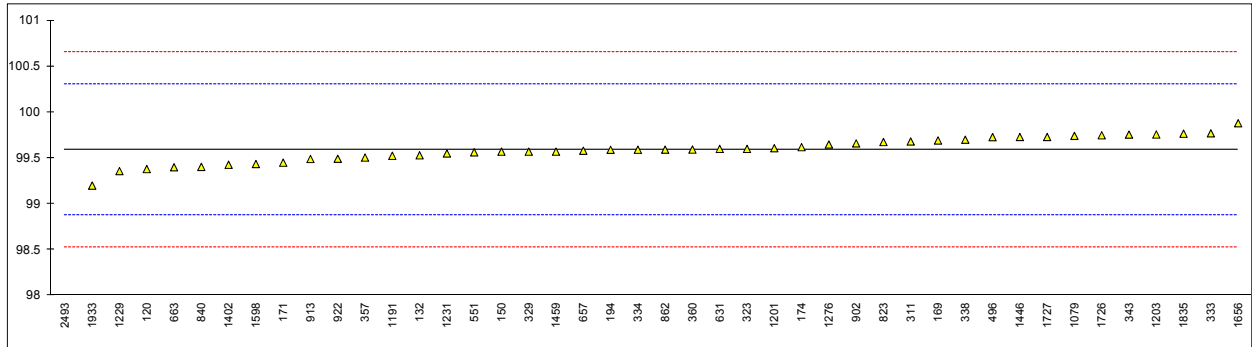
Determination of Acetal on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.0580	C	-0.01	first reported:0.0191
132		-----		-----	
150	INH-001	0.0727		4.12	
169		-----		-----	
171	INH-0001	0.0512		-1.92	
174	INH-1582	0.0574		-0.18	
193		-----		-----	
194		-----		-----	
311	INH-529	0.06801		2.80	
323	INH-0001	0.0569		-0.32	
329		0.0561		-0.54	
332		-----		-----	
333	EN15721	0.0598		0.50	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357		-----		-----	
360	EN15721	0.0599		0.53	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	<0.001		<-15.96	False negative result?
511	INH-0001	0.07765		5.51	
541		-----		-----	
551	INH-1313	0.049343		-2.44	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0631		1.42	
663	INH-001	0.0382		-5.56	
823	INH-0001	0.0538		-1.19	
840	INH-0001	0.0515		-1.83	
862	INH-0001	0.0577		-0.09	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.05728		-0.21	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0596		0.44	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201		<0.0010		<-15.96	False negative result?
1203		0.05693		-0.31	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.05696		-0.30	
1276		-----		-----	
1402	EN15721	0.049		-2.53	
1446		-----		-----	
1459		-----		-----	
1523		-----		-----	
1563	EN15721	0.0504		-2.14	
1598		0.0605		0.69	
1605		0.06733		2.61	
1656		-----		-----	
1710		-----		-----	
1712		-----		-----	
1726	EN15721	0.0583		0.08	
1727	EN15721	0.0592		0.33	
1835	in house	0.0586		0.16	
1917		0.023	C,G(0.01)	-9.83	first reported:0.23

1919		0.0117	G(0.01)	-13.0
1933	in house	0.0535		-1.27
2493		0.0638		1.62
7006		-----		-----

|	
normality	not OK
n	29
outliers	2
mean (n)	0.0580
st.dev. (n)	0.00758
R(calc.)	0.0212
R(Horwitz)	0.0100
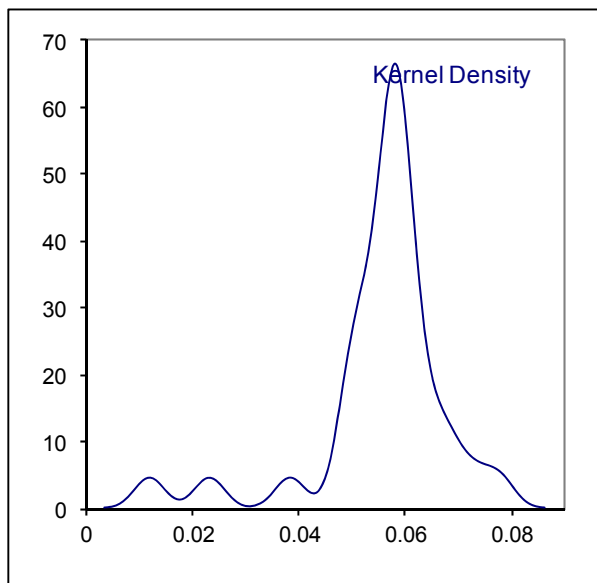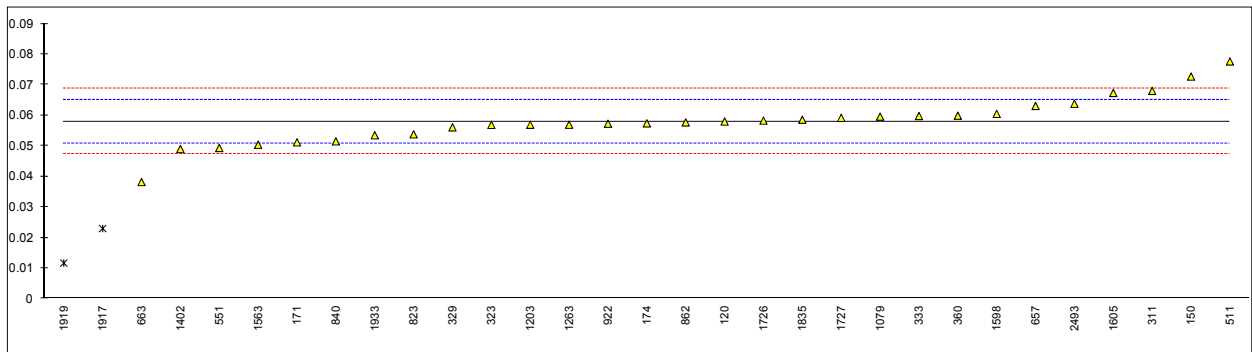
Determination of Benzene on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	INH-001	0.0028		1.92	
169		-----		-----	
171	INH-0001	<0.01		-----	
174	INH-1582	0.0022		-0.65	
193		-----		-----	
194		-----		-----	
311	INH-529	0.00256		0.89	
323	INH-0001	0.0025		0.63	
329		0.0026		1.06	
332		-----		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	INH-01	0.002		-1.50	
357	INH-001	0.0023		-0.22	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496		-----		-----	
511	INH-0001	0.00208		-1.16	
541		-----		-----	
551	INH-1313	0.002575		0.95	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0026		1.06	
663	INH-001	0.0035	G(0.05)	4.91	
823	INH-0001	0.0021		-1.08	
840	INH-0001	0.0018		-2.36	
862	INH-0001	0.0025		0.63	
902		0.0021		-1.08	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.00258		0.98	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0039	G(0.05)	6.62	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201		<0.0010		<-5.73	False negative result?
1203		-----		-----	
1229		-----		-----	
1231		-----		-----	
1263		-----		-----	
1276		-----		-----	
1402		-----		-----	
1446		-----		-----	
1459		-----		-----	
1523		-----		-----	
1563		-----		-----	
1598		0.0020		-1.50	
1605		-----		-----	
1656		-----		-----	
1710		-----		-----	
1712		-----		-----	
1726	in house	0.0025		0.63	
1727	EN15721	0.0024		0.21	
1835	in house	0.0023		-0.22	
1917		-----		-----	

