

**Results of Proficiency Test
Gasoline (ASTM specification)
March 2016**

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Author: ing. R.J. Starink
Correctors: dr. R.G. Visser & ing. A.S. Noordman-de Neef
Report: iis16B01ASTM

May 2015

-- Empty page --

CONTENTS

1 INTRODUCTION 4

2 SET UP 4

2.1 ACCREDITATION 4

2.2 PROTOCOL 4

2.3 CONFIDENTIALITY STATEMENT 4

2.4 SAMPLES 5

2.5 STABILITY OF THE SAMPLES 6

2.6 ANALYSES 6

3 RESULTS 6

3.1 STATISTICS 7

3.2 GRAPHICS 7

3.3 Z-SCORES 8

4 EVALUATION 8

4.1 EVALUATION PER TEST 9

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES 12

4.3 COMPARISON OF THE RESULTS OF MARCH 2016 WITH PREVIOUS PTS 13

Appendices:

1. Data, statistical results and graphic results 14

2. z-Scores distillation ASTM D86 58

3. Number of participants per country 60

4. Abbreviations and literature 61

1 INTRODUCTION

Since 1995, the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for Gasoline. During the annual proficiency testing program 2015/2016, 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, in total, 115 laboratories in 59 different countries have registered for participation. See appendix 3 for the number of participants per country. In this report, the results of the 2016 proficiency test are presented and discussed. This report is also electronically available through the iis web site www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test. Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. In this proficiency test, the participants received, depending on their registration, 1*1 litre bottle Gasoline euro 95 (labelled #16015) and/or 1*1 litre bottle (\pm 75% filled) Gasoline euro 95 (labelled #16016) for DVPE only, and/or 1*1 litre bottle Gasoline euro 95 (labelled #16017) for RON/MON only.

To get maximum information from this study it was decided to spike the bulk material with approx. 1.2 mg Phosphorus per liter.

Participants were requested to report rounded and unrounded test results. The unrounded test 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% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol is electronically available through the iis web site www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

The necessary sample material, Gasoline Euro 95 was obtained from a local petrol station in the Netherlands in September 2015. The approximately 380 litres of Gasoline was spiked with 6.07 gram Tricresylphosphate (TCP). After mixing and homogenisation in a 500 liter mixing vessel, 165 amber glass bottles of 1 litre were filled and labelled #16015 for the main round and 77 amber glass bottles of 1 litre were filled and labelled #16017 for the determination of RON/MON. The homogeneity of the subsamples #16015 and #16017 were checked by determination of Density at 15°C in accordance with ASTM D4052 on 10 stratified randomly selected samples.

	Density at 15°C in kg/m ³
Sample #16015/17-1	742.11
Sample #16015/17-2	742.13
Sample #16015/17-3	742.17
Sample #16015/17-4	742.15
Sample #16015/17-5	742.17
Sample #16015/17-6	742.13
Sample #16015/17-7	742.12
Sample #16015/17-8	742.13
Sample #16015/17-9	742.14
Sample #16015/17-10	742.15

Table 1: homogeneity test results of subsamples #16015 and #16017

From the remaining material, 134 bottles of 1 litre were filled with approx. 750 mL and labelled #16016 "for DVPE only". The homogeneity of the subsamples #16016 was checked by determination of Dry Vapour Pressure Equivalent in accordance with ASTM D5191 on 8 stratified randomly selected samples.

	DVPE in psi
Sample #16016-1	8.64
Sample #16016-2	8.69
Sample #16016-3	8.69
Sample #16016-4	8.69
Sample #16016-5	8.69
Sample #16016-6	8.69
Sample #16016-7	8.69
Sample #16016-8	8.67

Table 2: homogeneity test results of subsamples #16016

From the above test results (table 1 and 2), 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 at 15 °C in kg/m ³	DVPE in psi
r (sample #16015)	0.06	----
r (sample #16016)	----	0.04
reference test method	D4052:15	ASTM D5191:15
0.3 x R (ref. test method)	0.65	0.10

Table 3: repeatabilities of subsamples #16015 (and #16017) and #16016

The calculated repeatabilities of the results of homogeneity tests for Density and DVPE were less than 0.3 times the reproducibilities of the reference test methods. Therefore, the homogeneities of subsamples #16015 (and #16017) and #16016 were assumed.

To the participants, depending on their registration, 1*1 litre bottle of sample #16015 and/or 1*1 litre bottle (\pm 750 mL filled) of sample #16016 and/or 1*1 litre bottle of sample #16017 were sent on February 3, 2016.

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 ANALYZES

The participants were requested to determine API Gravity, Aromatics by FIA, Benzene, Copper Strip Corrosion, Silver corrosion, Density at 15°C, Distillation (automated or manual), Doctor Test, Existent gum (washed), Lead, Olefins by FIA, Oxidation Stability, Oxygenates (Ethanol, MTBE, Other Oxygenates, Total Oxygenates), Total Oxygen, Phosphorus, Sulphur, on sample #16015.

On sample #16016, the participants were requested to determine Total Vapour Pressure and Dry Vapour Pressure (acc. ASTM D5191 and EPA)

On sample #16017, the participants were requested to determine RON and/or MON.

To get comparable test results a detailed report form, on which the units were prescribed as well as the reference test methods and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/. A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers. Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the raw data of reported test results (no reanalyzes).

Additional or corrected test results are used for data analysis and original test results are placed under "Remarks" the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

Statistical calculations were performed as described in the report 'iis 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) test results were used instead of the rounded test results. Test results reported as '<... ' or '>... ' were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the test results should be used with due care.

In accordance with ISO 5725 the original test results per determination were submitted subsequently to Dixon's, Grubbs' and/or Rosner's 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 and by R(0.01) for the Rosner's 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 test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. 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 test results are plotted. The corresponding laboratory numbers are on the X-axis. The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as an "x". Accepted data are represented as a triangle. Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility based on former iis proficiency tests could be used.

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

The z-scores were calculated in accordance with:

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

The $z_{(\text{target})}$ scores are listed in the test result tables in appendix 1.

Absolute values for $z < 2$ are very common and absolute values for $z > 3$ are very rare.

The usual interpretation of z-scores is as follows:

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

4 EVALUATION

In this interlaboratory study, problems were encountered with the dispatch of the samples. Participants in Afghanistan, Brazil, India, Kazakhstan, Tanzania and Turkmenistan received the samples late or not at all. For the main round (112 participants), 5 participants did not report any results and 3 participants did report the results after the deadline. For the "DVPE only" round (87 participants), 8 participants did not report any results and 6 participants did report the results after the deadline. For the "RON/MON" round (58 participants), 4 participants did not report any results and 2 participants did report the results after the deadline. Finally, 110 laboratories reported 1435 numerical test results. Observed were 25 outlying results, which is 1.7%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

In this section, the reported test results are discussed per test. The methods, which were 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 test data. The abbreviations, used in these tables, are listed in appendix 4.

Not all original data sets proved to have a normal Gaussian distribution. These are referred to as “not OK” or “suspect”. The statistical evaluation of these data sets should be used with due care, see also paragraph 3.1.

API Gravity: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D4052:15.

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 D1319:15. Four laboratories reported to have used a GC method. When the FIA test results (ASTM D1319 / EN15553) were evaluated separately, the average and the calculated reproducibility did not change and is again not in agreement with the requirements of ASTM D1319:15.

Benzene: 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 D3606:10.

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

Silver corrosion: No problems have been observed. All participants, except one, agreed on classification 0.

Density at 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 D4052:15.

Distillation The distillation was not problematic. In total only two statistical outliers were observed. All calculated reproducibilities, except for Initial Boiling Point, after rejection of the statistical outliers, are in agreement with the requirements of ASTM D86:15 for the automated and manual modes.

Doctor Test: All the laboratories agreed on the absence of Mercaptans and reported Negative. One laboratory reported “sweet”

- Existent Gum: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D381:12.
- 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.
- Olefins by FIA: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D1319:15. Three 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 D1319:15.
- Oxidation stability: All laboratories agreed that the Oxidation Stability is >360 (or even >900) minutes.
- Ethanol: This determination was problematic for a number of participants. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4815:15b.
- MTBE: This determination was problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D4815:15b. The large spread may (partly) be explained by the variety of test methods used.
- Other Oxygenates: No other oxygenates were found positive. Therefore, no significant conclusions were drawn. Only lab 1385 reported a false positive test result for “other oxygenates”.
- Oxygen content: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D4815:15b and D5599:00(2010).
- Phosphorus: This determination was very problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the requirements of ASTM D3231:13. The average recovery of Phosphorus (theoretical increment of 1.21 mg Phosphorus/L) may be satisfactory, less than 81% (the actual blank of Phosphorus content is unknown).

- Sulphur: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D5453:12.
- TVP: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5191:15.
- DVPE: The conversions of the measured Total Vapour Pressure to the corresponding Dry Vapour Pressure Equivalent (DVPE) as described in ASTM D5191:15 and to the U.S. EPA guidelines (40 CFR Part 80, App. E, Method 3), show in total one statistical outlier. Both calculated reproducibilities after rejection of the statistical outlier are in agreement with the respective requirements of ASTM D5191:15 and EPA guidelines. No calculations errors were found.
- RON: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D2699:15a.
- MON: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D2700:16.

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 #16015, #16016 and #16017, 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	-----	62	59.04	0.26	0.56	
Aromatics by FIA	%V/V	47	30.2	4.3	3.7	
Benzene	% V/V	52	0.94	0.09	0.17	
Copper Strip 3 hrs at 50°C	-----	88	1	n.a.	n.a.	
Silver Corrosion 3 hrs at 50°C	-----	23	0	n.a.	n.a.	
Density at 15 °C	kg/m ³	100	742.3	0.7	2.2	
Distillation					Auto	Manual
- IBP	°C	99	36.9	5.9	4.7	5.2
- 10%-evaporated	°C	99	52.8	2.0	3.9	4.0
- 50%-evaporated	°C	100	93.7	2.7	3.9	3.9
- 90%-evaporated	°C	100	140.2	3.8	5.4	3.5
- FBP	°C	99	171.6	5.3	7.1	7.2
Doctor Test	-----	54	Negative	n.a.	n.a.	
Existent gum (washed)	mg/100mL	47	0.6	0.7	2.2	
Lead as Pb	mg/L	43	<2.5	n.a.	n.a.	
Olefins by FIA	%V/V	45	9.9	3.8	3.3	
Oxidation Stability	min.	47	>360	n.a.	n.a.	
-Ethanol	%V/V	47	4.63	0.48	0.55	
-MTBE	%V/V	47	1.28	0.23	0.14	
Oxygen content	%M/M	42	1.97	0.21	0.21	
Phosphorus as P	mg/L	10	0.98	0.75	0.13	
Sulphur	mg/kg	75	5.65	2.21	2.13	

Table 4: performance evaluation sample #16015

Parameter	Unit	n	mean	2.8 * sd	R (lit)
TVP	psi	67	9.47	0.29	0.33
DVPE acc. to ASTM D5191	psi	78	8.59	0.27	0.32
DVPE acc. EPA	psi	45	8.70	0.24	0.32

Table 5: performance evaluation sample #16016

Parameter	Unit	n	mean	2.8 * sd	R (lit)
RON	-----	52	96.30	0.81	0.70
MON	-----	35	85.73	1.05	0.90

Table 6: performance evaluation sample #16017

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 MARCH 2016 WITH PREVIOUS PTS

	<i>March 2016</i>	<i>February 2015</i>	<i>February 2014</i>	<i>February 2013</i>
Number of rep. Participants	107	123	129	120
Number of results reported	1435	1639	1930	2048
Statistical outliers	25	39	73	65
Percentage outliers	1.7%	2.4%	3.8%	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:

Parameter	<i>March 2016</i>	<i>February 2015</i>	<i>February 2014</i>	<i>February 2013</i>
API Gravity	++	++	++	++
Aromatics by FIA	-	-	-	--
Benzene	++	+	+	++
Density at 15°C	++	++	++	++
Distillation Automated	+	+	+	+
Distillation Manual	+	+	+	+/-
Existent gum (washed)	++	++	++	++
Lead as Pb	n.e.	n.e.	n.e.	n.e.
Olefins by FIA	-	-	+	-
Ethanol	+	+/-	+	+/-
MTBE	--	-	-	-
Oxygen content	+/-	+/-	+	+/-
Phosphorus as P	--	--	n.e.	n.e.
Sulphur	+/-	+/-	+/-	+/-
TVP	+	+	+	+
DVPE	+	+	+	+/-
RON	-	+	+/-	+
MON	-	+/-	+/-	+/-

Table 8: comparison determinations against the standard

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

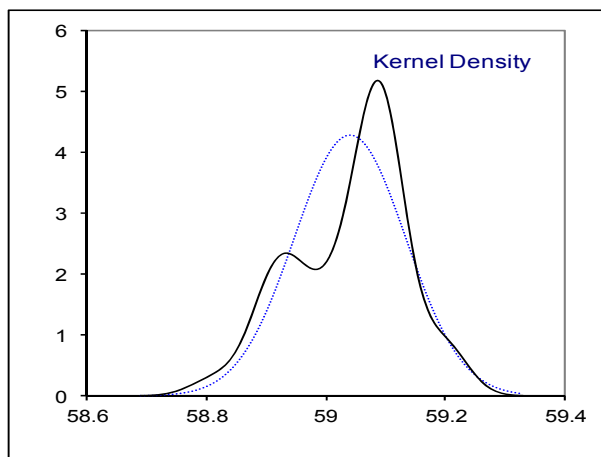
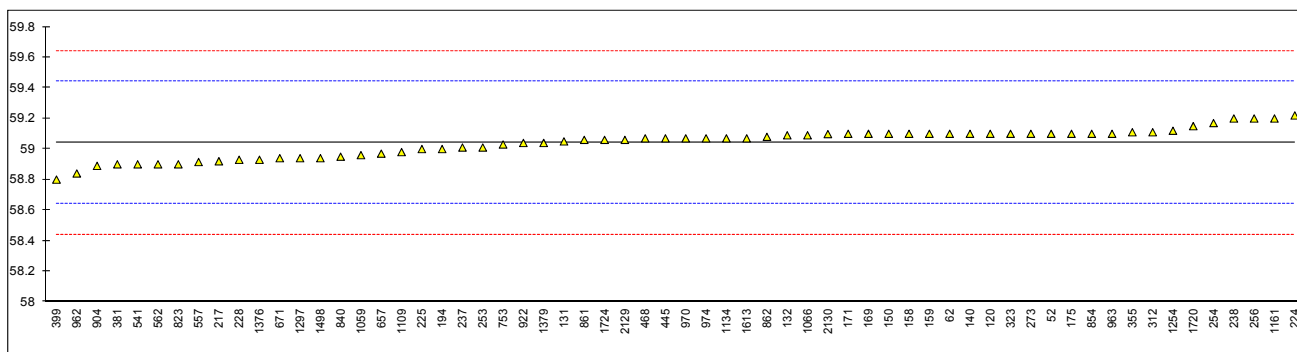
- ++: group performed much better than the standard
- + : group performed better than the standard
- +/-: group performance equals the standard
- : group performed worse than the standard
- : group performed much worse than the standard
- n.e.: not evaluated

APPENDIX 1

Determination of API Gravity on sample #16015;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	59.1		0.30	904	D4052	58.89		-0.75
62	D4052	59.1		0.30	912		----		----
120	D4052	59.1		0.30	922	D4052	59.04		0.00
131	D4052	59.05		0.05	962	D4052	58.84		-1.00
132	D4052	59.09		0.25	963	D4052	59.10		0.30
140	D4052	59.1		0.30	970	D4052	59.07		0.15
150	D4052	59.1		0.30	974	Calculation	59.07		0.15
158	D4052	59.1		0.30	995		----		----
159	D4052	59.1		0.30	996		----		----
169	D4052	59.1		0.30	998		----		----
171	D4052	59.1		0.30	1006		----		----
175	D4052	59.1		0.30	1016		----		----
194	D4052	59.0		-0.20	1017		----		----
217	D4052	58.92		-0.60	1026		----		----
224	D1298	59.22		0.89	1033		----		----
225		59.0		-0.20	1059		58.96		-0.40
228	D4052	58.93		-0.55	1066	D4052	59.09		0.25
230		----		----	1080		----		----
237	D4052	59.01		-0.15	1109	D287	58.98		-0.30
238	D1298	59.20		0.79	1126		----		----
252		----		----	1134	D4052	59.07		0.15
253	D4052	59.01		-0.15	1161	D4052	59.2		0.79
254	D4052	59.17		0.64	1186		----		----
256	D4052	59.2		0.79	1254	D4052	59.12		0.40
258		----		----	1297	D4052	58.94		-0.50
273	D4052	59.1		0.30	1347		----		----
312	D4052	59.11		0.35	1348		----		----
323	D4052	59.10		0.30	1376	D4052	58.93		-0.55
333		----		----	1379	D4052	59.04		0.00
334		----		----	1385		----		----
335		----		----	1397		----		----
336		----		----	1498	D1298	58.94		-0.50
338		----		----	1531		----		----
340		----		----	1613	D4052	59.07		0.15
350		----		----	1631		----		----
353		----		----	1634		----		----
355	D4052	59.11		0.35	1653		----		----
381	D4052	58.9		-0.70	1720	D4052	59.15		0.54
399	D4052	58.8		-1.20	1724	D4052	59.06		0.10
444		----		----	1730		----		----
445	D4052	59.07		0.15	1746		----		----
447		----		----	1776		----		----
468	D4052	59.07		0.15	1783		----		----
485		----		----	1807		----		----
541	D4052	58.9		-0.70	1810		----		----
557	D1295	58.915		-0.63	1811		----		----
558		----		----	1813		----		----
562	D1298	58.9		-0.70	1849		----		----
657	D4052	58.97		-0.35	1936		----		----
671	D1298	58.94		-0.50	1937		----		----
753	D4052	59.03		-0.05	1938		----		----
823	D4052	58.9		-0.70	2129	Conversion	59.06		0.10
840	D4052	58.95		-0.45	2130	D4052	59.098		0.29
854	D4052	59.1		0.30	6018		----		----
861	D4052	59.06		0.10	6033		----		----
862	D4052	59.08		0.20	7003		----		----

normality OK
n 62
outliers 0
mean (n) 59.041
st.dev. (n) 0.0934
R(calc.) 0.262
R(D4052:15) 0.562



