Results of Proficiency Test
Gasoline (ASTM specification)
February 2015

SUMMARY OF CHANGES

This revised report replaces the original report iis15B01ASTM of May 2015.

Several participants reported by e-mail (18 May 2015) the presence of an error in the original report
iis15B01ASTM. It appeared that the unit for the Phoshorus concentration was not correct on several pages.
The unit to be used for the Phosphorus concentration should have been mg/L instead of mg/kg. On pages 4 and
10 the unit for Phosphorus is now changed into the correct unit mg/L.
Therefore the following pages in this report have been revised:

- the unit on page 4 and 10.

CONTENTS

Appendices:

1   INTRODUCTION

Since 1995, the Institute organizes a proficiency scheme for Gasoline. During the annual proficiency testing program 2014/2015, it was decided to continue the round robin for the analysis of Gasoline in accordance with the most recent version of the specification ASTM D4814. In this interlaboratory study 134 laboratories in 63 different countries have participated. See appendix 3 for the number of participants per country. In this report, the results of the Gasoline 2015 proficiency test are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

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. In this proficiency test, the participants received, depending on their registration, 1*1 litre bottle Gasoline euro 95 (labelled #15010) and/or 1*1 litre bottle (± 750 mL filled) Gasoline euro 95 (labelled #15011) for DVPE only, and/or 1*1 litre bottle Gasoline euro 95 (labelled #15012) for RON/MON.
To get maximum information from this study it was decided to spike the bulk material with Phosphorus (1.52 mg/L).
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 PT falls under the accredited scope. 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 was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol can 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 sample material, Gasoline Euro 95 was obtained from a local petrol station in the Netherlands in August 2014. The approximately 380 litres of Gasoline was spiked with 6.85 gram Tricresylphosphate (TCP). After mixing and homogenisation, 125 amber glass bottles of 1 litre with approx. 750 mL were filled and labelled #15011 "for DVPE only". The homogeneity of the subsamples #15011 was checked by determination of Dry Vapour Pressure Equivalent in accordance with ASTM D5191 on 8 stratified randomly selected samples.

	DVPE in psi
Sample #15011-1	8.56
Sample #15011-2	8.53
Sample #15011-3	8.54
Sample #15011-4	8.53
Sample #15011-5	8.53
Sample #15011-6	8.54
Sample #15011-7	8.53
Sample #15011-8	8.54

Table 1: homogeneity test results of subsamples #15011

From the remaining material in the 500L mixing vessel, 174 amber glass bottles of 1 litre were filled and labelled #15010 for the main round and 90 amber glass bottles of 1 litre were filled and labelled #15012 for the determination of RON/MON.
The homogeneity of the subsamples #15010 was checked by determination of Density @15°C in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density @ 15°C in kg/m^3
Sample #15010-1	748.20
Sample #15010-2	748.19
Sample #15010-3	748.16
Sample #15010-4	748.21
Sample #15010-5	748.16
Sample #15010-6	748.16
Sample #15010-7	748.19
Sample #15010-8	748.17

Table 2: homogeneity test results of subsamples #15010

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

	Density @ 15 °C in kg/m^3	DVPE in psi
r (sample #15010)	0.06	----
r (sample #15011)	----	0.03
reference method	D4052:11	ASTM D5191:13
0.3 x R (ref. method)	0.59	0.10

Table 3: repeatabilities of subsamples #15010 and #15011

The calculated repeatabilities of the results of homogeneity test for Density and DVPE were less than 0.3 times the reproducibilities of the reference test methods. Therefore, homogeneity of subsamples #15010 and #15011 was assumed.

To the participants, depending on their registration, 1*1 litre bottle of sample #15010 and/or 1*1 litre bottle (± 750 mL filled) of sample #15011 and/or 1*1 litre bottle of sample #15012 were sent on February 4, 2015.

2.5   STABILITY OF THE SAMPLES

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

2.6   ANALYSIS

The participants were requested to determine API Gravity, Aromatics by FIA, Benzene, Copper Strip Corrosion, Doctor Test, Density @ 15°C, Distillation (automated or manual), Existent gum (washed), Lead, Olefins by FIA, Oxidation Stability, Oxygenates (Ethanol, MTBE, Other Oxygenates, Total Oxygenates), Oxygen content, Phosphorus, Sulphur, on sample #15010.
On sample #15011, the participants were requested to determine Total Vapour Pressure and Dry Vapour Pressure (acc. ASTM D5191 and EPA)
On sample #15012, the participants were requested to determine RON/MON.
To get comparable results a detailed report form, on which the units were prescribed as well as the required standards and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The detailed report form was also 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 did not report resultsat 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 raw data of these tests (no reanalysis). 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 'i.i.s. Interlaboratory Studies-Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3).
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 a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results 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, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test and by R(0.05) for the Rosner General ESD test (see appendix 4, no 15). Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. 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 them with a factor of 2.8.

3.2 GRAPHICS

In order to visualise 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 4; nos.13 and 14). Also a normal Gauss curve was projected over the Kernel Density Graph.

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.

The z-scores were calculated in accordance with:

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

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 $z_{(target)}$ scores are listed in the result tables in appendix 1.
Absolute values for z<2 are very common and absolute values for z>3 are very rare.

Therefore, the usual interpretation of z-scores is as follows:

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

4   EVALUATION

In this interlaboratory study, problems with sample despatch were encountered due to several reasons. From the 134 participants, 11 participants did not report any results and 15 participants did report the results after the deadline. Finally 123 laboratories did report 1639 numerical results. Observed were 39 outlying results, which is 2.4%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

4.1   EVALUATION PER TEST

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

In the iis PT reports, ASTM methods are referred to with a number (e.g. D2086) and an added designation for the year that the method was adopted or revised (e.g. D2086-08). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D2086-08(2013)). In the results tables of Appendix 1 only the method number and year of adoption or revision e.g. D2086-08 will be used.

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

API Gravity: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D4052:11.

Benzene: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D3606:10.

Copper strip: No problems have been observed. All participants agreed on classification 1.

Density @ 15°C: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D4052:11.

Distillation   The distillation was problematic for a number of laboratories. In total nine statistical outliers were observed. However, all calculated reproducibilities, after rejection of the statistical outliers, are in agreement with the requirements of ASTM D86:12 for the automated and manual mode, except for 50% evaporated. When the reported test results for 50% evaporated for the automated mode were evaluated separately, the observed reproducibility still does not meet the requirements of ASTM D86:12 for the automated mode.

Doctor Test: The majority of the laboratories agreed on the absence of Mercaptans. However, ten participants reported a positive test result.

Existent Gum: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D381:12.

Aromatics by FIA: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D1319:14. Eight laboratories reported to have used a GC method. When the FIA test results (ASTM D1319 / EN15553) were evaluated separately, the calculated reproducibility is somewhat smaller, but again not in agreement with the requirements of ASTM D1319:14.

Olefins by FIA: This determination was problematic. Only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D1319:14. Nine laboratories reported to have used a GC method. When the FIA test results (ASTM D1319 / EN15553) were evaluated separately, the calculated reproducibility is somewhat larger (!) and again not in agreement with the requirements of ASTM D1319:14.

Lead: The consensus value of the group was below the application range
                       (2.5 – 25 mg/L) of ASTM D3237:12. Therefore, no significant conclusions
                       were drawn.

Oxidation stability: All laboratories agreed that the Oxidation Stability is >360 (or even >900)
                       minutes, except one.

Ethanol: This determination was not problematic. One statistical outlier was observed.
                       The calculated reproducibility after rejection of the statistical outlier is in
                       agreement with the requirements of ASTM D4815:13.

MTBE: This determination was problematic. Two statistical outliers were observed.
                       The calculated reproducibility after rejection of the statistical outliers is not in
                       agreement with the requirements of ASTM D4815:13. The large spread may
                       (partly) be explained by the variety of test methods used.

Other Oxygenates: The consensus value of the group was near or below the application range
                       of ASTM D4815:13 (min. 0.2 %V/V). Therefore, no significant conclusions
                       were drawn.

Total Oxygenates: This determination was not problematic. Three statistical outliers were
                       observed. However, the calculated reproducibility after rejection of the
                       statistical outliers is in agreement with the estimated requirements of ASTM
                       D4815:13 based on the reproducibilities of Ethanol and MTBE.

Oxygen content: This determination was not problematic. No statistical outliers were
                       observed. The calculated reproducibility is in full agreement with the
                       requirements of ASTM D5599:00(2010) and D4815:13.

Phosphorus: This determination was very problematic. One statistical outlier was
                       observed. Furthermore, the samples were spiked with 1.52 mg
                       Phosphorus/L. Therefore, the minimal concentration to be found was known.
                       The laboratories should be able to find at least 1.3 mg/L [1.5 mg/L$_{(added\ amount)}$
                       – 0.2 mg/L$_{(R\ D3231)}$].
                       Three other laboratories reported a lower amount than 1.3 mg/L. These
                       laboratories were rejected prior to data analysis. Also five false negative test
                       results were observed. The calculated reproducibility after rejection of the
                       suspect data is not at all in agreement with the requirements of ASTM
                       D3231:13.

Sulphur: This determination was not problematic. Two statistical outliers were
                       observed. However, the calculated reproducibility after rejection of the
                       statistical outliers is in agreement with the requirements of ASTM D5453:12.

TVP: This determination was not problematic. Three statistical outliers were
                       observed. However, the calculated reproducibility after rejection of the
                       statistical outliers is in agreement with the requirements of ASTM D5191:13.

DVPE: The conversions of the measured Total Vapour Pressure to the corresponding Dry Vapour Pressure Equivalent (DVPE) as described in ASTM D5191:13 and to the U.S. EPA guidelines (40 CFR Part 80, App. E, Method 3), show in total four statistical outliers.
Both calculated reproducibilities after rejection of the statistical outliers are in agreement with the respective requirements of ASTM D5191:13 and EPA guidelines.

RON: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D2699:13b.

MON: This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D2700:14.

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 of sample #15010, #15011 and #15012, calculated reproducibilities and reproducibilities, derived from literature standards (in casu ASTM standards) are compared in the next table.

Parameter	Unit	n	mean	2.8 * sd	R (lit)	
API Gravity	-----	60	57.51	0.27	0.50	
Benzene	% V/V	70	0.91	0.12	0.17	
Copper Strip 3 hrs @ 50°C	-----	87	1	n.a.	n.a.	
Density @ 15 °C	kg/m^3	110	748.4	0.6	2.0	
Distillation					Auto	Manual
- IBP	ºC	110	36.7	5.0	5.2	5.6
- 10%-evap.	ºC	105	51.6	1.7	3.2	4.0
- 50%-evap.	ºC	110	93.8	2.7	1.9	4.1
- 90%-evap.	ºC	110	149.4	3.3	4.0	3.9
- FBP	ºC	111	182.3	6.1	6.8	7.2
Doctor Test	-----	49	Negative	n.a.	n.a.	
Existent gum (washed)	mg/100mL	57	0.65	1.07	2.19	
Aromatics by FIA	%V/V	60	33.2	4.3	3.7	
Olefins by FIA	%V/V	57	6.4	3.3	2.5	
Lead as Pb	mg/L	46	<2.5	n.a.	n.a.	
Oxidation Stability	min.	56	>360	n.a.	n.a.	
Oxygenates						
-Ethanol	%V/V	62	4.65	0.52	0.55	
-MTBE	%V/V	59	2.34	0.33	0.21	
-Other Oxygenates	%V/V	44	<0.2	n.a.	n.a.	
-Total Oxygenates	%V/V	50	7.06	0.84	0.83	
Oxygen content	%M/M	58	2.15	0.25	0.25	
Phosphorus as P	mg/L	6	1.56	0.48	0.20	
Sulphur	mg/kg	94	7.09	2.63	2.52	

table 4: performance evaluation sample #15010

Parameter	Unit	n	mean	2.8 * sd	R (lit)
TVP	psi	65	9.41	0.22	0.33
DVPE acc. to ASTM D5191	psi	79	8.53	0.23	0.32
DVPE acc. EPA	psi	51	8.64	0.24	0.32

table 5: performance evaluation sample #15011

Parameter	Unit	n	mean	2.8 * sd	R (lit)
RON	-----	43	95.5	0.6	0.7
MON	-----	33	85.5	0.9	0.9

table 6: performance evaluation sample #15012

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

4.3   COMPARISON OF THE PROFICIENCY TEST OF FEBRUARY 2015 WITH PREVIOUS PTS

	February 2015	*February 2014*	*February 2013*	*October 2012*
Number of rep. Participants	123	129	120	95
Number of results reported	1639	1930	2048	1709
Statistical outliers	39	73	65	55
Percentage outliers	2.4%	3.8%	3.2%	3.2%

Table 7: comparison with previous proficiency tests

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

The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given in the following table:

Determination	*February 2015*	*February 2014*	*February 2013*	*October 2012*
API Gravity	++	++	++	+
Benzene	+	+	++	--
Density @ 15°C	++	++	++	--
Distillation Automated	+	+	+	-
Distillation Manual	+	+	+/-	+/-
Existent gum (washed)	++	++	++	(+)
Aromatics by FIA	-	-	--	+
Olefins by FIA	-	+	-	(-)
Lead as Pb	n.e.	n.e.	n.e.	(++)
Ethanol	+/-	+	+/-	-
MTBE	-	-	-	-
Total Oxgenates	+/-	n.e.	n.e.	n.e.
Oxygen content	+/-	+	+/-	+
Phosphorus as P	--	n.e.	n.e.	n.e.
Sulphur	+/-	+/-	+/-	-
TVP	+	+	+	+/-
DVPE	+	+	+/-	+/-
RON	+	+/-	+	+/-
MON	+/-	+/-	+/-	+

Table 8: comparison determinations against the standard

* results between brackets do not meet the application range of the test method.

The performance of the determinations against the requirements of the respective standards is listed in the above table.

> ++:   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 API Gravity on sample #15010;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	57.50		-0.06	996	Calc.	57.54		0.17
62	D4052	57.5		-0.06	998		-----		-----
120	D4052	57.6		0.50	1006		-----		-----
131	D4052	57.4		-0.62	1016		-----		-----
132	D4052	57.47		-0.23	1017		-----		-----
140	D4052	57.51		0.00	1033		-----		-----
150	D4052	57.5		-0.06	1059		-----		-----
158	D4052	57.7		1.06	1066	D4052	57.53		0.11
159	D4052	57.49		-0.11	1080		-----		-----
169	D4052	57.5		-0.06	1081		-----		-----
171	D4052	57.6		0.50	1109	D4052	57.42		-0.51
175	D4052	57.6		0.50	1126		-----		-----
193	D4052	57.56		0.28	1134	D4052	57.55		0.22
194	D4052	57.6		0.50	1161	D4052	57.6		0.50
216		-----		-----	1186		-----		-----
217	D4052	57.34		-0.95	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D4052	57.26		-1.40
225	calc.	57.5		-0.06	1237		-----		-----
228	D4052	57.51		0.00	1297	D4052	57.34		-0.95
230		-----		-----	1299		-----		-----
237		-----		-----	1347	D4052	57.45		-0.34
238		-----		-----	1348		-----		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385		-----		-----
253	D4052	57.58		0.39	1389		-----		-----
254		-----		-----	1395		-----		-----
256	D4052	57.6		0.50	1397		-----		-----
258	D1298	57.67		0.89	1409	D4052	57.55	C	0.22
273		-----		-----	1441	D4052	57.54		0.17
311		-----		-----	1490		-----		-----
312	D4052	57.56		0.28	1491		-----		-----
323	D4052	57.57		0.33	1498	D1298	57.5		-0.06
333		-----		-----	1528		-----		-----
334		-----		-----	1531		-----		-----
335		-----		-----	1613	D4052	57.35		-0.90
336		-----		-----	1616	calc.	57.54		0.17
337		-----		-----	1631		-----		-----
338		-----		-----	1634		-----		-----
340		-----		-----	1654		-----		-----
353		-----		-----	1656		-----		-----
431		-----		-----	1657	D4052	56.74	R(0.01)	-4.31
444		-----		-----	1677	D4052	57.53		0.11
445	D4052	57.54		0.17	1720		-----		-----
447		-----		-----	1724	D4052	57.50		-0.06
463	D4052	57.56		0.28	1730		-----		-----
468	D4052	57.51		0.00	1741		-----		-----
485		-----		-----	1746		-----		-----
511	D4052	57.21		-1.68	1776		-----		-----
541	D4052	57.60		0.50	1782	D4052	57.36		-0.84
562	D1298	57.1	R(0.01)	-2.30	1807		-----		-----
657	D4052	57.5		-0.06	1810		-----		-----
671	D4052	57.5		-0.06	1811		-----		-----
854	D4052	57.54		0.17	1813		-----		-----
861	D4052	57.54		0.17	1833	ISO12185	57.4	C	-0.62
862	D4052	57.51		0.00	1849		-----		-----
904	D4052	57.35		-0.90	1936		-----		-----
912	D4052	57.5		-0.06	1937		-----		-----
922	D4052	57.50		-0.06	1938		-----		-----
963	D4052Calc.	57.57		0.33	1948		-----		-----
974	Calc.	57.53		0.11	1977	ISO3675	57.7470		1.32
994	D1250	57.54		0.17	1982	D4052	57.4		-0.62
995	D4052	57.54		0.17	2129	Calc.	57.55		0.22
					2130	D4052	57.57		0.33

normality	suspect
n	60
outliers	2
mean (n)	57.510
st.dev. (n)	0.0962
R(calc.)	0.269
R(D4052:11)	0.500