| 1919 | ----- | ----- |
1933	-----	-----
2493	0.00254	0.80
7006	-----	-----

normality	not OK
n	20
outliers	2
mean (n)	0.00235
st.dev. (n)	0.000267
R(calc.)	0.00075
R(Horwitz)	0.00066
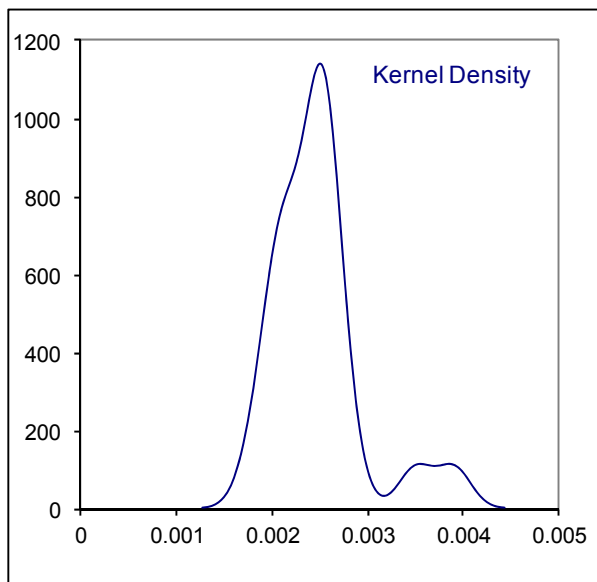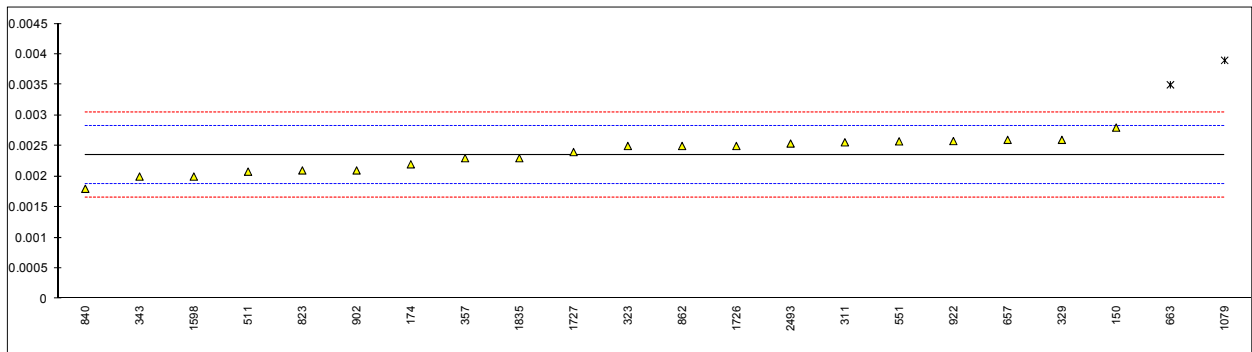
Determination of Ethyl acetate on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.015		-1.18	
132		-----		-----	
150	INH-001	0.0190		2.10	
169		-----		-----	
171	INH-0001	0.0195		2.51	
174	INH-1582	0.0179		1.20	
193		-----		-----	
194		-----		-----	
311	INH-529	0.01810		1.36	
323	INH-0001	0.0161		-0.27	
329		0.0165		0.05	
332		-----		-----	
333	EN15721	0.0180		1.28	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357	INH-001	0.0166		0.14	
360	EN15721	0.0162		-0.19	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0163		-0.11	
511	INH-0001	0.01370		-2.24	
541		-----		-----	
551	INH-1313	0.015115		-1.08	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0189		2.02	
663	INH-001	0.0157		-0.60	
823	INH-0001	0.0150		-1.18	
840	INH-0001	0.0143		-1.75	
862	INH-0001	0.0160		-0.36	
902		-----		-----	
912		-----		-----	
913	INH-0001	0.0148		-1.34	
922	INH-0001	0.01658		0.12	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0134		-2.49	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201		0.0158		-0.52	
1203		0.01624		-0.16	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.01543		-0.82	
1276		-----		-----	
1402	EN15721	0.017		0.46	
1446	EN15721	0.0156		-0.68	
1459		-----		-----	
1523	D5501	0.020319		3.18	
1563	EN15721	0.0141		-1.91	
1598		0.0153		-0.93	
1605		0.01854		1.73	
1656		-----		-----	
1710		-----		-----	
1712		-----		-----	
1726	EN15721	0.0177		1.04	
1727	EN15721	0.0174		0.79	
1835	in house	0.0170		0.46	
1917		0.012	C	-3.64	first reported:0.12

1919		0.0219		4.48
1933	in house	0.0158		-0.52
2493	EN15721	0.0163		-0.11
7006		-----		-----

| normality	OK
n	35
outliers	2
mean (n)	0.016435
st.dev. (n)	0.0016464
R(calc.)	0.004610
R(Horwitz)	0.003416
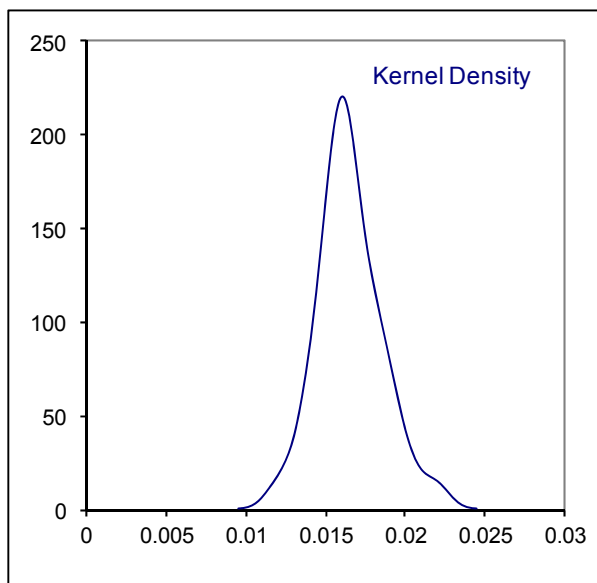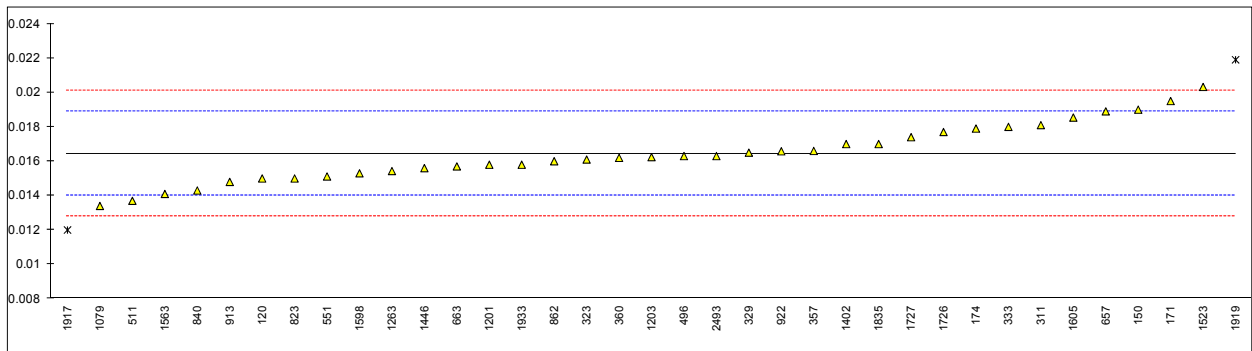
Determination of iso-Butanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.042		-1.60	
132		-----		-----	
150	INH-001	0.0544		2.58	
169		-----		-----	
171	INH-0001	0.051		1.43	
174	EN15721	0.0474		0.22	
193		-----		-----	
194		-----		-----	
311	INH-529	0.04989		1.06	
323	INH-0001	0.0465		-0.09	
329	EN15721	0.0440		-0.93	
332		-----		-----	
333	EN15721	0.0507		1.33	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15721	0.042		-1.60	
357	EN15721	0.0413		-1.84	
360	EN15721	0.0453		-0.49	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463	EN13132	<0.2		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0420	C	-1.60	first reported:0.00154
511	INH-0001	0.04772		0.33	
541		-----		-----	
551	INH-1313	0.043487		-1.10	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0526		1.97	
663	INH-001	0.0509		1.40	
823	INH-0001	0.0442		-0.86	
840	INH-0001	0.0439		-0.96	
862	INH-0001	0.0524		1.90	
902		-----		-----	
912		-----		-----	
913	INH-0001	0.0445		-0.76	
922	INH-0001	0.04787		0.38	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0461		-0.22	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15721	0.0408		-2.01	
1203	EN15721	0.04523		-0.51	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.04585		-0.30	
1276		-----		-----	
1402		-----		-----	
1446		-----		-----	
1459		-----		-----	
1523	D5501	0.049558		0.95	
1563	EN15721	0.0440		-0.93	
1598	EN15721	0.0475		0.25	
1605	EN15721	0.00029	G(0.01)	-15.67	
1656		-----		-----	
1710	EN15721	0.0436		-1.06	
1712		-----		-----	
1726	EN15721	0.0500		1.09	
1727	EN15721	0.0488		0.69	
1835	in house	0.0507		1.33	
1917	EN15721	0.086	C,G(0.01)	13.23	first reported:0.0857