Determination of Aromatics by FIA on sample #16015; results in %V/V

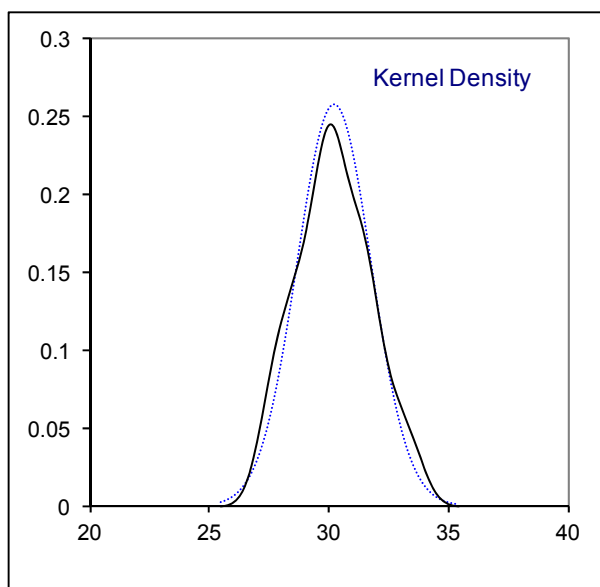
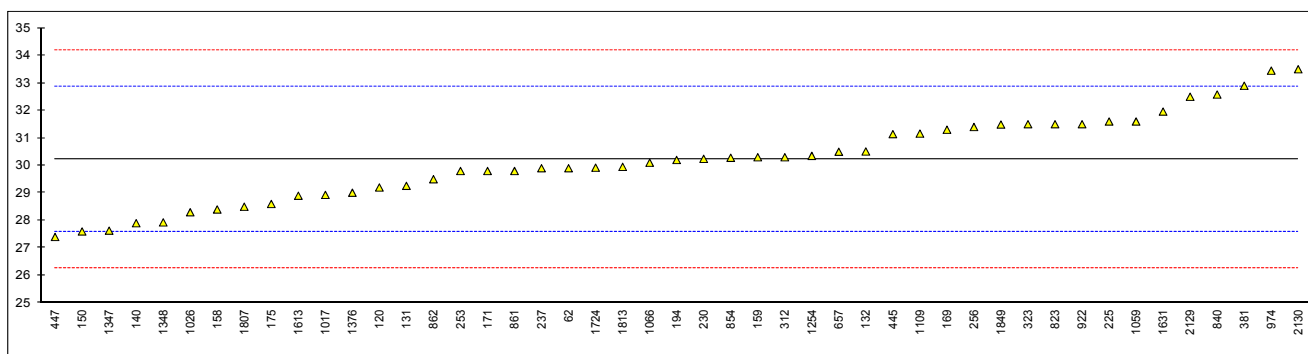
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	904		----		----
62	D1319	29.9		-0.24	912		----		----
120	D1319	29.2		-0.77	922	D1319	31.5	C	0.97
131	D1319	29.26		-0.72	962		----		----
132	D1319	30.51		0.23	963		----		----
140	D1319	27.9		-1.75	970		----		----
150	D1319	27.6		-1.98	974	D1319	33.45		2.45
158	D1319	28.4		-1.37	995		----		----
159	D1319	30.3		0.07	996		----		----
169	D1319	31.3		0.82	998		----		----
171	D1319	29.8		-0.31	1006		----		----
175	D1319	28.6		-1.22	1016		----		----
194	D1319	30.2		-0.01	1017	ISO22854	28.93		-0.97
217		----		----	1026	D1319	28.3		-1.45
224		----		----	1033		----		----
225	D1319	31.6		1.05	1059	D1319	31.6		1.05
228		----		----	1066	D1319	30.1		-0.09
230	D1319	30.242		0.02	1080		----		----
237	D1319	29.90		-0.24	1109	D1319	31.16		0.72
238		----		----	1126		----		----
252		----		----	1134		----		----
253	D1319	29.80		-0.31	1161		----		----
254		----		----	1186		----		----
256	D5986	31.4		0.90	1254	D1319	30.35		0.10
258		----		----	1297		----		----
273		----		----	1347	D1319	27.63		-1.95
312	D1319	30.3		0.07	1348	D1319	27.93		-1.73
323	D1319	31.5	C	0.97	1376	D1319	29.01		-0.91
333		----		----	1379		----		----
334		----		----	1385		----		----
335		----		----	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340		----		----	1613	D6839	28.90		-0.99
350		----		----	1631	EN15553	31.96		1.32
353		----		----	1634		----		----
355		----		----	1653		----		----
381	D1319	32.9		2.03	1720		----		----
399		----		----	1724	D1319	29.92		-0.22
444		----		----	1730		----		----
445	D1319	31.14		0.70	1746		----		----
447	D1319	27.4		-2.13	1776		----		----
468		----		----	1783		----		----
485		----		----	1807	ISO22854	28.5		-1.30
541		----		----	1810		----		----
557		----		----	1811		----		----
558		----		----	1813	D1319	29.95		-0.20
562		----		----	1849	EN15553	31.49		0.97
657	D1319	30.5		0.22	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D1319	31.5		0.97	2129	D1319	32.5		1.73
840	D1319	32.58		1.79	2130	D1319	33.5		2.49
854	D1319	30.28		0.05	6018		----		----
861	D1319	29.8		-0.31	6033		----		----
862	D1319	29.50		-0.54	7003		----		----

Only D1319/EN15553 data

normality	OK	OK
n	47	43
outliers	0	0
mean (n)	30.21	30.29
st.dev. (n)	1.546	1.559
R(calc.)	4.33	4.36
R(D1319:15)	3.70	3.70

Lab 323 : first reported 35.5

Lab 922: first reported 35.6

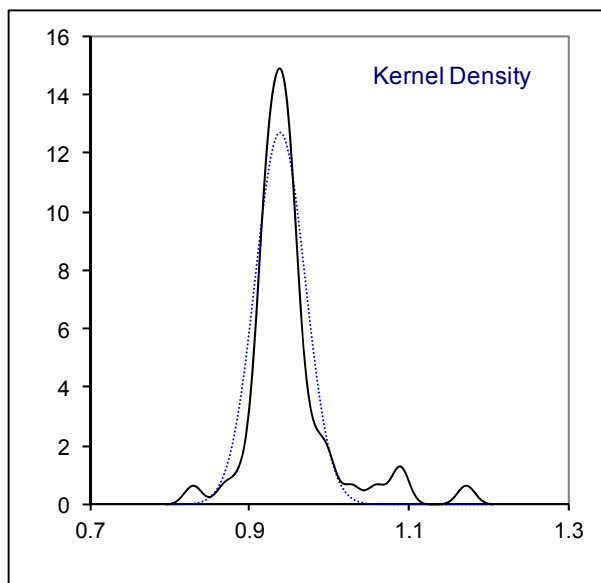
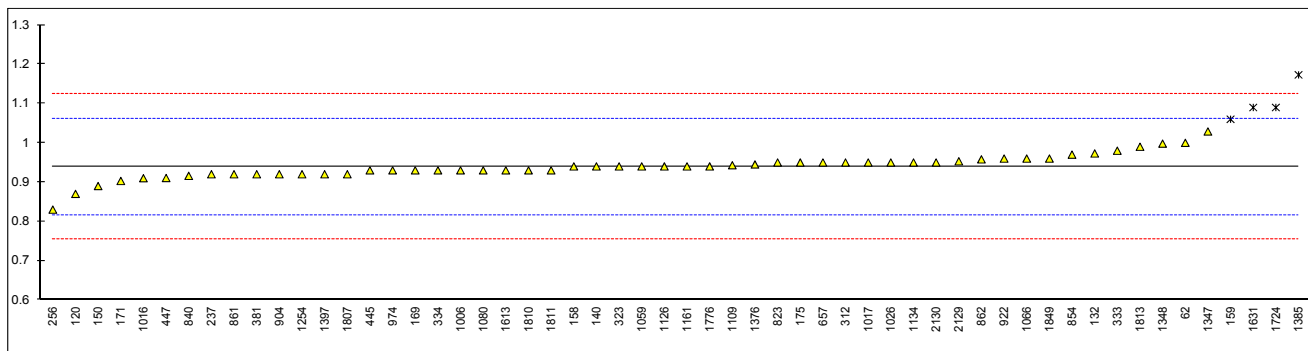


Determination of Benzene on sample #16015; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	904	D5580	0.92		-0.31
62	D5580	1.0		0.99	912		----		----
120	D3606	0.87		-1.13	922	D6277	0.96		0.34
131		----		----	962		----		----
132	D3606	0.973		0.55	963		----		----
140	D3606	0.94		0.01	970		----		----
150	D3606	0.89		-0.80	974	D5580	0.93		-0.15
158	D3606	0.94		0.01	995		----		----
159	D3606	1.06	R(0.01)	1.97	996		----		----
169	D3606	0.93		-0.15	998		----		----
171	D3606	0.903		-0.59	1006	D5580	0.93		-0.15
175	D3606	0.95		0.18	1016	ISO22854	0.91		-0.48
194		----		----	1017	EN22854	0.95		0.18
217		----		----	1026	EN12177	0.95		0.18
224		----		----	1033		----		----
225		----		----	1059	ISO22854	0.94		0.01
228		----		----	1066	EN22854	0.96		0.34
230		----		----	1080	INH-M3	0.93		-0.15
237	D5580	0.92		-0.31	1109	D3606	0.943		0.06
238		----		----	1126	D6839	0.94		0.01
252		----		----	1134	D3606	0.95		0.18
253		----		----	1161	ISO22854	0.94		0.01
254		----		----	1186		----		----
256	D5986	0.83		-1.78	1254	EN238	0.92		-0.31
258		----		----	1297		----		----
273		----		----	1347	D5580	1.029		1.46
312	D3606	0.95		0.18	1348	D5580	0.998		0.96
323	EN22854	0.94		0.01	1376	D6730	0.945		0.09
333	D3606	0.98		0.66	1379		----		----
334	D5580	0.93		-0.15	1385	D5580	1.173	R(0.01)	3.80
335		----		----	1397	EN238	0.92		-0.31
336		----		----	1498		----		----
338		----		----	1531		----		----
340		----		----	1613	D6839	0.93		-0.15
350		----		----	1631	EN12177	1.09	R(0.01)	2.45
353		----		----	1634		----		----
355		----		----	1653		----		----
381	EN238	0.92		-0.31	1720		----		----
399		----		----	1724	EN12177	1.09	R(0.01)	2.45
444		----		----	1730		----		----
445	ISO22854	0.93		-0.15	1746		----		----
447	EN238	0.9105		-0.47	1776	EN22854	0.94		0.01
468		----		----	1783		----		----
485		----		----	1807	EN22854	0.92		-0.31
541		----		----	1810	EN22854	0.93		-0.15
557		----		----	1811	D3606	0.93		-0.15
558		----		----	1813	D5443	0.99		0.83
562		----		----	1849	EN12177	0.96		0.34
657	D5580	0.95		0.18	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D5580	0.95		0.18	2129	EN238	0.953		0.22
840	D6730	0.916		-0.38	2130	D6730	0.95		0.18
854	D5580	0.97		0.50	6018		----		----
861	D5580	0.92		-0.31	6033		----		----
862	D5580	0.958		0.31	7003		----		----

normality not OK
n 52
outliers 4
mean (n) 0.9392
st.dev. (n) 0.03143
R(calc.) 0.0880
R(D3606:10) 0.1721

Compare R(D5580) = 0.1180



Determination of Copper corrosion 3hrs at 50°C on sample #16015;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1a		----	904	D130	1a		----
62	D130	1a		----	912				----
120	D130	1A		----	922	D130	1A		----
131	D130	1a		----	962	D130	1A		----
132	D130	1a		----	963	D130	1a		----
140	D130	1A		----	970	D130	1a		----
150	D130	1a		----	974	D130	1a		----
158	D130	1A		----	995	D130	1A		----
159	D130	1A		----	996				----
169	D130	1a		----	998				----
171	D130	1a		----	1006	D130	1A		----
175	D130	1a		----	1016	D130	1A		----
194	D130	1A		----	1017	D130	1a		----
217	D130	1a		----	1026	ISO2160	1A		----
224	D130	1a		----	1033				----
225	D130	1a		----	1059	D130	1a		----
228	D130	1A		----	1066	D130	1A		----
230	D130	1A		----	1080	D130	1a		----
237	D130	1A		----	1109	D130	1a		----
238	D130	1A		----	1126				----
252	D130	1a		----	1134	D130	1b		----
253	D130	1a		----	1161	ISO2160	1A		----
254	D130	1a		----	1186	D130	1A		----
256	D130	1a		----	1254	D130	1a		----
258	D130	1a		----	1297	D130	1A		----
273	D130	1a		----	1347	D130	1A		----
312	D130	1a		----	1348				----
323	D130	1A		----	1376	D130	1a		----
333		----		----	1379	D130	1a		----
334	D130	1a		----	1385	D130	1A		----
335	D130	1a		----	1397	D130	1		----
336	D130	1		----	1498				----
338		----		----	1531	D130	1a		----
340	D130	1a		----	1613	D130	1a		----
350		----		----	1631	ISO2160	1		----
353	IP154	1a		----	1634	D130	1a		----
355		----		----	1653				----
381	ISO2160	1		----	1720				----
399	D130	1A		----	1724	D130	1A		----
444		----		----	1730				----
445	D130	1a		----	1746	D130	1A		----
447	D130	1a		----	1776	ISO2160	1a		----
468	D130	1A		----	1783				----
485		----		----	1807	D130	1A		----
541	D130	1a		----	1810				----
557	D130	1a		----	1811	ISO2160	1		----
558		----		----	1813	D130	1a		----
562	D130	1		----	1849	ISO2160	1A		----
657	D130	1b		----	1936				----
671	D130	1A		----	1937				----
753	D130	1a		----	1938				----
823	D130	1a		----	2129	D130	1a		----
840	D130	1a		----	2130	D130	1a		----
854	D130	1a		----	6018	ISO2160	1a		----
861	D130	1a		----	6033				----
862	D130	1a		----	7003				----

normality n.a.
n 88
outliers n.a.
mean (n) 1
st.dev. (n) n.a.
R(calc.) n.a.
R(D130:12) n.a.

Determination of Silver corrosion 3hrs at 50°C on sample #16015;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D7667-A	0		----	904		----		----
62	D7671-A	0		----	912		----		----
120	D7671-A	0		----	922		----		----
131	D7671-A	0		----	962		----		----
132	D7671-A	0		----	963		----		----
140	D7671-A	0		----	970		----		----
150	D7671-A	0		----	974		----		----
158		----		----	995		----		----
159	D7671-A	0		----	996		----		----
169	D7671-A	0		----	998		----		----
171	D7667-A	0		----	1006		----		----
175		----		----	1016		----		----
194	D7671-A	0		----	1017		----		----
217		----		----	1026		----		----
224		----		----	1033		----		----
225		----		----	1059		----		----
228		----		----	1066		----		----
230		----		----	1080		----		----
237		----		----	1109	D7671-A	0		----
238		----		----	1126		----		----
252		----		----	1134	D7671-A	1		----
253		----		----	1161		----		----
254		----		----	1186		----		----
256		----		----	1254		----		----
258		----		----	1297		----		----
273		----		----	1347		----		----
312	D7671-A	0		----	1348		----		----
323	D7667-A	0		----	1376		----		----
333	D7671-A	0		----	1379		----		----
334		----		----	1385		----		----
335		----		----	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340		----		----	1613		----		----
350		----		----	1631		----		----
353		----		----	1634		----		----
355		----		----	1653		----		----
381		----		----	1720		----		----
399		----		----	1724		----		----
444		----		----	1730		----		----
445	D7671-A	0		----	1746		----		----
447		----		----	1776		----		----
468		----		----	1783		----		----
485		----		----	1807		----		----
541		----		----	1810		----		----
557		----		----	1811		----		----
558		----		----	1813		----		----
562		----		----	1849		----		----
657	D7671-A	0		----	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D7671-A	0		----	2129	D7671-A	Zero		----
840		----		----	2130	D7671-A	0		----
854		----		----	6018		----		----
861	D7667-A	0		----	6033		----		----
862	D4814	0		----	7003		----		----

normality n.a.
n 23
outliers n.a.
mean (n) 0
st.dev. (n) n.a.
R(calc.) n.a.
R(D7671:10(2015)) n.a.

Determination of Density at 15°C on sample #16015; results in kg/m³

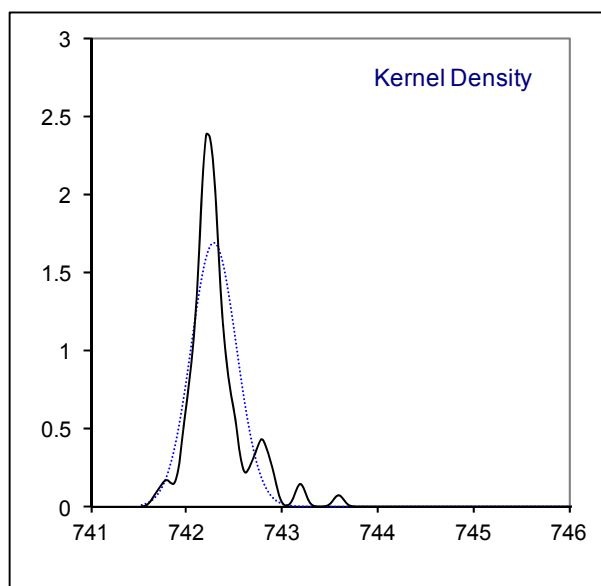
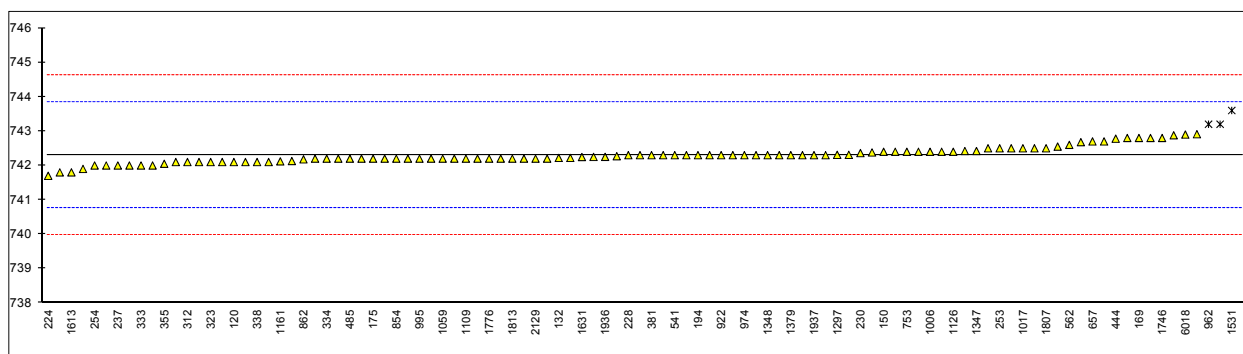
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	742.3		0.01	904	D4052	742.5		0.26
62	D4052	742.2		-0.12	912		-----		-----
120	D4052	742.1		-0.25	922	D4052	742.3		0.01
131	D4052	742.4		0.14	962	D4052	743.2	R(0.05)	1.17
132	D4052	742.22		-0.10	963	D4052	742.2		-0.12
140	D4052	742.1		-0.25	970	D4052	742.3		0.01
150	D4052	742.4		0.14	974	D4052	742.3		0.01
158	D4052	742.0	C	-0.38	995	D4052	742.2		-0.12
159	D4052	742.3		0.01	996		-----		-----
169	D4052	742.8		0.65	998		-----		-----
171	D4052	742		-0.38	1006	D4052	742.4		0.14
175	D4052	742.2		-0.12	1016		-----		-----
194	D4052	742.3		0.01	1017	ISO12185	742.50		0.26
217	D4052	742.4		0.14	1026	D4052	742.2		-0.12
224	D1298	741.7		-0.77	1033		-----		-----
225	D4052	742.5		0.26	1059	D4052	742.2		-0.12
228	D4052	742.3		0.01	1066	D4052	742.2		-0.12
230	D4052	742.36		0.08	1080	D4052	742.4		0.14
237	D4052	742.0		-0.38	1109	D4052	742.2		-0.12
238	D4052	741.8		-0.64	1126	D4052	742.4		0.14
252		-----		-----	1134	IP365	742.3		0.01
253	D4052	742.5		0.26	1161	ISO12185	742.12		-0.23
254	D4052	742.0		-0.38	1186	D1298	741.9		-0.51
256	D4052	742.1		-0.25	1254	D4052	742.13		-0.21
258	D1298	742.1		-0.25	1297	D4052	742.31		0.02
273	D4052	742.1		-0.25	1347	D4052	742.42		0.16
312	D4052	742.1		-0.25	1348	D4052	742.3		0.01
323	D4052	742.1		-0.25	1376	D4052	742.3		0.01
333	D4052	742.0		-0.38	1379	D4052	742.3		0.01
334	D4052	742.2		-0.12	1385	D4052	743.2	R(0.05)	1.17
335	D4052	742.2		-0.12	1397	D4052	742.7		0.52
336	D4052	742.0		-0.38	1498	D1298	742.8		0.65
338	D4052	742.1		-0.25	1531	D4052	743.6	R(0.01)	1.69
340	D4052	742.42		0.16	1613	D4052	741.8		-0.64
350		-----		-----	1631	ISO12185	742.246		-0.06
353	IP365	742.2		-0.12	1634	D4052	742.249		-0.06
355	D4052	742.05	C	-0.32	1653		-----		-----
381	D4052	742.3		0.01	1720	D4052	742.2		-0.12
399	D4052	742.3		0.01	1724	D4052	742.31		0.02
444	D4052	742.78		0.63	1730	ISO12185	742.22		-0.10
445	D4052	742.2		-0.12	1746	D4052	742.8		0.65
447	D4052	742.1		-0.25	1776	ISO12185	742.2		-0.12
468	D4052	742.27		-0.03	1783	D4052	742.5		0.26
485	D4052	742.2		-0.12	1807	D4052	742.5		0.26
541	D4052	742.3		0.01	1810	ISO12185	742.2	C	-0.12
557	D1250	742.91		0.80	1811	D4052	742.3		0.01
558	D4052	742.38		0.11	1813	D4052	742.2		-0.12
562	D1298	742.6		0.39	1849	D4052	742.679		0.50
657	D4052	742.7		0.52	1936	ISO12185	742.25		-0.06
671	D1298	742.8		0.65	1937	ISO12185	742.3		0.01
753	D4052	742.4		0.14	1938	ISO12185	742.2		-0.12
823	D4052	742.88		0.76	2129	D4052	742.2		-0.12
840	D4052	742.55		0.33	2130	D4052	742.2		-0.12
854	D4052	742.2		-0.12	6018	ISO12185	742.9		0.78
861	D4052	742.30		0.01	6033		750	R(0.01)	9.96
862	D4052	742.18		-0.15	7003	D4052	742.3		0.01

normality OK
n 100
outliers 4
mean (n) 742.30
st.dev. (n) 0.237
R(calc.) 0.66
R(D4052:15) 2.17