Lab 1409 first reported: 53.55
Lab 1833 first reported: 53.4

Kernel Density
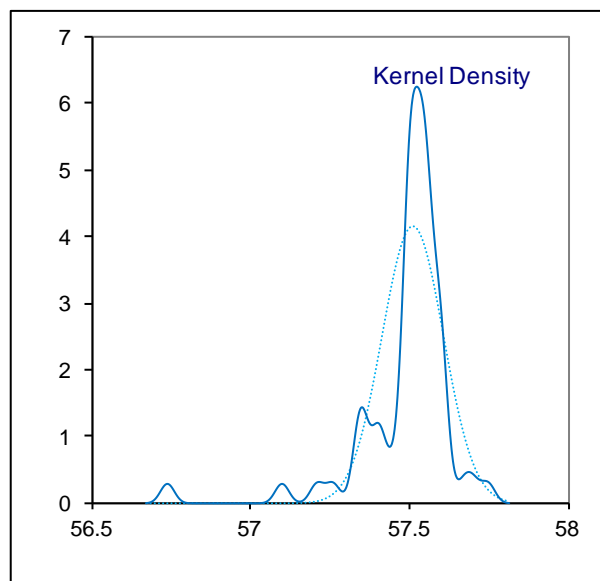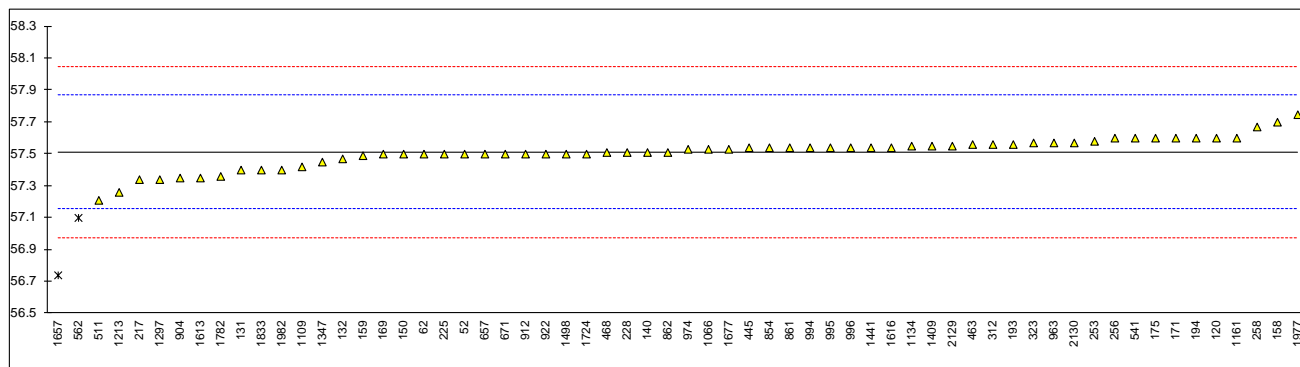
Determination of Benzene on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	INH14.3	0.944		0.58	996	EN238	0.91		0.02
62		0.977		1.13	998		-----		-----
120	D3606	0.97		1.02	1006		0.886		-0.38
131		-----		-----	1016		-----		-----
132	D3606	0.941		0.53	1017	ISO22854	0.93		0.35
140	D3606	0.849		-1.00	1033		-----		-----
150	D3606	0.89		-0.32	1059	EN22854	0.92		0.18
158	D3606	0.79		-1.98	1066	EN22854	0.91		0.02
159	D3606	0.88		-0.48	1080	INH-M3	0.88		-0.48
169	D3606	0.920		0.18	1081	ISO22854	0.93		0.35
171	D3606	0.94		0.52	1109	D3606	0.942		0.55
175		-----		-----	1126	D6839	0.93		0.35
193	D3606	0.903		-0.10	1134	D3606Mod.	0.905		-0.07
194		-----		-----	1161	EN22854	0.91		0.02
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D3606	0.909		0.00
225		-----		-----	1237	EN238	0.9		-0.15
228		-----		-----	1297		-----		-----
230		-----		-----	1299	EN22854	0.94		0.52
237		-----		-----	1347		-----		-----
238		-----		-----	1348	D4815Mod.	1		1.51
242		-----		-----	1376		-----		-----
252		-----		-----	1385	D4815Mod.	1.376	G(0.01)	7.77
253		-----		-----	1389	EN238	0.8		-1.82
254		-----		-----	1395		-----		-----
256	D5986	0.85		-0.98	1397	EN238	0.87		-0.65
258		-----		-----	1409	ISO22854	0.91		0.02
273		-----		-----	1441	D3606	0.95		0.68
311	D6839	0.91		0.02	1490	EN238	0.81		-1.65
312	D3606	0.961		0.87	1491		-----		-----
323	EN22854	0.92		0.18	1498		-----		-----
333	EN238	0.79	C	-1.98	1528	EN12177	0.90		-0.15
334	EN238	0.84	C	-1.15	1531		-----		-----
335		-----		-----	1613	D6839	0.92		0.18
336	EN238	0.91		0.02	1616	D6839	0.88		-0.48
337		-----		-----	1631	ISO22854	0.92		0.18
338		-----		-----	1634		-----		-----
340	EN238	0.90		-0.15	1654		-----		-----
353		-----		-----	1656	ISO22854	0.92		0.18
431		-----		-----	1657		-----		-----
444		-----		-----	1677	D3606	0.917		0.13
445	D6839	0.94		0.52	1720		-----		-----
447	EN238	0.89		-0.32	1724	ISO22854	0.92		0.18
463	EN238	0.903		-0.10	1730		-----		-----
468		-----		-----	1741	EN12177	0.95		0.68
485		-----		-----	1746		-----		-----
511		-----		-----	1776	EN22854	0.92		0.18
541		-----		-----	1782	D6277	0.89	C	-0.32
562		-----		-----	1807		-----		-----
657	D5580	0.89		-0.32	1810	D6839	0.90		-0.15
671		-----		-----	1811	D3606	0.96		0.85
854	D5580	0.96		0.85	1813	D5443	0.97		1.02
861	D5580	0.91		0.02	1833	ISO22854	0.92		0.18
862	D5580	0.922		0.22	1849	EN12177	0.92		0.18
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963	D6839	0.79		-1.98	1948	D3606	0.932		0.38
974	D6730	0.96		0.85	1977	D6730	0.92		0.18
994	D6729	0.92		0.18	1982	D5580	0.900		-0.15
995	D6729	0.89		-0.32	2129	D6730	0.934		0.42
					2130	D6730	0.937		0.47

normality	suspect
n	70
outliers	1
mean (n)	0.909
st.dev. (n)	0.0431
R(calc.)	0.121
R(D3606:10)	0.168

Lab 333 first reported:0.8
Lab 334 first reported:0.8
Lab 1782 first reported:0.66

Kernel Density
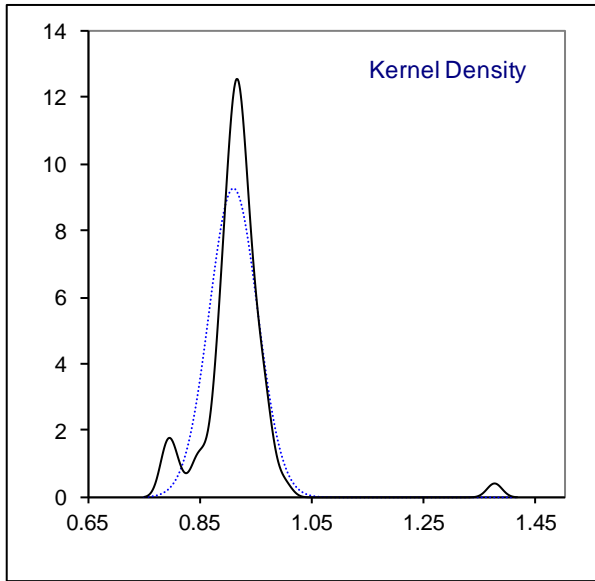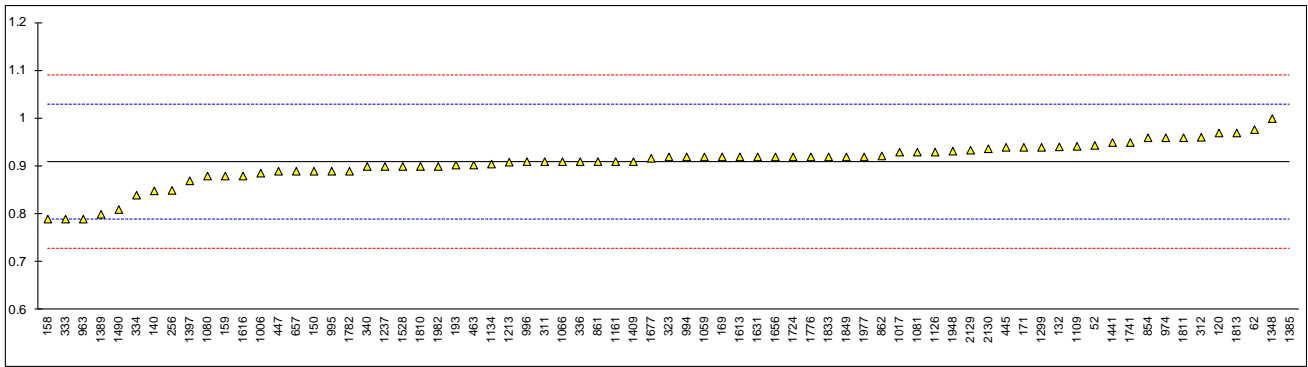
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Determination of Copper corrosion 3hrs/50°C on sample #15010;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1A		-----	996	D130	1A		-----
62	D130	1B		-----	998		-----		-----
120	D130	1A		-----	1006	D130	1A		-----
131		-----		-----	1016	D130	1A		-----
132	D130	1A		-----	1017	D130	1A		-----
140	D130	1A		-----	1033		-----		-----
150	D130	1A		-----	1059	ISO2160	1A		-----
158	D130	1A		-----	1066	D130	1A		-----
159	D130	1A		-----	1080	D130	1A		-----
169	D130	1A		-----	1081	D130	1A		-----
171	D130	1A		-----	1109	D130	1A		-----
175	D130	1A		-----	1126		-----		-----
193	D130	1A		-----	1134	D130	1A		-----
194	D130	1A		-----	1161	ISO2160	1		-----
216		-----		-----	1186	D130	1A		-----
217	D130	1A		-----	1200		-----		-----
221	D130	1A		-----	1205		-----		-----
224		-----		-----	1213	D130	1A		-----
225	D130	1A		-----	1237		-----		-----
228	D130	1 A		-----	1297	D130	1A		-----
230	D130	1A		-----	1299	D130	1A		-----
237		-----		-----	1347	D130	1A		-----
238		-----		-----	1348	D130	1A		-----
242		-----		-----	1376		-----		-----
252	D130	1A		-----	1385	D130	1B		-----
253	D130	1A		-----	1389	D130	1A		-----
254	D130	1A		-----	1395	D130	1A		-----
256	D130	1A		-----	1397	D130	1		-----
258	D130	1A		-----	1409	D130	1A		-----
273		-----		-----	1441	D130	1A		-----
311	D130	1A		-----	1490	ISO2160	1A		-----
312	D130	1A		-----	1491	ISO2160	1A		-----
323	D130	1A		-----	1498		-----		-----
333		-----		-----	1528		-----		-----
334	D130	1		-----	1531	D130	1B		-----
335		-----		-----	1613	D130	1A		-----
336	D130	1		-----	1616	D130	1A		-----
337	D130	1A		-----	1631	ISO2160	1		-----
338		-----		-----	1634	D130	1A		-----
340	D130	1A		-----	1654	ISO2160	1A		-----
353	IP154	1A		-----	1656	ISO2160	1		-----
431		-----		-----	1657	D130	1A		-----
444		-----		-----	1677	D130	1A		-----
445	D130	1A		-----	1720		-----		-----
447	D130	1A		-----	1724	D130	1A		-----
463	D130	1A		-----	1730		-----		-----
468	D130	1A		-----	1741	D130	1A		-----
485		-----		-----	1746	D130	1A		-----
511	D130	1A		-----	1776		-----		-----
541	D130	1A		-----	1782	D130	1A		-----
562	D130	1		-----	1807	D130	1A		-----
657	D130	1		-----	1810		-----		-----
671	D130	1A		-----	1811	D130	1		-----
854	D130	1A		-----	1813	D130	1A		-----
861	D130	1A		-----	1833	ISO2160	1A		-----
862	D130	1A		-----	1849	ISO2160	1A		-----
904	D130	1A		-----	1936		-----		-----
912	D130	1A		-----	1937		-----		-----
922	D130	1A		-----	1938		-----		-----
963	D130	1A		-----	1948	D130	1A		-----
974	D130	1A		-----	1977	ISO2160	1A		-----
994	D130	1A		-----	1982	D130	1A		-----
995	D130	1A		-----	2129	D130	1A		-----
					2130	D130	1B		-----

normality	n.a	
n	87	
outliers	n.a	
mean (n)	1	
st.dev. (n)	n.a	
R(calc.)	n.a	
R(D130:12)	n.a	

Determination of Density at 15°C on sample #15010; results in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	748.5		0.21	996	D1298	748.3		-0.08
62	D4052	748.2		-0.22	998		-----		-----
120	D4052	748.0		-0.51	1006	D4052	748.5		0.21
131	D4052	749		0.92	1016		-----		-----
132	D4052	748.6		0.35	1017	D4052	748.4		0.06
140	D4052	748.4		0.06	1033		-----		-----
150	D4052	748.4		0.06	1059	ISO12185	748.3		-0.08
158		-----		-----	1066	D4052	748.3		-0.08
159	D4052	748.5		0.21	1080	D4052	748.3		-0.08
169	D4052	748.4		0.06	1081	ISO12185	748.4		0.06
171	D4052	748		-0.51	1109	D4052	748.33		-0.04
175	D4052	748.8		0.64	1126	D4052	748.5		0.21
193	D4052	748.0		-0.51	1134	D4052	748.2		-0.22
194	D4052	748.2		-0.22	1161	D4052	748.2		-0.22
216		-----		-----	1186	D1298	748.5		0.21
217	D4052	748.6		0.35	1200		-----		-----
221	D4052	748.3		-0.08	1205	ISO12185	748.41		0.08
224		-----		-----	1213	D4052	748.87		0.74
225	D4052	748.4		0.06	1237	ISO12185	748.1		-0.36
228	D4052	747.9		-0.65	1297	D4052	748.61		0.37
230	D1298	748.1		-0.36	1299	D4052	748.4		0.06
237		-----		-----	1347	D4052	748.54		0.26
238		-----		-----	1348	D4052	748.7		0.49
242		-----		-----	1376	D4052	748.90		0.78
252		-----		-----	1385	D4052	748.9		0.78
253	D4052	748.1		-0.36	1389	D4052	748.2		-0.22
254	D4052	748.1		-0.36	1395	D4052	748.1		-0.36
256	D4052	748.2		-0.22	1397	D4052	747.6		-1.08
258	D1298	748.0		-0.51	1409	ISO12185	748.5		0.21
273		-----		-----	1441	D4052	748.28		-0.11
311	D4052	748.2		-0.22	1490	ISO12185	748.67		0.45
312	D4052	748.2		-0.22	1491	ISO12185	748.22		-0.19
323	D4052	748.1		-0.36	1498	D1298	748.8		0.64
333	D4052	748.4		0.06	1528	D4052	748.22		-0.19
334	D4052	748.3		-0.08	1531	D4052	750.2	R(0.01)	2.64
335	D4052	748.2		-0.22	1613	D4052	748.6		0.35
336	D4052	748.2		-0.22	1616	D4052	748.25		-0.15
337	D4052	748.4		0.06	1631	ISO12185	748.5		0.21
338	D4052	748.3		-0.08	1634	D4052	748.520		0.24
340	D4052	748.30		-0.08	1654	ISO12185	748.279		-0.11
353	IP365	748.3		-0.08	1656	ISO12185	748.3		-0.08
431	ISO12185	748.58		0.32	1657	D4052	751.7	R(0.01)	4.79
444	D4052	748.38		0.04	1677	D4052	748.3		-0.08
445	D4052	748.3		-0.08	1720		-----		-----
447	D4052	748.2		-0.22	1724	D4052	748.44		0.12
463	D4052	748.24		-0.16	1730	ISO12185	748.8		0.64
468	D4052	748.4		0.06	1741	D4052	748.7		0.49
485	D4052	748.25		-0.15	1746	D4052	748.9		0.78
511	D4052	749.6	R(0.01)	1.78	1776	ISO12185	748.31		-0.06
541	D4052	748.6		0.35	1782	D4052	748.4		0.06
562	D4052	750.2	C,R(0.01)	2.64	1807	D4052	748.6		0.35
657	D4052	748.3		-0.08	1810	D4052	748.3		-0.08
671	D4052	748.4		0.06	1811	D4052	748.3		-0.08
854	D4052	748.29		-0.09	1813	D4052	748.3		-0.08
861	D4052	748.26		-0.14	1833	ISO12185	748.5		0.21
862	D4052	748.37		0.02	1849	ISO12185	748.3		-0.08
904	D4052	748.5		0.21	1936	ISO12185	748.3		-0.08
912	D4052	748.3		-0.08	1937	ISO12185	748.4		0.06
922	D4052	748.3		-0.08	1938	D4052	748.6		0.35
963	D4052	748.2		-0.22	1948	D4052	748.4		0.06
974	D4052	748.3		-0.08	1977	ISO3675	747.735		-0.89
994	D4052	748.2		-0.22	1982	D4052	748.2		-0.22
995	D4052	748.2		-0.22	2129	D4052	748.2		-0.22
					2130	D4052	748.2		-0.22

normality	suspect
n	110
outliers	4
mean (n)	748.35
st.dev. (n)	0.233
R(calc.)	0.65
R(D4052:11)	1.96

Lab 562 first reported: 750.0

Kernel Density
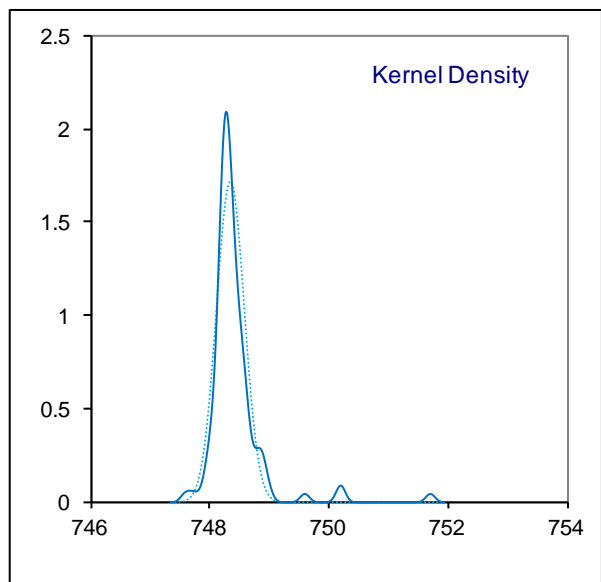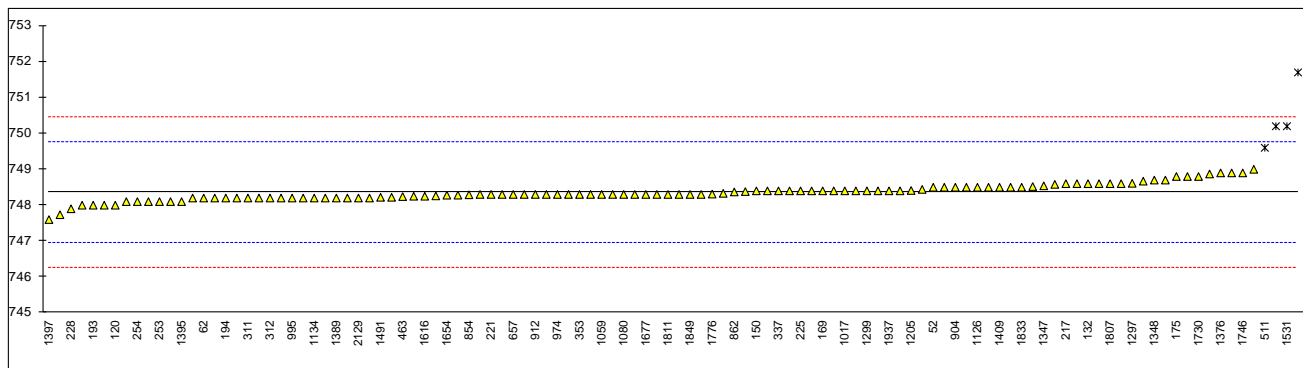
Determination of Distillation ASTM D86 on sample #15010; results in °C

lab	method	mode	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
52	D86	Automated	35.5		51.2		94.0		148.6		181.4	
62	D86	Automated	34.1		50.6		93.4		148.7		181.1	
120	D86	Automated	36.1		51.7		94.1		149.0		184.5	
131	D86	Automated	35.4		51.7		96.4		151.4		181.8	
132	D86	Automated	35.4		51.0		92.9		149.6		183.1	
140	D86	Automated	35.4		51.5		93.5		149.3		183.7	
150	D86		37.1		51.7		93.2		149.2		181.8	
158	D86	Automated	36.61		51.88		92.39		149.11		180.89	
159	D86	Automated	37.9		51.8		95.1		150.0		180.8	
169	D86	Automated	35.3		52.4		94.6		149.9		181.9	
171	D86	Automated	36.5		51.8		93.0		149.1		179.9	
175	D86	Automated	36.4		51.6		94.4		149.8		183.0	
193	D86	Automated	36.6		52.2		96.4		152.6		184.7	
194	D86	Automated	36.3		51.5		92.7		148.7		181.8	
216			-----		-----		-----		-----		-----	
217	D86	Automated	32.8		50.6		92.7		148.2		179.1	
221	D86	Manual	38.0		51.0		92.0		148.0		178.0	
224			-----		-----		-----		-----		-----	
225	D86	Manual	38.0		51.5		93.0		148.0		185.0	
228	D86	Manual	39.0		51.5		92.6		150.6		184.0	
230	D86	Manual	37.5		51.3		92.8		150.9		186.6	
237			-----		-----		-----		-----		-----	
238			-----		-----		-----		-----		-----	
242			-----		-----		-----		-----		-----	
252	D86	Manual	38.0		52.0		92.0		148.0		182.0	
253	D86	Manual	37.0		51.0		93.0		147.0		183.0	
254	D86	Manual	39.0		51.8		92.5		147.5		183.1	
256	D86	Manual	38.0		52.5		92.5		146.5		182.0	
258	D86	Automated	40.1		52.8		94.6		150.1		182.4	
273			-----		-----		-----		-----		-----	
311	D86	Automated	34.0		51.4		93.5		149.0		182.0	
312	D86	Automated	36.9		51.3		93.7		149.1		178.7	
323	D86	Automated	35.2		51.2		92.8		149.0		179.3	
333	D86	Automated	34.0		50.9		94.0		149.6		182.5	
334	D86	Automated	33.9		50.1		92.5		148.8		182.4	
335	D86	Automated	35.8		51.1		94.0		147.6		181.4	
336	D86	Automated	35.3		50.8		93.3		147.9		178.6	
337	D86	Automated	34.9		51.1		93.9		146.3		181.1	
338	ISO3405	Automated	34.1		51.4		93.8		149.5		183.2	
340	D86	Automated	34.5		51.8		93.8		149.2		178.7	
353	IP123	Automated	37.8		51.9		94.7		149.6		183.6	
431	D86	Automated	39.1		51.0		96.0		152.0		182.1	
444	D86	Automated	37.1		51.2	C	93.1	C	148.4	C	180.1	
445	D86	Automated	36.6		51.5		92.8		149.0		181.3	
447	D86	Automated	37.4		52.6		92.4		138.7	R(0.01)	178.3	
463	D86	Automated	36.8		51.1		94.1		149.4		185.0	
468	D86	Automated	38.0		52.0		95.9		152.2		182.8	
485	D86	Automated	39.4		51.3		94.55		149.45		184.45	
511	D86	Manual	39.0		53.0		94.0		148.0		183.4	
541	D86	Automated	34.9		51.8		94.9		150.6		184.8	
562	D86	Automated	39.3		52.1		95.4		150.4		181.9	
657	D86	Automated	36.9		51.9		93.6		149.5		182.3	
671			-----		-----		-----		-----		-----	
854	D86	Automated	36.4		52.2		93.9		149.3		181.7	
861	D86	Automated	34.4		51.9		94.5		150.2		183.8	
862	D86	Automated	34.9		51.1		93.2		149.1		176.8	
904	D86	Automated	36.1		51.3		94.0		150.1		185.7	
912	D86	Manual	39.0		51.0		94.0		150.0		183.0	
922	D86	Manual	40.0		53.0		95.0		149.0		182.0	
963	D86	Automated	37.9		53.5		95.6		152.7		185.7	
974	D86	Automated	37.9		51.5		93.5		149.4		185.5	
994	D86	Manual	38.5		51.5		94.0		150.0		182.0	
995	D86	Manual	37.5		51.5		94.0		150.5		182.0	
996	D86	Manual	38.5		52.0		94.0		150.5		181.0	
998			-----		-----		-----		-----		-----	
1006	D86	Automated	37.7		51.6		94.9		149.8		181.3	
1016			-----		-----		-----		-----		-----	
1017	D86	Automated	36.7		51.6		93.9		149.1		183.8	
1033			-----		-----		-----		-----		-----	
1059	ISO3405	Automated	35.9		51.7		94.5		149.5		184.2	
1066	D86	Automated	34.7		51.7		93.9		149.4		184.1	
1080			-----		-----		-----		-----		-----	
1081	D86	Automated	39.1		51.9		93.3		149.8		182.2	
1109	D86	Automated	38.7		51.1		93.7		149.1		180.8	
1126	D86	Automated	37.3		51.5		94.6		150.7		185.8	
1134	D86	Automated	35.5		52.2		93.4		149.1		183.2	