1919	EN15721	0.0424	-1.47
1933	in house	0.0488	0.69
2493	EN15721	0.0490	0.76
7006		-----	-----

|	
normality	OK
n	35
outliers	2
mean (n)	0.04675
st.dev. (n)	0.003634
R(calc.)	0.01017
R(Horwitz)	0.00830
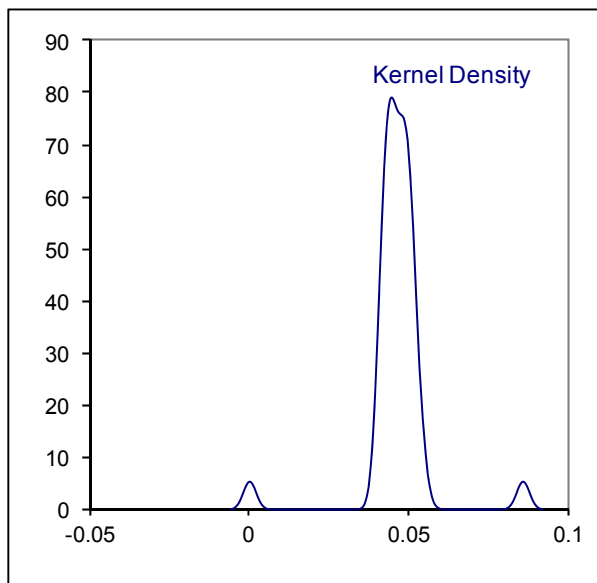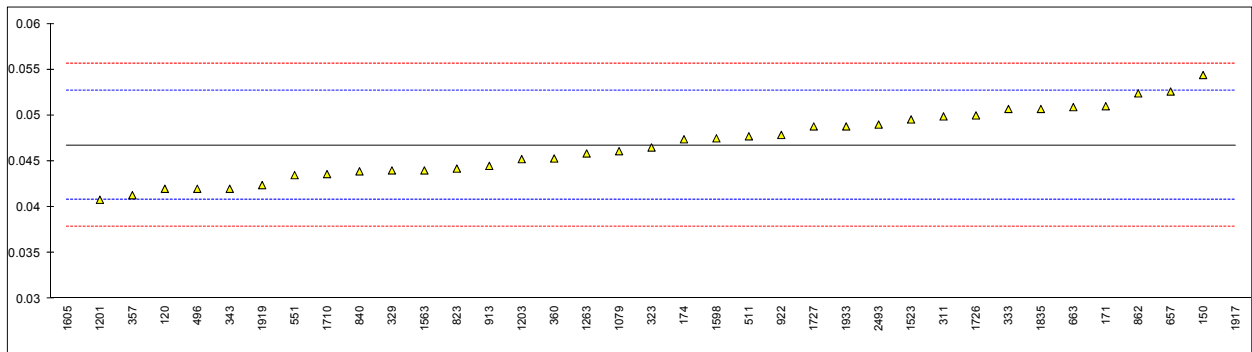
Determination of Methanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	<0.001	C	-----	first reported:0.020
132	D5501	0.02	G(0.01)	2.19	
150	INH-001	0.0089		-0.08	
169	D5501	<0.01		-----	
171	INH-0001	<0.01		-----	
174	EN15721	0.0100		0.14	
193		-----		-----	
194	D5501	0	ex	-1.91	result excluded, zero is not a real value
311	INH-529	0.01151		0.45	
323	INH-0001	0.0106		0.26	
329	EN15721	0.0094		0.02	
332		-----		-----	
333	EN15721	0.0097		0.08	
334	EN15721	0.0108		0.30	
337		-----		-----	
338	INH-2870	0.007	C	-0.47	first reported:74
340		-----		-----	
343		-----		-----	
357	EN15721	0.0090		-0.06	
360	EN15721	0.0100		0.14	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463	EN13132	<0.2		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.00881		-0.10	
511	INH-0001	0.00914		-0.04	
541		-----		-----	
551	INH-1313	0.008298		-0.21	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631	D5501	0.01	C	0.14	first reported:0.02
657	INH-001	0.0104		0.22	
663	INH-001	0.0125		0.65	
823	INH-0001	0.0086		-0.15	
840	INH-0001	0.0077		-0.33	
862	INH-0001	0.0092		-0.02	
902		-----		-----	
912		-----		-----	
913	INH-0001	0.0090		-0.06	
922	INH-0001	0.01069		0.28	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0098		0.10	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191	D5501	0.008		-0.27	
1201	EN15721	0.0166	G(0.01)	1.49	
1203	EN15721	0.00796		-0.28	
1229	D5501	<0.01		-----	
1231		-----		-----	
1263	D5501	0.00922		-0.02	
1276	EN15721	0.016	G(0.01)	1.37	
1402	EN15721	0.008		-0.27	
1446	EN15721	0.0094		0.02	
1459	in house	0.020	G(0.05)	2.19	
1523	D5501	0.0103296		0.21	
1563	EN15721	0.0080		-0.27	
1598	EN15721	0.0095		0.04	
1605	EN15721	0.01032		0.21	
1656	EN15721	0.01	C	0.14	first reported:0.08
1710	EN15721	0.0096		0.06	
1712		-----		-----	
1726	EN15721	0.0093		0.00	
1727	EN15721	0.0091		-0.04	
1835	in house	0.0088		-0.10	
1917	EN15721	0.0067		-0.54	

1919	EN15721	0.0086	-0.15
1933	in house	0.0089	-0.08
2493	EN15721	0.00971	0.08
7006		-----	-----

|	
normality	OK
n	40
outliers	4 + 1 excl.
mean (n)	0.00931
st.dev. (n)	0.001149
R(calc.)	0.00322
R(D5501:12e1)	0.01366
Compare	
R(EN15721:13)	**-0.00318**
R(Horwitz)	0.00211
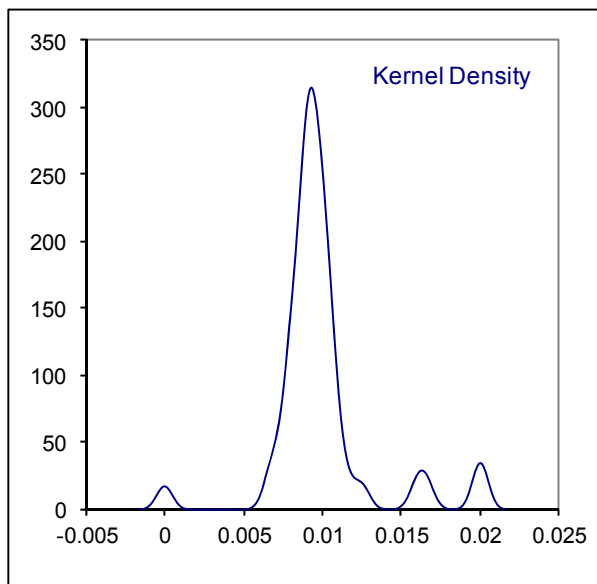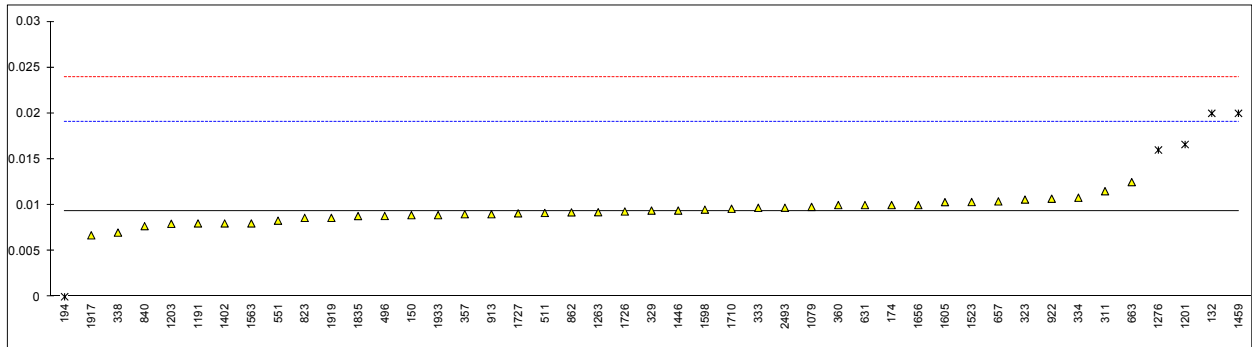
Determination of 3-Methyl-1-butanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	INH-001	0.0171		-4.75	
169		-----		-----	
171	INH-0001	0.063	G(0.01)	21.15	
174	EN15721	0.0271		0.90	
193		-----		-----	
194		-----		-----	
311		-----		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15721	0.020		-3.11	
357	EN15721	0.0396		7.95	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	<0.001		-----	false negative test result?
511	INH-0001	0.01064	ex	-8.39	test result mixed up with 2-methyl-1-butanol?
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0285		1.69	
663	INH-001	0.0427		9.70	
823	INH-0001	0.0249		-0.34	
840	INH-0001	0.0211		-2.49	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.02830		1.57	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0034	ex	-12.47	test result mixed up with 2-methyl-1-butanol?
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15721	0.0348		5.24	
1203	EN15721	0.02368		-1.03	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.02346		-1.16	
1276		-----		-----	
1402	EN15721	0.023		-1.42	
1446	EN15721	0.0221		-1.92	
1459		-----		-----	
1523		-----		-----	
1563	EN15721	0.0298	C	2.42	first reported:0.0243
1598	EN15721	0.0212		-2.43	
1605		-----		-----	
1656		-----		-----	
1710		-----		-----	
1712		-----		-----	
1726	EN15721	0.0239		-0.91	
1727	EN15721	0.0226		-1.64	
1835	in house	0.0241		-0.80	
1917		-----		-----	