Lab 158: reported 0.7420 kg/m³

Lab 355: first reported 942.05

Lab 1810: first reported 712.2

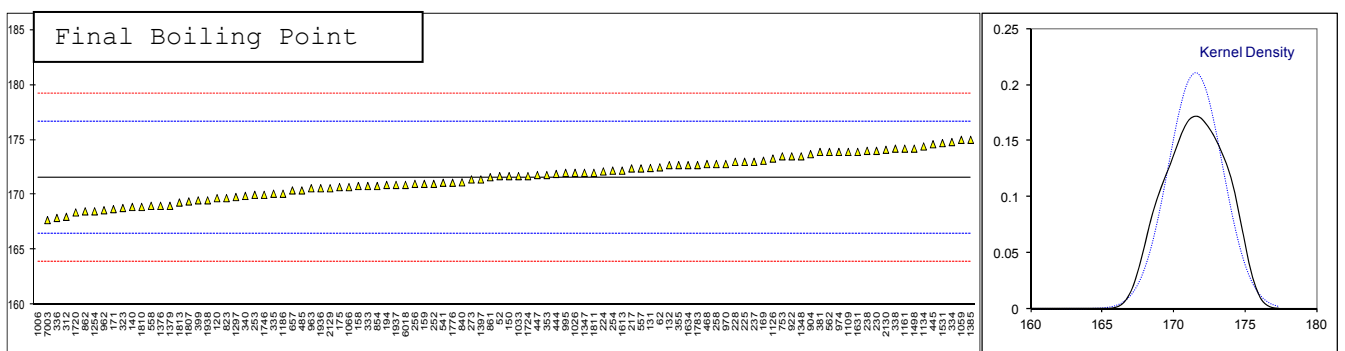
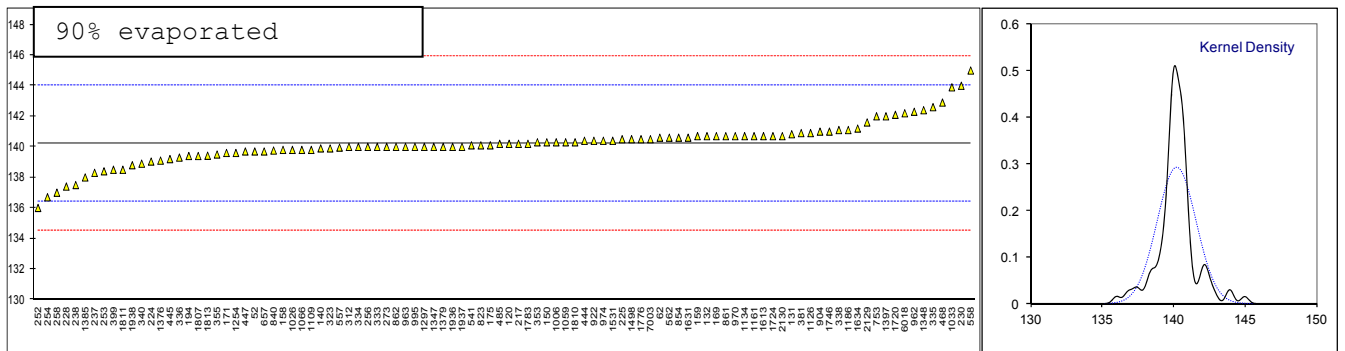
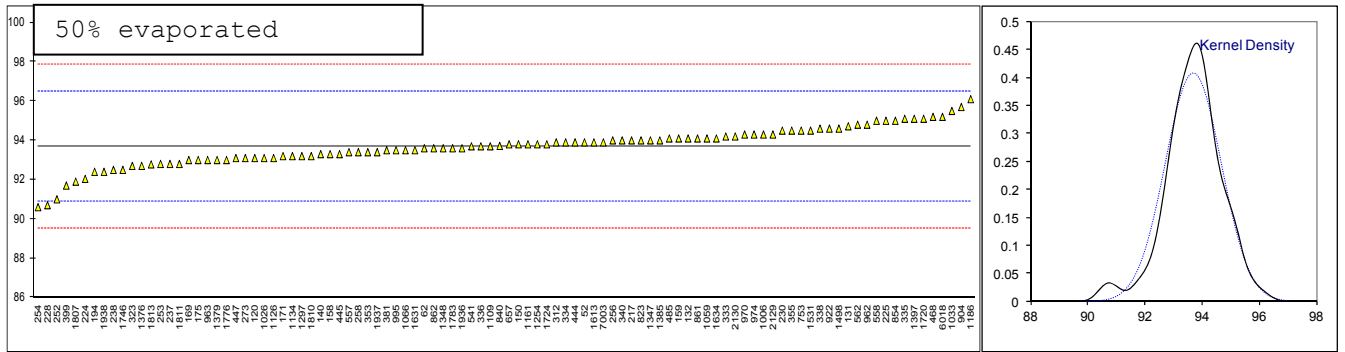
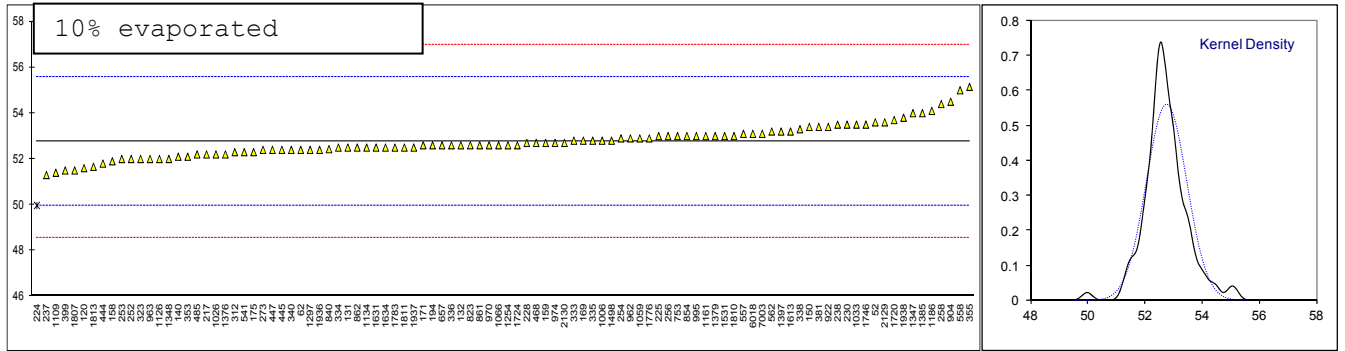
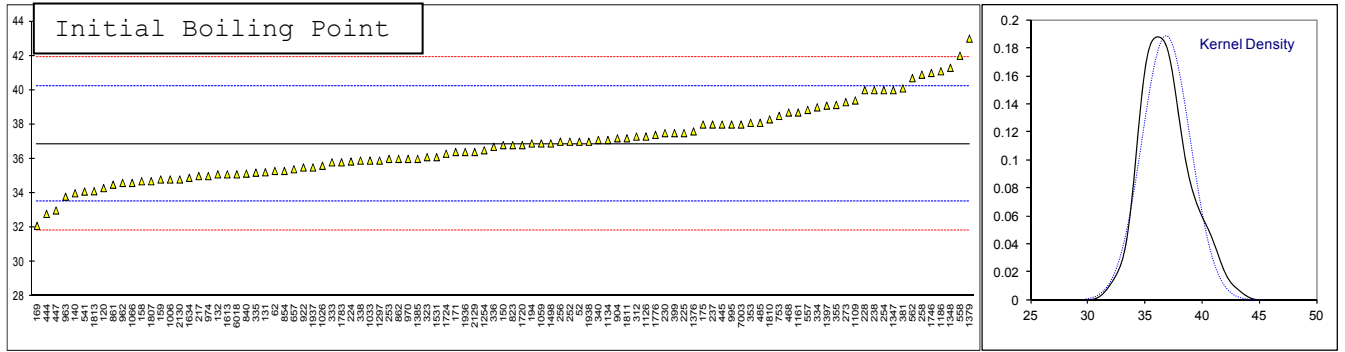


Determination of Distillation at 760 mm Hg ASTM D86 on sample #16015; results in °C

lab	method	mode	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
52	D86	Automated	37.0		53.6		93.9		139.7		171.7	
62	D86	Automated	35.3		52.4		93.6		140.6		172.5	
120	D86	Automated	34.3		51.6		93.1		140.2		169.7	
131	D86	Automated	35.22		52.50		94.72		140.83		172.44	
132	D86	Automated	35.1		52.6		94.1		140.7		172.7	
140	D86	Automated	34.0		52.1		93.3		139.9		168.9	
150	D86	Automated	36.8		53.4		93.8		140.3		171.7	
158	D86	Automated	34.7		51.9		93.3		139.8		170.8	
159	D86	Automated	34.8		52.7		94.1		140.7		171.0	
169	D86	Automated	32.1		52.8		93.0		140.7		173.1	
171	D86	Automated	36.4		52.6		93.2		139.6		168.7	
175	D86	Automated	38.0		52.3		93.0		140.1		170.7	
194	D86	Automated	36.9		52.6		92.4		139.4		170.9	
217	D86	Automated	35.0		52.2		94.0		140.2		172.4	
224	D86	Manual	35.85		49.97	R(5)	92.04		139.04		172.13	
225	D86	Manual	37.5		53.0		95.0		140.5		173.0	
228	D86	Manual	40.0		52.7		90.7		137.4		173.0	
230	D86	Manual	37.5		53.5		94.5		144.0		174	
237	D86	Manual	38.0		51.3		92.8		138.3		173.0	
238	D86	Manual	40.0		53.5		92.5		137.5		174.0	
252	D86	Manual	37.0		52.0		91.0		136.0		171.0	
253	D86	Manual	36.0		52.0		92.8		138.4		170.0	
254	D86	Manual	40.0		52.9		90.6		136.7		172.2	
256	D86	Manual	37.0		53.0		94.0		140.0		171.0	
258	D86	Automated	40.9		54.4		93.4		137.0		172.8	
273	D86	Automated	39.3		52.4		93.1		140.0		171.4	
312	D86	Automated	37.3		52.3		93.9		140.0		168.0	
323	D86	Automated	36.1		52.0		92.7		139.9		168.8	
333	D86	Automated	35.8		52.8		94.2		140.0		170.8	
334	D86	Automated	39		52.5		93.9		140.0		174.8	
335	D86	Automated	35.2		52.8		95.1		142.6		170.1	
336	D86	Automated	36.7		52.6		93.7		139.3		167.9	
338	D86	Automated	35.9		53.3		94.6		141.1		174.2	
340	D86	Automated	37.1	C	52.4		94.0		138.9		169.9	
350			----		----		----		----		----	
353	D86	Automated	38.1		52.1		93.4		140.3		171.8	
355	D86	Manual	39.14		55.15		94.5		139.5		172.7	
381	D86	Automated	40.1		53.4		93.5		140.9		173.9	
399	D86	Automated	37.5		51.5		91.7		138.5		169.5	
444	D86	Automated	32.8		51.8		93.9		140.4		171.9	
445	D86	Automated	38.0		52.4		93.3		139.2		174.6	
447	D86	Automated	33.0		52.4		93.1		139.7		171.8	
468	D86	Automated	38.7		52.7		95.2		142.9		172.8	
485	D86	Automated	38.10		52.20		94.10		140.20		170.40	
541	D86		34.1		52.3		93.7		140.1		171.1	
557	D86	Automated	38.85		53.10		93.40		139.95		172.40	
558	D86	Automated	42.0		55.0		95.0		145.0		169.0	
562	D86	Automated	40.7		53.2		94.8		140.6		173.9	
657	D86	Automated	35.4		52.6		93.8		139.7		170.4	
671			----		----		----		----		----	
753	D86	Manual	38.5		53.0		94.5		142.0		173.5	
823	D86	Automated	36.8		52.6		94.0		140.1		169.7	
840	D86	Automated	35.14		52.43		93.72		139.76		171.14	
854	D86	Automated	35.3		53.0		95.0		140.6		170.8	
861	D86	Automated	34.5		52.6		94.1		140.7		171.6	
862	D86	Automated	36.0		52.5		93.6		140.0		168.5	
904	D86	Automated	37.2		54.5		95.7		141.0		173.7	
912			----		----		----		----		----	
922	D86	Automated	35.5		53.4		94.6		140.4		173.5	
962	D86	Automated	34.6		52.9		94.8		142.3		168.6	
963	D86	Automated	33.8		52.0		93.0		140.0		170.6	
970	D86	Automated	36.0		52.6		94.3		140.7		172.8	
974	D86	Automated	35.0		52.7		94.3		140.4		173.9	
995	D86	Manual	38.0		53.0		93.5		140.0		172.0	
996			----		----		----		----		----	
998			----		----		----		----		----	
1006	D86	Automated	34.8		52.8		94.3		140.3		17.03	R(1)
1016			----		----		----		----		----	
1017			----		----		----		----		----	
1026	ISO3405	Automated	35.6		52.2		93.1		139.8		172.0	
1033	IP123	Automated	35.9		53.5		95.5		143.9		171.7	
1059	D86	Automated	36.9		52.9		94.1		140.3		175.0	
1066	D86	Automated	34.6		52.6	C	93.5		139.8		170.7	
1080			----		----		----		----		----	
1109	D86	Automated	39.4		51.4		93.7		139.8		173.9	
1126	D86	Automated	37.3		52.0		93.1		140.9		173.3	

1134	IP123	Automated	37.1	52.5	93.2	140.7	174.4
1161	D86	Automated	38.7	53.0	93.8	140.7	174.2
1186	D86	Manual	41.1	54.1	96.1	141.1	170.1
1254	D86	Automated	36.5	52.6	93.8	139.6	168.5
1297	D86	Automated	35.9	52.4	93.2	140.0	169.8
1347	D86	Manual	40.0	54.0	94.0	140.0	172.0
1348	D86	Automated	41.3	52.0	93.6	142.4	173.5
1376	D86		37.6	52.2	92.7	139.1	169.0
1379	INH-2177	Manual	43	53	93	140	169
1385	D86	Manual	36.0	54.0	94.0	138.0	175.0
1397	D86	Automated	39.1	53.2	95.1	142.0	171.4
1498	D86	Automated	36.9	52.8	94.6	140.5	174.2
1531	D86	Automated	36.1	53	94.5	140.4	174.7
1613	D86	Automated	35.1	53.2	93.9	140.7	172.2
1631		Automated	----	52.5	93.5	140.6	173.9
1634	D86	Automated	34.9	52.5	94.1	141.2	172.7
1653			----	----	----	----	----
1720	D86	Automated	36.8	53.7	95.1	142.1	168.4
1724	D86	Automated	36.3	52.6	93.8	140.7	171.7
1730			----	----	----	----	----
1746	D86	Manual	41.0	53.5	92.5	141.0	170.0
1776	ISO3405	Automated	37.4	52.9	93.0	140.5	171.1
1783	D86	Automated	35.8	52.5	93.6	140.2	172.7
1807	D86	Automated	34.7	51.5	91.9	139.4	169.4
1810	D86	Automated	38.3	53.0	93.2	140.3	168.9
1811	D86	Automated	37.2	52.5	92.8	138.5	172.0
1813	D86	Automated	34.12	51.66	92.78	139.42	169.30
1849		Automated	----	----	----	----	----
1936	ISO3405		36.4	52.4	93.6	140.0	170.6
1937	ISO3405		35.5	52.5	93.4	140.0	170.9
1938	ISO3405	Automated	37.0	53.8	92.4	138.8	169.5
2129	D86	Automated	36.4	53.6	94.3	141.6	170.6
2130	D86	Automated	34.8	52.7	94.2	140.7	174.1
6018	ISO3405	Automated	35.1	53.1	95.2	142.2	170.9
6033			----	----	----	----	----
7003	D86		38.0	53.1	93.9	140.5	167.7
	normality		OK	suspect	suspect	not OK	OK
	n		99	99	100	100	99
	outliers		0	1	0	0	1
	mean (n)		36.86	52.76	93.69	140.22	171.56
	st.dev. (n)		2.115	0.710	0.976	1.366	1.891
	R(calc.)		5.92	1.99	2.73	3.82	5.29
	R(D86:15)	Automated	4.70	3.94	3.89	5.35	7.10
Compare							
	R(D86:15)	Manual	5.20	3.98	3.90	3.51	7.20

Lab 340:; first reported 31.1
 Lab 1066: first reported 57.6



Determination of Doctor Test on sample #16015;

