

**Results of Proficiency Test
Gasoline (ASTM specification)
February 2017**

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1995, the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for Gasoline. During the annual proficiency testing program 2016/2017, 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 122 laboratories in 64 different countries registered for participation. See appendix 3 for the number of participants per country. In this report, the results of the 2017 proficiency test are presented and discussed. This report is also electronically available through the iis website 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 ISO/IEC 17025 accredited laboratory. In this proficiency test, the participants received, depending on their registration, 1*1 litre bottle Gasoline euro 95 (labelled #17010) and/or 1*1 litre bottle ($\pm 75\%$ filled) Gasoline euro 95 (labelled #17011) for DVPE only, and/or 2*1 litre bottle Gasoline euro 95 (labelled #17012) for RON/MON only.

To get maximum information from this study it was decided to spike the bulk material with approx. 4.2 mg Lead, 3.9 mg Manganese and 1.8 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 March 2017 (iis-protocol, version 3.4). This protocol is electronically available through the iis website 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. From this batch, approximately 325 litres of Gasoline was spiked with the elements Phosphorus (from tricresyl phosphate), Lead (from tetra-ethyl lead) and Manganese (from tricarbonyl(methylcyclopentadienyl)manganese). After mixing and homogenisation in a 500 liter mixing vessel, 140 amber glass bottles of 1 litre were filled and labelled #17010 for the main round and 140 amber glass bottles of 1 litre were filled and labelled #17012 for the determination of RON/MON. The homogeneity of the subsamples #17010 and #17012 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 #17010/12-1	750.34
Sample #17010/12-2	750.56
Sample #17010/12-3	750.35
Sample #17010/12-4	750.44
Sample #17010/12-5	750.40
Sample #17010/12-6	750.53
Sample #17010/12-7	750.34
Sample #17010/12-8	750.71
Sample #17010/12-9	750.50
Sample #17010/12-10	750.34

Table 1: homogeneity test results of subsamples #17010 and #17012

From the same gasoline batch, approximately 200 liters were used to fill 100 bottles of 1 litre with approx. 750 mL and labelled #17011 "for DVPE only". The homogeneity of the subsamples #17011 was checked by determination of Dry Vapour Pressure Equivalent in accordance with ASTM D5191 on 8 stratified randomly selected samples.

	DVPE in psi
Sample #17011-1	8.54
Sample #17011-2	8.54
Sample #17011-3	8.50
Sample #17011-4	8.51
Sample #17011-5	8.48
Sample #17011-6	8.51
Sample #17011-7	8.53
Sample #17011-8	8.50

Table 2: homogeneity test results of subsamples #17011

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 #17010 and #17012)	0.35	----
r (sample #17011)	----	0.06
reference test method	D4052:16	ASTM D5191:15
0.3 x R (ref. test method)	0.57	0.10

Table 3: repeatabilities of subsamples #17010 (and #17012) and #17011

The calculated repeatabilities of the results of the homogeneity tests for Density and DVPE were less than 0.3 times the reproducibilities of the reference test methods. Therefore, the homogeneities of subsamples #17010 (and #17012) and #17011 were assumed.

To the participants, depending on their registration, 1*1 litre bottle of sample #17010 and/or 1*1 litre bottle (\pm 750 mL filled) of sample #17011 and/or 2*1 litre bottle of sample #17012 were sent on February 1, 2017. An SDS was added to the sample package.

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, Manganese, Olefins by FIA, Oxidation Stability, Oxygenates (Ethanol, MTBE, Other Oxygenates), Oxygen content, Phosphorus and Sulphur on sample #17010.

On sample #17011, the participants were requested to determine Total Vapour Pressure and Dry Vapour Pressure (acc. ASTM D5191 and EPA).

On sample #17012, the participants were requested to determine RON and/or MON.

To get comparable test results, a detailed report form and a letter of instructions are prepared. On the report form, the reporting units are given as well as the reference test methods that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The letter of instructions can also be downloaded from the iis website www.iisn.com.

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 March 2017 (iis-protocol, version 3.4).

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. If a data set does not have a normal distribution, the (results of the) statistical evaluation 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's 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's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's 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 and Saudi Arabia received the samples late or not at all. For the main round (117 participants), 13 participants did not report test results. For the “DVPE” round (86 participants), 8 participants did not report test results. For the “RON/MON” round (56 participants), 8 participants did not report test results. Finally, in total 111 laboratories reported 1489 numerical test results. Observed were 39 outlying results, which is 2.6%. 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. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D4052:16.