| 1919 | EN15721 | 0.0153 | | -5.76 | |
1933	in house	0.0225	C	-1.70	first reported:0.225
2493		-----		-----	
7006		-----		-----	

normality	not OK
n	21
outliers	1 + 2 excl.
mean (n)	0.02551
st.dev. (n)	0.006743
R(calc.)	0.01888
R(Horwitz)	0.00496
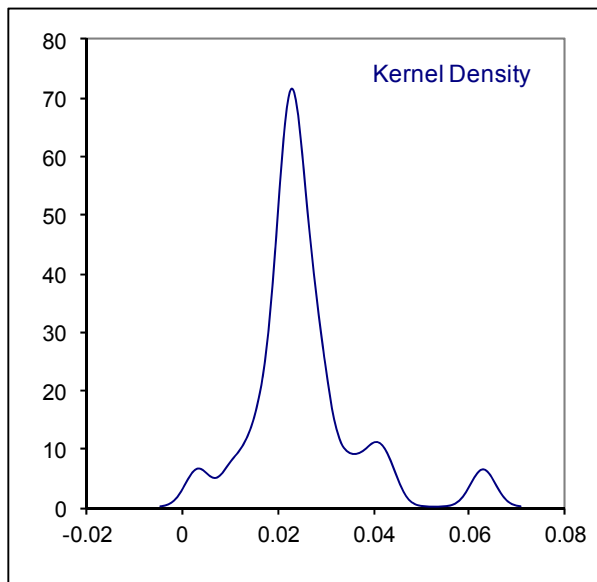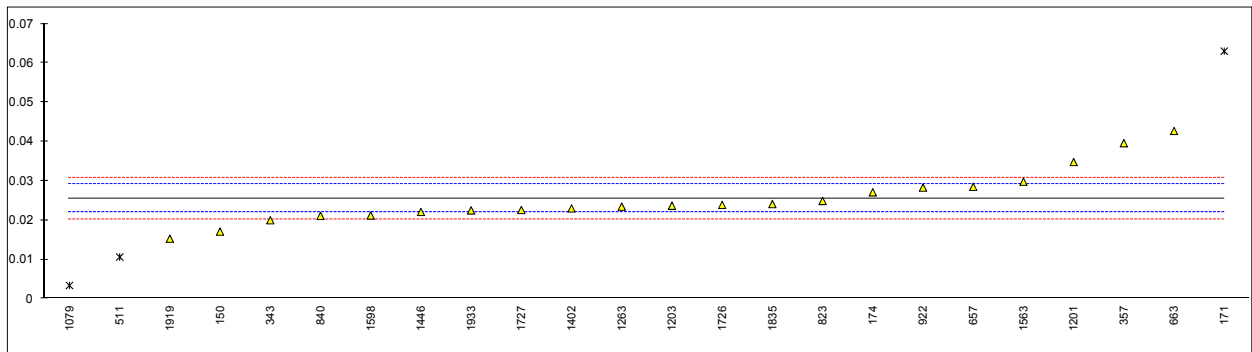
Determination of 2-Methyl-1-butanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150	INH-001	0.0130		-2.00	
169		-----		-----	
171	INH-0001	0.015		-0.26	
174	EN15721	0.0142		-0.96	
193		-----		-----	
194		-----		-----	
311		-----		-----	
323		-----		-----	
329		-----		-----	
332		-----		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15721	0.014		-1.13	
357	EN15721	0.0109		-3.83	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.01338		-1.67	
511	INH-0001	0.02591	ex	9.24	test result mixed up with 3-methyl-1-butanol?
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0147		-0.52	
663	INH-001	<0.001		<-12.47	False negative result?
823	INH-0001	0.0135		-1.57	
840	INH-0001	0.0159		0.52	
862		-----		-----	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922	INH-0001	0.01314		-1.88	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0224	ex	6.19	test result mixed up with 3-methyl-1-butanol?
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201		-----		-----	
1203	EN15721	0.01429		-0.88	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.01487		-0.37	
1276		-----		-----	
1402	EN15721	0.013		-2.00	
1446		0.0132		-1.83	
1459		-----		-----	
1523		-----		-----	
1563	EN15721	0.0160	C	0.61	first reported:0.0007
1598	EN15721	0.0221		5.92	
1605		-----		-----	
1656		-----		-----	
1710		-----		-----	
1712		-----		-----	
1726	EN15721	0.0204		4.44	
1727	EN15721	0.0210		4.97	
1835	in house	0.0210		4.97	
1917		-----		-----	

1919	EN15721	0.0081	-6.27
1933	in house	0.0196	3.75
2493		-----	-----
7006		-----	-----

|	
normality	not OK
n	21
outliers	0 + 2 excl.
mean (n)	0.01530
st.dev. (n)	0.003598
R(calc.)	0.01007
R(Horwitz)	0.00321
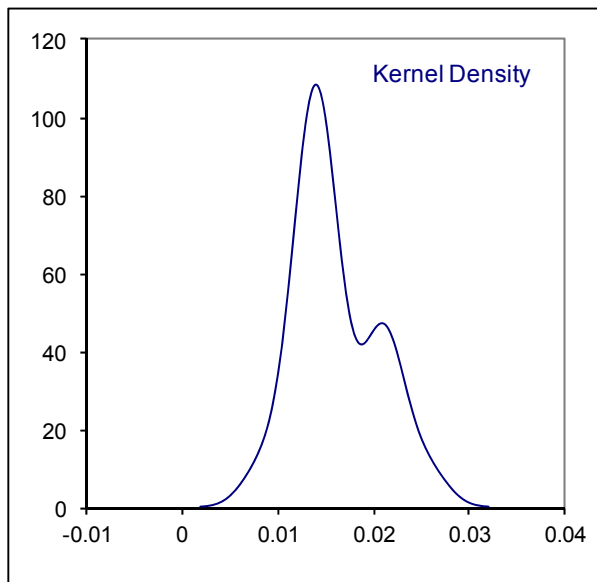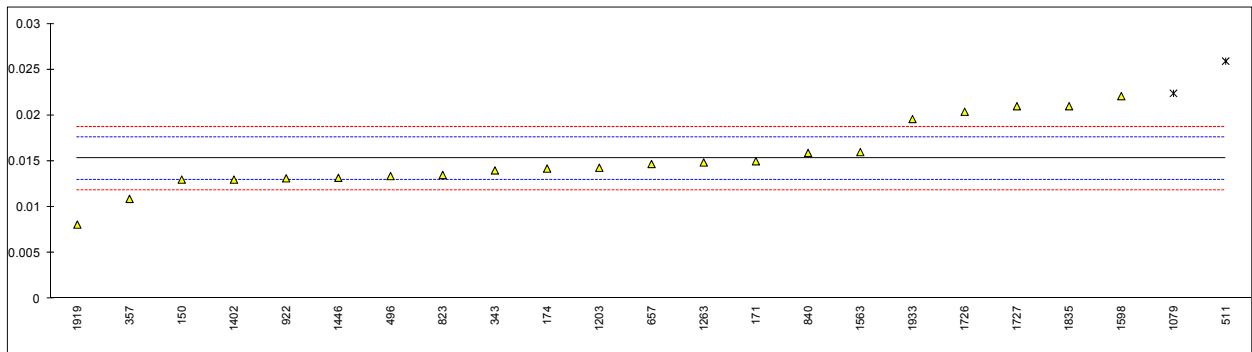
Determination of sum 2-Methyl-1-butanol + 3-Methyl-1-butanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.0305	C	-2.19	first reported:0.389
132		-----		-----	
150	INH-001	0.0301		-2.30	
169		-----		-----	
171	INH-0001	0.078	G(0.01)	11.25	
174	INH582	0.0413		0.87	
193		-----		-----	
194		-----		-----	
311	INH-529	0.03973		0.42	
323	INH-0001	0.0392		0.27	
329		0.0381		-0.04	
332		-----		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343		0.034		-1.20	
357	Calc.	0.0505		3.47	
360	EN15721	0.0384		0.04	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.01338	G(0.05)	-7.03	
511	INH-0001	0.03655		-0.48	
541		-----		-----	
551	INH-1313	0.034148		-1.16	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0432		1.40	
663	INH-001	0.0427		1.26	
823	INH-0001	0.0384		0.04	
840	INH-0001	0.0370		-0.35	
862	INH-0001	0.0418		1.01	
902		-----		-----	
912		-----		-----	
913		-----		-----	
922		0.04144		0.90	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0258		-3.52	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201		0.0348		-0.97	
1203		0.03797		-0.08	
1229		-----		-----	
1231		-----		-----	
1263		-----		-----	
1276		-----		-----	
1402	EN15721	0.036		-0.63	
1446		0.0354		-0.80	
1459		-----		-----	
1523		-----		-----	
1563		0.0458	C	2.14	first reported:0.0025
1598		0.0434		1.46	
1605		-----		-----	
1656		-----		-----	
1710	EN15721	0.0375		-0.21	
1712		-----		-----	
1726		0.0443		1.71	
1727		0.0436		1.52	
1835	in house	0.0451		1.94	
1917		-----		-----	