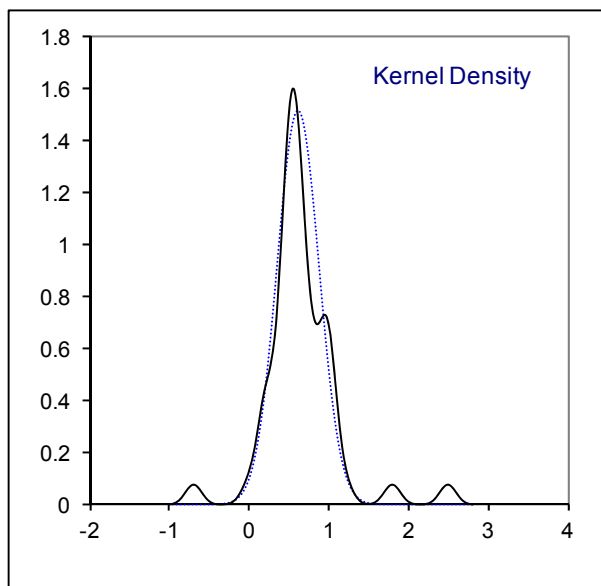
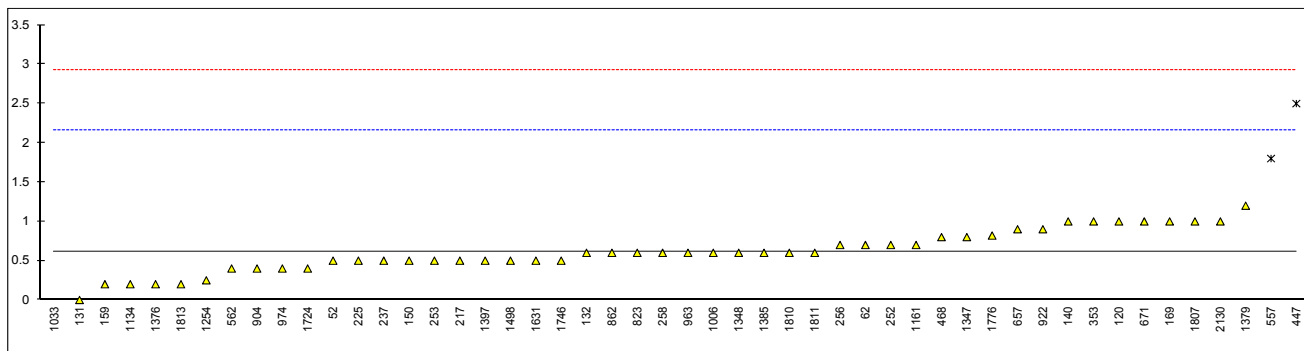
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4952	Neg		----	904	D4952	negative		----
62				----	912				----
120	D4952	Negative		----	922	D4952	Negative		----
131				----	962	IP30	Negative		----
132	D4952	Negative		----	963	D4952	Negative		----
140	D4952	NEG		----	970	IP30	Negative		----
150	D4952	Sweet		----	974	IP30	Negative		----
158	D4952	neg		----	995				----
159	D4952	Negative		----	996				----
169				----	998				----
171	D4952	Negative		----	1006				----
175				----	1016	D4952	neg		----
194	D4952	Negative		----	1017				----
217	D4952	Negative		----	1026	D4952	Negative		----
224				----	1033				----
225	D4952	Negative		----	1059	D4952	negative		----
228				----	1066	D4952	negative		----
230	D4952	Negative		----	1080				----
237	D4952	Negative		----	1109	IP30	Negative		----
238	D4952	Negative		----	1126				----
252	D4952	Negative		----	1134	IP30	Negative		----
253				----	1161				----
254	IP30	Negative		----	1186				----
256	D4952	Negative		----	1254	D4952	negative		----
258	D4952	Negative		----	1297	D4952	Negative		----
273	D4952	Negative		----	1347	D4952	Negative		----
312	IP30	negative		----	1348	D4952	Negative		----
323	D4952	neg		----	1376				----
333	D4952	negative		----	1379				----
334				----	1385				----
335				----	1397				----
336	D4952	Negative		----	1498				----
338				----	1531				----
340				----	1613	IP30	neg		----
350				----	1631				----
353				----	1634				----
355				----	1653				----
381				----	1720	D4952	Negative		----
399				----	1724	D4952	NEG		----
444				----	1730				----
445	IP30	Negative		----	1746	D4952	Negative		----
447				----	1776				----
468				----	1783				----
485				----	1807				----
541	IP30	Negative		----	1810				----
557	D4952	Negative		----	1811				----
558				----	1813	IP30	negative		----
562				----	1849				----
657	IP30	negative		----	1936				----
671				----	1937				----
753				----	1938				----
823	D4952	negative		----	2129	IP30	Negative		----
840	D4952	Negative		----	2130	IP30	Negative		----
854	D4952	Negative		----	6018				----
861	D4952	Negative		----	6033				----
862	D4952	negative		----	7003				----

normality n.a.
n 54
outliers n.a.
mean (n) Negative
st.dev. (n) n.a.
R(calc.) n.a.
R(D4952:12) n.a.

Determination of Existent Gum (washed) on sample #16015; results in mg/100mL

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D381	0.5		-0.15	904	D381	0.4		-0.28
62	D381	0.7		0.11	912		----		----
120	D381	1.0		0.50	922	D381	0.9		0.37
131	D381	0		-0.80	962		----		----
132	D381	0.6		-0.02	963	D381	0.6		-0.02
140	D381	1.0		0.50	970		----		----
150	D381	0.5		-0.15	974	D381	0.4		-0.28
158		----		----	995		----		----
159	D381	0.2		-0.54	996		----		----
169	D381	1.0		0.50	998		----		----
171	D381	<0.5		----	1006	D381	0.6		-0.02
175	D381	<0.5		----	1016		----		----
194		----		----	1017		----		----
217	D381	0.5		-0.15	1026	ISO6246	< 0.5		----
224		----		----	1033	IP131	-0.700	R(0.01)	-1.71
225	D381	0.5		-0.15	1059	ISO6246	<1		----
228		----		----	1066		----		----
230		----		----	1080		----		----
237	D381	0.5		-0.15	1109	D381	<0.5		----
238		----		----	1126		----		----
252	D381	0.7		0.11	1134	IP540	0.2		-0.54
253	D381	0.5		-0.15	1161	ISO6246	0.7		0.11
254		----		----	1186		----		----
256	D381	0.7		0.11	1254	D381	0.25		-0.47
258	D381	0.6		-0.02	1297		----		----
273	D381	<0.5		----	1347	D381	0.8		0.24
312	D381	<0.5		----	1348	D381	0.6		-0.02
323	D381	<0.5		----	1376	D381	0.2		-0.54
333		----		----	1379	D381	1.2		0.76
334	D381	<1		----	1385	D381	0.6		-0.02
335		----		----	1397	D381	0.5		-0.15
336		----		----	1498	D381	0.5		-0.15
338		----		----	1531		----		----
340	D381	<0.5		----	1613	D391	<0.5		----
350		----		----	1631	ISO6246	0.5		-0.15
353	IP131	1.0		0.50	1634		----		----
355		----		----	1653		----		----
381		----		----	1720		----		----
399		----		----	1724	D381	0.4		-0.28
444		----		----	1730		----		----
445	D381	<0.5		----	1746	D381	0.5		-0.15
447	D381	2.5	R(0.01)	2.45	1776	ISO6246	0.82		0.27
468	D381	0.8		0.24	1783		----		----
485		----		----	1807	D381	1.0		0.50
541	D381	<0.5		----	1810	ISO6246	0.6		-0.02
557	D381	1.80	R(0.01)	1.54	1811	D381	0.6		-0.02
558		----		----	1813	D381	0.20		-0.54
562	D381	0.4		-0.28	1849		----		----
657	D381	0.9		0.37	1936		----		----
671	D381	1.0		0.50	1937		----		----
753		----		----	1938		----		----
823	D381	0.6		-0.02	2129	D381	<1		----
840		----		----	2130	D381	1		0.50
854	D381	<0.5		----	6018		----		----
861	D381	<0.5		----	6033		----		----
862	D381	0.6		-0.02	7003	D381	<0.5		----

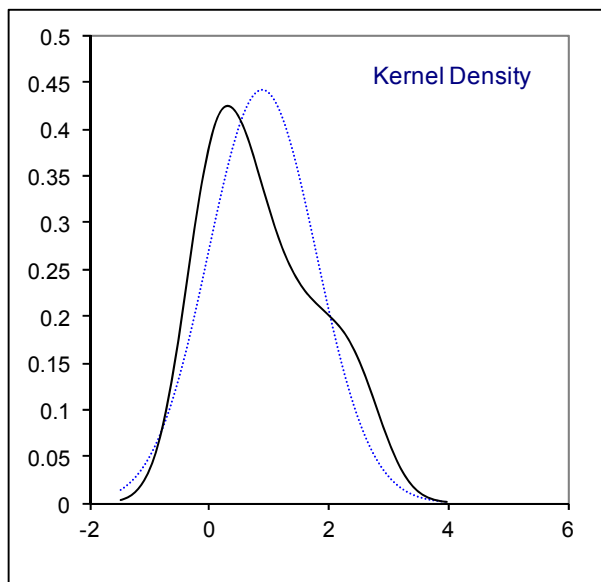
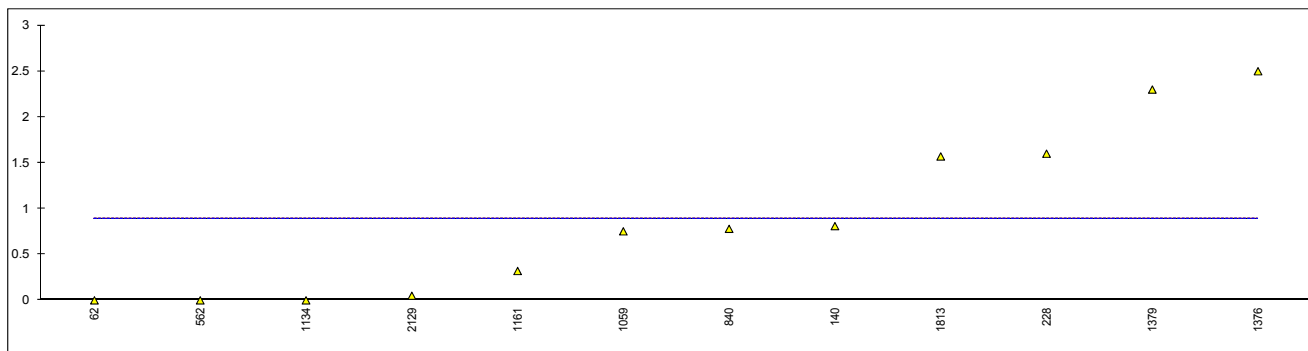
normality OK
n 47
outliers 3
mean (n) 0.614
st.dev. (n) 0.2638
R(calc.) 0.739
R(D381:12) 2.155



Determination of Lead as Pb on sample #16015; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D3237	<2.5		----	904		----		----
62	D3237	0		----	912		----		----
120	D3237	<2.5		----	922	D3237	<2.5		----
131		----		----	962		----		----
132	D3237	<2.5		----	963		----		----
140	D3237	0.81		----	970		----		----
150	D3237	<2.5		----	974		----		----
158		----		----	995	IP428	L 2.5		----
159		----		----	996		----		----
169		----		----	998		----		----
171	D3237	<0.1		----	1006	D3237	<2.5		----
175		----		----	1016		----		----
194		----		----	1017		----		----
217		----		----	1026	D3237	< 1		----
224		----		----	1033		----		----
225		----		----	1059	EN13723	0.753		----
228	IP352	1.6		----	1066	EN237	<2.5		----
230	D3237	<2.5		----	1080		----		----
237	IP352	<2.5		----	1109		----		----
238		----		----	1126		----		----
252		----		----	1134	In house	0		----
253		----		----	1161	EN237	0.32		----
254		----		----	1186		----		----
256	IP352	<2.5		----	1254	D3237	<2.5		----
258		----		----	1297		----		----
273		----		----	1347		----		----
312	D3237	<2.5		----	1348	D3237	<0.1		----
323	D3237	<2.5		----	1376	D3237	2.5		----
333		----		----	1379	INH-28828	2.3		----
334		----		----	1385		----		----
335		----		----	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340		----		----	1613	D3237	<2.5		----
350		----		----	1631	EN237	<3.0		----
353		----		----	1634		----		----
355		----		----	1653		----		----
381	EN237	<2.5		----	1720		----		----
399		----		----	1724	IP428	<3.0		----
444		----		----	1730		----		----
445	IP428	<2.5		----	1746		----		----
447	D3237	<2.5		----	1776		----		----
468		----		----	1783		----		----
485		----		----	1807		----		----
541	D3237	<2.5		----	1810		----		----
557		----		----	1811		----		----
558		----		----	1813	D5059	1.57		----
562	D3237	0		----	1849		----		----
657	D3237	<2.5		----	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D3237	<2.5		----	2129	D3237	0.05		----
840	D3237	0.78		----	2130	IP352	<2.5		----
854	D3237	<2.5		----	6018		----		----
861	D3237	<2.5		----	6033		----		----
862	D3237	<2.5		----	7003	D3237	<0.004		----

normality OK
n 43
outliers n.a.
mean (n) <2.5
st.dev. (n) n.a.
R(calc.) n.a.
R(lit) n.a.

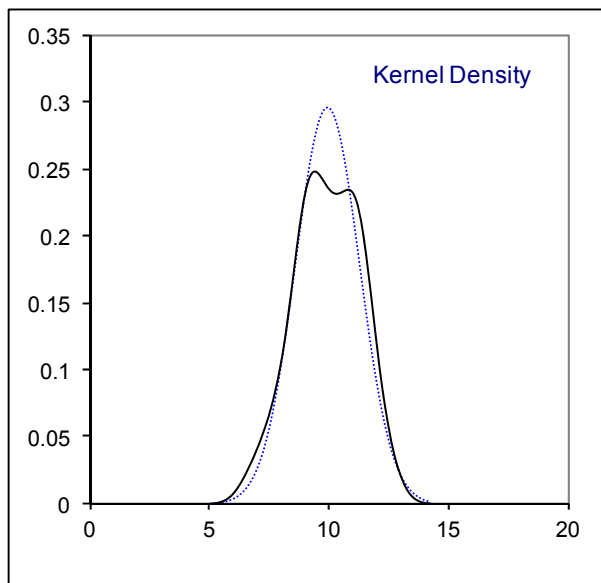
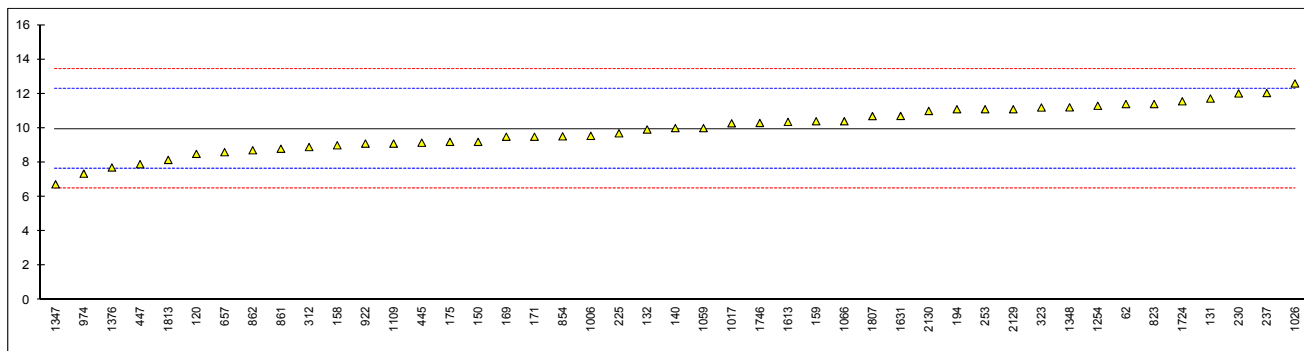


Determination of Olefins by FIA on sample #16015; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	904		----		----
62	D1319	11.4		1.25	912		----		----
120	D1319	8.5		-1.25	922	D1319	9.1		-0.73
131	D1319	11.72		1.52	962		----		----
132	D1319	9.92		-0.02	963		----		----
140	D1319	10.0		0.04	970		----		----
150	D1319	9.2		-0.64	974	D1319	7.35		-2.24
158	D1319	9.0		-0.82	995		----		----
159	D1319	10.4		0.39	996		----		----
169	D1319	9.5		-0.39	998		----		----
171	D1319	9.5		-0.39	1006		9.55		-0.34
175	D1319	9.2		-0.64	1016		----		----
194	D1319	11.1		0.99	1017	ISO22854	10.28		0.29
217		----		----	1026	D1319	12.6		2.28
224		----		----	1033		----		----
225	D1319	9.7		-0.21	1059	D1319	10.0		0.04
228		----		----	1066	D1319	10.4		0.39
230	D1319	12.02		1.78	1080		----		----
237	D1319	12.04		1.80	1109	D1319	9.10		-0.73
238		----		----	1126		----		----
252		----		----	1134		----		----
253	D1319	11.10		0.99	1161		----		----
254		----		----	1186		----		----
256		----		----	1254	D1319	11.30		1.16
258		----		----	1297		----		----
273		----		----	1347	D1319	6.73		-2.77
312	D1319	8.9		-0.90	1348	D1319	11.21		1.09
323	D1319	11.2		1.08	1376	D1319	7.71		-1.93
333		----		----	1379		----		----
334		----		----	1385		----		----
335		----		----	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340		----		----	1613	D6839	10.36		0.35
350		----		----	1631	EN15553	10.71		0.66
353		----		----	1634		----		----
355		----		----	1653		----		----
381		----		----	1720		----		----
399		----		----	1724	D1319	11.56		1.39
444		----		----	1730		----		----
445	D1319	9.15		-0.69	1746	D1319	10.3		0.30
447	D1319	7.9		-1.76	1776		----		----
468		----		----	1783		----		----
485		----		----	1807	ISO22854	10.7		0.65
541		----		----	1810		----		----
557		----		----	1811		----		----
558		----		----	1813	D1319	8.15		-1.55
562		----		----	1849		----		----
657	D1319	8.6		-1.16	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D1319	11.4		1.25	2129	D1319	11.1		0.99
840		----		----	2130	D1319	11.0		0.90
854	D1319	9.52		-0.37	6018		----		----
861	D1319	8.8		-0.99	6033		----		----
862	D1319	8.71		-1.07	7003		----		----

Only D1319/EN15553 data

normality	OK	OK
n	45	42
outliers	0	0
mean (n)	9.949	9.913
st.dev. (n)	1.3484	1.3890
R(calc.)	3.776	3.889
R(D1319:15)	3.254	3.247