Lab	Method	Type								
1161	ISO3405	Automated	37.2		51.4		92.6		150.1	182.7
1186	D86	Manual	43.38	R(0.05)	55.40	R(0.01)	97.45	R(0.05)	150.52	185.54
1200			-----		-----		-----		-----	-----
1205	D86	Automated	37.6		52.5		95.1		149.9	183.3
1213	D86	Automated	36.8		50.8		92.1		148.9	181.2
1237	ISO3405	Manual	41.8		52.0		93.5		148.3	184.7
1297	D86	Automated	35.4		51.1		93.0		148.8	180.1
1299	D86	Automated	35.2		-----		-----		-----	181.5
1347	D86	Manual	40		55	R(0.01)	93		148	181
1348	D86	Automated	38.0		51.8		95.0		149.6	184.0
1376			-----		-----		-----		-----	-----
1385	D86	Manual	38		48	R(0.01)	94		147	177
1389	D86	Automated	35.0		50.2		93.9		149.2	180.8
1395	D86	Automated	36.5		51.8		93.7		149.2	185.9
1397	D86	Automated	36.7		50.9		93.5		148.7	181.4
1409	D86	Automated	34.6		52.0		94.0		149.4	181.0
1441	D86	Automated	38.6		54.2	R(0.05)	94.3		150.1	183.5
1490	ISO3405	Automated	36.6		53.4		96.8		152.9	183.8
1491	ISO3405	Automated	37.5		51.9		94.3		149.7	183.3
1498	D86	Automated	36.8		51.9		94.2		150.1	185.9
1528	D86	Automated	38.1		50.8		93.8		149.6	179.9
1531	D86	Automated	38.8		52.4		95.4		149.9	187.7
1613	D86	Automated	34.9		52.6		94.0		149.0	185.5
1616	D86	Automated	38.2		51.7		93.5		148.3	181.3
1631		Automated	-----		51.9		94.4		149.9	182.4
1634	D86	Automated	35.4		51.3		93.6		149.0	182.1
1654	D86	Automated	35.9		51.9		94.2		149.7	181.8
1656	ISO3405	Automated	37.8		51.9		93.8		149.1	181.6
1657	D86	Automated	36.6		52.0		94.2		149.6	179.8
1677	D86	Automated	34.4		52.1		94.2		150.3	182.8
1720			-----		-----		-----		-----	-----
1724	D86	Automated	34.3		51		92.5		148.8	183.3
1730			-----		-----		-----		-----	-----
1741	D86	Automated	33.7		54.0	R(0.05)	93.8	C	153.1	183.7 C
1746	D86	Manual	38.5		52.5		93.5		150.0	178.5
1776	ISO3405	Automated	34.4		51.5		93.0		148.9	183.1
1782	D86	Automated	38.5		54.3	R(0.05)	94.0		147.3	178.8
1807	D86	Automated	35.5		51.1		93.3		149.3	183.7
1810	D86	Automated	35.0		51.9		93.6		149.0	183.7
1811	D86	Automated	35.3		51.9		94.3		149.2	179.0
1813	D86	Automated	36.64		50.81		92.49		148.63	183.24
1833	ISO3405	Automated	32.6		51.6		94.4		149.5	181.6
1849	D86	Automated	36.1		51.9		92.7		148.3	180.0
1936	ISO3405	Automated	35.5		51.0		93.0		149.0	181.7
1937	ISO3405	Automated	36.5	C	52.0		93.5		148.9	180.4
1938	D86	Automated	36.9		51.7		93.0		149.5	-----
1948	D86	Automated	35.5		52.4		95.8		150.3	183.3
1977	ISO3405	Automated	41.0		52.1		93.6		148.7	179.9
1982	D86	Automated	37.0		51.0	C	93.3		149.0	184.5
2129	D86	Automated	33.9		52.0		93.5		148.1	181.1
2130	D86	Automated	36.8		51.3		94.2		148.6	187.5
		normality	OK		OK		OK		suspect	OK
		n	110		105		110		110	111
		outliers	1		6		1		1	0
		mean (n)	36.69		51.65		93.82		149.37	182.31
		st.dev. (n)	1.781		0.609		0.964		1.189	2.17
		R(calc.)	4.99		1.70		2.70		3.33	6.07
	automated	R(D86:12)	5.23		3.20		1.88		3.97	6.78
	manual	R(D86:12)	5.60		3.99		4.13		3.88	7.20

			Only auto. results
		normality	OK
		n	92
		outliers	0
		mean (n)	93.92
		st.dev. (n)	0.960
		R(calc.)	2.69
		R(D86:12)	1.88

Lab 444 first reported 10% evap:52.3, 50% evap:97.1, 90% evap: 151.0
Lab 1741 first reported 50% evap:97.3, FBP: 190.8
Lab 1937 first reported IBP:48.0
Lab 1982 first reported 10%:101.9

IBP

10% evaporated

50% evaporated

90% evaporated

FBP
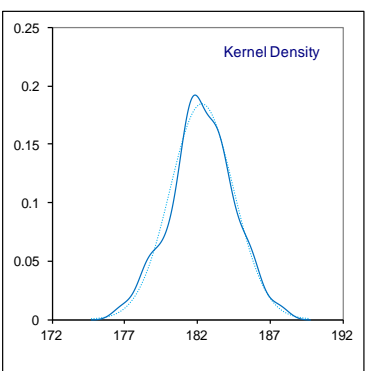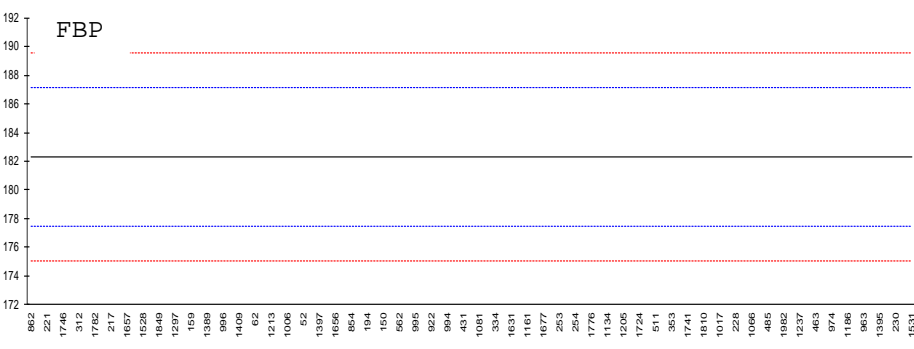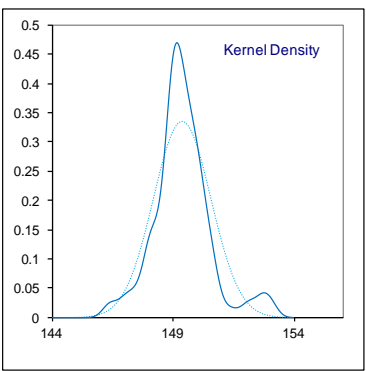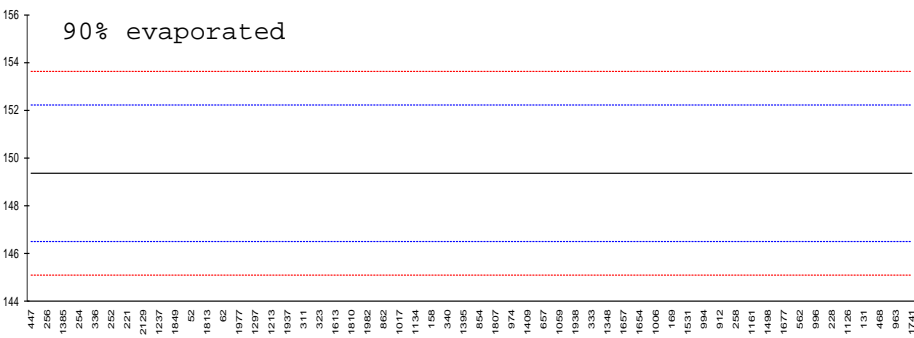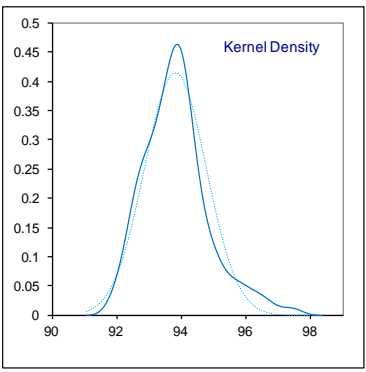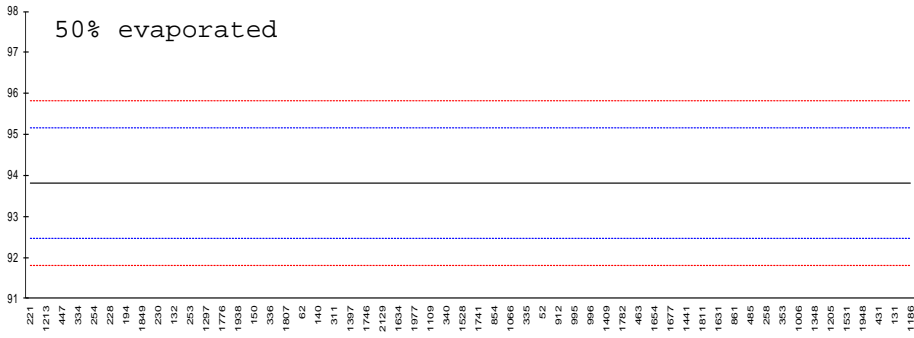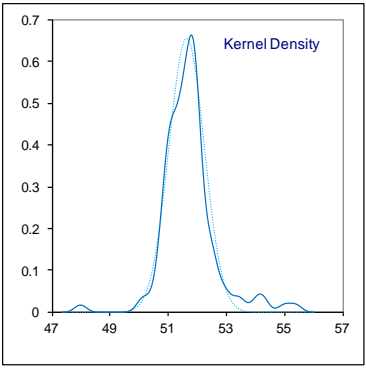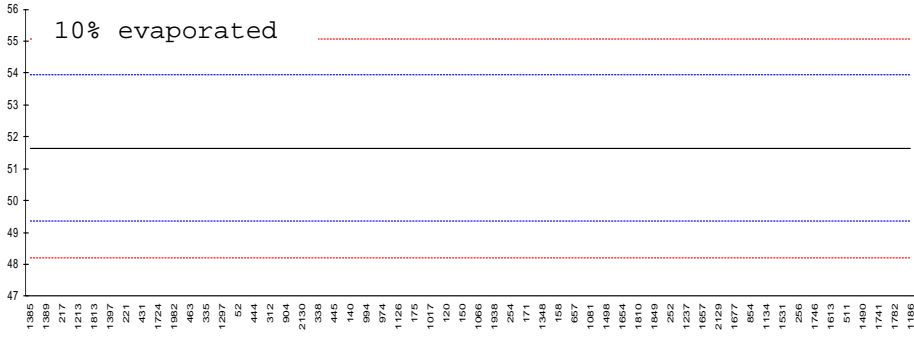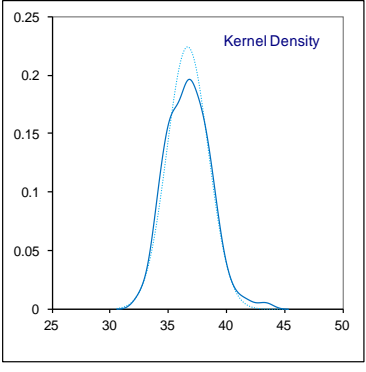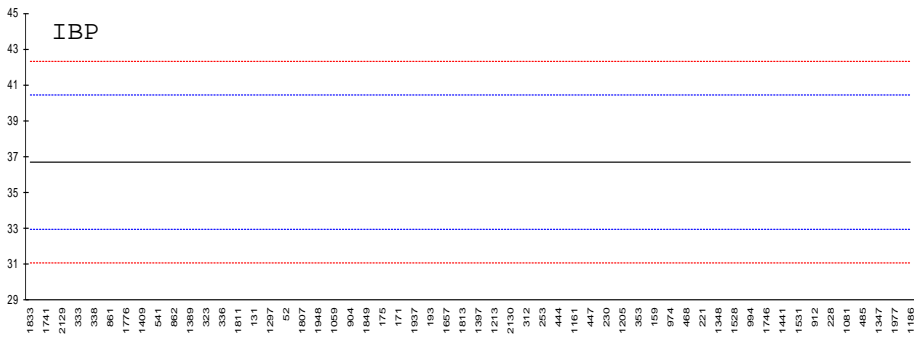
Determination of Doctor Test on sample #15010;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4952	Negative		-----	996	D4952	Negative		-----
62		-----		-----	998		-----		-----
120	D4952	Negative		-----	1006		-----		-----
131		-----		-----	1016	D4952	Negative		-----
132	D4952	Negative		-----	1017		-----		-----
140	D4952	Negative		-----	1033		-----		-----
150	D4952	Negative		-----	1059	D4952	Positive		-----
158	D4952	Negative		-----	1066	D4952	Negative		-----
159	D4952	Positive		-----	1080		-----		-----
169		-----		-----	1081	D4952	Negative		-----
171	D4952	Positive		-----	1109	IP30	Negative		-----
175		-----		-----	1126		-----		-----
193		-----		-----	1134	D4952	Negative		-----
194		-----		-----	1161		-----		-----
216		-----		-----	1186		-----		-----
217	D4952	Negative		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D4952	Negative		-----
225	D4952	Negative		-----	1237		-----		-----
228		-----		-----	1297	D4952	Negative		-----
230	D4952	Negative		-----	1299		-----		-----
237		-----		-----	1347		-----		-----
238		-----		-----	1348		-----		-----
242		-----		-----	1376		-----		-----
252	D4952	Negative		-----	1385		-----		-----
253		-----		-----	1389		-----		-----
254	IP30	Negative		-----	1395		-----		-----
256	D4952	Negative		-----	1397	D4952	Positive		-----
258	D4952	Negative		-----	1409		-----		-----
273		-----		-----	1441		-----		-----
311	D4952	Sweet		-----	1490		-----		-----
312	D4952	Negative		-----	1491		-----		-----
323	D4952	Negative		-----	1498		-----		-----
333	D4952	Negative		-----	1528		-----		-----
334		-----		-----	1531		-----		-----
335		-----		-----	1613	IP30	Negative		-----
336		-----		-----	1616	IP30	Positive		-----
337		-----		-----	1631		-----		-----
338		-----		-----	1634		-----		-----
340	D4952	Negative		-----	1654		-----		-----
353		-----		-----	1656	IP30	Negative		-----
431		-----		-----	1657	D4952	Negative		-----
444		-----		-----	1677	IP30	Negative		-----
445	IP30	Positive		-----	1720		-----		-----
447	D4952	Negative		-----	1724	IP30	Positive		-----
463	D4952	Negative		-----	1730		-----		-----
468		-----		-----	1741	D4952	Negative		-----
485		-----		-----	1746	D4952	Negative		-----
511		-----		-----	1776		-----		-----
541	IP30	Negative		-----	1782	D4952	Negative		-----
562		-----		-----	1807		-----		-----
657	IP30	Negative		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
854	D4952	Negative		-----	1813	IP30	Positive		-----
861	D4952	Negative		-----	1833	D4952	Negative		-----
862	D4952	Negative		-----	1849	INH-2884	Negative		-----
904		-----		-----	1936		-----		-----
912	D4952	Negative		-----	1937		-----		-----
922	D4952	Negative		-----	1938		-----		-----
963	D4952	Positive		-----	1948		-----		-----
974	D4952	Negative		-----	1977	ISO5275	Negative		-----
994	D4952	Negative		-----	1982		-----		-----
995	IP30	Negative		-----	2129	IP30	Negative		-----
					2130	IP30	Positive		-----

	n	49	Negative
	n	10	Positive

Determination of Existent Gum (washed) on sample #15010; results in mg/100mL

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D381	<0.5		-----	996		-----		-----
62	D381	0.1		-0.70	998		-----		-----
120	D381	0.5		-0.19	1006	D381	0.4		-0.32
131		-----		-----	1016		-----		-----
132	D381	<0.5		-----	1017		-----		-----
140	D381	0.0		-0.83	1033		-----		-----
150	D381	<0.5		-----	1059	ISO6246	0.0		-0.83
158		-----		-----	1066		-----		-----
159	D381	0.8		0.19	1080	ISO6246	<1		-----
169	D381	0.0		-0.83	1081	D381	<0.5		-----
171	D381	0.0		-0.83	1109	D381	0.5		-0.19
175		-----		-----	1126		-----		-----
193	D381	0.6		-0.07	1134		-----		-----
194	D381	<0.5		-----	1161	ISO6246	0.9		0.32
216		-----		-----	1186		-----		-----
217	D381	0.2		-0.58	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D381	<0.5		-----
225	D381	<0.5		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299	D381	<5	C	-----
237		-----		-----	1347	D381	1.0		0.44
238		-----		-----	1348	D381	0.8		0.19
242		-----		-----	1376		-----		-----
252	D381	1.0		0.44	1385	D381	0.8		0.19
253	D381	<0.5		-----	1389	D381	<0.5		-----
254		-----		-----	1395	D381	1.0		0.44
256	D381	1.0		0.44	1397	D381	0.5		-0.19
258	D381	1.1		0.57	1409	ISO6246	<1		-----
273		-----		-----	1441	D381	2.1	R(0.05)	1.85
311	D381	1		0.44	1490	ISO6246	0.5		-0.19
312	D381	<0.5		-----	1491	ISO6246	0.8		0.19
323	D381	<0.5		-----	1498	D381	< 0.5		-----
333		-----		-----	1528	D381	0.5		-0.19
334	D381	0.3		-0.45	1531		-----		-----
335		-----		-----	1613	D381	1.0		0.44
336		-----		-----	1616	D381	1.1		0.57
337		-----		-----	1631	ISO6246	0.6		-0.07
338		-----		-----	1634		-----		-----
340		-----		-----	1654		-----		-----
353	IP131	1.3		0.83	1656	ISO6246	<1		-----
431		-----		-----	1657	D381	1.0		0.44
444		-----		-----	1677	D381	0.9		0.32
445	D381	<1		-----	1720		-----		-----
447	D381	1.2		0.70	1724	D381	0.4		-0.32
463	D381	<0.5		-----	1730		-----		-----
468	D381	<0.5		-----	1741	D381	0.6		-0.07
485		-----		-----	1746	D381	1.0		0.44
511	D381	0.8		0.19	1776		-----		-----
541		-----		-----	1782	D381	0.6		-0.07
562	D381	0.60		-0.07	1807	ISO6246	6.1	R(0.01)	6.95
657	D381	1		0.44	1810	D381	1.2		0.70
671	D381	1		0.44	1811	D381	1.6		1.21
854	D381	0.5		-0.19	1813	D381	0.9		0.32
861	D381	<0.5		-----	1833	D381	0.6		-0.07
862	D381	0.6		-0.07	1849	ISO6246	0.54		-0.14
904	D381	0.4		-0.32	1936		-----		-----
912	D381	<0.5		-----	1937		-----		-----
922	D381	0.40		-0.32	1938		-----		-----
963	D381	0.5		-0.19	1948	D381	1.2		0.70
974	D381	0.3		-0.45	1977	ISO6246	0.015		-0.81
994	D381	0.5		-0.19	1982	D381	0.1		-0.70
995		-----		-----	2129	D381	0.2		-0.58
					2130	D381	0.2		-0.58

normality	OK	
n	57	
outliers	2	
mean (n)	0.652	
st.dev. (n)	0.3820	
R(calc.)	1.070	
R(D381:12)	2.194	Lab 1299 first reported : 32