| 1919		0.0234		-4.20	
1933	in house	0.02446	C, ex	-3.90	first reported:0.2446, result excluded summation not correct
2493		0.0371		-0.32	
7006		-----		-----	

normality	OK
n	30
outliers	2 + 1 excl.
mean (n)	0.03824
st.dev. (n)	0.005854
R(calc.)	0.01639
R(Horwitz)	0.00990
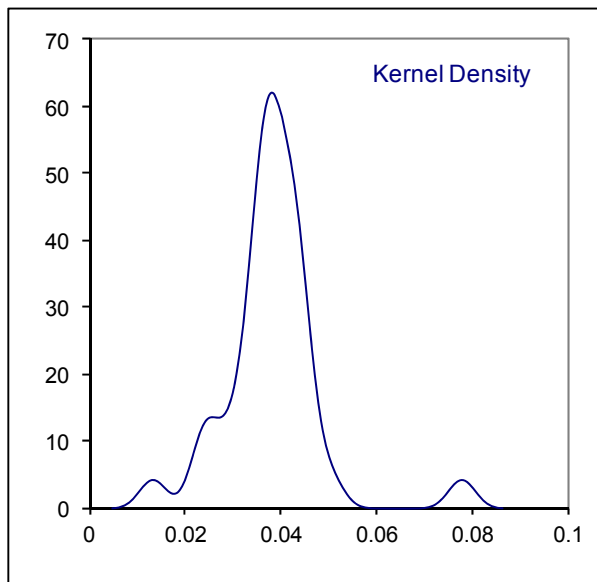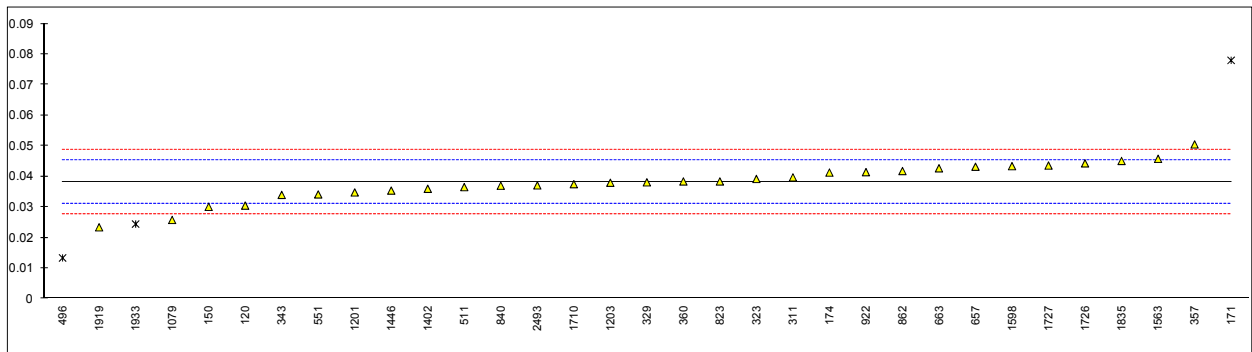
Determination of n-Butanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.001		-3.41	
132		-----		-----	
150	INH-001	0.0013		-1.59	
169		-----		-----	
171	INH-0001	<0.01		-----	
174	EN15721	0.0018		1.43	
193		-----		-----	
194		-----		-----	
311	INH-529	0.00180		1.43	
323	INH-0001	0.0017		0.83	
329	EN15721	0.0016		0.22	
332		-----		-----	
333	EN15721	0.0017		0.83	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15721	0.002		2.64	
357	EN15721	0.0011		-2.80	
360	EN15721	0.0018		1.43	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.00154		-0.14	
511	INH-0001	0.00150		-0.38	
541		-----		-----	
551	INH-1313	0.000068	G(0.01)	-9.04	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0018	C	1.43	first reported:0.0243
663	INH-001	0.0017		0.83	
823	INH-0001	0.0016		0.22	
840	INH-0001	0.0015		-0.38	
862	INH-0001	0.0466	G(0.01)	272.40	
902		-----		-----	
912		-----		-----	
913	INH-0001	0.0017		0.83	
922	INH-0001	0.00174		1.07	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0018		1.43	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15721	0.0045	G(0.01)	17.76	
1203	EN15721	0.00177		1.25	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.00165		0.53	
1276		-----		-----	
1402	EN15721	0.002		2.64	
1446	EN15721	0.0016		0.22	
1459		-----		-----	
1523		-----		-----	
1563	EN15721	0.0011		-2.80	
1598	EN15721	0.0013		-1.59	
1605		-----		-----	
1656		-----		-----	
1710		-----	W	-----	result withdrawn, first reported:0.0062
1712		-----		-----	
1726	EN15721	0.0015		-0.38	
1727	EN15721	0.0010		-3.41	
1835	in house	0.0013		-1.59	
1917		-----		-----	