-- empty page --

Determination of Oxidation Stability on sample #16015; results in minutes

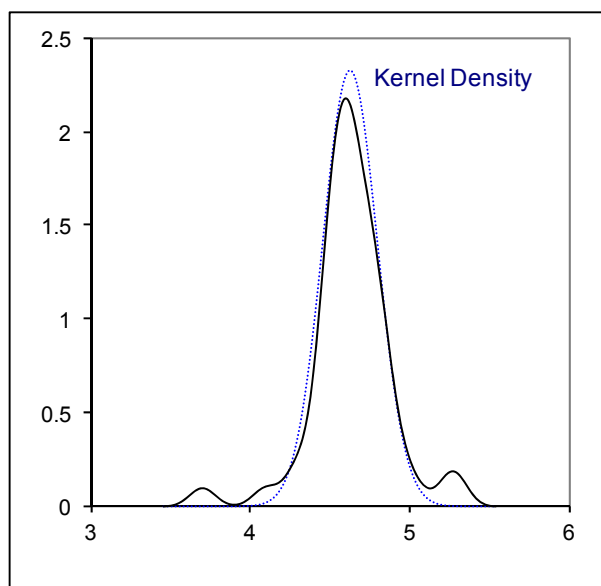
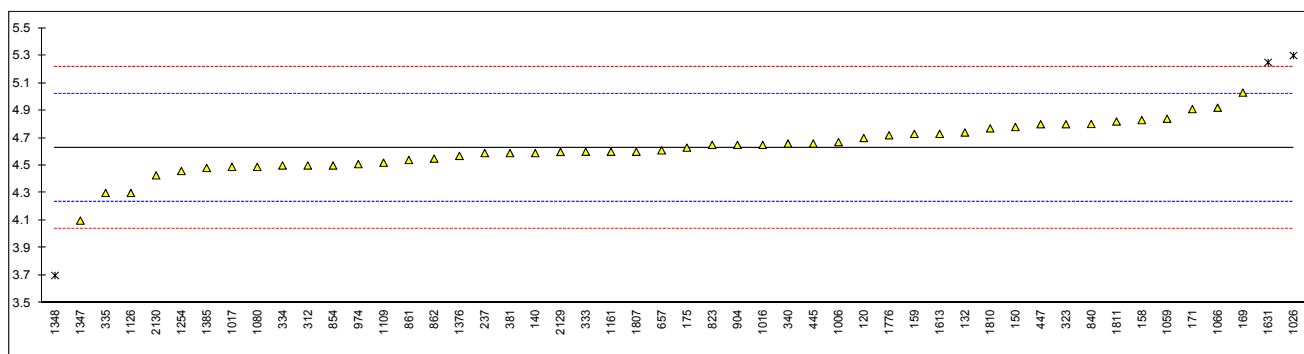
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D525	>480		----	904	D525	> 360		----
62		----		----	912		----		----
120	D525	>360		----	922	D525	>900		----
131		----		----	962		----		----
132	D525	>1164		----	963	D525	>900		----
140	D525	>900		----	970		----		----
150	D525	>900		----	974	D525	>900		----
158		----		----	995		----		----
159		----		----	996		----		----
169		----		----	998		----		----
171	D525	>900		----	1006	D525	>900		----
175		----		----	1016		----		----
194		----		----	1017		----		----
217		----		----	1026	ISO7536	>720		----
224		----		----	1033		----		----
225	D525	515		----	1059	ISO7536	>360		----
228	D525	>900		----	1066		----		----
230		----		----	1080		----		----
237	D525	>440		----	1109	D525	>900		----
238		----		----	1126		----		----
252	D525	>900		----	1134	D525	390		----
253		----		----	1161	ISO7536	>900		----
254		----		----	1186		----		----
256	D525	>900		----	1254	D525	> 900		----
258		----		----	1297		----		----
273		----		----	1347		----		----
312	D525	>900		----	1348		----		----
323	D525	900		----	1376		----		----
333		----		----	1379		----		----
334	D525	>900		----	1385		----		----
335		----		----	1397		----		----
336	D525	>900		----	1498		----		----
338		----		----	1531		----		----
340	D525	>960		----	1613	D525	>900		----
350		----		----	1631	ISO7536	>360		----
353		----		----	1634		----		----
355		----		----	1653		----		----
381		----		----	1720		----		----
399	D525	>900		----	1724	D525	>900		----
444		----		----	1730		----		----
445	D525	>900		----	1746	D525	>900		----
447	D525	>900		----	1776		----		----
468		----		----	1783		----		----
485		----		----	1807	D525	>420		----
541		----		----	1810		----		----
557		----		----	1811		----		----
558		----		----	1813	D525	>720		----
562		----		----	1849		----		----
657	D525	>900		----	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D525	>900		----	2129	D525	>900		----
840		----		----	2130	D525	>900		----
854	D525	>900		----	6018		----		----
861	D525	>900		----	6033		----		----
862	D525	>900		----	7003		----		----

normality n.a.
n 47
outliers n.a.
mean (n) >360
st.dev. (n) n.a.
R(calc.) n.a.
R(lit) n.a.

Determination of Ethanol on sample #16015; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	904	D4815	4.65		0.11
62		----		----	912		----		----
120	D5599	4.70		0.37	922		----		----
131		----		----	962		----		----
132	D5599	4.74		0.57	963		----		----
140	D5599	4.59		-0.19	970		----		----
150	D5599	4.78		0.77	974	D4815	4.51		-0.60
158	D5599	4.83		1.03	995		----		----
159	D5599	4.73		0.52	996		----		----
169	D4815	5.03		2.04	998		----		----
171	D5599	4.91		1.43	1006	D4815	4.67		0.21
175	D5599	4.63		0.01	1016	ISO22854	4.65		0.11
194		----		----	1017	ISO22854	4.49		-0.70
217		----		----	1026	EN13132	5.3	R(0.05)	3.42
224		----		----	1033		----		----
225		----		----	1059	ISO22854	4.84		1.08
228		----		----	1066	ISO22854	4.92		1.49
230		----		----	1080	INH-M3	4.49		-0.70
237	D4815	4.59		-0.19	1109	D6839	4.52		-0.55
238		----		----	1126	D6839	4.30		-1.67
252		----		----	1134		----		----
253		----		----	1161	EN13132	4.6		-0.14
254		----		----	1186		----		----
256		----		----	1254	D4815	4.46		-0.85
258		----		----	1297		----		----
273		----		----	1347	D4815	4.099		-2.69
312	D4815	4.50		-0.65	1348	D4815	3.7	R(0.01)	-4.72
323	ISO22854	4.80		0.88	1376	D6730	4.570		-0.29
333	D6839	4.6		-0.14	1379		----		----
334	D4815	4.5		-0.65	1385	D4815	4.482		-0.74
335	EN1601	4.3		-1.67	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340	D4815	4.66		0.16	1613	D6839	4.73		0.52
350		----		----	1631	EN13132	5.25	R(0.05)	3.16
353		----		----	1634		----		----
355		----		----	1653		----		----
381	EN13132	4.59		-0.19	1720		----		----
399		----		----	1724		----		----
444		----		----	1730		----		----
445	D4815	4.66		0.16	1746		----		----
447	EN13132	4.8		0.88	1776	ISO22854	4.72		0.47
468		----		----	1783		----		----
485		----		----	1807	ISO22854	4.60		-0.14
541		----		----	1810	ISO22854	4.77		0.72
557		----		----	1811	D4815	4.82		0.98
558		----		----	1813		----		----
562		----		----	1849		----		----
657	D4815	4.61		-0.09	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D4815	4.65		0.11	2129	D6730	4.599		-0.15
840	D6730	4.802		0.89	2130	D6730	4.428		-1.02
854	D4815	4.50		-0.65	6018		----		----
861	D4815	4.54		-0.45	6033		----		----
862	D4815	4.550		-0.40	7003		----		----

normality suspect
n 47
outliers 3
mean (n) 4.628
st.dev. (n) 0.1717
R(calc.) 0.481
R(D4815:15b) 0.551

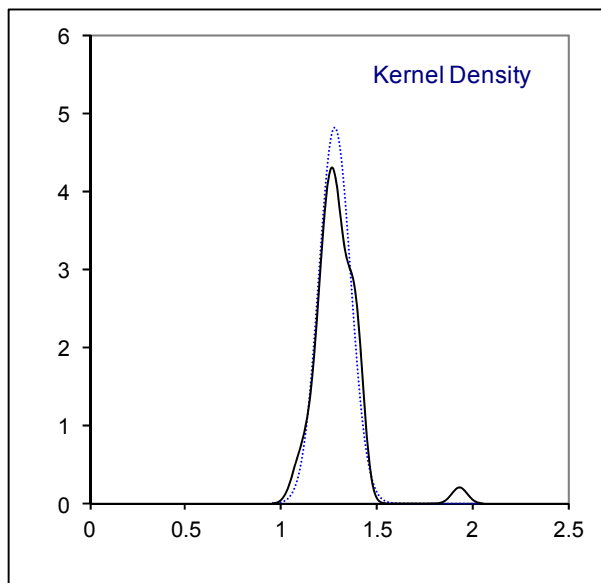
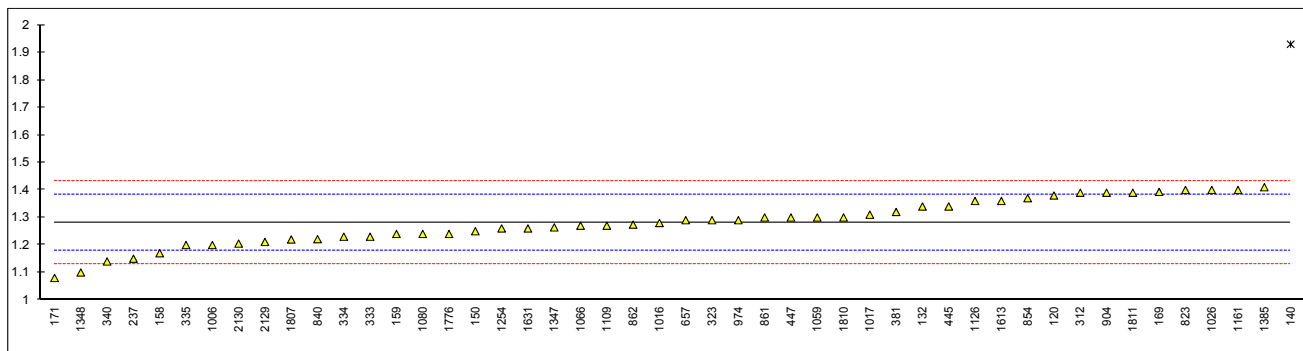


Determination of MTBE on sample #16015; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	904	D4815	1.39		2.15
62		----		----	912		----		----
120	D5599	1.38		1.95	922		----		----
131		----		----	962		----		----
132	D5599	1.34		1.16	963		----		----
140	D5599	1.93	C,R(0.01)	12.82	970		----		----
150	D5599	1.25		-0.62	974	D4815	1.29		0.17
158	D5599	1.17		-2.20	995		----		----
159	D5599	1.24		-0.82	996		----		----
169	D4815	1.393		2.20	998		----		----
171	D5599	1.08		-3.98	1006	D4815	1.2		-1.61
175		----		----	1016	ISO22854	1.28		-0.03
194		----		----	1017	ISO22854	1.31		0.56
217		----		----	1026	EN13132	1.4		2.34
224		----		----	1033		----		----
225		----		----	1059	ISO22854	1.30		0.37
228		----		----	1066	ISO22854	1.27		-0.23
230		----		----	1080	INH-M3	1.24		-0.82
237	D4815	1.15		-2.60	1109	D6839	1.27		-0.23
238		----		----	1126	D6839	1.36		1.55
252		----		----	1134		----		----
253		----		----	1161	EN13132	1.4		2.34
254		----		----	1186		----		----
256		----		----	1254	D4815	1.26		-0.42
258		----		----	1297		----		----
273		----		----	1347	D4815	1.264		-0.34
312	D4815	1.39		2.15	1348	D4815	1.1		-3.59
323	ISO22854	1.29		0.17	1376		----		----
333	D6839	1.23		-1.02	1379		----		----
334	D4815	1.23		-1.02	1385	D4815	1.410		2.54
335	EN1601	1.2		-1.61	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340	D4815	1.14		-2.80	1613	D6839	1.36		1.55
350		----		----	1631	EN13132	1.26		-0.42
353		----		----	1634		----		----
355		----		----	1653		----		----
381	EN13132	1.32		0.76	1720		----		----
399		----		----	1724		----		----
444		----		----	1730		----		----
445	D4815	1.34		1.16	1746		----		----
447	EN13132	1.3		0.37	1776	ISO22854	1.24		-0.82
468		----		----	1783		----		----
485		----		----	1807	ISO22854	1.22		-1.21
541		----		----	1810	ISO22854	1.30		0.37
557		----		----	1811	D4815	1.39		2.15
558		----		----	1813		----		----
562		----		----	1849		----		----
657	D4815	1.29		0.17	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D4815	1.40	C	2.34	2129	D6730	1.211		-1.39
840	D6730	1.221		-1.19	2130	D6730	1.205		-1.51
854	D4815	1.37		1.75	6018		----		----
861	D4815	1.30		0.37	6033		----		----
862	D4815	1.274		-0.15	7003		----		----

normality OK
n 47
outliers 1
mean (n) 1.281
st.dev. (n) 0.0827
R(calc.) 0.232
R(D4815:15b) 0.142

Lab 140: first reported 1.04
Lab 823: first reported 1.04



Determination of DIPE, ETBE, Methanol, TAME and other Oxygenates on sample #16015; results in %V/V

lab	Method	DIPE	mark	ETBE	mark	Methanol	mark	TAME	mark	Other Oxy	mark
52		----		----		----		----		----	
62		----		----		----		----		----	
120	D5599	0.00		0.00		0.00		0.00		0.08	
131		----		----		----		----		----	
132	D5599	<0.10		<0.10		<0.10		<0.10		<0.10	
140	D5599	0		0		0		0		0	
150	D5599	<0.10		<0.10		<0.10		<0.10		0.08	
158		----		----		----		----		----	
159		----		----		----		----		0.10	
169	D4815	NA		NA		NA		NA		NA	
171	D5599	<0.10		<0.10		<0.10		<0.10		----	
175		----		----		----		----		----	
194		----		----		----		----		----	
217		----		----		----		----		----	
224		----		----		----		----		----	
225		----		----		----		----		----	
228		----		----		----		----		----	
230		----		----		----		----		----	
237	D4815	<0.2		<0.2		<0.2		<0.2		----	
238		----		----		----		----		----	
252		----		----		----		----		----	
253		----		----		----		----		----	
254		----		----		----		----		----	
256		----		----		----		----		----	
258		----		----		----		----		----	
273		----		----		----		----		----	
312	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
323	ISO22854	<0.10		<0.10		<0.10		<0.10		<0.10	
333	D6839	0.04		0.07		<0.8		----		0.06	
334	D4815	0		0		0		0		0	
335	EN1601	<0.17		<0.17		<0.17		<0.17		<0.17	
336		----		----		----		----		----	
338		----		----		----		----		----	
340	D4815	<0.17		<0.17		<0.17		<0.17		<0.17	
350		----		----		----		----		----	
353		----		----		----		----		----	
355		----		----		----		----		----	
381	EN13132	<0.2		<0.2		0.2		<0.2		----	
399		----		----		----		----		----	
444		----		----		----		----		----	
445	D4815	<0.2		<0.2		<0.2		<0.2		----	
447	EN13132	<0.2		<0.2		<0.2		<0.2		<0.2	
468		----		----		----		----		----	
485		----		----		----		----		----	
541		----		----		----		----		----	
557		----		----		----		----		----	
558		----		----		----		----		----	
562		----		----		----		----		----	
657	D4815	<0.2		<0.2		<0.2		<0.2		0.29	
671		----		----		----		----		----	
753		----		----		----		----		----	
823	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
840		----		----		----		----		----	
854	D4815	<0.20		<0.20		<0.20		<0.20		<0.20	
861	D4815	<0.20		<0.20		<0.20		<0.20		<0.20	
862	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
904	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
912		----		----		----		----		----	
922		----		----		----		----		----	
962		----		----		----		----		----	
963		----		----		----		----		----	
970		----		----		----		----		----	
974		----		----		----		----		----	
995		----		----		----		----		----	
996		----		----		----		----		----	
998		----		----		----		----		----	
1006	D4815	<0.1		<0.1		<0.1		<0.1		----	
1016	ISO22854	0.04		----		0.02		----		----	
1017	ISO22854	<0.10		<0.10		<0.10		<0.10		<0.10	
1026	EN13132	<0.1		<0.1		<0.1		----		<0.1	
1033		----		----		----		----		----	
1059	ISO22854	<0.20		<0.20		<0.20		<0.20		<0.20	
1066	ISO22854	<0.01		<0.01		<0.01		<0.01		----	
1080	INH-M3	0.05		0.08		0.00		0.00		0.03	
1109	D6839	0.04		0.07		<0.01		<0.01		0.02	
1126	D6839	<0.1		<0.1		<0.1		<0.1		0.07	

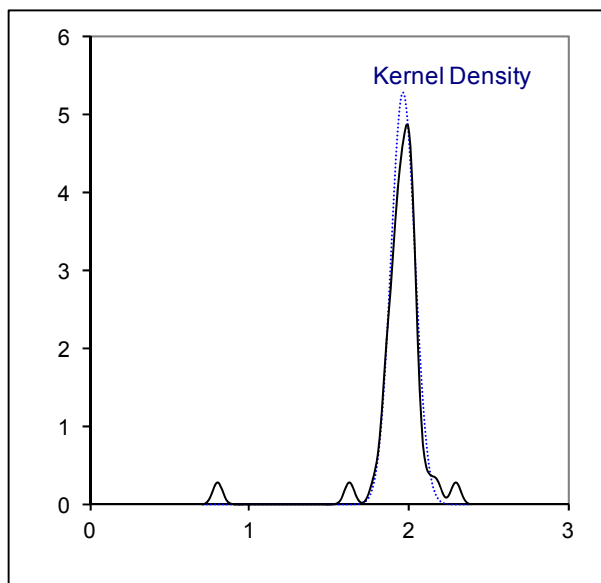
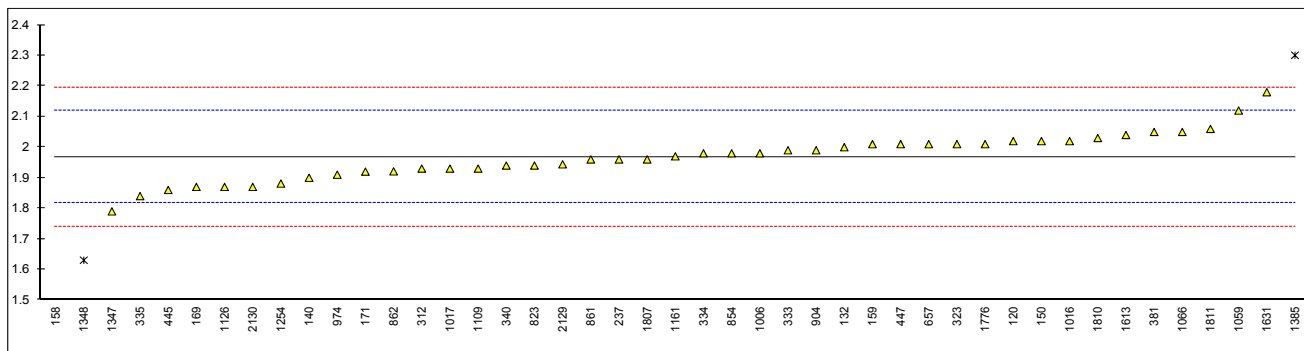
1134		----	----	----	----	----	
1161	EN13132	<0.17	<0.17	<0.17	<0.17	<0.17	
1186		----	----	----	----	----	
1254	D4815	<0.20	<0.20	<0.20	<0.20	<0.20	
1297		----	----	----	----	----	
1347		----	----	----	----	----	0.241
1348		----	----	----	----	----	0.18
1376		----	----	----	----	----	
1379		----	----	----	----	----	
1385		----	----	----	----	1.838	G(0.01)
1397		----	----	----	----	----	
1498		----	----	----	----	----	
1531		----	----	----	----	----	
1613	D6839	0	0	0	0	0.1	
1631		----	----	----	----	----	
1634		----	----	----	----	----	
1653		----	----	----	----	----	
1720		----	----	----	----	----	
1724		----	----	----	----	----	
1730		----	----	----	----	----	
1746		----	----	----	----	----	
1776	ISO22854	<0.2	<0.2	<0.2	<0.2	<0.2	
1783		----	----	----	----	----	
1807	ISO22854	----	0.0	0.0	----	----	
1810		----	----	----	----	----	
1811		----	----	----	----	----	
1813		----	----	----	----	----	
1849		----	----	----	----	----	
1936		----	----	----	----	----	
1937		----	----	----	----	----	
1938		----	----	----	----	----	
2129	D6730	0	0	0.002	0	0.04	
2130	D6730	<0.1	<0.1	<0.1	<0.1	<0.1	
6018		----	----	----	----	----	
6033		----	----	----	----	----	
7003		----	----	----	----	----	
	normality	n.a.	n.a.	n.a.	n.a.		suspect
	n	36	36	37	32		32
	outliers	n.a.	n.a.	n.a.	n.a.		1
	mean (n)	<0.2	<0.2	<0.2	<0.2		<0.2
	st.dev. (n)	n.a.	n.a.	n.a.	n.a.		n.a.
	R(calc.)	n.a.	n.a.	n.a.	n.a.		n.a.
	R(D4815:15b)	n.a.	n.a.	n.a.	n.a.		n.a.