Kernel Density
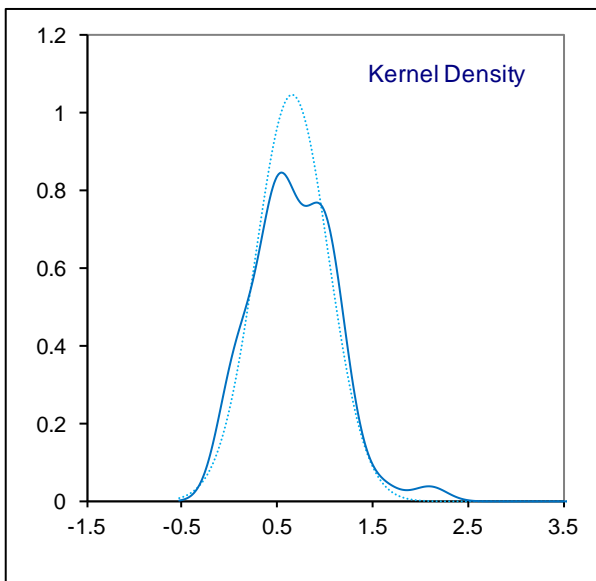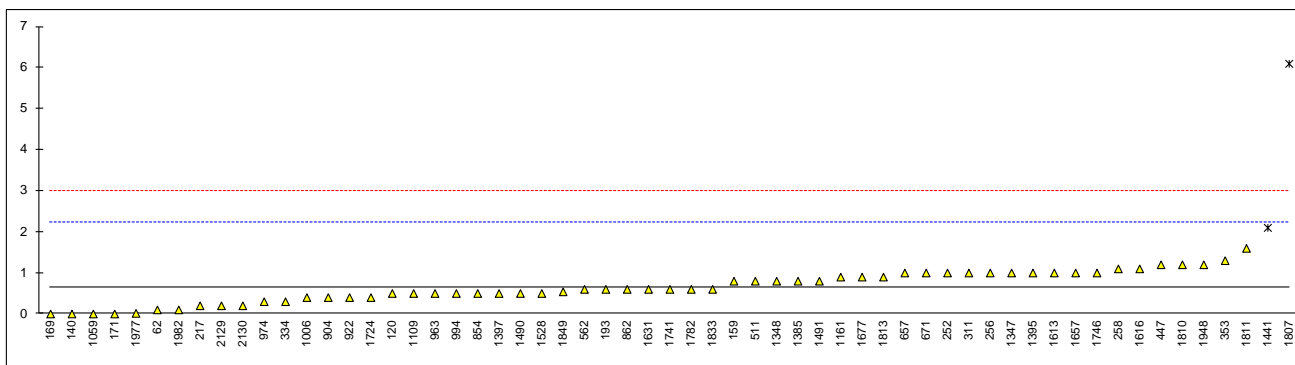
Determination of Aromatics by FIA on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62	D1319	34.9		1.29	998		-----		-----
120	D1319	33.1		-0.08	1006		-----		-----
131		-----		-----	1016		-----		-----
132	D1319	32.736		-0.35	1017	D1319	35.36		1.63
140	D1319	32.4		-0.61	1033		-----		-----
150	D1319	33.8		0.45	1059		-----		-----
158	D1319	32.6		-0.46	1066	D1319	33.2		0.00
159	D1319	36.2		2.27	1080		-----		-----
169	D1319	32.9		-0.23	1081		-----		-----
171	D1319	33.96		0.57	1109	D1319	32.54		-0.50
175	D1319	33.4		0.15	1126	in house	31.15		-1.55
193	D1319	31.3		-1.44	1134	EN14517	31.47		-1.31
194	D1319	34.3		0.83	1161	EN22854	31.4		-1.36
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D1319	32.5		-0.53
225	D1319	36.5		2.50	1237		-----		-----
228		-----		-----	1297		-----		-----
230	D1319	33.08		-0.09	1299	D1319	31.4		-1.36
237		-----		-----	1347		-----		-----
238		-----		-----	1348		-----		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385		-----		-----
253	D1319	31.7		-1.14	1389	D1319	33.4		0.15
254		-----		-----	1395		-----		-----
256	D5986	32.5		-0.53	1397	D1319	31.8		-1.06
258		-----		-----	1409		-----		-----
273		-----		-----	1441	D1319	33.7		0.38
311	D1319	33.8		0.45	1490	INH-603	31.43		-1.34
312	D1319	33.8		0.45	1491		-----		-----
323		-----		-----	1498		-----		-----
333		-----		-----	1528	EN22854	31.51		-1.28
334		-----		-----	1531		-----		-----
335		-----		-----	1613	D6839	31.82		-1.05
336		-----		-----	1616	D1319	33.06		-0.11
337		-----		-----	1631	EN15553	32.1		-0.83
338		-----		-----	1634		-----		-----
340	D1319	33.7		0.38	1654		-----		-----
353		-----		-----	1656	ISO22854	31.0		-1.67
431		-----		-----	1657		-----		-----
444		-----		-----	1677	D1319	34.87		1.26
445	D1319	32.17		-0.78	1720		-----		-----
447	D1319	32.2		-0.76	1724	D1319	33.7		0.38
463	D1319	32.5		-0.53	1730		-----		-----
468		-----		-----	1741	D1319	35.00		1.36
485		-----		-----	1746		-----		-----
511		-----		-----	1776		-----		-----
541		-----		-----	1782	D5986	36.4		2.42
562		-----		-----	1807		-----		-----
657	D1319	33.4		0.15	1810		-----		-----
671		-----		-----	1811		-----		-----
854	D1319	32.6		-0.46	1813	D1319	31.85		-1.02
861	D1319	35.40		1.66	1833		-----		-----
862	D1319	33.80		0.45	1849	EN15553	34.52		1.00
904	D1319	32.8		-0.30	1936		-----		-----
912	D1319	37.3		3.10	1937		-----		-----
922	D1319	36.40		2.42	1938		-----		-----
963		-----		-----	1948	D1319	31.70		-1.14
974	D1319	30.40		-2.12	1977	D6730	32.1		-0.83
994	D6729	32.02		-0.89	1982	D1319	34.61		1.07
995	D6729	32.35		-0.64	2129	D1319	34.4		0.91
					2130	D1319	34.1		0.68

			Only D1319/EN15553 data
normality	OK		OK
n	60		48
outliers	0		0
mean (n)	33.20		33.48
st.dev. (n)	1.552		1.468
R(calc.)	4.35		4.11
R(D1319:14)	3.70		3.70

Kernel Density
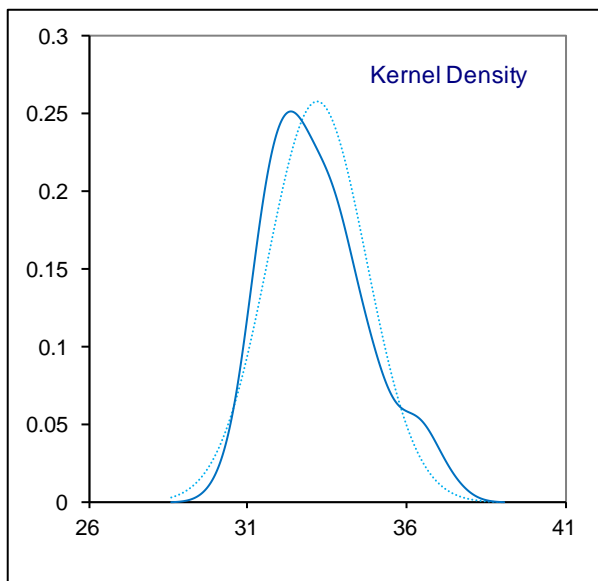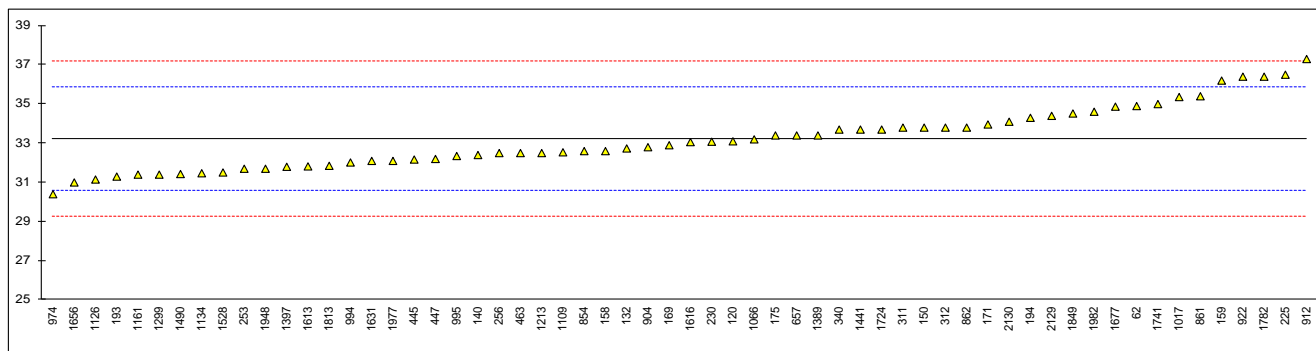
Determination of Olefins by FIA on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62	D1319	6.9		0.60	998		-----		-----
120	D1319	5.6		-0.87	1006		-----		-----
131		-----		-----	1016		-----		-----
132	D1319	7.852		1.67	1017	D1319	3.75		-2.95
140	D1319	6.8		0.48	1033		-----		-----
150	D1319	3.7		-3.00	1059		-----		-----
158	D1319	5.7		-0.75	1066	D1319	7.0		0.71
159	D1319	6.4		0.03	1080		-----		-----
169	D1319	4.8		-1.76	1081		-----		-----
171	D1319	6.82		0.51	1109	D1319	5.74		-0.71
175		-----		-----	1126	in house	7.03		0.74
193	D1319	6.4		0.03	1134	EN14517	6.69		0.36
194	D1319	5.7		-0.75	1161	EN22854	6.80		0.48
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D1319	6.8		0.48
225	D1319	4.4		-2.21	1237		-----		-----
228		-----		-----	1297		-----		-----
230	D1319	7.26		1.00	1299	D1319	6.8		0.48
237		-----		-----	1347		-----		-----
238		-----		-----	1348		-----		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385		-----		-----
253	D1319	8.1		1.95	1389	D1319	3.8		-2.89
254		-----		-----	1395		-----		-----
256		-----		-----	1397	D1319	4.4		-2.21
258		-----		-----	1409		-----		-----
273		-----		-----	1441	D1319	6.5		0.15
311	D1319	6.5		0.15	1490	INH-603	2.25	R(0.05)	-4.63
312	D1319	6.2		-0.19	1491		-----		-----
323		-----		-----	1498		-----		-----
333		-----		-----	1528	EN22854	7.08		0.80
334		-----		-----	1531		-----		-----
335		-----		-----	1613	D6839	6.25		-0.13
336		-----		-----	1616	D1319	5.80		-0.64
337		-----		-----	1631	EN15553	6.5		0.15
338		-----		-----	1634		-----		-----
340	D1319	4.9		-1.65	1654		-----		-----
353		-----		-----	1656	ISO22854	6.9		0.60
431		-----		-----	1657		-----		-----
444		-----		-----	1677	D1319	6.51		0.16
445	D1319	6.08		-0.33	1720		-----		-----
447	D1319	5.5		-0.98	1724	D1319	6.38		0.01
463	D1319	4.9		-1.65	1730		-----		-----
468		-----		-----	1741	D1319	5.70		-0.75
485		-----		-----	1746		-----		-----
511		-----		-----	1776		-----		-----
541		-----		-----	1782	D5986	8.56		2.46
562		-----		-----	1807		-----		-----
657	D1319	7.3		1.05	1810		-----		-----
671		-----		-----	1811		-----		-----
854	D1319	6.0		-0.42	1813	D1319	6.95		0.65
861	D1319	8.83		2.77	1833		-----		-----
862	D1319	6.98		0.69	1849	EN15553	7.14		0.87
904	D1319	7.8		1.61	1936		-----		-----
912	D1319	7.5		1.27	1937		-----		-----
922	D1319	3.50		-3.23	1938		-----		-----
963		-----		-----	1948	D1319	6.69		0.36
974	D1319	8.38		2.26	1977	D6730	6.03		-0.38
994	D6729	7.01		0.72	1982	D1319	5.62		-0.84
995	D6729	7.24		0.98	2129	D1319	7.3		1.05
					2130	D1319	7.3		1.05

Only D1319/EN1553 data

normality	OK	OK	
n	57	47	
outliers	1	0	
mean (n)	6.370	6.244	
st.dev. (n)	1.1961	1.2491	
R(calc.)	3.349	3.498	
R(D1319:14)	2.490	2.461	
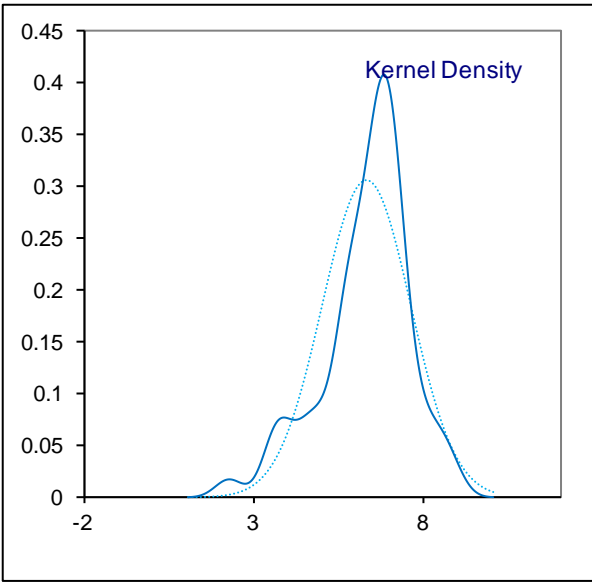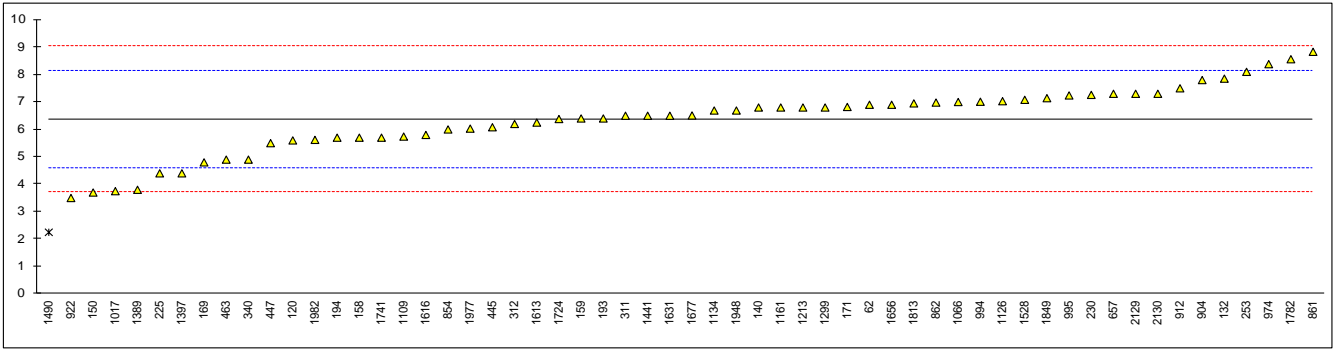
Determination of Lead as Pb on sample #15010; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D3237	0.16		-----	996		-----		-----
62	D3237	<2.5		-----	998		-----		-----
120		-----		-----	1006	D3237	<0.0025		-----
131		-----		-----	1016		-----		-----
132	D3237	<0.01		-----	1017		-----		-----
140		-----		-----	1033		-----		-----
150	D3237	0.74		-----	1059	EN13723	<1.0		-----
158		-----		-----	1066	D3237	<2.5		-----
159		-----		-----	1080		-----		-----
169		-----		-----	1081	D3237	<2.5		-----
171	D3237	<0.1		-----	1109	D3237	<2.5		-----
175		-----		-----	1126		-----		-----
193		-----		-----	1134		-----		-----
194		-----		-----	1161	EN237	<5		-----
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D3237	<2.5		-----
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230	D3237	<0.0025		-----	1299	EN237	<2.5		-----
237		-----		-----	1347		-----		-----
238		-----		-----	1348	D3237	0.0001		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385		-----		-----
253		-----		-----	1389	D3237	<2.5		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397	EN13723	<4		-----
258		-----		-----	1409	EN237	<2.5		-----
273		-----		-----	1441		-----		-----
311		-----		-----	1490	EN237	<0.5		-----
312	D3237	<2.5		-----	1491		-----		-----
323	D3237	<2.5		-----	1498		-----		-----
333		-----		-----	1528	D3237	0.64		-----
334		-----		-----	1531		-----		-----
335		-----		-----	1613		-----		-----
336		-----		-----	1616	D3237	2.8	False pos.?	-----
337		-----		-----	1631	EN237	<3		-----
338		-----		-----	1634		-----		-----
340		-----		-----	1654		-----		-----
353		-----		-----	1656	EN237	<2.5		-----
431		-----		-----	1657		-----		-----
444		-----		-----	1677	D3237	<2.5		-----
445	IP428	<2.5		-----	1720		-----		-----
447	IP428	<2.5		-----	1724	IP428	<3.0	C	-----
463	D3237	<2.5		-----	1730		-----		-----
468		-----		-----	1741	EN237	<2.5		-----
485		-----		-----	1746		-----		-----
511	D3237	<2.5		-----	1776		-----		-----
541		-----		-----	1782	D3341	<2.5		-----
562	D3237	0.000		-----	1807		-----		-----
657	D3237	<2.5		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
854	D3237	<2.5		-----	1813	D5059	2.24		-----
861	D3237	<2.5		-----	1833	EN237	<3		-----
862	D3237	<2.5		-----	1849	EN237	<3.0		-----
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922	D3237	<2.5		-----	1938		-----		-----
963		-----		-----	1948	D3237	<0.25		-----
974		-----		-----	1977		-----		-----
994		-----		-----	1982	D3237	0.1		-----
995		-----		-----	2129	D3237	0.03		-----
					2130	IP352	0		-----

normality	n.a	
n	46	
outliers	n.a	
mean (n)	<2.5	
st.dev. (n)	n.a	Lab 1724 first reported : 0.985
R(calc.)	n.a	
R(D3237:12)	n.a	application range: 2.5 -25 mg/L