1919	EN15721	0.0012	-2.20
1933		-----	-----
2493	EN15721	0.00179	1.37
7006		-----	-----

|	
normality	OK
n	30
outliers	3
mean (n)	0.00156
st.dev. (n)	0.000281
R(calc.)	0.00079
R(Horwitz)	0.00046
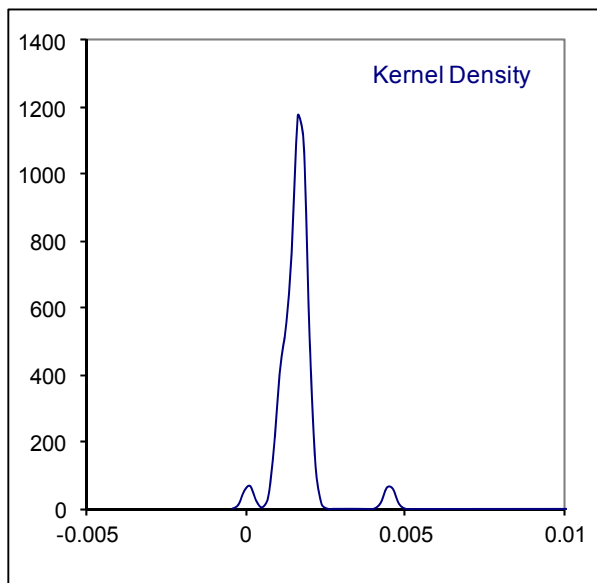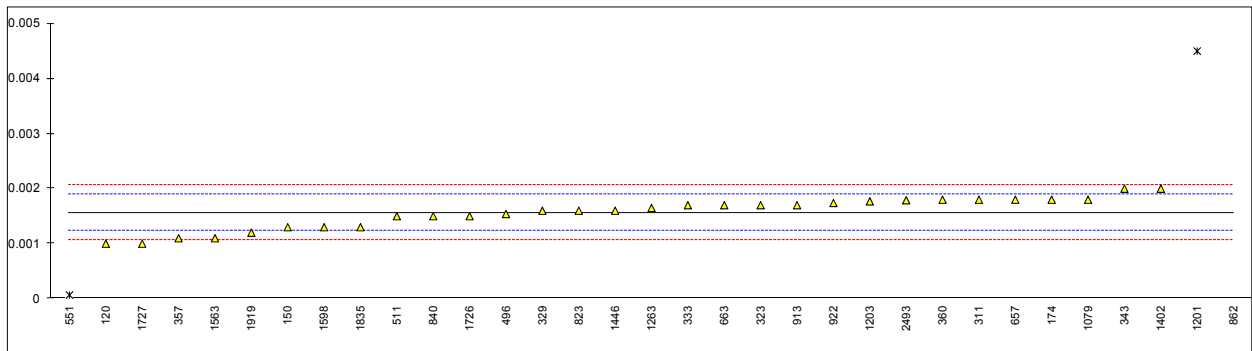
Determination of n-Propanol on sample #13221; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.070		-1.14	
132		-----		-----	
150	INH-001	0.0814		1.44	
169		-----		-----	
171	INH-0001	0.07		-1.14	
174	EN15721	0.0770		0.44	
193		-----		-----	
194		-----		-----	
311	INH-529	0.07825		0.73	
323	INH-0001	0.0736		-0.32	
329	EN15721	0.0755		0.10	
332		-----		-----	
333	EN15721	0.0826		1.71	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15721	0.068		-1.59	
357	EN15721	0.0748		-0.05	
360	EN15721	0.0793		0.96	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.0706	C	-1.00	first reported:0.00154
511	INH-0001	0.06901		-1.36	
541		-----		-----	
551	INH-1313	0.067542		-1.69	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.0770		0.44	
663	INH-001	0.0752		0.04	
823	INH-0001	0.0714		-0.82	
840	INH-0001	0.0678		-1.63	
862	INH-0001	0.0764		0.31	
902		-----		-----	
912		-----		-----	
913	INH-0001	0.0678		-1.63	
922	INH-0001	0.07975		1.06	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.0757		0.15	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15721	0.0757		0.15	
1203	EN15721	0.07415		-0.20	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.07611		0.24	
1276		-----		-----	
1402	EN15721	0.073		-0.46	
1446	EN15721	0.0695		-1.25	
1459		-----		-----	
1523	D5501	0.080571		1.25	
1563	EN15721	0.0698		-1.18	
1598	EN15721	0.0841		2.05	
1605	EN15721	0.08001		1.12	
1656		-----		-----	
1710	EN15721	0.0705		-1.02	
1712		-----		-----	
1726	EN15721	0.0767		0.38	
1727	EN15721	0.0793		0.96	
1835	in house	0.0787		0.83	
1917		-----		-----	

1919	EN15721	0.0742		-0.19
1933	in house	0.0013	G(0.01)	-16.64
2493	EN15721	0.0853		2.32
7006		-----		-----

|	
normality	OK
n	37
outliers	1
mean (n)	0.07503
st.dev. (n)	0.004871
R(calc.)	0.01364
R(Horwitz)	0.01241
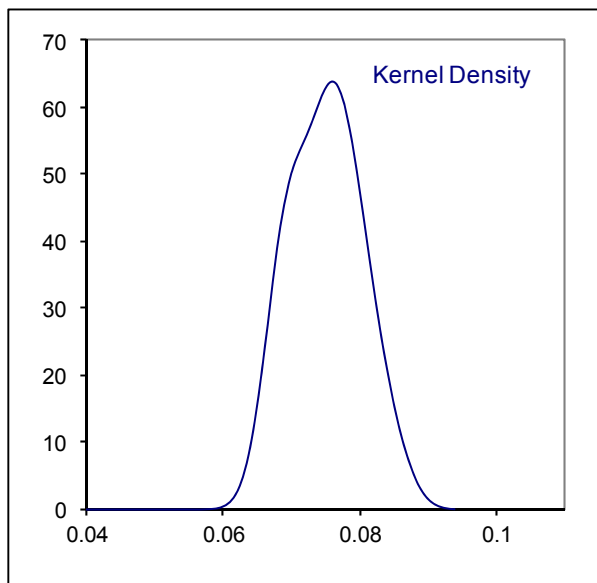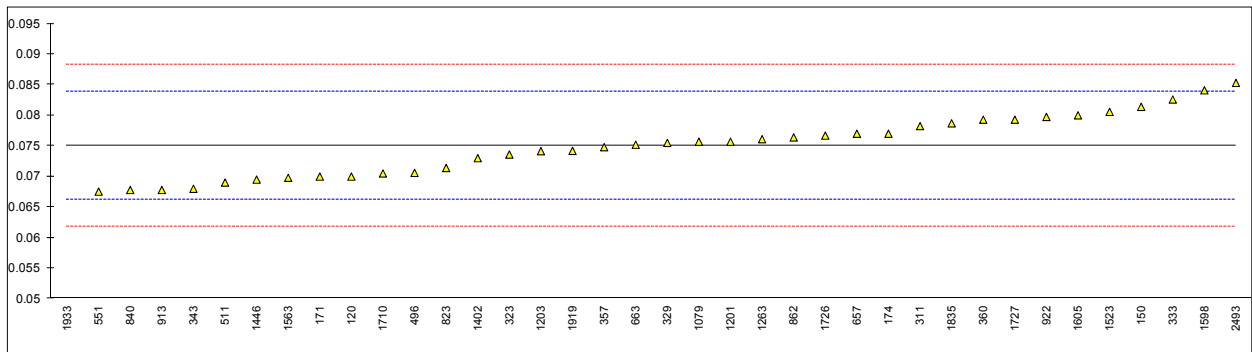
Sum of higher alcohols, calculated by iis; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
120	EN15721	0.113		-2.19	
132		-----		-----	
150	INH-001	0.1672		1.66	
169		-----		-----	
171	INH-0001	0.199		3.92	
174	EN15721	0.1675		1.68	
193		-----		-----	
194		-----		-----	
311	INH-529	0.13028		-0.96	
323	INH-0001	0.1218		-1.56	
329	EN15721	0.1211		-1.61	
332		-----		-----	
333	EN15721	0.135		-0.63	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343	EN15721	0.146		0.16	
357	EN15721	0.1677		1.70	
360	EN15721	0.1307		-0.93	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496	EN15721	0.12775		-1.14	
511	INH-0001	0.15494		0.79	
541		-----		-----	
551	INH-1313	0.11123		-2.31	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	0.1746		2.19	
663	INH-001	0.1705		1.90	
823	INH-0001	0.1558		0.85	
840	INH-0001	0.1505		0.48	
862	INH-0001	0.1754		2.25	
902		-----		-----	
912		-----		-----	
913	INH-0001	0.114		-2.12	
922	INH-0001	0.1708		1.92	
974		-----		-----	
1067		-----		-----	
1079	EN15721Mod.	0.1497		0.42	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15721	0.1558		0.85	
1203	EN15721	0.15912		1.09	
1229		-----		-----	
1231		-----		-----	
1263	D5501	0.16194		1.29	
1276		-----		-----	
1402	EN15721	0.132		-0.84	
1446	EN15721	0.106469		-2.65	
1459		-----		-----	
1523	D5501	0.130		-0.97	
1563	EN15721	0.1609		1.22	
1598	EN15721	0.1763		2.31	
1605	EN15721	0.080		-4.51	
1656		-----		-----	
1710	EN15721	0.1141		-2.11	
1712		-----		-----	
1726	EN15721	0.1725		2.04	
1727	EN15721	0.1727		2.05	
1835	in house	0.1758		2.27	
1917		0.086		-4.11	

1919		0.1412	-0.18
1933	in house	0.0922	-3.67
2493	EN15721	0.13609	-0.55
7006		-----	-----