Determination of Oxygen Content on sample #16015; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	904	D4815	1.99		0.29
62		----		----	912		----		----
120	D5599	2.02		0.68	922		----		----
131		----		----	962		----		----
132	D5599	2.0		0.42	963		----		----
140	D5599	1.9		-0.90	970		----		----
150	D5599	2.02		0.68	974	D4815	1.91		-0.76
158	D5599	0.8	R(0.01)	-15.38	995		----		----
159	D5599	2.01		0.55	996		----		----
169	D4815	1.87		-1.29	998		----		----
171	D5599	1.92		-0.63	1006	D4815	1.98		0.16
175		----		----	1016	ISO22854	2.02		0.68
194		----		----	1017	ISO22854	1.93		-0.50
217		----		----	1026		----		----
224		----		----	1033		----		----
225		----		----	1059	ISO22854	2.12		2.00
228		----		----	1066	ISO22854	2.05		1.08
230		----		----	1080		----		----
237	D4815	1.96		-0.11	1109	D6839	1.93		-0.50
238		----		----	1126	D6839	1.87		-1.29
252		----		----	1134		----		----
253		----		----	1161	EN13132	1.97		0.03
254		----		----	1186		----		----
256		----		----	1254	D4815	1.881		-1.15
258		----		----	1297		----		----
273		----		----	1347	D4815	1.790		-2.34
312	D4815	1.93		-0.50	1348	D4815	1.63	R(0.01)	-4.45
323	ISO22854	2.01		0.55	1376		----		----
333	D6839	1.99		0.29	1379		----		----
334	D4815	1.98		0.16	1385	D4815	2.301	R(0.01)	4.38
335	EN1601	1.84		-1.69	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340	D4815	1.94		-0.37	1613	D6839	2.04		0.95
350		----		----	1631	EN13132	2.18		2.79
353		----		----	1634		----		----
355		----		----	1653		----		----
381	EN13132	2.05		1.08	1720		----		----
399		----		----	1724		----		----
444		----		----	1730		----		----
445	D4815	1.86		-1.42	1746		----		----
447	EN13132	2.01		0.55	1776	ISO22854	2.01		0.55
468		----		----	1783		----		----
485		----		----	1807	ISO22854	1.96		-0.11
541		----		----	1810	ISO22854	2.03		0.82
557		----		----	1811	D4815	2.06		1.21
558		----		----	1813		----		----
562		----		----	1849		----		----
657	D4815	2.01		0.55	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D4815	1.94		-0.37	2129	D6730	1.944		-0.32
840		----		----	2130	D6730	1.870		-1.29
854	D4815	1.98		0.16	6018		----		----
861	D4815	1.96		-0.11	6033		----		----
862	D4815	1.921		-0.62	7003		----		----

normality OK
n 42
outliers 3
mean (n) 1.968
st.dev. (n) 0.0755
R(calc.) 0.211
R(D4815:15b) 0.213

Compare R(D5599:00) = 0.228

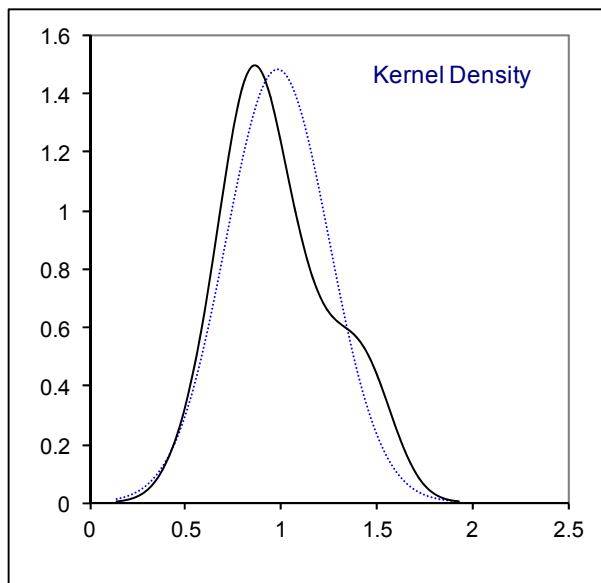
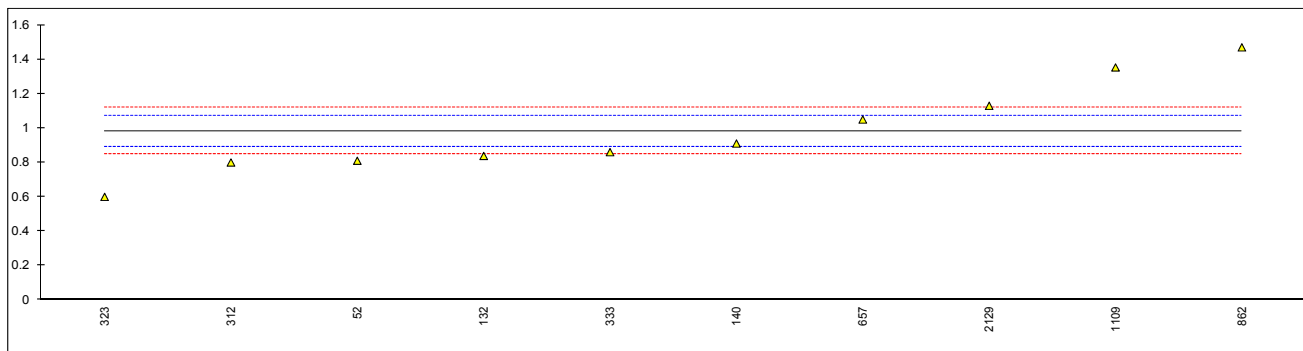


Determination of Phosphorus as P on sample #16015; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D3231	0.81		-3.71	904		----		----
62	D3231	<0.2	C, false neg.?	<-16.85	912		----		----
120	D3231	<0.2	false neg.?	<-16.85	922		----		----
131		----		----	962		----		----
132	D3231	0.838		-3.10	963		----		----
140	D3231	0.9103		-1.55	970		----		----
150		----		----	974		----		----
158		----		----	995		----		----
159		----		----	996		----		----
169		----		----	998		----		----
171		----		----	1006		----		----
175		----		----	1016		----		----
194		----		----	1017		----		----
217		----		----	1026		----		----
224		----		----	1033		----		----
225		----		----	1059		----		----
228		----		----	1066		----	W	----
230		----		----	1080		----		----
237		----		----	1109	D3231	1.353		7.99
238		----		----	1126		----		----
252		----		----	1134		----		----
253		----		----	1161		----		----
254		----		----	1186		----		----
256		----		----	1254		----		----
258		----		----	1297		----		----
273		----		----	1347		----		----
312	D3231	0.80		-3.92	1348		----		----
323	D3231	0.6		-8.23	1376		----		----
333	D3231	0.86		-2.63	1379		----		----
334		----		----	1385		----		----
335		----		----	1397		----		----
336		----		----	1498		----		----
338		----		----	1531		----		----
340		----		----	1613		----		----
350		----		----	1631		----		----
353		----		----	1634		----		----
355		----		----	1653		----		----
381		----		----	1720		----		----
399		----		----	1724		----		----
444		----		----	1730		----		----
445		----		----	1746		----		----
447		----		----	1776		----		----
468		----		----	1783		----		----
485		----		----	1807		----		----
541		----		----	1810		----		----
557		----		----	1811		----		----
558		----		----	1813		----		----
562		----		----	1849		----		----
657	D3231	1.05		1.46	1936		----		----
671		----		----	1937		----		----
753		----		----	1938		----		----
823	D3231	<0.2	false neg.?	<-16.85	2129	D3231	1.13		3.18
840		----		----	2130		----		----
854		----		----	6018		----		----
861		----		----	6033		----		----
862	D3231	1.47		10.51	7003		----		----

normality OK
n 10
outliers 0 Spike
mean (n) 0.982 1.21 Recovery <81%
st.dev. (n) 0.2691
R(calc.) 0.753
R(D3231:13) 0.130

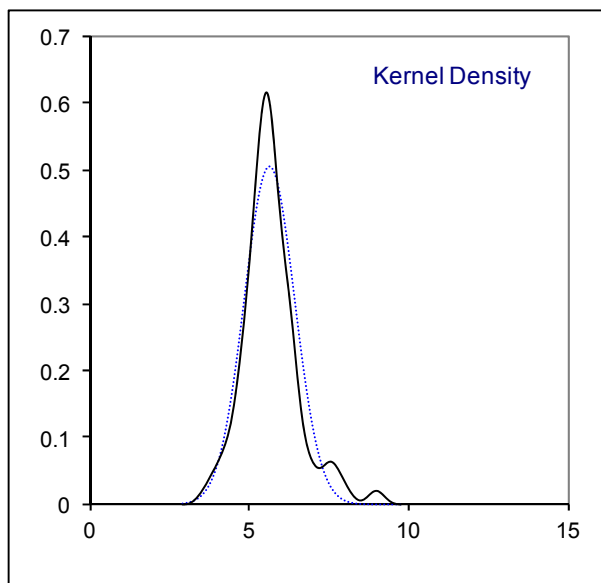
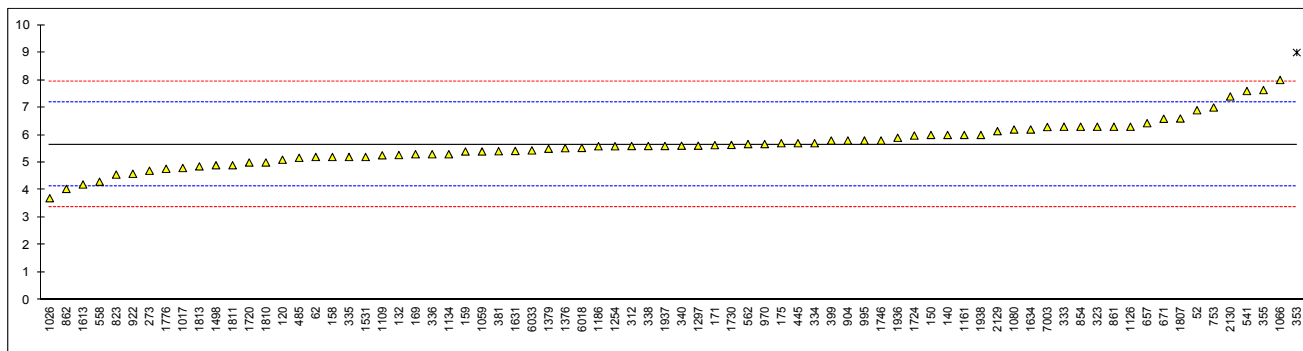
Lab 62: first reported 0.016
Lab 1066: reported result withdrawn, reported 3



Determination of Sulphur on sample #16015; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	6.9		1.64	904	D5453	5.8		0.19
62	D5453	5.2		-0.60	912		-----		-----
120	D2622	5.1		-0.73	922	D5453	4.59		-1.40
131		-----		-----	962		-----		-----
132	D2622	5.27		-0.50	963		-----		-----
140	D5453	6.0		0.46	970	D5453	5.67		0.02
150	D5453	6.0		0.46	974		-----		-----
158	D5453	5.2		-0.60	995	D5453	5.8		0.19
159	D5453	5.4		-0.33	996		-----		-----
169	D5453	5.3		-0.46	998		-----		-----
171	D5453	5.63		-0.03	1006		-----		-----
175	D5453	5.7		0.06	1016		-----		-----
194		-----		-----	1017	ISO20846	4.8		-1.12
217		-----		-----	1026	ISO20846	3.7		-2.57
224		-----		-----	1033		-----		-----
225		-----		-----	1059	ISO20846	5.4		-0.33
228		-----		-----	1066	D2622	8.0		3.09
230	D4294	<20		-----	1080	D5453	6.2		0.72
237	D4294	<20		-----	1109	D7039	5.26		-0.52
238		-----		-----	1126	ISO20846	6.3		0.85
252		-----		-----	1134	IP490	5.30		-0.46
253		-----		-----	1161	ISO20846	6.0		0.46
254		-----		-----	1186	D5453	5.59		-0.08
256	D4294	<17		-----	1254	D5453	5.59		-0.08
258		-----		-----	1297	D5453	5.61		-0.06
273	D5453	4.7		-1.25	1347		-----		-----
312	D5453	5.6		-0.07	1348	D4294	<100		-----
323	D5453	6.3		0.85	1376	D5453	5.52		-0.17
333	D5453	6.3		0.85	1379	D4294	5.5		-0.20
334	D5453	5.7		0.06	1385		-----		-----
335	D5453	5.2		-0.60	1397		-----		-----
336	D5453	5.3		-0.46	1498	D5453	4.9		-0.99
338	D5453	5.6		-0.07	1531	ISO20846	5.2		-0.60
340	D5453	5.61		-0.06	1613	D5453	4.2		-1.91
350		-----		-----	1631	ISO20846	5.42		-0.31
353	IP531	9.0	R(0.01)	4.41	1634	D5453	6.2		0.72
355	D2622	7.635		2.61	1653		-----		-----
381	D5453	5.41		-0.32	1720	D5453	5.0		-0.86
399	D5453	5.799		0.19	1724	D5453	5.98		0.43
444		-----		-----	1730	ISO20846	5.64		-0.02
445	D5453	5.7		0.06	1746	D5453	5.8		0.19
447		-----		-----	1776	ISO20884	4.77		-1.16
468		-----		-----	1783		-----		-----
485	D5453	5.17		-0.64	1807	D5453	6.6		1.25
541	D5453	7.6		2.57	1810	D5453	5.0		-0.86
557		-----		-----	1811	D5453	4.9		-0.99
558	D7039	4.3		-1.78	1813	D2622	4.86		-1.04
562	D5453	5.67		0.02	1849		-----		-----
657	D5453	6.43		1.02	1936	ISO20846	5.9		0.33
671	D5453	6.59		1.24	1937	ISO20846	5.6		-0.07
753	D4294	7		1.78	1938	ISO20846	6.0		0.46
823	D5453	4.56		-1.44	2129	D5453	6.14		0.64
840		-----		-----	2130	D5453	7.4		2.30
854	D5453	6.3		0.85	6018	ISO20846	5.53		-0.16
861	D5453	6.3		0.85	6033	D5453	5.44		-0.28
862	D5453	4.04		-2.12	7003	D5453	6.29		0.84

normality suspect
n 75
outliers 1
mean (n) 5.652
st.dev. (n) 0.7903
R(calc.) 2.213
R(D5453:12) 2.125

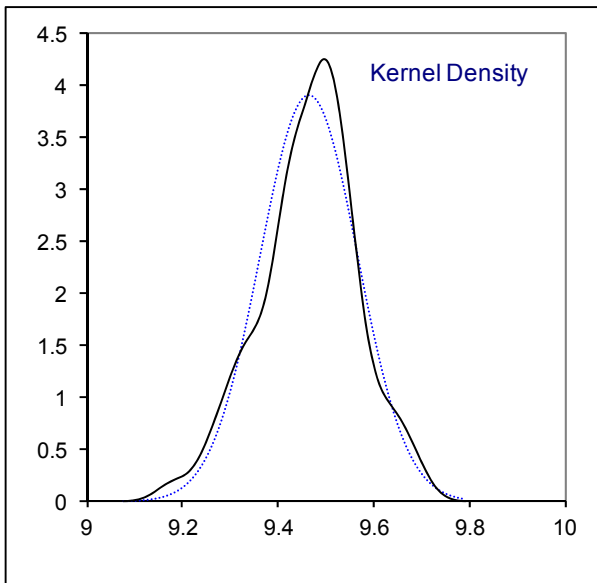
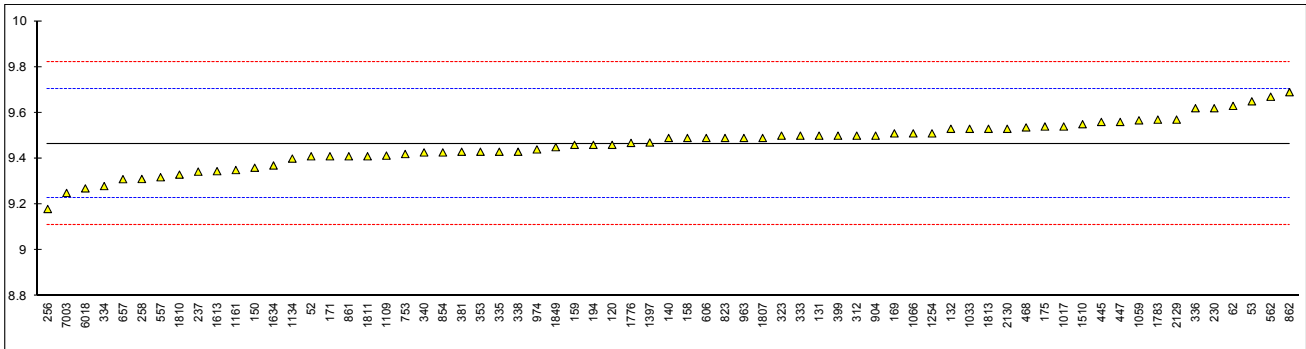