## Determination of Oxidation Stability on sample #15010; results in minutes

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D525	>900		-----	996		-----		-----
62	D525	>240		-----	998		-----		-----
120		-----		-----	1006	D525	>900		-----
131		-----		-----	1016		-----		-----
132	D525	>1403		-----	1017		-----		-----
140		-----		-----	1033		-----		-----
150	D525	>900		-----	1059	ISO7536	>360		-----
158		-----		-----	1066		-----		-----
159		-----		-----	1080		-----		-----
169		-----		-----	1081	D525	>400		-----
171	D525	901		-----	1109	D525	>1200		-----
175		-----		-----	1126		-----		-----
193		-----		-----	1134	D525	>900		-----
194		-----		-----	1161	ISO7536	>900		-----
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D525	>900		-----
225	D525	>900		-----	1237		-----		-----
228	D525	>1300		-----	1297		-----		-----
230		-----		-----	1299	D525	>960		-----
237		-----		-----	1347		-----		-----
238		-----		-----	1348		-----		-----
242		-----		-----	1376		-----		-----
252	D525	>900		-----	1385		-----		-----
253		-----		-----	1389		-----		-----
254		-----		-----	1395	D525	>900		-----
256	D525	>900		-----	1397		-----		-----
258		-----		-----	1409	D525	>900		-----
273		-----		-----	1441	D525	>900		-----
311	D525	>900		-----	1490	ISO7536	>900		-----
312	D525	>900		-----	1491		-----		-----
323	D525	>900		-----	1498		-----		-----
333		-----		-----	1528		-----		-----
334		-----		-----	1531		-----		-----
335		-----		-----	1613	D525	>900		-----
336	D525	>600		-----	1616	D525	>900		-----
337	D525	>600		-----	1631	ISO7536	>360		-----
338		-----		-----	1634		-----		-----
340	D525	>960		-----	1654	ISO7536	>360		-----
353		-----		-----	1656	ISO7536	>900		-----
431		-----		-----	1657		-----		-----
444		-----		-----	1677	D525	>900		-----
445	D525	1320		-----	1720		-----		-----
447	D525	>900		-----	1724		-----		-----
463	D525	>360		-----	1730		-----		-----
468		-----		-----	1741	D525	>900		-----
485		-----		-----	1746	D525	>900		-----
511		-----		-----	1776		-----		-----
541	D525	>900		-----	1782	D525	1218.7		-----
562		-----		-----	1807	D525	>360		-----
657	D525	>900		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
854	D525	>900		-----	1813	D525	>900		-----
861	D525	>900		-----	1833	ISO7536	>360		-----
862	D525	>900		-----	1849	ISO7536	>900		-----
904	D525	>360		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922	D525	>900		-----	1938		-----		-----
963	D525	>360		-----	1948	D525	>900		-----
974	D525	>900		-----	1977	ISO7536	1440		-----
994		-----		-----	1982		-----		-----
995		-----		-----	2129	D525	>900		-----
					2130	D525	>900		-----

normality	n.a	
n	56	
outliers	n.a	
mean (n)	>360	
st.dev. (n)	n.a	
R(calc.)	n.a	
R(D525:12a)	n.a	

Determination of Ethanol on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62		-----		-----	998		-----		-----
120	D5599	4.48		-0.89	1006	D4815	4.46		-0.99
131		-----		-----	1016		-----		-----
132	D5599	5.08		2.15	1017	ISO22854	4.47		-0.94
140	D5599	4.23		-2.15	1033		-----		-----
150	D5599	4.56		-0.48	1059	ISO22854	4.74		0.43
158	D5599	4.75		0.48	1066	ISO22854	4.61		-0.23
159	D5599	5.03		1.90	1080	INH-M3	4.45		-1.04
169	D4815	4.88		1.14	1081	ISO22854	4.69		0.18
171	D4815	4.65		-0.02	1109		-----		-----
175	D5599	4.68		0.13	1126	D6839	4.71		0.28
193	D5599	4.706		0.26	1134	EN14517	4.66		0.03
194		-----		-----	1161	EN13132	4.7		0.23
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D4815	4.48		-0.89
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299	ISO22854	4.85		0.99
237		-----		-----	1347	D4815	4.554		-0.51
238		-----		-----	1348	D4815	4.5		-0.78
242		-----		-----	1376		-----		-----
252		-----		-----	1385	D4815	3.664	R(0.01)	-5.02
253		-----		-----	1389		-----		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397	EN13132	4.7		0.23
258		-----		-----	1409	ISO22854	4.71		0.28
273		-----		-----	1441	D4815	4.51		-0.73
311	D6839	4.8		0.74	1490	D5845	4.75		0.48
312	D4815	4.65		-0.02	1491		-----		-----
323	ISO22854	4.85		0.99	1498		-----		-----
333	EN13132	5.0		1.75	1528	EN22854	4.87		1.09
334	D4815	4.51		-0.73	1531		-----		-----
335		4.7		0.23	1613	D6839	4.74		0.43
336		-----		-----	1616	D4815	4.587		-0.34
337		-----		-----	1631	ISO22854	4.75		0.48
338		-----		-----	1634		-----		-----
340	EN1601	4.61		-0.23	1654		-----		-----
353		-----		-----	1656	ISO22854	4.9		1.24
431		-----		-----	1657		-----		-----
444		-----		-----	1677	EN13132	4.77		0.58
445	D4815	4.51		-0.73	1720		-----		-----
447	EN13132	4.55		-0.53	1724	ISO22854	4.79		0.68
463	EN13132	4.95		1.50	1730		-----		-----
468		-----		-----	1741	EN13132	4.334		-1.63
485		-----		-----	1746		-----		-----
511	D5845	4.18		-2.41	1776	ISO22854	4.66		0.03
541		-----		-----	1782	D5845	4.6		-0.28
562		-----		-----	1807		-----		-----
657	D4815	4.55		-0.53	1810	D6839	4.75		0.48
671		-----		-----	1811	D4815	4.81		0.79
854	D4815	4.41		-1.24	1813		-----		-----
861	D4815	4.62		-0.18	1833	ISO22854	4.8		0.74
862	D4815	4.677		0.11	1849	EN13132	4.63		-0.13
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963		-----		-----	1948	D4815	4.82		0.84
974	D4815	4.20		-2.30	1977	D6730	4.56		-0.48
994		-----		-----	1982	D4815	4.658		0.02
995		-----		-----	2129	D6730	4.703		0.24
					2130	D6730	4.513		-0.72

normality	OK	
n	62	
outliers	1	
mean (n)	4.655	
st.dev. (n)	0.1846	
R(calc.)	0.517	R (ISO22854:14) = 0.348
R(D4815:13)	0.553	R(EN13132:00) = 0.300

== revised ==   Gasoline: iis15B01ASTM

Kernel Density
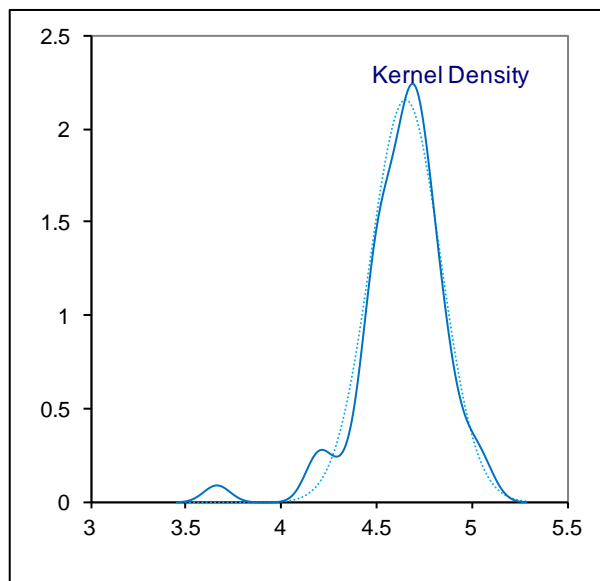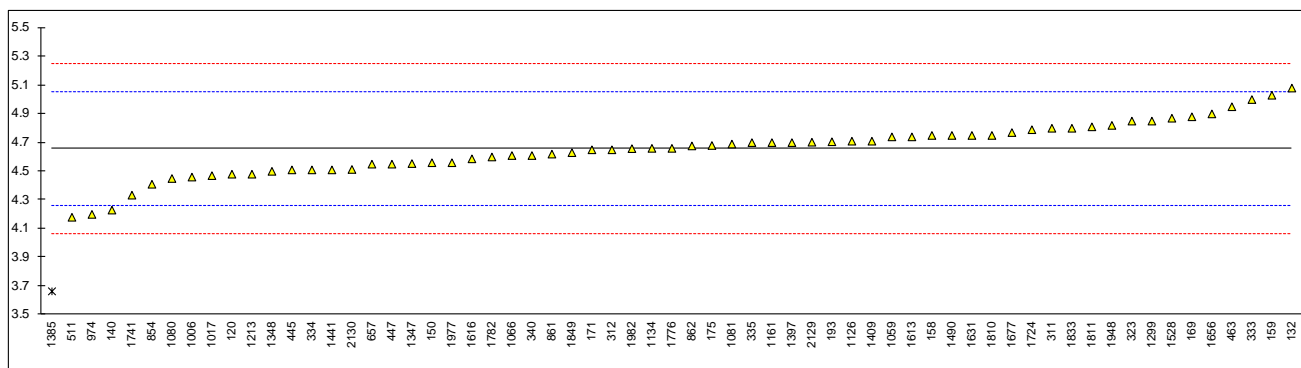
Determination of MTBE on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62		-----		-----	998		-----		-----
120	D5599	2.61		3.63	1006	D4815	2.22		-1.53
131		-----		-----	1016		-----		-----
132	D5599	2.48		1.91	1017	ISO22854	2.39		0.72
140	D5599	2.16		-2.32	1033		-----		-----
150	D5599	2.33		-0.07	1059	ISO22854	2.33		-0.07
158	D5599	2.24		-1.26	1066	ISO22854	2.22		-1.53
159	D5599	2.36		0.32	1080	INH-M3	2.33		-0.07
169	D4815	2.11		-2.98	1081	ISO22854	2.39		0.72
171	D4815	2.25		-1.13	1109		-----		-----
175		-----		-----	1126	D6839	2.41		0.98
193		-----		-----	1134	EN14517	2.28		-0.73
194		-----		-----	1161	EN13132	2.3		-0.47
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D4815	2.15		-2.45
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299	ISO22854	2.51		2.31
237		-----		-----	1347	D4815	2.388		0.69
238		-----		-----	1348	D4815	2.6		3.50
242		-----		-----	1376		-----		-----
252		-----		-----	1385	D4815	2.54		2.70
253		-----		-----	1389		-----		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397	EN13132	2.2		-1.79
258		-----		-----	1409	ISO22854	2.32		-0.21
273		-----		-----	1441	D4815	2.03		-4.04
311	D6839	2.3		-0.47	1490	D5845	2.43		1.25
312	D4815	2.31		-0.34	1491		-----		-----
323	ISO22854	2.31		-0.34	1498		-----		-----
333	EN13132	2.9	R(0.01)	7.46	1528	EN22854	2.28		-0.73
334	D4815	2.37		0.46	1531		-----		-----
335		2.4		0.85	1613	D6839	2.51		2.31
336		-----		-----	1616	D4815	2.322		-0.18
337		-----		-----	1631	ISO22854	2.32		-0.21
338		-----		-----	1634		-----		-----
340	EN1601	2.42		1.12	1654		-----		-----
353		-----		-----	1656	ISO22854	2.2		-1.79
431		-----		-----	1657		-----		-----
444		-----		-----	1677	EN13132	2.34		0.06
445	D4815	2.38		0.59	1720		-----		-----
447	EN13132	2.2	C	-1.79	1724	ISO22854	2.34		0.06
463	EN13132	2.52		2.44	1730		-----		-----
468		-----		-----	1741	EN13132	2.388		0.69
485		-----		-----	1746		-----		-----
511	D5845	3.06	R(0.01)	9.58	1776	ISO22854	2.25		-1.13
541		-----		-----	1782	D5845	2.5		2.17
562		-----		-----	1807		-----		-----
657	D4815	2.33		-0.07	1810	D6839	2.31		-0.34
671		-----		-----	1811	D4815	2.44		1.38
854	D4815	2.44		1.38	1813		-----		-----
861	D4815	2.35		0.19	1833	ISO22854	2.41		0.98
862	D4815	2.307		-0.38	1849	EN13132	2.2		-1.79
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963		-----		-----	1948	D4815	2.44		1.38
974	D4815	2.22		-1.53	1977	D6730	2.21		-1.66
994		-----		-----	1982	D4815	2.405		0.92
995		-----		-----	2129	D6730	2.242		-1.24
					2130	D6730	2.255		-1.06

|		
normality	OK	
n	59	
outliers	2	
mean (n)	2.336	
st.dev. (n)	0.1178	
R(calc.)	0.330	
R(D4815:13)	0.212	

Lab 447 first reported : 1.90

R (ISO22854:14) = 0.410
R(EN13132:00) = 0.300

Kernel Density
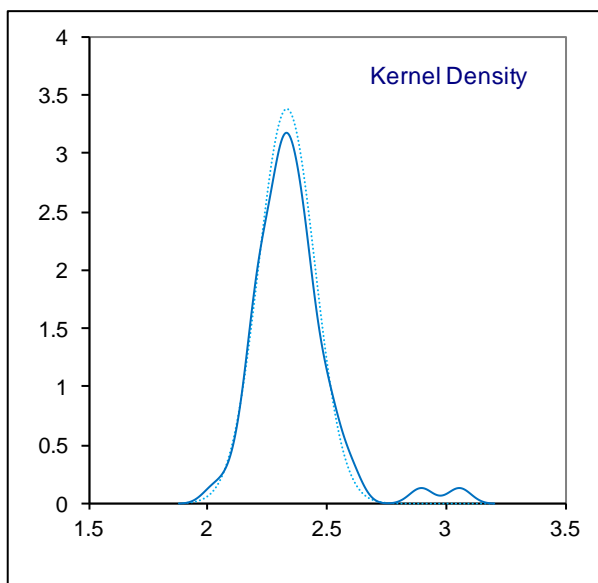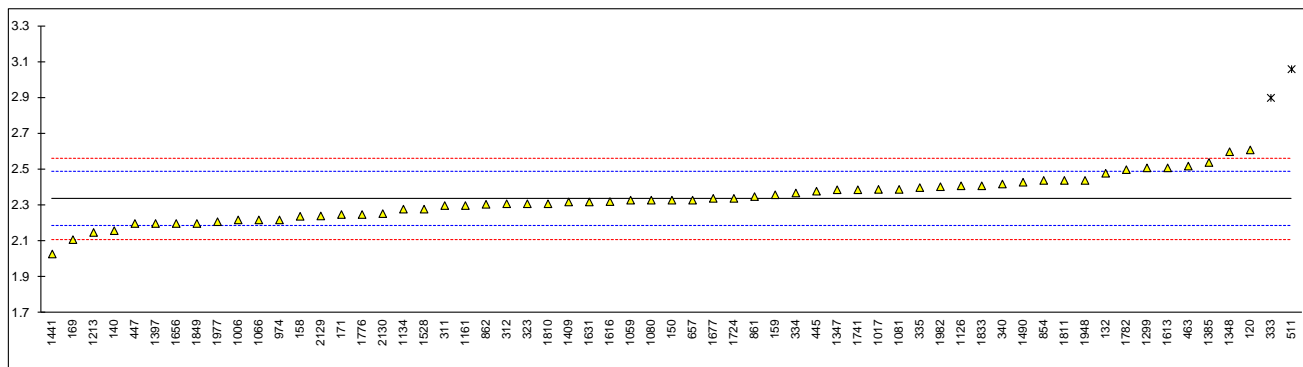
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Determination of other oxygenates on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62		-----		-----	998		-----		-----
120	D5599	<0.1		-----	1006		-----		-----
131		-----		-----	1016		-----		-----
132	D5599	<0.10		-----	1017		-----		-----
140	D5599	0.0		-----	1033		-----		-----
150	D5599	0.13		-----	1059	ISO22854	<0.20		-----
158	D5599	0.04		-----	1066	ISO22854	0.10		-----
159		-----		-----	1080		-----		-----
169	D4815	0.00		-----	1081	ISO22854	0.03		-----
171		-----		-----	1109		-----		-----
175		-----		-----	1126	D6839	0.03		-----
193		-----		-----	1134	EN14517	0.11		-----
194		-----		-----	1161	EN13132	0.4		-----
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213		-----		-----
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299	ISO22854	<0.8		-----
237		-----		-----	1347	D4815	0.087		-----
238		-----		-----	1348	D4815	0.3		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385	D4815	0.29		-----
253		-----		-----	1389		-----		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397	EN13132	0.3		-----
258		-----		-----	1409	ISO22854	<0.3		-----
273		-----		-----	1441		-----		-----
311		-----		-----	1490	D5845	0		-----
312	D4815	<0.2		-----	1491		-----		-----
323	ISO22854	<0.10		-----	1498		-----		-----
333	EN13132	<0.17		-----	1528	EN22854	0.07		-----
334	D4815	0.57	false pos.?	-----	1531		-----		-----
335		-----		-----	1613	D6839	0.05		-----
336		-----		-----	1616	D4815	<0.20		-----
337		-----		-----	1631		-----		-----
338		-----		-----	1634		-----		-----
340	EN1601	<0.17		-----	1654		-----		-----
353		-----		-----	1656	ISO22854	<0.1		-----
431		-----		-----	1657		-----		-----
444		-----		-----	1677	EN13132	0.13		-----
445		-----		-----	1720		-----		-----
447	EN13132	<0.2		-----	1724		-----		-----
463	EN13132	<0.2		-----	1730		-----		-----
468		-----		-----	1741		-----		-----
485		-----		-----	1746		-----		-----
511	D5845	1.76	false pos.?	-----	1776	ISO22854	0.10		-----
541		-----		-----	1782	D5845	<0.8		-----
562		-----		-----	1807		-----		-----
657	D4815	<0.2		-----	1810		-----		-----
671		-----		-----	1811		-----		-----
854	D4815	<0.2		-----	1813		-----		-----
861	D4815	<0.20		-----	1833		-----		-----
862	D4815	<0.2		-----	1849		-----		-----
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963		-----		-----	1948	D4815	<0.01		-----
974	D4815	<0.20		-----	1977	D6730	0.0010		-----
994		-----		-----	1982	D4815	0.657	false pos.?	-----
995		-----		-----	2129	D6730	0.000		-----
					2130	D6730	<0.1		-----

normality	n.a
n	44
outliers	n.a.
mean (n)	<0.2
st.dev. (n)	n.a
R(calc.)	n.a
R(Lit)	n.a