normality	OK
n	39
outliers	0
mean (n)	0.14380
st.dev. (n)	0.028330
R(calc.)	0.07932
R(EN15721:13)	0.03941
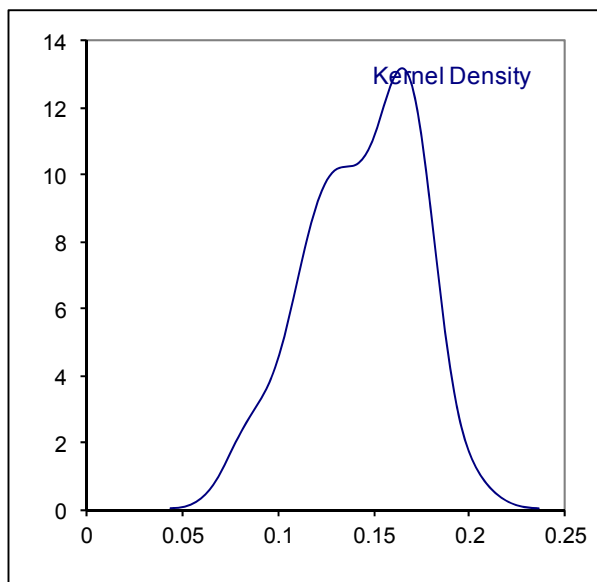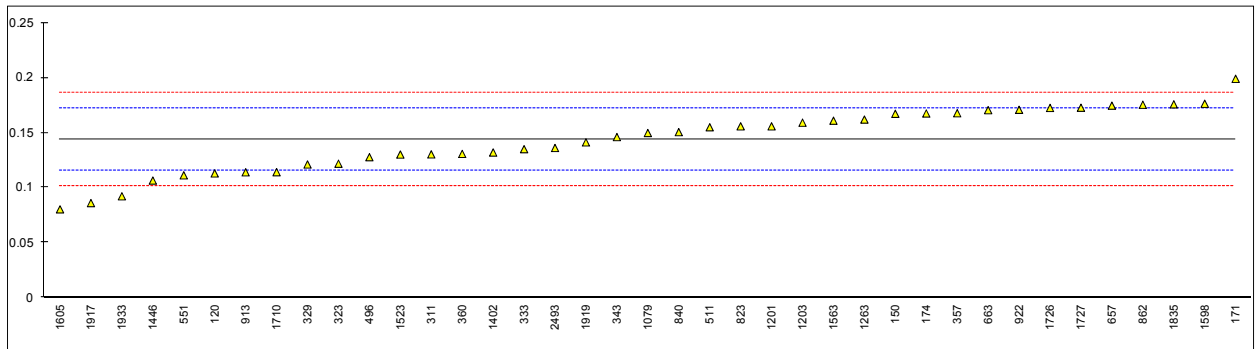
Determination of Acetaldehyde, Acetone, Cyclohexane on sample #13221; results in %M/M

lab	method	Acetaldehyde	mark	Acetone	mark	Cyclohexane	mark	Crotonaldehyde	mark
52		-----		-----		-----		-----	
62		-----		-----		-----		-----	
120	EN15721	<0.001		-----		-----		-----	
132		-----		-----		-----		-----	
150		-----		-----		-----		-----	
169		-----		-----		-----		-----	
171	INH-0001	0.018		<0.01		<0.01		<0.01	
174	INH-1582	0.0067		<0.001		<0.001		<0.001	
193		-----		-----		-----		-----	
194		-----		-----		-----		-----	
311	INH-529	0.01641		0.00047		0.00018		<0.0005	
323	INH-0001	0.009		0.0006		<0.0005		-----	
329		0.0100		0.0005		<0.0005		-----	
332		-----		-----		-----		-----	
333		-----		-----		-----		-----	
334		-----		-----		-----		-----	
337		-----		-----		-----		-----	
338		-----		-----		-----		-----	
340		-----		-----		-----		-----	
343		-----		0.001		-----		-----	
357	INH-001	0.0102		0.0008		<0.001		<0.001	
360	EN15721	0.0046		0.0004		-----		-----	
395		-----		-----		-----		-----	
399		-----		-----		-----		-----	
441		-----		-----		-----		-----	
444		-----		-----		-----		-----	
463		-----		-----		-----		-----	
468		-----		-----		-----		-----	
494		-----		-----		-----		-----	
495		-----		-----		-----		-----	
496	EN15721	0.00838		-----		-----		-----	
511	INH-0001	0.00434		-----		-----		-----	
541		-----		-----		-----		-----	
551	INH-1313	0.010511		0.000571		0.000148		0.000084	
554		-----		-----		-----		-----	
556		-----		-----		-----		-----	
559		-----		-----		-----		-----	
631		-----		-----		-----		-----	
657	INH-001	0.0130		0.0006		<0.0005		<0.0005	
663	INH-001	0.0102		<0.001		<0.001		<0.001	
823	INH-0001	0.0100		0.0006		0.0002		0.0002	
840	INH-0001	0.0060		0.0007		<0.0002		<0.0002	
862		-----		0.0007		0.0001		0.0004	
902		-----		<0.001		-----		-----	
912		-----		-----		-----		-----	
913	INH-0001	0.0075		<0.0005		<0.0001		<0.0005	
922	INH-0001	0.011249		0.00093		<0.0002		<0.0002	
974		-----		-----		-----		-----	
1067		-----		-----		-----		-----	
1079	EN15721Mod.	0.0167		<0.001		<0.001		-----	
1082		-----		-----		-----		-----	
1126		-----		-----		-----		-----	
1161		-----		-----		-----		-----	
1191		-----		-----		-----		-----	
1201		<0.0010		<0.0010		<0.0010		<0.0010	
1203		0.00238		<0.0005		<0.0005		<0.0005	
1229		-----		-----		-----		-----	
1231		-----		-----		-----		-----	
1263		-----		<0.001		-----		-----	
1276		-----		-----		-----		-----	
1402	EN15721	0.014		-----		-----		-----	
1446	EN15721	0.0093		-----		-----		-----	
1459		-----		-----		-----		-----	
1523	D5501	0.009967		-----		-----		-----	
1563	EN15721	0.0100		-----		-----		-----	
1598		0.0177		0.0004		<0.001		-----	
1605		0.00874		-----		-----		-----	
1656		-----		-----		-----		-----	
1710		-----		-----		-----		-----	
1712		-----		-----		-----		-----	
1726	EN15721	0.0088		n.d.		0.0002		n.d.	
1727	EN15721	0.0095		-----		<0.0010		-----	
1835	EN15721	0.0097		n.d.		n.d.		-----	
1917		0.006		-----		-----		-----	

1919		0.0101	<0.0003	-----	-----
1933	in house	0.0099	-----	-----	-----
2493		-----	0.000331	0.0000681	-----
7006		-----	-----	-----	-----
	normality	n.a	n.a	n.a	n.a
	n	18	24	21	14
	outliers	n.a	n.a	n.a	n.a
	mean (n)	<0.01	<0.01	<0.01	<0.01
	st.dev. (n)	n.a	n.a	n.a	n.a
	R(calc.)	n.a	n.a	n.a	n.a
	R(Horwitz)	n.a	n.a	n.a	n.a

Determination of DEG, Dioxane, Isopropanol and MEG on sample #13221; results in %M/M

lab	method	DEG	mark	Dioxane	mark	Isopropanol	mark	MEG	mark
52		-----		-----		-----		-----	
62		-----		-----		-----		-----	
120		-----		-----		-----		-----	
132		-----		-----		-----		-----	
150		-----		-----		-----		-----	
169		-----		-----		-----		-----	
171	INH-0001	<0.01		<0.01		<0.01		0.019	
174	INH-1582	0.0013		<0.001		<0.001		0.0008	
193		-----		-----		-----		-----	
194		-----		-----		-----		-----	
311	INH-270	<0.001		0.00028		0.00042		0.00086	
323		-----		-----		<0.0005		-----	
329		-----		<0.0005		<0.0005		<0.0005	
332		-----		-----		-----		-----	
333		-----		-----		-----		-----	
334		-----		-----		-----		-----	
337		-----		-----		-----		-----	
338		-----		-----		-----		-----	
340		-----		-----		-----		-----	
343		-----		-----		-----		-----	
357		-----		-----		0.0004		-----	
360		-----		-----		0.0027	C	-----	
395		-----		-----		-----		-----	
399		-----		-----		-----		-----	
441		-----		-----		-----		-----	
444		-----		-----		-----		-----	
463		-----		-----		<0.2		-----	
468		-----		-----		-----		-----	
494		-----		-----		-----		-----	
495		-----		-----		-----		-----	
496		-----		-----		<0.001		-----	
511		-----		-----		0.00014		-----	
541		-----		-----		-----		-----	
551	INH-1379	<0.001		0.000001		0.000486		0.000261	
554		-----		-----		-----		-----	
556		-----		-----		-----		-----	
559		-----		-----		-----		-----	
631		-----		-----		-----		-----	
657	INH-001	<0.0005		<0.0005		<0.0005		<0.0005	
663	INH-001	<0.001		<0.001		<0.001		0.0070	
823	INH-0001	<0.0005		<0.00001		0.0003		<0.0005	
840	INH-0001	<0.0002		<0.0002		0.0003		<0.0002	
862	INH-0001	<0.0005		<0.0005		0.0003		<0.0005	
902		-----		-----		-----		-----	
912		-----		-----		-----		-----	
913	in house	<0.0001		<0.000001		<0.0005		<0.0001	
922		-----		0.00019		<0.0002		-----	
974		-----		-----		-----		-----	
1067		-----		-----		-----		-----	
1079		-----		-----		-----		-----	
1082		-----		-----		-----		-----	
1126		-----		-----		-----		-----	
1161		-----		-----		-----		-----	
1191		-----		-----		-----		-----	
1201		<0.0010		<0.0010		<0.0010		<0.0010	
1203		<0.0005		<0.0005		<0.0005		<0.0005	
1229		-----		-----		-----		-----	
1231		-----		-----		-----		-----	
1263		-----		-----		0.00128		-----	
1276		-----		-----		-----		-----	
1402		-----		-----		-----		-----	
1446		-----		-----		-----		-----	
1459		-----		-----		-----		-----	
1523		-----		-----		-----		-----	
1563		-----		-----		-----		-----	
1598		-----		-----		0.0003		-----	
1605		-----		-----		-----		-----	
1656		-----		-----		-----		-----	
1710		-----		-----		-----		-----	
1712		-----		-----		-----		-----	
1726	in house	n.d.		n.d.		n.d.		n.d.	
1727		-----		-----		<0.0005		-----	
1835		-----		-----		n.d.		-----	
1917		-----		-----		-----		-----	