Determination of TVP on sample #16016; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	9.41		-0.46	Reported 64.9 kPa, covered by iis
53	D5191	9.65		1.57	
62	D5191	9.63		1.40	Reported 66.4 kPa, covered by iis
120	D5191	9.46		-0.04	
131	D5191	9.50		0.30	
132	D5191	9.53		0.55	
140	D5191	9.49		0.21	
150	D5191	9.36		-0.89	
158	D5191	9.49		0.21	
159	D5191	9.46		-0.04	
169	D5191	9.51		0.38	
171	D5191	9.41		-0.46	
175	D5191	9.54		0.64	
177		----		----	
194	D5191	9.46		-0.04	
225		----		----	
228		----		----	
230	D5191	9.62		1.31	Reported 66.3 kPa, covered by iis
237	D5191	9.343		-1.03	
238		----		----	
254		----		----	
256	D5191	9.18		-2.41	
258	D5191	9.311		-1.30	
312	D5191	9.50		0.30	
323	D5191	9.50		0.30	Reported 65.5 kPa, covered by iis
333	D5191	9.5		0.30	
334	D5191	9.28		-1.56	
335	D5191	9.43		-0.29	
336	D5191	9.62		1.31	
338	D5191	9.43		-0.29	
340	D5191	9.427		-0.32	
350		----		----	
353	D5191	9.43		-0.29	Reported 65.0 kPa, covered by iis
381	D5191	9.43		-0.29	Reported 65.0 kPa, covered by iis
399	D5191	9.50		0.30	Reported 65.5 kPa, covered by iis
445	D5191	9.56		0.81	Reported 65.9 kPa, covered by iis
447	D5191	9.56		0.81	Reported 65.9 kPa, covered by iis
468	D5191	9.536		0.60	
485		----		----	
541		----		----	
557	D5191	9.318674		-1.23	
562	D5191	9.67	C	1.74	First reported 8.78
606	D5191	9.49		0.21	Reported 65.4 kPa, covered by iis
657	D5191	9.31		-1.31	
753	D5191	9.42		-0.38	
823	D5191	9.49		0.21	Reported 65.4 kPa, covered by iis
854	D5191	9.427		-0.32	
861	D5191	9.41		-0.46	
862	D5191	9.69		1.90	Reported 66.8 kPa, covered by iis
904	D5191	9.5		0.30	
922		----		----	
963	D5191	9.49		0.21	
970		----		----	
974	D5191	9.44		-0.21	
1006		----		----	
1017	EN13016-1	9.54		0.64	Reported 65.8 kPa, covered by iis
1026		----		----	
1033	D5191	9.53		0.55	Reported 65.7 kPa, covered by iis
1059	D5191	9.567		0.86	
1066	D5191	9.51		0.38	Reported 65.6 kPa, covered by iis
1109	D5191	9.413		-0.44	
1134	D5191	9.4	C	-0.55	First reported 59.5 kPa, revised result covered by iis
1161	EN13016-1	9.35		-0.97	Reported 64.5 kPa, covered by iis
1254	D5191	9.51		0.38	Reported 65.57 kPa, covered by iis
1397	D5191	9.47	C	0.04	First reported 65.3 psi
1510	D5191	9.55		0.72	
1613	D5191	9.345		-1.01	
1631		----		----	
1634	D5191	9.37		-0.80	Reported 64.6 kPa, covered by iis
1653		----		----	
1720		----		----	
1724		----		----	
1730		----		----	
1776	EN13016-1	9.4685		0.03	Reported 66.0 kPa, covered by iis
1783	D5191	9.57		0.89	Reported 65.4 kPa, covered by iis
1807	D5191	9.49		0.21	

1810	EN13016-1	9.33	-1.14	
1811	D5191	9.41	-0.46	
1813	D5191	9.53	0.55	Reported 65.7 kPa, covered by iis
1849	EN13016-1	9.45	-0.12	Reported 65.16 kPa, covered by iis
1936		----	----	
1937		----	----	
1938		----	----	
2129	D5191	9.57	0.89	
2130	D5191	9.53	0.55	Reported 65.7 kPa, covered by iis
6018	EN13016-1	9.27	-1.65	Reported 63.9 kPa, covered by iis
7003	D6378	9.25	-1.82	Reported 63.8 kPa, covered by iis

normality OK
n 67
outliers 0
mean (n) 9.465
st.dev. (n) 0.1022
R(calc.) 0.286
R(D5191:15) 0.331

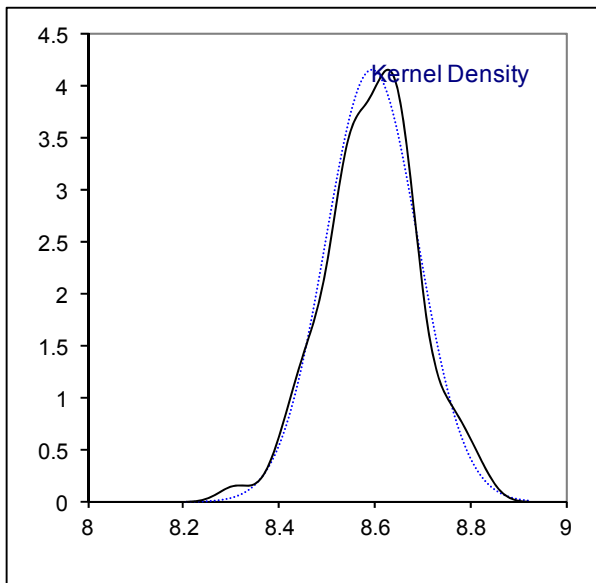
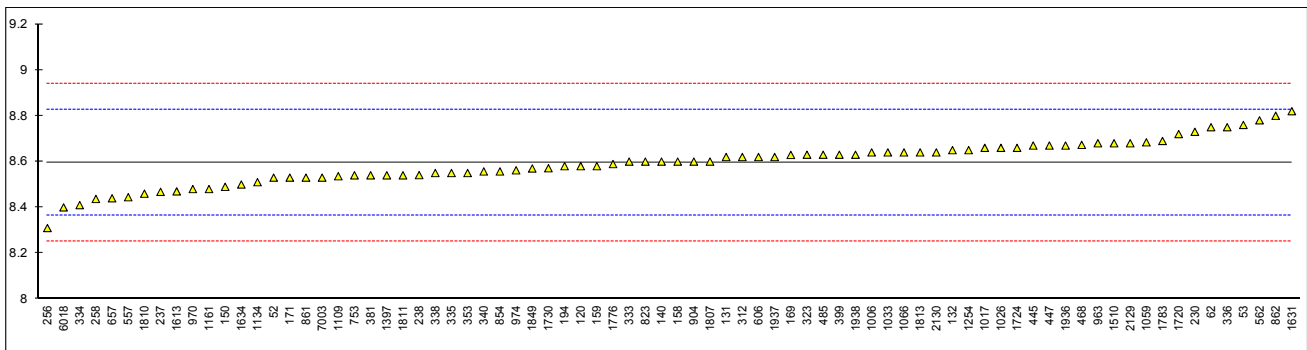


Determination of DVPE (acc. to ASTM D5191) on sample #16016; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.53		-0.56	Reported 58.8 kPa, covered by iis
53	D5191	8.76		1.44	
62	D5191	8.75		1.35	Reported 60.3 kPa, covered by iis
120	D5191	8.58		-0.13	
131	D5191	8.62		0.22	
132	D5191	8.65		0.48	
140	D5191	8.60		0.05	
150	D5191	8.49		-0.91	
158	D5191	8.60		0.05	
159	D5191	8.58		-0.13	
169	D5191	8.629		0.30	
171	D5191	8.53		-0.56	
175		----		----	
177		----		----	
194	D5191	8.58		-0.13	
225		----		----	
228		----		----	
230	D5191	8.73		1.18	Reported 60.2 kPa, covered by iis
237	D5191	8.468		-1.10	
238	D5191	8.541		-0.46	
254		----		----	
256	D5191	8.31		-2.47	
258	D5191	8.437		-1.37	
312	D5191	8.62		0.22	
323	D5191	8.63		0.31	Reported 59.5 kPa, covered by iis
333	D5191	8.6		0.05	
334	D5191	8.41		-1.60	
335	D5191	8.55		-0.39	
336	D5191	8.75		1.35	
338	D5191	8.55		-0.39	
340	D5191	8.557		-0.33	
350		----		----	
353	D5191	8.55		-0.39	Reported 58.94 kPa, covered by iis
381	D5191	8.54		-0.47	Reported 58.9 kPa, covered by iis
399	D5191	8.63		0.31	
445	D5191	8.67		0.66	Reported 59.8 kPa, covered by iis
447	D5191	8.67		0.66	Reported 59.8 kPa, covered by iis
468	D5191	8.673		0.68	
485	D5191	8.63		0.31	Reported 59.5 kPa, covered by iis
541		----		----	
557	D5191	8.44452		-1.30	
562	D5191	8.78		1.61	
606	D5191	8.62		0.22	Reported 59.4 kPa, covered by iis
657	D5191	8.44		-1.34	
753	D5191	8.54		-0.47	
823	D5191	8.60		0.05	Reported 59.3 kPa, covered by iis
854	D5191	8.557		-0.33	
861	D5191	8.53		-0.56	
862	D5191	8.80		1.79	Reported 60.7 kPa, covered by iis
904	D5191	8.6		0.05	
922		----		----	
963	D5191	8.68		0.74	
970	D5191	8.48		-0.99	
974	D5191	8.562		-0.28	
1006	D5191	8.64		0.40	Reported 59.6 kPa, covered by iis
1017	EN13016-1	8.66		0.57	Reported 59.7 kPa, covered by iis
1026	D5191	8.66		0.57	Reported 59.7 kPa, covered by iis
1033	D5191	8.64		0.40	Reported 59.6 kPa, covered by iis
1059	D5191	8.684		0.78	
1066	D5191	8.64		0.40	Reported 59.6 kPa, covered by iis
1109	D5191	8.536		-0.51	
1134	D5191	8.51		-0.73	
1161	EN13016-1	8.48		-0.99	Reported 58.5 kPa, covered by iis
1254	D5191	8.65		0.48	Reported 59.63 kPa, covered by iis
1397	D5191	8.54	C	-0.47	First reported 58.9 psi
1510	D5191	8.68		0.74	
1613	D5191	8.4699		-1.08	
1631	EN13016-1	8.82		1.96	Reported 60.8 kPa, covered by iis
1634	D5191	8.50		-0.82	Reported 58.6 kPa, covered by iis
1653		----		----	
1720	D5191	8.72		1.09	Reported 60.1 kPa, covered by iis
1724	EN13016-1	8.66		0.57	Reported 59.7 kPa, covered by iis
1730	EN13016-1	8.571		-0.20	
1776	EN13016-1	8.5891		-0.05	
1783	D5191	8.69		0.83	Reported 59.91 kPa, covered by iis
1807	D5191	8.60		0.05	Reported 59.3 kPa, covered by iis

1810	EN13016-1	8.46	-1.17	
1811	D5191	8.54	-0.47	
1813	D5191	8.64	0.40	Reported 59.6 kPa, covered by iis
1849	EN13016-1	8.57	-0.21	Reported 59.06 kPa, covered by iis
1936	EN13016-1	8.67	0.66	Reported 59.8 kPa, covered by iis
1937	EN13016-1	8.62	0.22	Reported 59.4 kPa, covered by iis
1938	EN13016-1	8.63	0.31	Reported 59.5 kPa, covered by iis
2129	D5191	8.68	0.74	
2130	D5191	8.64	0.40	Reported 59.6 kPa, covered by iis
6018	EN13016-1	8.40	-1.69	Reported 57.9 kPa, covered by iis
7003	D6378	8.53	-0.56	Reported 58.8 kPa, covered by iis

normality OK
n 78
outliers 0
mean (n) 8.594
st.dev. (n) 0.0961
R(calc.) 0.269
R(D5191:15) 0.322

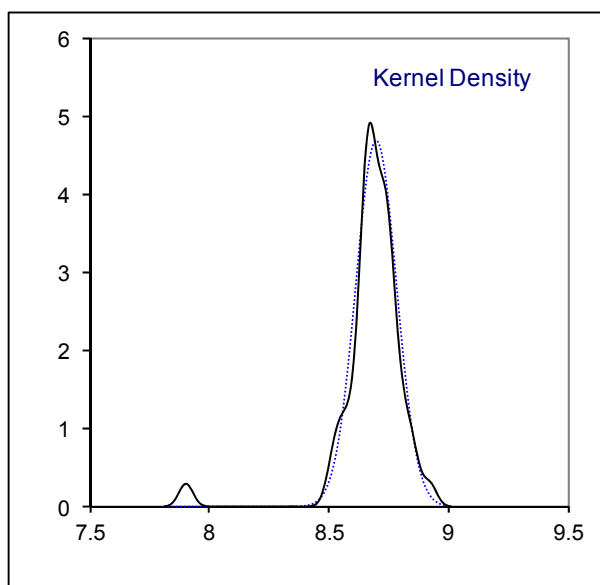
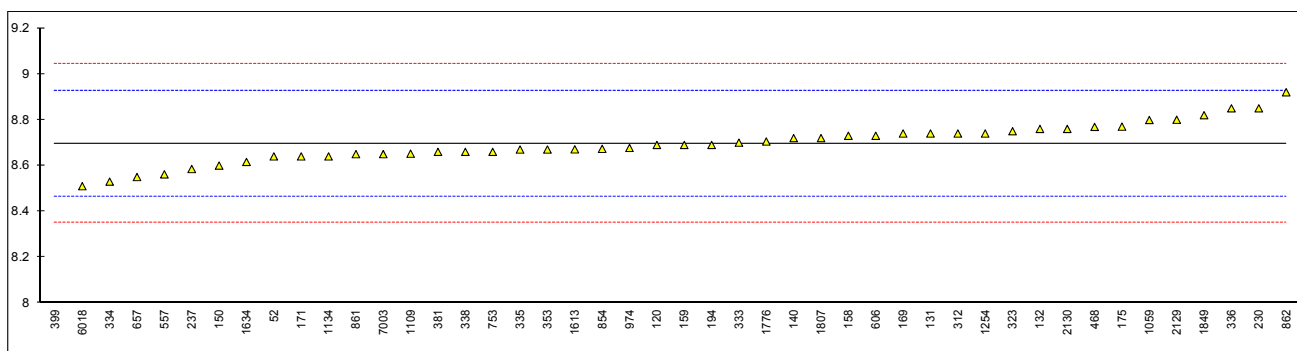


Determination of DVPE (acc. to EPA) on sample #16016; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.64		-0.49	Reported 59.6 kPa, covered by iis
53		----		----	
62		----		----	
120	D5191	8.69		-0.06	
131	D5191	8.74		0.38	
132	D5191	8.76		0.55	
140	D5191	8.72		0.20	
150	D5191	8.60		-0.84	
158	D5191	8.73		0.29	
159	D5191	8.69		-0.06	
169	D5191	8.74		0.38	
171	D5191	8.64		-0.49	
175	D5191	8.77		0.64	
177		----		----	
194	D5191	8.69		-0.06	
225		----		----	
228		----		----	
230	D5191	8.85		1.33	Reported 61.0 kPa, covered by iis
237	D5191	8.585		-0.97	
238		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D5191	8.74		0.38	
323	D5191	8.75		0.46	Reported 60.3 kPa, covered by iis
333	D5191	8.7		0.03	
334	D5191	8.53		-1.44	
335	D5191	8.67		-0.23	
336	D5191	8.85		1.33	
338	D5191	8.66		-0.32	
340		----		----	
350		----		----	
353	D5191	8.67		-0.23	Reported 59.8 kPa, covered by iis
381	D5191	8.66		-0.32	Reported 59.7 kPa, covered by iis
399	D5191	7.90	R(0.01)	-6.90	
445		----		----	
447		----		----	
468	D5191	8.769		0.63	
485		----		----	
541		----		----	
557	D5191	8.561653		-1.17	
562		----		----	
606	D5191	8.73		0.29	Reported 60.2 kPa, covered by iis
657	D5191	8.55		-1.27	
753	D5191	8.66		-0.32	
823		----		----	
854	D5191	8.673		-0.20	
861	D5191	8.65		-0.40	
862	D5191	8.92		1.93	Reported 61.5 kPa, covered by iis
904		----		----	
922		----		----	
963		----		----	
970		----		----	
974	D5191	8.677		-0.17	
1006		----		----	
1017		----		----	
1026		----		----	
1033		----		----	
1059	D5191	8.799		0.89	
1066		----		----	
1109	D5191	8.652		-0.39	
1134	D5191	8.64	C	-0.49	First reported 54.49 kPa
1161		----		----	
1254	D5191	8.74		0.38	Reported 60.26 kPa, covered by iis
1397		----		----	
1510		----		----	
1613	D5191	8.6709		-0.22	
1631		----		----	
1634	D5191	8.616		-0.70	
1653		----		----	
1720		----		----	
1724		----		----	
1730		----		----	
1776	EN13016-1	8.705		0.07	
1783		----		----	
1807	D5191	8.72		0.20	Reported 60.1 kPa, covered by iis

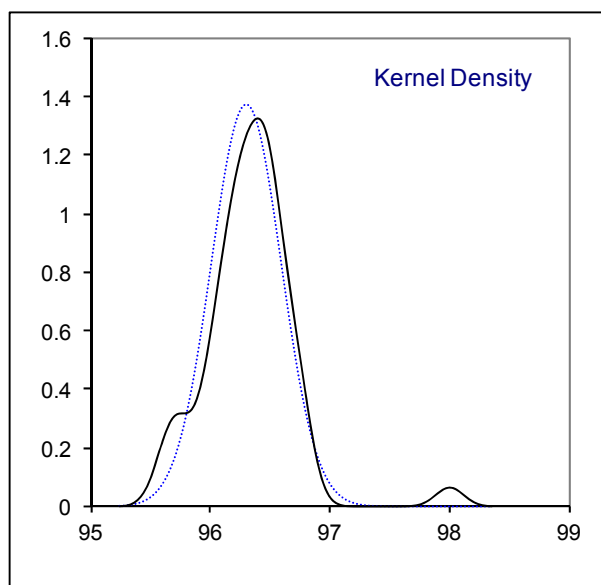
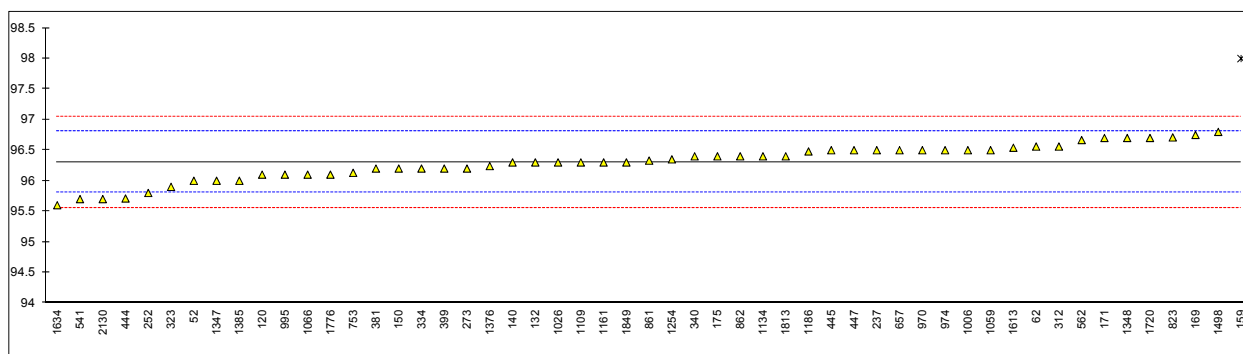
1810		----	----	
1811		----	----	
1813		----	----	
1849	EN13016-1	8.82	1.07	Reported 60.81 kPa, covered by iis
1936		----	----	
1937		----	----	
1938		----	----	
2129	D5191	8.80	0.89	
2130	D5191	8.76	0.55	
6018	EN13016-1	8.51	-1.62	Reported 58.7 kPa, covered by iis
7003	D6378	8.65	-0.40	Reported 59.66 kPa, covered by iis

normality OK
n 45
outliers 1
mean (n) 8.697
st.dev. (n) 0.0852
R(calc.) 0.239
R(D5191:15) 0.323