Determination of Total Oxygenates on sample #15010; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62		-----		-----	998		-----		-----
120	D5599	7.09		0.09	1006	D4815	6.69		-1.26
131		-----		-----	1016		-----		-----
132	D5599	7.56		1.68	1017	ISO22854	6.89		-0.58
140	D5599	6.49		-1.93	1033		-----		-----
150	D5599	7.02		-0.14	1059		-----		-----
158	D5599	7.02		-0.14	1066	ISO22854	6.93		-0.45
159	D5599	7.39		1.11	1080	INH-M3	7.08		0.06
169	D4815	6.99		-0.24	1081	ISO22854	7.11		0.16
171	D4815	6.89		-0.58	1109		-----		-----
175		-----		-----	1126	D6839	7.15		0.30
193		-----		-----	1134	EN14517	7.04		-0.08
194		-----		-----	1161	EN13132	7.4		1.14
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D4815	6.62		-1.49
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299		-----		-----
237		-----		-----	1347	D4815	6.746		-1.07
238		-----		-----	1348	D4815	7.4		1.14
242		-----		-----	1376		-----		-----
252		-----		-----	1385	D4815	6.88		-0.61
253		-----		-----	1389		-----		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397	in house	7.2		0.46
258		-----		-----	1409	ISO22854	7.15		0.30
273		-----		-----	1441	D4815	8.42	R(0.01)	4.58
311	D6839	7.1		0.13	1490	D5845	7.18		0.40
312	D4815	6.96		-0.35	1491		-----		-----
323	ISO22854	7.15		0.30	1498		-----		-----
333	EN13132	7.9		2.83	1528	EN22854	7.22		0.53
334	D4815	7.45		1.31	1531		-----		-----
335		-----		-----	1613	D6839	7.30		0.80
336		-----		-----	1616	D4815	6.909		-0.52
337		-----		-----	1631		-----		-----
338		-----		-----	1634		-----		-----
340	EN1601	2.18	C,R(0.01)	-16.47	1654		-----		-----
353		-----		-----	1656	ISO22854	7.1		0.13
431		-----		-----	1657		-----		-----
444		-----		-----	1677	EN13132	7.24		0.60
445		-----		-----	1720		-----		-----
447	EN13132	6.45		-2.07	1724		-----		-----
463	EN13132	7.47		1.38	1730		-----		-----
468		-----		-----	1741	EN13132	6.722		-1.15
485		-----		-----	1746		-----		-----
511	D5845	9.00	R(0.01)	6.54	1776	ISO22854	7.01		-0.18
541		-----		-----	1782	D5845	7.1		0.13
562		-----		-----	1807		-----		-----
657	D4815	6.89		-0.58	1810	D6839	7.18		0.40
671		-----		-----	1811	D4815	7.35		0.97
854	D4815	6.90		-0.55	1813		-----		-----
861	D4815	7.07		0.03	1833	ISO22854	7.21		0.50
862	D4815	6.984		-0.26	1849		-----		-----
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963		-----		-----	1948	D4815	>7.64		-----
974	D4815	6.42		-2.17	1977	D6730	6.68		-1.29
994		-----		-----	1982	D4815	7.720		2.22
995		-----		-----	2129	D6730	6.945		-0.40
					2130	D6730	6.768		-0.99

|		
normality	OK	
n	50	
outliers	3	
mean (n)	7.062	
st.dev. (n)	0.3017	
R(calc.)	0.845	
R(D4815:13)	0.830	Lab 340 first reported : 2.14

Kernel Density
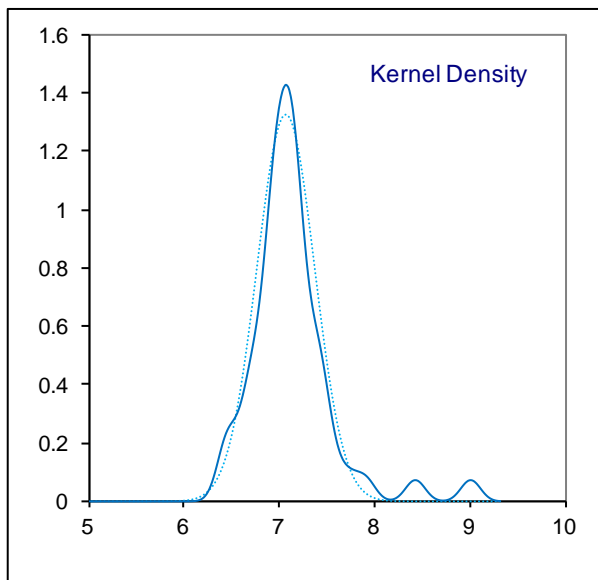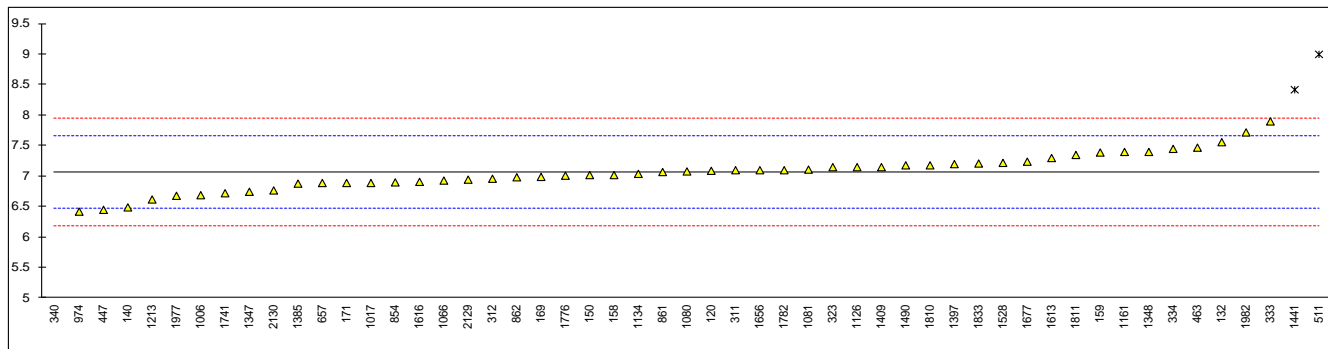
Determination of Oxygen Content on sample #15010; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	996		-----		-----
62		-----		-----	998		-----		-----
120	D5599	2.12		-0.40	1006	D4815	2.06		-1.08
131		-----		-----	1016		-----		-----
132	D5599	2.212		0.65	1017	ISO22854	2.09		-0.74
140	D5599	2.0		-1.76	1033		-----		-----
150	D5599	2.12		-0.40	1059	ISO22854	2.18		0.28
158	D5599	2.16		0.06	1066	ISO22854	2.12		-0.40
159	D5599	2.28		1.42	1080	INH-M3	2.14		-0.17
169	D4815	2.18		0.28	1081	ISO22854	2.17		0.17
171	D5599	2.16		0.06	1109		-----		-----
175		-----		-----	1126	D6839	2.18		0.28
193		-----		-----	1134	EN14517	2.16		0.06
194		-----		-----	1161	EN13132	2.3		1.65
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D4815	2.03		-1.42
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299	ISO22854	2.29		1.54
237		-----		-----	1347	D4815	1.965		-2.16
238		-----		-----	1348	D4815	2.17		0.17
242		-----		-----	1376		-----		-----
252		-----		-----	1385		-----		-----
253		-----		-----	1389		-----		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397	EN13132	2.17		0.17
258		-----		-----	1409	ISO22854	2.20		0.51
273		-----		-----	1441	D5599	2.34		2.11
311	D6839	2.2		0.51	1490	D5845	2.20		0.51
312	D4815	2.13		-0.28	1491		-----		-----
323	ISO22854	2.21		0.63	1498		-----		-----
333	EN13132	2.38		2.56	1528	EN22854	2.23		0.85
334	D4815	2.19		0.40	1531		-----		-----
335		2.19		0.40	1613	D6839	2.21		0.63
336		-----		-----	1616	D4815	2.11		-0.51
337		-----		-----	1631	ISO22854	2.18		0.28
338		-----		-----	1634		-----		-----
340		-----		-----	1654		-----		-----
353		-----		-----	1656	ISO22854	2.2		0.51
431		-----		-----	1657		-----		-----
444		-----		-----	1677	EN13132	2.211		0.64
445	D4815	1.99		-1.88	1720		-----		-----
447	EN13132	2.02		-1.54	1724	ISO22854	2.2		0.51
463	EN13132	2.17		0.17	1730		-----		-----
468		-----		-----	1741	EN13132	2.029		-1.43
485		-----		-----	1746		-----		-----
511		-----		-----	1776	ISO22854	2.15		-0.06
541		-----		-----	1782	D5845	1.91		-2.79
562		-----		-----	1807		-----		-----
657	D4815	2.10		-0.63	1810	D6839	2.19		0.40
671		-----		-----	1811	D4815	2.23		0.85
854	D4815	2.07		-0.97	1813		-----		-----
861	D4815	2.15		-0.06	1833	ISO22854	2.21		0.63
862	D5599	2.139		-0.18	1849	EN13132	2.19		0.40
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963		-----		-----	1948	D5599	2.25		1.08
974	D4815	2.03		-1.42	1977	D6730	2.09		-0.74
994		-----		-----	1982	D4815	2.194		0.44
995		-----		-----	2129	D6730	2.154		-0.01
					2130	D6730	2.085		-0.80

normality	OK			
n	58			
outliers	0			
mean (n)	2.155			
st.dev. (n)	0.0886		R (ISO22854:14) = 0.31	
R(calc.)	0.248		R(EN13132:00) = 0.30	
R(D5599:00)	0.246		Compare R(4815:13) = 0.239	

Kernel Density
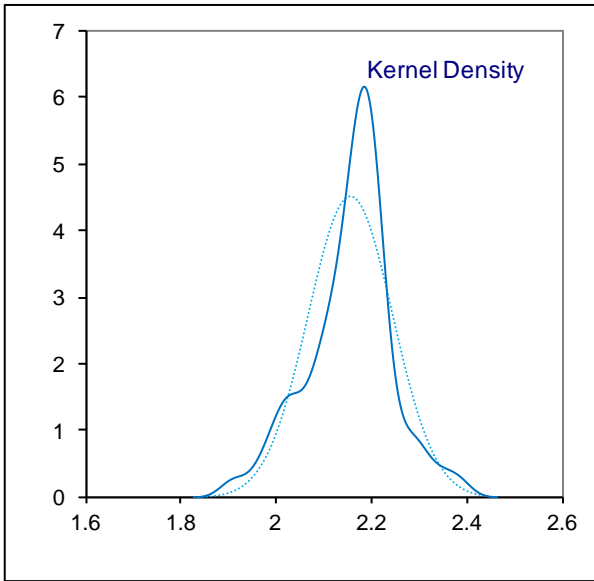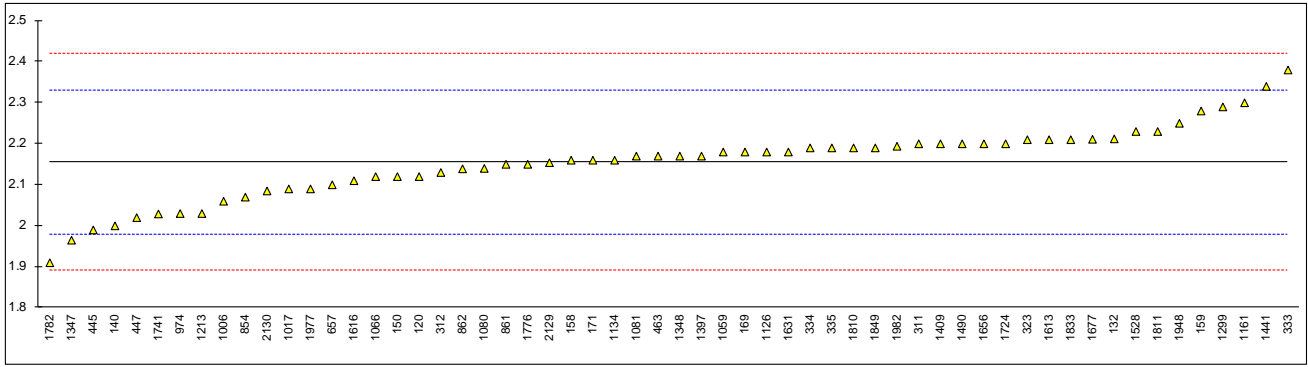
Determination of Phosphorus as P on sample #15010; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D3231	1.3129		-3.43	996		-----		-----
62		-----		-----	998		-----		-----
120	D3231	<0.2	false neg.?	<-18.78	1006		-----		-----
131		-----		-----	1016		-----		-----
132	D3231	1.05	ex	-7.05	1017		-----		-----
140		-----		-----	1033		-----		-----
150	D3231	<0.2	false neg.?	<-18.78	1059	in house	<3		-----
158		-----		-----	1066		-----		-----
159		-----		-----	1080		-----		-----
169		-----		-----	1081		-----		-----
171	D3231	1.81		3.43	1109	D3231	1.55		-0.16
175		-----		-----	1126		-----		-----
193		-----		-----	1134		-----		-----
194		-----		-----	1161		-----		-----
216		-----		-----	1186		-----		-----
217		-----		-----	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213		-----		-----
225		-----		-----	1237		-----		-----
228		-----		-----	1297		-----		-----
230		-----		-----	1299		-----		-----
237		-----		-----	1347		-----		-----
238		-----		-----	1348		-----		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385		-----		-----
253		-----		-----	1389		-----		-----
254		-----		-----	1395		-----		-----
256		-----		-----	1397		-----		-----
258		-----		-----	1409		-----		-----
273		-----		-----	1441		-----		-----
311		-----		-----	1490		-----		-----
312	D3231	1.5		-0.84	1491		-----		-----
323		-----		-----	1498		-----		-----
333		-----		-----	1528	D3231	1.15	ex	-5.67
334		-----		-----	1531		-----		-----
335		-----		-----	1613		-----		-----
336		-----		-----	1616	D3231	0.917	ex	-8.89
337		-----		-----	1631		-----		-----
338		-----		-----	1634		-----		-----
340		-----		-----	1654		-----		-----
353		-----		-----	1656		-----		-----
431		-----		-----	1657		-----		-----
444		-----		-----	1677	D3231	<0.2	false neg.?	<-18.78
445		-----		-----	1720		-----		-----
447		-----		-----	1724		-----		-----
463		-----		-----	1730		-----		-----
468		-----		-----	1741		-----		-----
485		-----		-----	1746		-----		-----
511		-----		-----	1776		-----		-----
541		-----		-----	1782	D3231	<0.2	false neg.?	<-18.78
562		-----		-----	1807		-----		-----
657	D3231	<0.2	false neg.?	<-18.78	1810		-----		-----
671		-----		-----	1811		-----		-----
854		-----		-----	1813	D3231	1.695		1.85
861		-----		-----	1833		-----		-----
862	D3231	0.05	G(0.05)	-20.85	1849		-----		-----
904		-----		-----	1936		-----		-----
912		-----		-----	1937		-----		-----
922		-----		-----	1938		-----		-----
963		-----		-----	1948		-----		-----
974		-----		-----	1977		-----		-----
994		-----		-----	1982		-----		-----
995		-----		-----	2129	D3231	1.50		-0.84
					2130		-----		-----

|				
normality	OK			
n	6			
outliers	1 (+3 excl)	Spike		
mean (n)	1.561	1.52 mg/L		Recovery <103%
st.dev. (n)	0.1727			
R(calc.)	0.483			
R(D3231:13)	0.203			application range: 0.2 - 40 mg/L
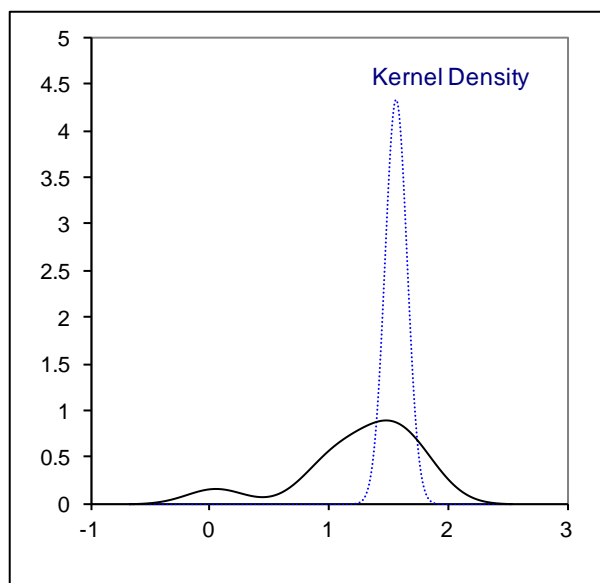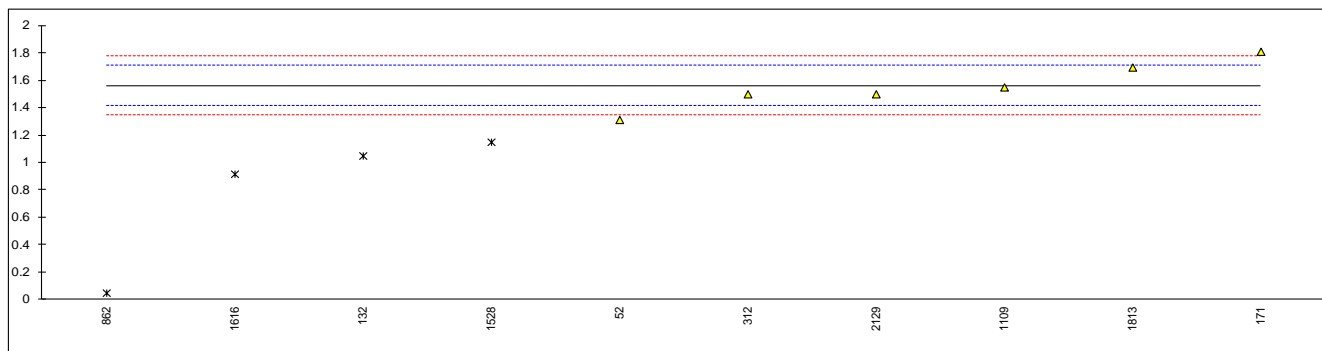
Determination of Sulphur on sample #15010; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	6.02		-1.19	996	D5453	6.87		-0.24
62	D5453	7.15		0.07	998		-----		-----
120	D2622	7.8		0.79	1006	D5453	6.6		-0.54
131		-----		-----	1016		-----		-----
132	D2622	6.59		-0.56	1017	ISO20846	6.897		-0.21
140	D5453	6.72		-0.41	1033		-----		-----
150	D5453	7.6		0.57	1059	ISO20846	6.1		-1.10
158	D5453	4.4		-2.99	1066	D5453	7.4		0.34
159	D5453	7.11		0.02	1080	D5453	7.7		0.68
169	D5453	9.6		2.79	1081	ISO20846	7.0		-0.10
171	D5453	8.10		1.12	1109	D7039	8.0		1.01
175	D5453	7.2		0.12	1126	ISO20846	7.4		0.34
193	D7039	6.95		-0.16	1134	D5453	8.70		1.79
194	D5453	6.7		-0.43	1161	ISO20846	7.38		0.32
216		-----		-----	1186	D5453	6.82		-0.30
217	D5453	6.65		-0.49	1200		-----		-----
221		-----		-----	1205		-----		-----
224		-----		-----	1213	D5453	7.11		0.02
225		-----		-----	1237	ISO20846	7.2		0.12
228		-----		-----	1297	D5453	6.19		-1.00
230		-----		-----	1299	ISO20884	5.6		-1.66
237		-----		-----	1347		-----		-----
238		-----		-----	1348	D4294	<100		-----
242		-----		-----	1376		-----		-----
252		-----		-----	1385	D4294	125	R(0.01)	131.07
253		-----		-----	1389	ISO20846	5.6	C	-1.66
254		-----		-----	1395	D5453	5.7		-1.55
256	D4294	<17		-----	1397	D5453	6.8		-0.32
258	D5453	5.01		-2.31	1409	ISO20846	7.4		0.34
273		-----		-----	1441	D7039	8.2		1.23
311	D5453	6.8		-0.32	1490	ISO20846	5.93		-1.29
312	D5453	7.4		0.34	1491	ISO20846	7.13		0.04
323	D5453	6.8		-0.32	1498	D5453	5.607		-1.65
333		-----		-----	1528	D5453	5.87		-1.36
334	D5453	7.4		0.34	1531	ISO20846	7.27		0.20
335	ISO20846	6.4		-0.77	1613	D5453	8.32		1.37
336	ISO20846	6.7		-0.43	1616	D5453	4.78		-2.57
337		-----		-----	1631	ISO20846	7.21		0.13
338	ISO20846	6.6		-0.54	1634	D5453	8.2		1.23
340	D5453	6.96		-0.14	1654	ISO20846	7.52		0.48
353	IP531	9.60		2.79	1656	ISO20846	7.4		0.34
431		-----		-----	1657	D5453	5.89		-1.33
444	D5453	2.786	C,R(0.01)	-4.78	1677	D5453	7.69		0.67
445	D5453	7..40		-----	1720		-----		-----
447	D5453	6.0		-1.21	1724	D5453	7.24		0.17
463	D5453	7.14		0.06	1730	ISO20846	8.24		1.28
468	D5453	6.53		-0.62	1741	D5453	8.13		1.16
485		-----		-----	1746	D5453	7.23		0.16
511	D5453	6.39		-0.78	1776	ISO20846	8.76		1.86
541		-----		-----	1782	D5453	8.2		1.23
562	D5453	8.172		1.20	1807	ISO20846	7.7		0.68
657	D5453	7.34		0.28	1810	D5453	6.4		-0.77
671	D5453	8.08		1.10	1811	D5453	6.9		-0.21
854	D5453	7.2		0.12	1813	D2622	7.40		0.34
861	D3120	6.5		-0.66	1833	ISO20846	7.08		-0.01
862	D5453	7.0		-0.10	1849	IP336	7.40		0.34
904	D5453	6.5		-0.66	1936	ISO20846	8.5		1.57
912	D5453	7.6		0.57	1937	ISO20846	6.8		-0.32
922	D5453	7.0		-0.10	1938	D5453	7.5		0.46
963	D5453	7.5		0.46	1948	D5453	8.36		1.41
974		-----		-----	1977	D5453	4.890		-2.45
994	D5453	6.85		-0.27	1982	D5453	7.64		0.61
995	D5453	6.7		-0.43	2129	D5453	7.75		0.73
					2130	D5453	8.1		1.12

normality	OK	
n	94	
outliers	2	
mean (n)	7.090	
st.dev. (n)	0.9389	
R(calc.)	2.629	Lab 444 first reported: 0.326
R(D5453:12)	2.519	Lab 1389 first reported: 3.6