1919		-----	-----	<0.0003	-----
1933		-----	-----	<0.001	-----
2493	EN15721	<0.00006	-----	<0.0003	0.000338
7006		-----	-----	-----	-----
	normality	n.a	n.a	n.a	n.a
	n	13	14	25	13
	outliers	n.a	n.a	n.a	n.a
	mean (n)	<0.01	<0.01	<0.01	<0.01
	st.dev. (n)	n.a	n.a	n.a	n.a
	R(calc.)	n.a	n.a	n.a	n.a
	R(Horwitz)	n.a	n.a	n.a	n.a

Lab 360 first reported: 0.0047

Determination of n-Amylalcohol, sec-Amylalcohol and sec-Butanol on sample #13221; results in %M/M

lab	method	n-Amylalcohol	mark	Sec-Amylalcohol	mark	Sec-butanol	mark
52		-----		-----		-----	
62		-----		-----		-----	
120		-----		-----		<0.001	
132		-----		-----		-----	
150		-----		-----		-----	
169		-----		-----		-----	
171	INH-0001	<0.01		<0.01		<0.01	
174	INH582	<0.001		-----		<0.001	
193		-----		-----		-----	
194		-----		-----		-----	
311	INH-529	0.00041		0.02128		0.00034	
323	INH-0001	<0.0005		<0.0005		<0.0005	
329		<0.0005		<0.0005		<0.0005	
332		-----		-----		-----	
333		-----		-----		-----	
334		-----		-----		-----	
337		-----		-----		-----	
338		-----		-----		-----	
340		-----		-----		-----	
343		-----		-----		<0.001	
357	INH-0001	<0.001		<0.001		<0.001	
360		-----		-----		0.0043	C
395		-----		-----		-----	
399		-----		-----		-----	
441		-----		-----		-----	
444		-----		-----		-----	
463		-----		-----		-----	
468		-----		-----		-----	
494		-----		-----		-----	
495		-----		-----		-----	
496		-----		-----		0.00023	
511		-----		-----		0.00016	
541		-----		-----		-----	
551		-----		-----		0.000133	
554		-----		-----		-----	
556		-----		-----		-----	
559		-----		-----		-----	
631		-----		-----		-----	
657	INH-001	0.0007		<0.0005		<0.0005	
663	INH-001	0.0483		-----		<0.001	
823	INH-0001	0.0001		0.0211		0.0002	
840	INH-0001	<0.0002		<0.0002		0.0003	
862	INH-0001	0.0004		0.0195		<0.0005	
902		-----		-----		-----	
912		-----		-----		-----	
913		-----		-----		<0.0005	
922	INH-0001	<0.0002		-----		<0.0002	
974		-----		-----		-----	
1067		-----		-----		-----	
1079		-----		-----		0.0003	
1082		-----		-----		-----	
1126		-----		-----		-----	
1161		-----		-----		-----	
1191		-----		-----		-----	
1201		<0.0010		-----		<0.0010	
1203		<0.005		<0.0005		<0.0005	
1229		-----		-----		-----	
1231		-----		-----		-----	
1263	D5501	<0.001		-----		<0.001	
1276		-----		-----		-----	
1402		-----		-----		0.021	
1446	EN15721	0.0018		-----		0.000069	C
1459		-----		-----		-----	
1523		-----		-----		-----	
1563		-----		-----		0.0002	
1598	EN15721	<0.001		-----		0.0001	
1605		-----		-----		-----	
1656		-----		-----		-----	
1710		-----		-----		-----	
1712		-----		-----		-----	
1726	INHOUSE	n.d.		n.d.		n.d.	
1727		-----		-----		-----	
1835		-----		-----		-----	
1917		0.069		-----		-----	

1919		<0.0002	-----	<0.0002
1933		-----	0.0763	-----
2493	EN15721	<0.0003	<0.0003	<0.0003
7006		-----	-----	-----
	normality	n.a	n.a	n.a
	n	18	8	26
	outliers	n.a	n.a	n.a
	mean (n)	<0.01	<0.01	<0.01
	st.dev. (n)	n.a	n.a	n.a
	R(calc.)	n.a	n.a	n.a
	R(Horwitz)	n.a	n.a	n.a

Lab 360 first reported: 0.0072
Lab 1446 first reported: 0.0069

Determination of Tert-Amylalcohol and tert-Butanol on sample #13220; results in %M/M

lab	method	Tert-Amylacohol	mark	Tert-butanol	mark
52		-----		-----	
62		-----		-----	
120		-----		-----	
132		-----		-----	
150		-----		-----	
169		-----		-----	
171	INH-0001	<0.01		<0.01	
174		-----		-----	
193		-----		-----	
194		-----		-----	
311		-----		-----	
323	INH-0001	<0.0005		<0.0005	
329		<0.0005		<0.0005	
332		-----		-----	
333		-----		-----	
334		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
343		-----		-----	
357		-----		-----	
360		-----		-----	
395		-----		-----	
399		-----		-----	
441		-----		-----	
444		-----		-----	
463		-----		-----	
468		-----		-----	
494		-----		-----	
495		-----		-----	
496		-----		-----	
511		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
556		-----		-----	
559		-----		-----	
631		-----		-----	
657	INH-001	<0.0005		<0.0005	
663		-----		-----	
823	INH-0001	0.0057		0.0057	
840	INH-0001	<0.0002		<0.0002	
862	INH-0001	0.0055		0.0055	
902		-----		-----	
912		-----		-----	
913	INH-0001	<0.0005		<0.0005	
922		-----		-----	
974		-----		-----	
1067		-----		-----	
1079		-----		-----	
1082		-----		-----	
1126		-----		-----	
1161		-----		-----	
1191		-----		-----	
1201	EN15721	<0.0010		<0.0010	
1203	EN15721	<0.0005		<0.0005	
1229		-----		-----	
1231		-----		-----	
1263		-----		-----	
1276		-----		-----	
1402		-----		-----	
1446		-----		-----	
1459		-----		-----	
1523		-----		-----	
1563		-----		-----	
1598		-----		-----	
1605		-----		-----	
1656		-----		-----	
1710		-----		-----	
1712		-----		-----	
1726	EN15721	n.d.		n.d.	
1727		-----		-----	
1835		-----		-----	
1917		-----		-----	

1919		<0.0002	<0.0002
1933	in house	<0.001	<0.001
2493		<0.0003	<0.0003
7006		-----	-----
	normality	n.a	n.a
	n	13	13
	outliers	n.a	n.a
	mean (n)	<0.01	<0.01
	st.dev. (n)	n.a	n.a
	R(calc.)	n.a	n.a
	R(Horwitz)	n.a	n.a
	normality	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   CHINA, People's Republic

1 lab in   CZECH REPUBLIC

4 labs in   FINLAND

9 labs in   FRANCE

3 labs in   GERMANY

3 labs in   HUNGARY

2 labs in   INDIA

1 lab in   IRAN, Islamic Republic of

2 labs in   ITALY

5 labs in   NETHERLANDS

1 lab in   PAKISTAN

1 lab in   PERU

1 lab in   PHILIPPINES

1 lab in   POLAND

1 lab in   SINGAPORE

1 lab in   SOUTH KOREA

4 labs in   SPAIN

3 labs in   SWEDEN

1 lab in   SWITZERLAND

2 labs in   THAILAND

3 labs in   TURKEY

1 lab in   UNITED ARAB EMIRATES

5 labs in   UNITED KINGDOM

8 labs in   UNITED STATES OF AMERICA

1 lab in   VIETNAM

APPENDIX 3

Abbreviations:

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

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