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.

Benzene: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D3606:10e1.

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

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

Density at 15°C: 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 D4052:16.

Distillation The distillation was not problematic. In total eleven statistical outliers were observed. For the automated mode, the calculated reproducibilities, except for Initial Boiling Point, after rejection of the statistical outliers are in agreement with the requirements of ASTM D86:16a (automated mode). For the manual mode, the calculated reproducibilities, except for Initial and Final Boiling Point, are in agreement with the requirements of ASTM D86:16a (Manual mode).

Doctor Test: Almost all the laboratories agreed on the absence of Mercaptans and reported Negative. One laboratory reported “sweet” and one laboratory reported Positive.

- Existent Gum: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D381:12.
- Lead: The determination was problematic for a large number of laboratories. Thirteen participants did not detect any lead and reported a false negative test result. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the requirements of ASTM D3237:12.
The average recovery of Lead (theoretical increment of 4.15 mg Lead/L) may be good: "approx. 100%".
- Manganese: The determination was not problematic. No statistical outliers were observed, but three participants did not detect any manganese and reported a false negative test result. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ASTM 3831:12.
The average recovery of Manganese (theoretical increment of 3.91 mg Manganese/L) may be good: "approx. 106%" (the actual blank Manganese content is unknown).
- Olefins by FIA: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D1319:15.
- Oxidation stability: All laboratories agreed that the Oxidation Stability is >360 minutes.
- Ethanol: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4815:15b.
- MTBE: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D4815:15b.
- Other Oxygenates: No other oxygenates were found positive by the participating laboratories. Therefore, no significant conclusions were drawn.
- Oxygen content: This determination was not problematic. Two 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 D5599:15.

- Phosphorus: This determination was very problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the requirements of ASTM D3231:13. The average recovery of Phosphorus (theoretical increment of 1.78 mg Phosphorus/L) may be good: "approx. 103%" (the actual blank of Phosphorus content is unknown). The low number of reported test results may (partly) explain the observed large variation.
- Sulphur: 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 D5453:12.
- TVP: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full 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 four statistical outliers. Both calculated reproducibilities after rejection of the statistical outliers are in agreement with the respective requirements of ASTM D5191:15 and EPA guidelines. No calculations errors were observed.
- RON: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D2699:15a.
- MON: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full 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 #17010, #17011 and #17012, 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	-----	59	56.97	0.24	0.48	
Aromatics by FIA	%V/V	49	34.4	4.5	3.7	
Benzene	% V/V	54	0.80	0.11	0.15	
Copper Corrosion 3 hrs at 50°C	-----	87	1	n.a.	n.a.	
Silver Corrosion 3 hrs at 50°C	-----	25	0	n.a.	n.a.	
Density at 15°C	kg/m ³	98	750.5	0.7	1.9	
Distillation					Auto	Manual
- Initial Boiling Point	°C	93	36.8	5.2	4.7	4.3
- Temp. at 10% evaporated	°C	92	52.1	1.7	4.0	3.4
- Temp. at 50% evaporated	°C	94	97.6	3.3	4.0	3.4
- Temp. at 90% evaporated	°C	86	147.4	2.0	5.3	3.9
- Final Boiling Point	°C	94	174.5	4.7	7.1	3.1
Doctor Test	-----	54	negative	n.a.	n.a.	
Existent Gum (washed)	mg/100mL	51	0.6	0.9	2.1	
Lead as Pb	mg/L	24	4.1	2.4	2.6	
Manganese as Mn	mg/L	23	4.1	2.1	3.4	
Olefins by FIA	%V/V	45	6.0	3.0	2.4	
Oxidation Stability	min.	46	>360	n.a.	n.a.	
-Ethanol	%V/V	49	4.6	0.5	0.5	
-MTBE	%V/V	49	2.0	0.3	0.2	
Oxygen content	%M/M	48	2.1	0.2	0.2	
Phosphorus as P	mg/L	9	1.8	0.7	0.2	
Sulphur	mg/kg	76	5.6	2.2	2.1	

Table 4: performance evaluation sample #17010

Parameter	Unit	n	mean	2.8 * sd	R (lit)
TVP	psi	58	9.4	0.3	0.3
DVPE acc. to ASTM D5191	psi	74	8.5	0.3	0.3
DVPE acc. EPA	psi	41	8.6	0.2	0.3