Kernel Density
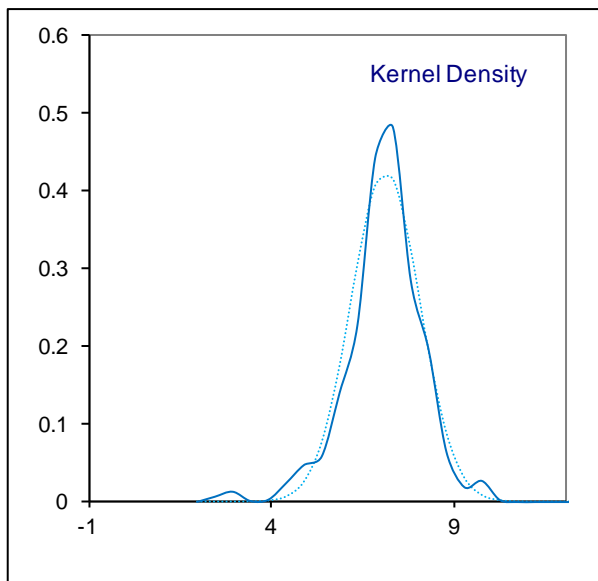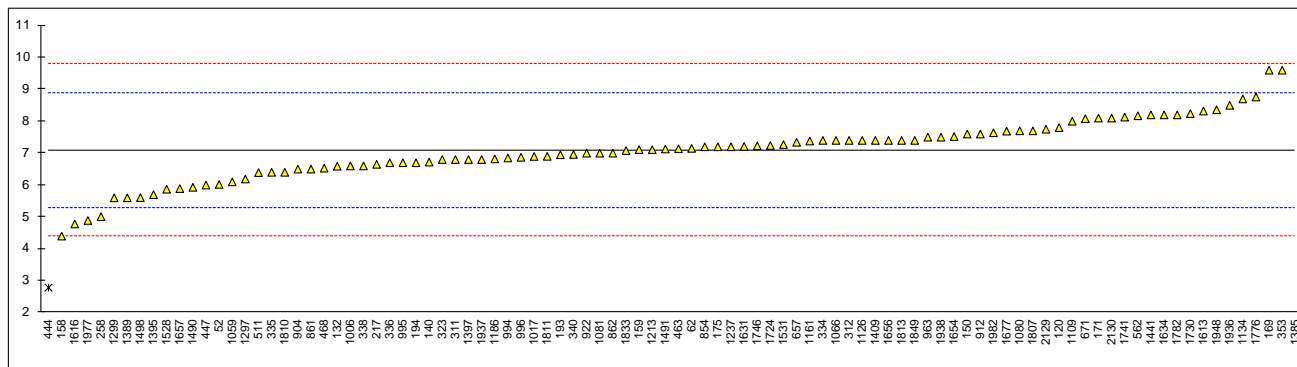
Determination of TVP on sample #15011; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	9.39		-0.14	
53	D5191	9.54		1.13	
62	D5191	9.44		0.29	
120	D5191	9.37		-0.30	
131	D5191	9.43		0.20	
132	D5191	9.43		0.20	
140	D5191	9.38		-0.22	
150	D5191	9.39		-0.14	
158	D5191	9.44		0.29	
159	D5191	9.41		0.03	
169	D5191	9.40		-0.05	
171	D5191	9.38		-0.22	
175	D5191	9.47		0.54	
177		-----		-----	
193	D5191	9.38		-0.22	
194	D5191	9.54		1.13	
225		-----		-----	
228	D5191	9.631		1.91	
230	D5191	9.59		1.56	
237		-----		-----	
238		-----		-----	
256	D5191	9.27		-1.15	
258		-----		-----	
311	D5191	9.44		0.29	
312	D5191	9.42		0.12	
323	D5191	9.41		0.03	
333	D5191	9.3		-0.90	
334	D5191	9.29		-0.98	
335		-----		-----	
336	D5191	9.40		-0.05	
337	D5191	9.51		0.88	
338	D5191	9.390		-0.14	
340		-----		-----	
353	D5191	9.442		0.30	
431	EN13016-1	8.27	R(0.01)	-9.62	
433		-----		-----	
445	D5191	9.544		1.17	
447		9.46		0.46	
463	D5191	9.41	C	0.03	First reported 58.8
468	D5191	9.4156		0.08	
485		-----		-----	
541		-----		-----	
562	D5191	9.55		1.22	
606	D5191	9.27		-1.15	
657	D5191	9.32		-0.73	
854	D5191	9.367		-0.33	
861	D5191	9.338		-0.58	
862	D5191	9.445		0.33	
904	D5191	9.46		0.46	
963		-----		-----	
974	D5191	9.38		-0.22	
1006		-----		-----	
1017	D5191	9.427		0.18	
1033		-----		-----	
1059	EN13016-1	9.39		-0.14	
1081		-----		-----	
1109	D5191	9.383		-0.19	
1134	D5191	10.02	R(0.01)	5.20	
1161	EN13016-1	9.33		-0.64	
1200		-----		-----	
1299		-----		-----	
1376		-----		-----	
1389		-----		-----	
1395	D5191	9.31		-0.81	
1397	D5191	9.38		-0.22	
1409	EN13016-1	8.51	R(0.01)	-7.59	
1490	EN13016-1	9.253		-1.30	
1491		-----		-----	
1510		9.42	C	0.12	First reported 2.42
1581	D5191	9.36		-0.39	
1613	D5191	9.33		-0.64	
1616	D5191	9.36		-0.39	
1631		-----		-----	
1634	D5191	9.315		-0.77	
1654		-----		-----	
1656		-----		-----	

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Gasoline: iis15B01ASTM

1657	D5191	9.41		0.03	
1677	D5191	9.42		0.12	
1720		-----		-----	
1724		-----		-----	
1730		-----		-----	
1741	EN13016-1	9.428		0.19	
1776	EN13016-1	9.529		1.04	
1782	D5191	9.38	C	-0.22	First reported 8.67
1807	EN13016-1	9.49		0.71	
1810	D5191	9.28		-1.07	
1811	D5191	9.41		0.03	
1813	D5191	9.37		-0.30	
1833		-----		-----	
1849	EN13016-1	9.45		0.37	
1936	EN13016-1	9.38		-0.22	
1937		-----		-----	
1938		-----		-----	
1982	D5191	9.25		-1.32	
2129	D5191	9.495		0.75	
2130	D5191	9.398		-0.07	

normality	OK
n	65
outliers	3
mean (n)	9.406
st.dev. (n)	0.0794
R(calc.)	0.222
R(D5191:13)	0.331

Kernel Density
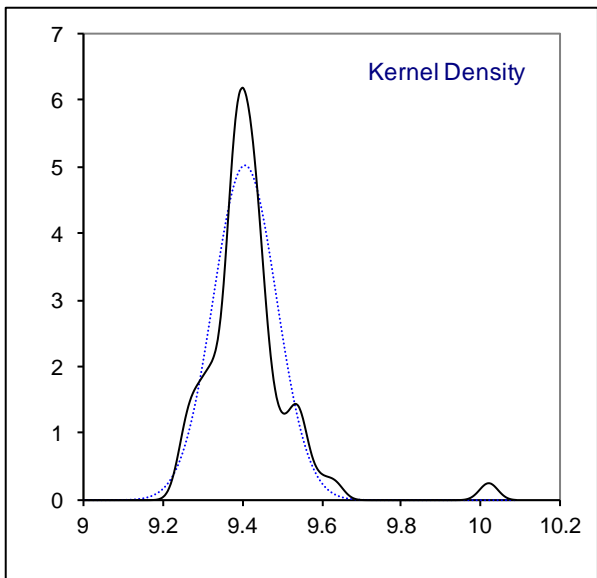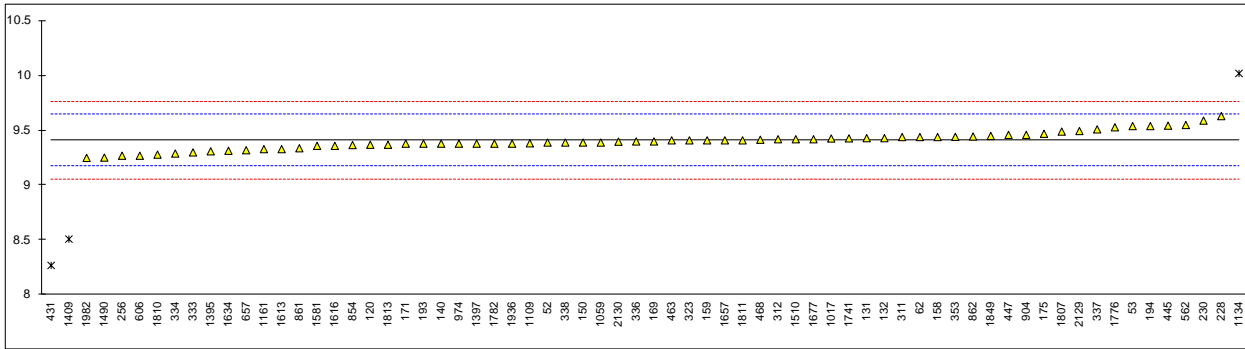
Determination of DVPE (acc. to ASTM D5191) on sample #15011; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.51		-0.21	
53	D5191	8.66		1.10	
62	D5191	8.56		0.22	
120	D5191	8.49		-0.38	
131	D5191	8.55		0.14	
132	D5191	8.55		0.14	
140	D5191	8.50		-0.30	
150	D5191	8.52		-0.12	
158		-----		-----	
159		-----		-----	
169	D5191	8.523		-0.10	
171	D5191	8.50		-0.30	
175	D5191	8.59		0.49	
177		-----		-----	
193	D5191	8.5037		-0.26	
194		-----		-----	
225		-----		-----	
228	D5191	8.745		1.83	
230	D5191	8.70		1.44	
237		-----		-----	
238		-----		-----	
256	D5191	8.38		-1.34	
258		-----		-----	
311	D5191	8.56		0.22	
312	D5191	8.54		0.05	
323	D5191	8.53		-0.04	
333	D5191	8.4		-1.17	
334	D5191	8.42		-0.99	
335	D5191	8.47		-0.56	
336	D5191	8.54		0.05	
337	D5191	8.63		0.83	
338	D5191	8.514		-0.18	
340	D5191	8.470		-0.56	
353	D5191	8.563		0.25	
431		-----		-----	
433	EN13016-1	8.59		0.49	
445	D5191	8.658		1.08	
447	D5191	8.57		0.31	
463	D5191	8.53	C	-0.04	First reported 55.91
468	D5191	8.5572		0.20	
485	D5191	8.54		0.05	
541	D6378	8.5		-0.30	
562	D5191	8.66		1.10	
606	D5191	8.398		-1.18	
657	D5191	8.44		-0.82	
854	D5191	8.491		-0.38	
861	D5191	8.461		-0.64	
862	D5191	8.565		0.27	
904	D5191	8.58		0.40	
963		-----		-----	
974	D5191	8.504		-0.26	
1006	D5191	8.45		-0.73	
1017	D5191	8.549		0.13	
1033		-----		-----	
1059	EN13016-1	8.53		-0.04	
1081	D5191	8.44		-0.82	
1109	D5191	8.507		-0.24	
1134	D5191	9.12	R(0.01)	5.10	
1161	EN13016-1	8.46		-0.65	
1200		-----		-----	
1299	D5191	8.60		0.57	
1376		-----		-----	
1389	EN13016-1	8.61		0.66	
1395	D5191	8.44		-0.82	
1397	D5191	8.44		-0.82	
1409	EN13016-1	8.54		0.05	
1490	EN13016-1	8.383		-1.32	
1491		8.891	R(0.01)	3.11	
1510		8.57		0.31	
1581	D5191	8.47		-0.56	
1613	D5191	8.46		-0.65	
1616	D5191	8.49		-0.38	
1631	EN13016-1	8.56		0.22	
1634	D5191	8.441		-0.81	
1654	EN13016-1	8.484		-0.44	
1656	EN13016-1	8.89	R(0.01)	3.10	

1657	D5191	8.53	-0.04
1677	D5191	8.52	-0.12
1720		-----	-----
1724	EN13016-1	8.53	-0.04
1730	EN13016-1	8.688	1.34
1741	EN13016-1	8.543	0.08
1776	EN13016-1	8.763	1.99
1782	D5191	8.50	-0.30
1807	EN13016-1	8.60	0.57
1810	D5191	8.69	1.36
1811	D5191	8.53	-0.04
1813	D5191	8.48	-0.47
1833	EN13016-1	8.70	1.44
1849	EN13016-1	8.57	0.31
1936	EN13016-1	8.50	-0.30
1937	EN13016-1	8.615	0.70
1938	D5191	8.57	0.31
1982	D5191	8.35	-1.60
2129	D5191	8.612	0.68
2130	D5191	8.52	-0.12

normality	OK
n	79
outliers	3
mean (n)	8.534
st.dev. (n)	0.0827
R(calc.)	0.231
R(D5191:13)	0.322

Kernel Density
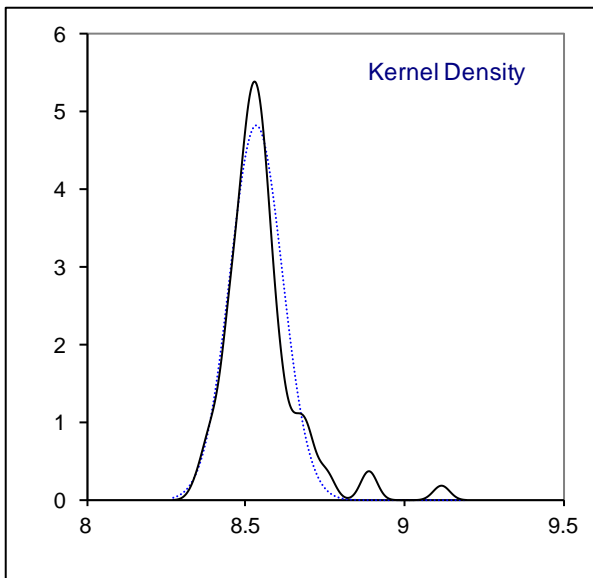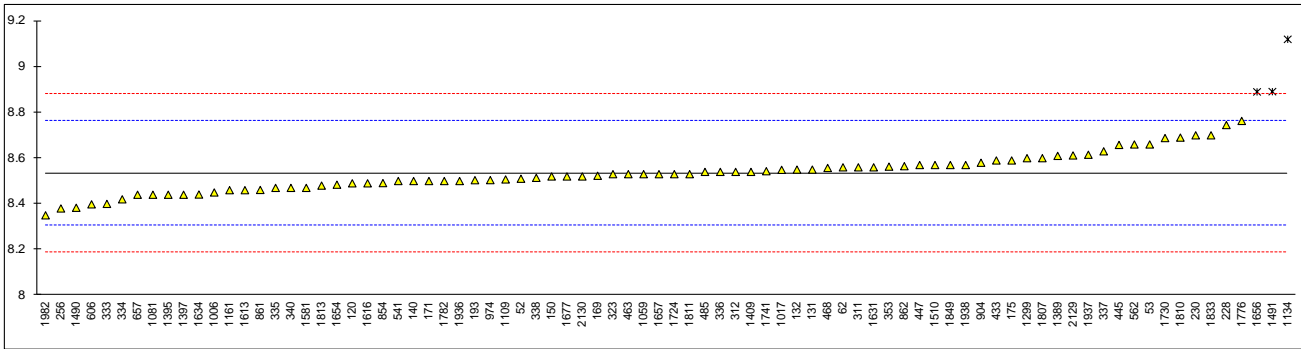
Determination of DVPE (acc. to EPA) on sample #15011; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.63		-0.13	
53		-----		-----	
62	D5191	8.677		0.28	
120	D5191	8.62		-0.22	
131	D5191	8.67		0.22	
132	D5191	8.67		0.22	
140	D5191	8.62		-0.22	
150	D5191	8.63		-0.13	
158	D5191	8.68		0.30	
159	D5191	8.64		-0.04	
169	D5191	8.639		-0.05	
171	D5191	8.63		-0.13	
175	D5191	8.71		0.56	
177		-----		-----	
193	D5191	8.63		-0.13	
194	D5191	8.77		1.08	
225		-----		-----	
228	D5191	8.859		1.86	
230	D5191	8.82		1.52	
237		-----		-----	
238		-----		-----	
256		-----		-----	
258		-----		-----	
311	D5191	8.68		0.30	
312	D5191	8.66		0.13	
323	D5191	8.65		0.04	
333	D5191	8.5		-1.26	
334	D5191	8.50		-1.26	
335		-----		-----	
336	D5191	8.64		-0.04	
337	D5191	8.75		0.91	
338	D5191	8.630		-0.13	
340		-----		-----	
353		-----		-----	
431		-----		-----	
433		-----		-----	
445	D5191	8.777		1.15	
447		-----		-----	
463	D5191	8.65	C	0.04	First reported 55.579
468	D5191	8.6543		0.08	
485		-----		-----	
541		-----		-----	
562	D5191	8.78		1.17	
606		-----		-----	
657	D5191	8.56		-0.74	
854	D5191	8.608		-0.32	
861	D5191	8.580		-0.56	
862	D5191	8.682		0.32	
904		-----		-----	
963		-----		-----	
974	D5191	8.620		-0.22	
1006		-----		-----	
1017	D5191	8.665		0.17	
1033		-----		-----	
1059		-----		-----	
1081		-----		-----	
1109	D5191	8.623		-0.19	
1134	D5191	9.23	R(0.01)	5.07	
1161		-----		-----	
1200		-----		-----	
1299		-----		-----	
1376		-----		-----	
1389		-----		-----	
1395		-----		-----	
1397		-----		-----	
1409	EN13016-1	8.7		0.13	
1490		-----		-----	
1491		-----		-----	
1510		-----		-----	
1581	D5191	8.60		-0.39	
1613	D5191	8.57		-0.65	
1616	D5191	8.60		-0.39	
1631		-----		-----	
1634	D5191	8.559		-0.74	
1654		-----		-----	
1656		-----		-----	

1657	D5191	8.65	0.04
1677	D5191	8.63	-0.13
1720		-----	-----
1724	EN13016-1	8.66	0.13
1730		-----	-----
1741		-----	-----
1776	EN13016-1	8.416	-1.98
1782	D5191	8.46	-1.60
1807	EN13016-1	8.72	0.65
1810		-----	-----
1811		-----	-----
1813		-----	-----
1833		-----	-----
1849	EN13016-1	8.77	1.08
1936	EN13016-1	8.62	-0.22
1937		-----	-----
1938		-----	-----
1982	D5191	8.50	-1.26
2129	D5191	8.730	0.74
2130	D5191	8.64	-0.04

normality	suspect
n	51
outliers	1
mean (n)	8.645
st.dev. (n)	0.0852
R(calc.)	0.239
R(D5191:13)	0.323