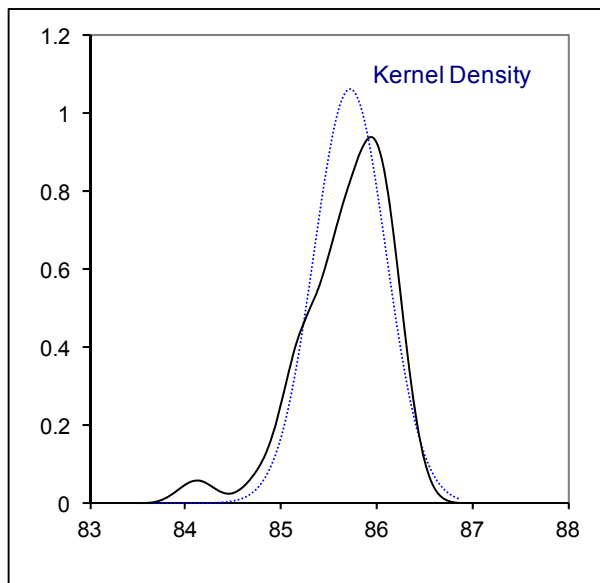
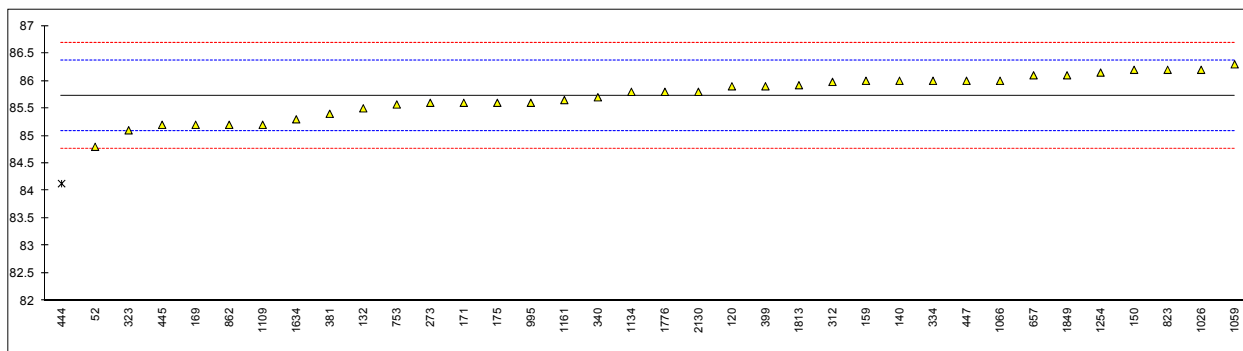
Determination of RON on sample #16017;

lab	method	value	mark	z(targ)	remarks
52	D2699	96.0		-1.22	
62	D2699	96.56		1.02	
120	D2699	96.1		-0.82	
132	D2699	96.3		-0.02	
140	D2699	96.3		-0.02	
150	D2699	96.2		-0.42	
159	D2699	98.0	R(0.01)	6.78	
169	D2699	96.75		1.78	
171	D2699	96.7		1.58	
175	D2699	96.4		0.38	
237	D2699	96.5	C	0.78	First reported 95.5
252	D2699	95.8		-2.02	
256		----		----	
273	D2699	96.2		-0.42	
312	D2699	96.56		1.02	
323	D2699	95.9		-1.62	
334	D2699	96.2		-0.42	
340	D2699	96.4		0.38	
381	D2699	96.2		-0.42	
399	D2699	96.2		-0.42	
444	D2699	95.71		-2.38	
445	IP237	96.5		0.78	
447	D2699	96.5		0.78	
541	D2699	95.7		-2.42	
562	D2699	96.666		1.45	
657	D2699	96.5		0.78	
753	D2699	96.13		-0.70	
823	D2699	96.71		1.62	
861	D2699	96.33		0.10	
862	D2699	96.4		0.38	
922		----		----	
963		----		----	
970	D2699	96.5		0.78	
974	D2699	96.5		0.78	
995	D2699	96.1		-0.82	
998		----		----	
1006	D2699	96.5		0.78	
1026	ISO5164	96.3		-0.02	
1059	ISO5164	96.5		0.78	
1066	D2699	96.1		-0.82	
1109	D2699	96.3		-0.02	
1134	D2699	96.4		0.38	
1161	ISO5164	96.3		-0.02	
1186	D2699	96.48		0.70	
1254	D2699	96.35		0.18	
1347	D2699	96.0		-1.22	
1348	D2699	96.7		1.58	
1376	D2699	96.24		-0.26	
1385	D2699	96.0		-1.22	
1498	D2699	96.8		1.98	
1613	D2699	96.54		0.94	
1634		95.6		-2.82	
1653		----		----	
1720	D2699	96.7	C	1.58	First reported 97.0
1776	ISO5164	96.1		-0.82	
1813	D2699	96.40		0.38	
1849	ISO5164	96.3		-0.02	
2130	D2699	95.7		-2.42	
	normality	OK			
	n	52			
	outliers	1			
	mean (n)	96.304			
	st.dev. (n)	0.2908			
	R(calc.)	0.814			
	R(D2699:15a)	0.700			



Determination of MON on sample #16017;

lab	method	value	mark	z(targ)	remarks
52	D2700	84.8		-2.90	
62		----		----	
120	D2700	85.9		0.53	
132	D2700	85.5		-0.72	
140	D2700	86.0		0.84	
150	D2700	86.2		1.46	
159	D2700	86.0		0.84	
169	D2700	85.2		-1.65	
171	D2700	85.6		-0.41	
175	D2700	85.6		-0.41	
237		----		----	
252		----		----	
256		----		----	
273	D2700	85.6		-0.41	
312	D2700	85.98		0.78	
323	D2700	85.1		-1.96	
334	D2700	86.0		0.84	
340	D2700	85.7		-0.10	
381	D2700	85.4		-1.03	
399	D2700	85.9		0.53	
444	D2700	84.13	R(0.01)	-4.98	
445	IP236	85.2		-1.65	
447	D2700	86.0		0.84	
541		----		----	
562		----		----	
657	D2700	86.1		1.15	
753	D2700	85.57		-0.50	
823	D2700	86.2	C	1.46	First reported 86.71
861		----		----	
862	D2700	85.2		-1.65	
922		----		----	
963		----		----	
970		----		----	
974		----		----	
995	D2700	85.6		-0.41	
998		----		----	
1006		----		----	
1026	ISO5163	86.2		1.46	
1059	ISO5163	86.3		1.77	
1066	D2700	86.0		0.84	
1109	D2700	85.2		-1.65	
1134	D2700	85.8		0.22	
1161	ISO5163	85.65		-0.25	
1186		----		----	
1254	D2700	86.15		1.30	
1347		----		----	
1348		----		----	
1376		----		----	
1385		----		----	
1498		----		----	
1613		----		----	
1634		85.3		-1.34	
1653		----		----	
1720		----		----	
1776	ISO5163	85.8		0.22	
1813	D2700	85.92		0.59	
1849	ISO5163	86.1		1.15	
2130	D2700	85.8		0.22	
	normality	OK			
	n	35			
	outliers	1			
	mean (n)	85.731			
	st.dev. (n)	0.3760			
	R(calc.)	1.053			
	R(D2700:16)	0.900			



APPENDIX 2

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

lab	IBP	10%eva	50%eva	90%eva	FBP
52	0.08	0.60	0.15	-0.27	0.05
62	-0.93	-0.26	-0.06	0.20	0.37
120	-1.53	-0.82	-0.42	-0.01	-0.74
131	-0.98	-0.18	0.74	0.32	0.35
132	-1.05	-0.11	0.30	0.25	0.45
140	-1.70	-0.47	-0.28	-0.17	-1.05
150	-0.04	0.45	0.08	0.04	0.05
158	-1.29	-0.61	-0.28	-0.22	-0.30
159	-1.23	-0.04	0.30	0.25	-0.22
169	-2.84	0.03	-0.49	0.25	0.61
171	-0.27	-0.11	-0.35	-0.32	-1.13
175	0.68	-0.33	-0.49	-0.06	-0.34
194	0.02	-0.11	-0.93	-0.43	-0.26
217	-1.11	-0.40	0.23	-0.01	0.33
224	-0.60	-1.98	-1.19	-0.62	0.22
225	0.38	0.17	0.95	0.15	0.57
228	1.87	-0.04	-2.15	-1.48	0.57
230	0.38	0.53	0.59	1.98	0.96
237	0.68	-1.04	-0.64	-1.01	0.57
238	1.87	0.53	-0.85	-1.42	0.96
252	0.08	-0.54	-1.93	-2.21	-0.22
253	-0.51	-0.54	-0.64	-0.95	-0.62
254	1.87	0.10	-2.22	-1.84	0.25
256	0.08	0.17	0.23	-0.12	-0.22
258	2.41	1.17	-0.21	-1.69	0.49
273	1.45	-0.26	-0.42	-0.12	-0.06
312	0.26	-0.33	0.15	-0.12	-1.41
323	-0.45	-0.54	-0.71	-0.17	-1.09
333	-0.63	0.03	0.37	-0.12	-0.30
334	1.27	-0.18	0.15	-0.12	1.28
335	-0.99	0.03	1.02	1.25	-0.58
336	-0.10	-0.11	0.01	-0.48	-1.44
338	-0.57	0.38	0.66	0.46	1.04
340	0.14	-0.26	0.23	-0.69	-0.66
350	----	----	----	----	----
353	0.74	-0.47	-0.21	0.04	0.09
355	1.36	1.70	0.59	-0.38	0.45
381	1.93	0.45	-0.13	0.36	0.92
399	0.38	-0.90	-1.43	-0.90	-0.81
444	-2.42	-0.68	0.15	0.09	0.13
445	0.68	-0.26	-0.28	-0.53	1.20
447	-2.30	-0.26	-0.42	-0.27	0.09
468	1.10	-0.04	1.09	1.40	0.49
485	0.74	-0.40	0.30	-0.01	-0.46
541	-1.64	-0.33	0.01	-0.06	-0.18
557	1.19	0.24	-0.21	-0.14	0.33
558	3.06	1.59	0.95	2.50	-1.01
562	2.29	0.31	0.80	0.20	0.92
657	-0.87	-0.11	0.08	-0.27	-0.46
671	----	----	----	----	----
753	0.98	0.17	0.59	0.93	0.76
823	-0.04	-0.11	0.23	-0.06	-0.74
840	-1.03	-0.23	0.02	-0.24	-0.17
854	-0.93	0.17	0.95	0.20	-0.30
861	-1.41	-0.11	0.30	0.25	0.01
862	-0.51	-0.18	-0.06	-0.12	-1.21
904	0.20	1.24	1.45	0.41	0.84
912	----	----	----	----	----
922	-0.81	0.45	0.66	0.09	0.76
962	-1.35	0.10	0.80	1.09	-1.17
963	-1.82	-0.54	-0.49	-0.12	-0.38
970	-0.51	-0.11	0.44	0.25	0.49
974	-1.11	-0.04	0.44	0.09	0.92
995	0.68	0.17	-0.13	-0.12	0.17
996	----	----	----	----	----
998	----	----	----	----	----
1006	-1.23	0.03	0.44	0.04	-60.94
1016	----	----	----	----	----
1017	----	----	----	----	----
1026	-0.75	-0.40	-0.42	-0.22	0.17
1033	-0.57	0.53	1.31	1.93	0.05
1059	0.02	0.10	0.30	0.04	1.36

1066	-1.35	-0.11	-0.13	-0.22	-0.34
1080	----	----	----	----	----
1109	1.51	-0.97	0.01	-0.22	0.92
1126	0.26	-0.54	-0.42	0.36	0.68
1134	0.14	-0.18	-0.35	0.25	1.12
1161	1.10	0.17	0.08	0.25	1.04
1186	2.53	0.95	1.74	0.46	-0.58
1254	-0.21	-0.11	0.08	-0.32	-1.21
1297	-0.57	-0.26	-0.35	-0.12	-0.70
1347	1.87	0.88	0.23	-0.12	0.17
1348	2.64	-0.54	-0.06	1.14	0.76
1376	0.44	-0.40	-0.71	-0.59	-1.01
1379	3.66	0.17	-0.49	-0.12	-1.01
1385	-0.51	0.88	0.23	-1.16	1.36
1397	1.33	0.31	1.02	0.93	-0.06
1498	0.02	0.03	0.66	0.15	1.04
1531	-0.45	0.17	0.59	0.09	1.24
1613	-1.05	0.31	0.15	0.25	0.25
1631	----	-0.18	-0.13	0.20	0.92
1634	-1.17	-0.18	0.30	0.51	0.45
1653	----	----	----	----	----
1720	-0.04	0.67	1.02	0.98	-1.25
1724	-0.33	-0.11	0.08	0.25	0.05
1730	----	----	----	----	----
1746	2.47	0.53	-0.85	0.41	-0.62
1776	0.32	0.10	-0.49	0.15	-0.18
1783	-0.63	-0.18	-0.06	-0.01	0.45
1807	-1.29	-0.90	-1.29	-0.43	-0.85
1810	0.86	0.17	-0.35	0.04	-1.05
1811	0.20	-0.18	-0.64	-0.90	0.17
1813	-1.63	-0.78	-0.65	-0.42	-0.89
1849	----	----	----	----	----
1936	-0.27	-0.26	-0.06	-0.12	-0.38
1937	-0.81	-0.18	-0.21	-0.12	-0.26
1938	0.08	0.74	-0.93	-0.74	-0.81
2129	-0.27	0.60	0.44	0.72	-0.38
2130	-1.23	-0.04	0.37	0.25	1.00
6018	-1.05	0.24	1.09	1.04	-0.26
6033	----	----	----	----	----
7003	0.68	0.24	0.15	0.15	-1.52

APPENDIX 3**Number of participants per country****Regular sample #16015**

1 lab in AFGHANISTAN
 1 lab in ALBANIA
 1 lab in ARGENTINA
 3 labs in AUSTRALIA
 2 labs in AUSTRIA
 1 lab in AZERBAIJAN
 2 labs in BELGIUM
 3 labs in BRAZIL
 2 labs in CANADA
 2 labs in CHILE
 3 labs in CHINA, People's Republic
 1 lab in COTE D'IVOIRE
 1 lab in CROATIA
 2 labs in CZECH REPUBLIC
 1 lab in DJIBOUTI
 6 labs in FRANCE
 2 labs in GEORGIA
 3 labs in GREECE
 1 lab in GUAM
 1 lab in GUINEA REPUBLIC
 1 lab in HUNGARY
 1 lab in INDIA
 1 lab in IRAN, Islamic Republic of
 1 lab in IRELAND
 1 lab in ISRAEL
 1 lab in ITALY
 1 lab in JORDAN
 1 lab in KAZAKHSTAN
 2 labs in KENYA
 1 lab in LATVIA
 3 labs in LEBANON
 1 lab in MAURITIUS
 1 lab in MOZAMBIQUE
 6 labs in NETHERLANDS
 1 lab in NIGER
 2 labs in NIGERIA
 1 lab in OMAN
 1 lab in PAKISTAN
 1 lab in POLAND
 2 labs in PORTUGAL
 1 lab in RUSSIAN FEDERATION
 2 labs in SAUDI ARABIA
 1 lab in SERBIA
 1 lab in SINGAPORE
 1 lab in SLOVENIA
 1 lab in SOUTH AFRICA
 1 lab in SOUTH KOREA
 2 labs in SPAIN
 1 lab in SUDAN
 2 labs in SWEDEN
 1 lab in TAIWAN
 1 lab in TANZANIA
 1 lab in TOGO
 1 lab in TUNISIA
 8 labs in TURKEY
 1 lab in TURKMENISTAN
 1 lab in UNITED ARAB EMIRATES
 7 labs in UNITED KINGDOM
 11 labs in U.S.A.
 1 lab in URUGUAY
 1 lab in VIETNAM

DVPE sample #16016

1 lab in ARGENTINA
 3 labs in AUSTRALIA
 2 labs in BELGIUM
 2 labs in BRAZIL
 3 labs in CANADA
 1 lab in CHILE
 3 labs in CHINA, People's Republic
 1 lab in COTE D'IVOIRE
 1 lab in CROATIA
 2 labs in CZECH REPUBLIC
 6 labs in FRANCE
 1 lab in GREECE
 2 labs in IRAN, Islamic Republic of
 1 lab in IRELAND
 1 lab in ITALY
 1 lab in JORDAN
 1 lab in KAZAKHSTAN
 1 lab in KENYA
 1 lab in LATVIA
 1 lab in MALAYSIA
 1 lab in MAURITIUS
 1 lab in MOZAMBIQUE
 3 labs in NETHERLANDS
 2 labs in NIGERIA
 1 lab in OMAN
 1 lab in PAKISTAN
 1 lab in POLAND
 2 labs in PORTUGAL
 1 lab in RUSSIAN FEDERATION
 1 lab in SAUDI ARABIA
 1 lab in SERBIA
 1 lab in SINGAPORE
 1 lab in SLOVENIA
 1 lab in SOUTH KOREA
 2 labs in SPAIN
 1 lab in SUDAN
 2 labs in SWEDEN
 1 lab in TAIWAN
 1 lab in TANZANIA
 1 lab in TOGO
 8 labs in TURKEY
 1 lab in UNITED ARAB EMIRATES
 7 labs in UNITED KINGDOM
 12 labs in U.S.A.

RON/MON sample #16017

1 lab in AFGHANISTAN
 1 lab in ARGENTINA
 2 labs in AUSTRALIA
 1 lab in BELGIUM
 1 lab in BRAZIL
 2 labs in CANADA
 2 labs in CHILE
 2 labs in CHINA, People's Republic
 2 labs in FRANCE
 1 lab in GEORGIA
 1 lab in IRAN, Islamic Republic of
 1 lab in ISRAEL
 1 lab in ITALY
 1 lab in JORDAN
 1 lab in KENYA
 1 lab in LATVIA
 3 labs in LEBANON
 3 labs in NETHERLANDS
 1 lab in NIGERIA
 1 lab in OMAN
 1 lab in PAKISTAN
 1 lab in PORTUGAL
 1 lab in RUSSIAN FEDERATION
 1 lab in SAUDI ARABIA
 1 lab in SERBIA
 1 lab in SINGAPORE
 1 lab in SLOVENIA
 1 lab in SOUTH AFRICA
 1 lab in SOUTH KOREA
 1 lab in SUDAN
 1 lab in SWEDEN
 1 lab in TAIWAN
 1 lab in TANZANIA
 2 labs in TURKEY
 1 lab in UNITED ARAB EMIRATES
 5 labs in UNITED KINGDOM
 8 labs in U.S.A.
 1 lab in URUGUAY

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)/R(1)	= outlier in Rosner outlier test
R(0.05)/R(5)	= straggler in Rosner outlier test
E	= probably an error in calculations
W	= test result withdrawn on request of participant
ex	= test result 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
- 4 ISO13528-05
- 4 ISO 5725-86
- 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/>).
- 14 H. Verplaetse and M. Lacourt, Accred Qual Assur (2006) 11:521-52216
- 15 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, *Technometrics*, 25(2), pp. 165-172, (1983)