Kernel Density
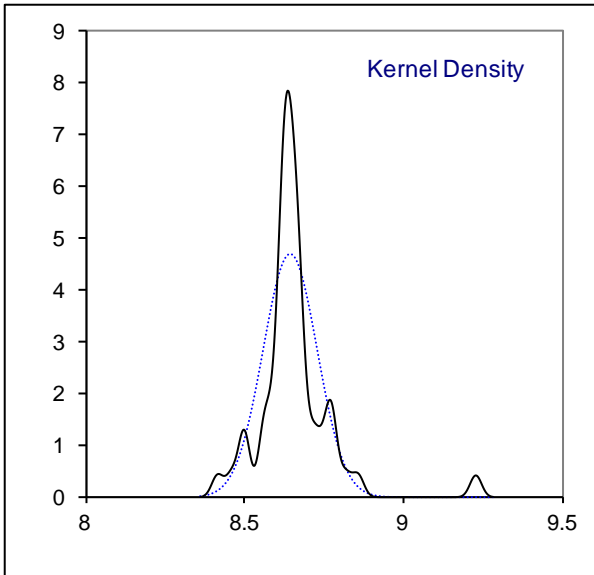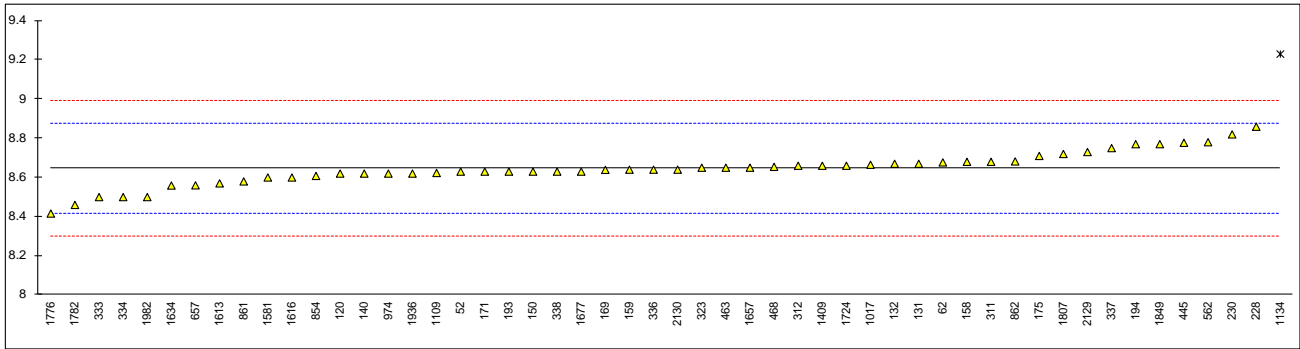
Determination of RON on sample #15012;

lab	method	value	mark	z(targ)	remarks
52	D2699	95.6		0.23	
62	D2699	95.46		-0.33	
120	D2699	95.7		0.63	
132	D2699	96.3	R(0.05)	3.03	
140	D2699	95.5		-0.17	
159	D2699	96.69	R(0.01)	4.59	
171	D2699	95.4		-0.57	
175	D2699	95.6		0.23	
193	D2699	95.4		-0.57	
228		-----		-----	
237		-----		-----	
273		-----		-----	
312	D2699	95.5		-0.17	
323	D2699	95.6		0.23	
334	D2699	95.0		-2.17	
340	D2699	95.8		1.03	
444	D2699	95.84		1.19	
445	D2699	95.63		0.35	
447	D2699	95.6		0.23	
463	D2699	95.59		0.19	
541		-----		-----	
562	D2699	95.54		-0.01	
657	D2699	95.6		0.23	
753	D2699	95.72		0.71	
861	D2699	95.68		0.55	
862	D2699	95.3		-0.97	
974	D2699	95.5		-0.17	
995	D2699	95.9		1.43	
1006	D2699	95.5		-0.17	
1059	ISO5164	95.6		0.23	
1066	D2699	95.6		0.23	
1081	ISO5164	95.6		0.23	
1109	D2699	95.6		0.23	
1134		-----		-----	
1161	ISO5164	95.6		0.23	
1299	D2699	95.6		0.23	
1347	D2699	95.38		-0.65	
1348	D2699	95.3		-0.97	
1376	D2699	95.58		0.15	
1385	D2699	95.15		-1.57	
1389		-----		-----	
1490	INH-601	96.6	R(0.01)	4.23	
1498	D2699	95.76		0.87	
1612		-----		-----	
1613	D2699	95.27		-1.09	
1616	D2699	95.8		1.03	
1677	D2699	95.6		0.23	
1720		-----		-----	
1741	D2699	95.63		0.35	
1776	D2699	95.4		-0.57	
1782	in house	95.9		1.43	
1813	D2699	95.11		-1.73	
1849	D2699	95.2		-1.37	
2130	ISO5164	95.7		0.63	

	normality	OK
	n	43
	outliers	3
	mean (n)	95.543
	st.dev. (n)	0.2029
	R(calc.)	0.568
	R(D2699:13b)	0.700
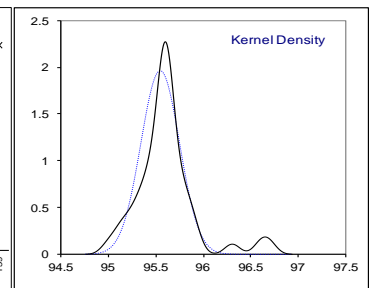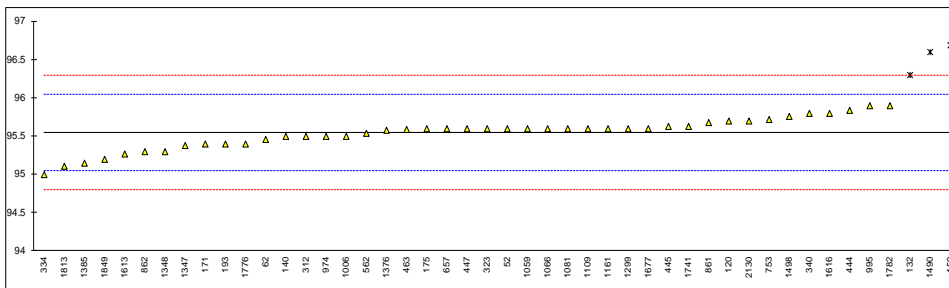
Determination of MON on sample #15012;

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	D2700	85.44		-0.03	
120	D2700	85.5		0.15	
132	D2700	85.6		0.47	
140	D2700	84.9		-1.71	
159	D2700	85.82		1.15	
171	D2700	85.2		-0.78	
175	D2700	85.6		0.47	
193	D2700	84.9		-1.71	
228		-----		-----	
237		-----		-----	
273		-----		-----	
312	D2700	85.6		0.47	
323	D2700	85.1		-1.09	
334	D2700	85.2	C	-0.78	First reported 84.2
340	D2700	85.3		-0.47	
444	D2700	85.27		-0.56	
445	D2700	84.29	R(0.05)	-3.61	
447	D2700	85.8		1.09	
463	D2700	85.42		-0.09	
541		-----		-----	
562		-----		-----	
657	D2700	85.5		0.15	
753	D2700	85.70		0.78	
861		-----		-----	
862	D2700	85.2		-0.78	
974		-----		-----	
995	D2700	85.8		1.09	
1006		-----		-----	
1059	ISO5163	85.3		-0.47	
1066	D2700	85.0		-1.40	
1081	ISO5163	85.8		1.09	
1109	D2700	85.4		-0.16	
1134		-----		-----	
1161	ISO5163	85.6		0.47	
1299	D2700	85.2		-0.78	
1347		-----		-----	
1348		-----		-----	
1376		-----		-----	
1385		-----		-----	
1389		-----		-----	
1490	INH-601	85.9		1.40	
1498		-----		-----	
1612		-----		-----	
1613		-----		-----	
1616	D2700	85.6		0.47	
1677	D2700	85.3		-0.47	
1720		-----		-----	
1741	D2700	86.00		1.71	
1776	D2700	85.2		-0.78	
1782	in house	86.1		2.02	
1813	D2700	85.81		1.12	
1849		-----		-----	
2130	ISO5163	84.8		-2.02	

normality	OK	
n	33	
outliers	1	
mean (n)	85.450	
st.dev. (n)	0.3312	
R(calc.)	0.927	
R(D2700:14)	0.900	
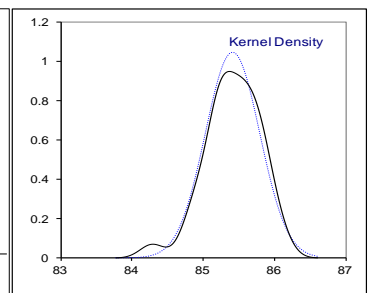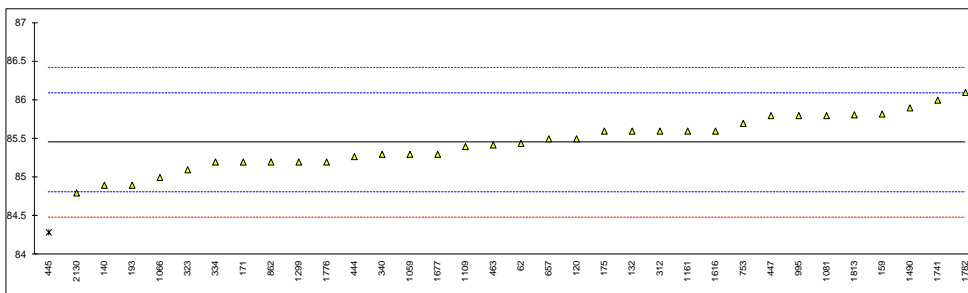
APPENDIX 2

z-scores distillation ASTM D86 (automated and manual mode)

lab	IBP	10%eva	50%eva	90%eva	FBP
52	-0.64	-0.39	0.27	-0.54	-0.38
62	-1.39	-0.92	-0.62	-0.47	-0.50
120	-0.31	0.05	0.42	-0.26	0.90
131	-0.69	0.05	3.84	1.43	-0.21
132	-0.69	-0.57	-1.37	0.16	0.33
140	-0.69	-0.13	-0.47	-0.05	0.57
150	0.22	0.05	-0.92	-0.12	-0.21
158	-0.04	0.20	-2.13	-0.18	-0.59
159	0.65	0.13	1.91	0.44	-0.62
169	-0.74	0.66	1.16	0.37	-0.17
171	-0.10	0.13	-1.22	-0.19	-1.00
175	-0.15	-0.04	0.87	0.30	0.28
193	-0.05	0.48	3.84	2.28	0.99
194	-0.21	-0.13	-1.67	-0.47	-0.21
216	-----	-----	-----	-----	-----
217	-2.08	-0.92	-1.67	-0.82	-1.33
221	0.70	-0.57	-2.71	-0.96	-1.78
224	-----	-----	-----	-----	-----
225	0.70	-0.13	-1.22	-0.96	1.11
228	1.24	-0.13	-1.81	0.87	0.70
230	0.43	-0.30	-1.52	1.08	1.77
237	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----
242	-----	-----	-----	-----	-----
252	0.70	0.31	-2.71	-0.96	-0.13
253	0.17	-0.57	-1.22	-1.67	0.28
254	1.24	0.13	-1.96	-1.32	0.33
256	0.70	0.75	-1.96	-2.02	-0.13
258	1.83	1.01	1.16	0.51	0.04
273	-----	-----	-----	-----	-----
311	-1.44	-0.22	-0.47	-0.26	-0.13
312	0.11	-0.30	-0.18	-0.19	-1.49
323	-0.80	-0.39	-1.52	-0.26	-1.24
333	-1.44	-0.65	0.27	0.16	0.08
334	-1.49	-1.35	-1.96	-0.40	0.04
335	-0.48	-0.48	0.27	-1.25	-0.38
336	-0.74	-0.74	-0.77	-1.04	-1.53
337	-0.96	-0.48	0.12	-2.16	-0.50
338	-1.39	-0.22	-0.03	0.09	0.37
340	-1.17	0.13	-0.03	-0.12	-1.49
353	0.60	0.22	1.31	0.16	0.53
431	1.29	-0.57	3.25	1.85	-0.09
444	0.22	-0.39	-1.07	-0.68	-0.91
445	-0.05	-0.13	-1.52	-0.26	-0.42
447	0.38	0.83	-2.11	**-7.52**	-1.66
463	0.06	-0.48	0.42	0.02	1.11
468	0.70	0.31	3.10	1.99	0.20
485	1.45	-0.30	1.09	0.06	0.88
511	1.24	1.18	0.27	-0.96	0.45
541	-0.96	0.13	1.61	0.87	1.03
562	1.40	0.40	2.36	0.73	-0.17
657	0.11	0.22	-0.33	0.09	-0.01
671	-----	-----	-----	-----	-----
854	-0.15	0.48	0.12	-0.05	-0.25
861	-1.23	0.22	1.02	0.59	0.61
862	-0.96	-0.48	-0.92	-0.19	-2.28
904	-0.31	-0.30	0.27	0.51	1.40
912	1.24	-0.57	0.27	0.44	0.28
922	1.77	1.18	1.76	-0.26	-0.13
963	0.65	1.62	2.65	2.35	1.40
974	0.65	-0.13	-0.47	0.02	1.32
994	0.97	-0.13	0.27	0.44	-0.13
995	0.43	-0.13	0.27	0.80	-0.13
996	0.97	0.31	0.27	0.80	-0.54
998	-----	-----	-----	-----	-----
1006	0.54	-0.04	1.61	0.30	-0.42
1016	-----	-----	-----	-----	-----
1017	0.01	-0.04	0.12	-0.19	0.61
1033	-----	-----	-----	-----	-----
1059	-0.42	0.05	1.02	0.09	0.78
1066	-1.06	0.05	0.12	0.02	0.74
1080	-----	-----	-----	-----	-----

1081	1.29	0.22	-0.77	0.30	-0.05
1109	1.08	-0.48	-0.18	-0.19	-0.62
1126	0.33	-0.13	1.16	0.94	1.44
1134	-0.64	0.48	-0.62	-0.19	0.37
1161	0.27	-0.22	-1.81	0.51	0.16
1186	**3.58**	**3.28**	**5.41**	0.81	1.33
1200	-----	-----	-----	-----	-----
1205	0.49	0.75	1.91	0.37	0.41
1213	0.06	-0.74	-2.56	-0.33	-0.46
1237	2.74	0.31	-0.47	-0.75	0.99
1297	-0.69	-0.48	-1.22	-0.40	-0.91
1299	-0.80	-----	-----	-----	-0.34
1347	1.77	**2.93**	-1.22	-0.96	-0.54
1348	0.70	0.13	1.76	0.16	0.70
1376	-----	-----	-----	-----	-----
1385	0.70	**-3.19**	0.27	-1.67	-2.19
1389	-0.90	-1.27	0.12	-0.12	-0.62
1395	-0.10	0.13	-0.18	-0.12	1.48
1397	0.01	-0.65	-0.47	-0.47	-0.38
1409	-1.12	0.31	0.27	0.02	-0.54
1441	1.02	2.23	0.72	0.51	0.49
1490	-0.05	1.53	4.44	2.49	0.61
1491	0.43	0.22	0.72	0.23	0.41
1498	0.06	0.22	0.57	0.51	1.48
1528	0.76	-0.74	-0.03	0.16	-1.00
1531	1.13	0.66	2.36	0.37	2.22
1613	-0.96	0.83	0.27	-0.26	1.32
1616	0.81	0.05	-0.47	-0.75	-0.42
1631	-----	0.22	0.87	0.37	0.04
1634	-0.69	-0.30	-0.33	-0.26	-0.09
1654	-0.42	0.22	0.57	0.23	-0.21
1656	0.60	0.22	-0.03	-0.19	-0.29
1657	-0.05	0.31	0.57	0.16	-1.04
1677	-1.23	0.40	0.57	0.66	0.20
1720	-----	-----	-----	-----	-----
1724	-1.28	-0.57	-1.96	-0.40	0.41
1730	-----	-----	-----	-----	-----
1741	-1.60	**2.06**	-0.03	2.63	0.57
1746	0.97	0.75	-0.47	0.44	-1.57
1776	-1.23	-0.13	-1.22	-0.33	0.33
1782	0.97	**2.32**	0.27	-1.46	-1.45
1807	-0.64	-0.48	-0.77	-0.05	0.57
1810	-0.90	0.22	-0.33	-0.26	0.57
1811	-0.74	0.22	0.72	-0.12	-1.37
1813	-0.03	-0.73	-1.98	-0.52	0.38
1833	-2.19	-0.04	0.87	0.09	-0.29
1849	-0.31	0.22	-1.67	-0.75	-0.96
1936	-0.64	-0.57	-1.22	-0.26	-0.25
1937	-0.10	0.31	-0.47	-0.33	-0.79
1938	0.11	0.05	-1.22	0.09	-----
1948	-0.64	0.66	2.95	0.66	0.41
1977	2.31	0.40	-0.33	-0.47	-1.00
1982	0.17	-0.57	-0.77	-0.26	0.90
2129	-1.49	0.31	-0.47	-0.89	-0.50
2130	0.06	-0.30	0.57	-0.54	2.14

Z-scores underlined and bold belong to the statistical outliers acc. to Grubbs/Dixon/Rosner outlier test.

APPENDIX 3

Number of participants per country

    1 lab in   AFGHANISTAN
    1 lab in   ALGERIA
    1 lab in   ARGENTINA
    2 labs in   AUSTRALIA
    2 labs in   AUSTRIA
    1 lab in   AZERBAIJAN
    4 labs in   BELGIUM
    2 labs in   CANADA
    2 labs in   CHILE
    4 labs in   CHINA, People's Republic
    1 lab in   CONGO Brazzaville
    1 lab in   COTE D'IVOIRE
    1 lab in   CROATIA
    1 lab in   CYPRUS
    2 labs in   CZECH REPUBLIC
    1 lab in   DJIBOUTI
    1 lab in   ESTONIA
    7 labs in   FRANCE
    1 lab in   GEORGIA
    1 lab in   GERMANY
    4 labs in   GREECE
    1 lab in   GUAM
    1 lab in   GUINEA REPUBLIC
    1 lab in   HUNGARY
    1 lab in   INDIA
    1 lab in   IRELAND
    1 lab in   ISRAEL
    1 lab in   JORDAN
    2 labs in   KENYA
    3 labs in   LEBANON
    2 lab in   MALAYSIA
    1 lab in   MAURITIUS
    1 lab in   MOZAMBIQUE
    6 labs in   NETHERLANDS
    1 lab in   NIGER
    2 labs in   NIGERIA
    1 lab in   PAKISTAN
    1 lab in   PERU
    1 lab in   POLAND
    2 labs in   PORTUGAL
    1 lab in   QATAR
    1 lab in   ROMANIA
    1 lab in   RUSSIAN FEDERATION
    2 labs in   SAUDI ARABIA
    1 lab in   SENEGAL
    3 labs in   SERBIA
    1 lab in   SINGAPORE
    2 labs in   SLOVENIA
    1 lab in   SOUTH AFRICA
    4 labs in   SPAIN
    1 lab in   SUDAN
    3 labs in   SWEDEN
    1 lab in   TAIWAN
    1 lab in   TANZANIA
    1 lab in   TOGO
    2 labs in   TUNISIA
   11 labs in   TURKEY
    1 lab in   TURKMENISTAN
    1 lab in   UNITED ARAB EMIRATES
   10 labs in   UNITED KINGDOM
   12 labs in   UNITED STATES OF AMERICA
    1 lab in   URUGUAY
    1 lab in   VIETNAM

APPENDIX 4

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
R(0.01)	= outlier in Rosner outlier test
R(0.05)	= straggler in Rosner outlier test
E	= error in calculations
W	= result withdrawn on request of participant
ex	= excluded from calculations
n.a.	= not applicable
n.d.	= not detected
fr.	= first reported
SDS	= Safety Data Sheet

Literature:

1	iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, April 2014
2	ASTM E178-02
3	ASTM E1301-03
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5	ISO 5725, parts 1-6, 1994
6	M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
7	W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
8	IP 367/96
9	DIN 38402 T41/42
10	P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
11	J.N. Miller, Analyst, 118, 455, (1993)
12	Analytical Methods Committee Technical brief, No4 January 2001.
13	The Royal Society of Chemistry 2002, Analyst 2002, 127 page 1359-1364, P.J. Lowthian and M. Thompson (see http://www.rsc.org/suppdata/an/b2/b205600n/).
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15	Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, *Technometrics*, 25(2), pp. 165-172, (1983)