Table 5: performance evaluation sample #17011

Parameter	Unit	n	mean	2.8 * sd	R (lit)
RON	-----	48	96.2	0.9	0.7
MON	-----	33	85.7	0.9	0.9

Table 6: performance evaluation sample #17012

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF FEBRUARY 2017 WITH PREVIOUS PTS

	<i>February 2017</i>	<i>March 2016</i>	<i>February 2015</i>	<i>February 2014</i>	<i>February 2013</i>
Number of rep. p articpants	111	107	123	129	120
Number of results reported	1489	1435	1639	1930	2048
Statistical outliers	39	25	39	73	65
Percentage outliers	2.6%	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>February 2017</i>	<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.
Manganese as Mn	+	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

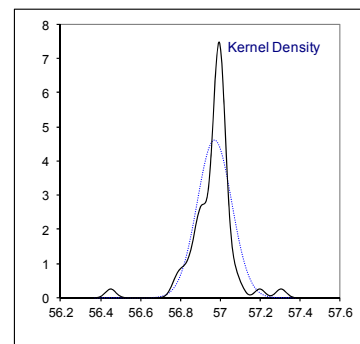
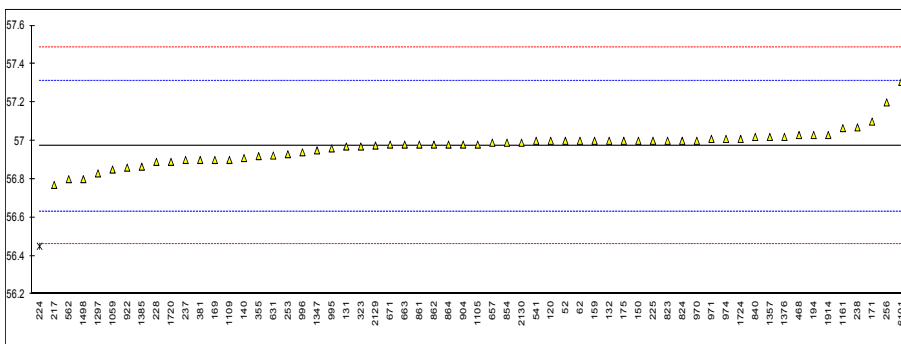
APPENDIX 1

Determination of API Gravity on sample #17010;

lab	method	value	mark	z(targ)	remarks
52	D4052	57.0		0.16	
53		----		----	
62	D4052	57.0		0.16	
120	D4052	57.0		0.16	
131	D4052	56.97		-0.01	
132	D4052	57.0		0.16	
140	D4052	56.91		-0.36	
150	D4052	57.0		0.16	
158		----		----	
159	D4052	57.0		0.16	
169	D4052	56.9		-0.42	
171	D4052	57.1		0.75	
175	D4052	57.0		0.16	
194	D4052	57.03		0.34	
217	D4052	56.77		-1.18	
221		----		----	
224	D1298	56.45	R(0.01)	-3.05	
225	D4052	57.0		0.16	
228	D4052	56.89		-0.48	
230		----		----	
237	D4052	56.9		-0.42	
238	D4052	57.07		0.57	
252		----		----	
253	D4052	56.93		-0.25	
254		----		----	
256	D4052	57.2		1.33	
258		----		----	
312		----		----	
323	D4052	56.97		-0.01	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355	D4052	56.92		-0.30	
381	D4052	56.9		-0.42	
399		----		----	
433		----		----	
468	D4052	57.03		0.34	
485		----		----	
541	D4052	57.0		0.16	
556		----		----	
557		----		----	
558		----		----	
562	D1298	56.8		-1.01	
603		----		----	
631	D4052	56.923		-0.29	
657	D4052	56.99		0.10	
663	D4052	56.98		0.05	
671	D4052	56.98		0.05	
823	D4052	57.0		0.16	
824	D4052	57.0		0.16	
840	D4052	57.02		0.28	
854	D4052	56.99		0.10	
861	D4052	56.98		0.05	
862	D4052	56.98		0.05	
864	D4052	56.98		0.05	
904	D4052	56.98		0.05	
912		----		----	
922	D4052	56.86		-0.66	
962		----		----	
963		----		----	
970	D4052	57.00		0.16	
971	D4052	57.01		0.22	
974	D4052	57.01		0.22	
995	D4052	56.96		-0.07	
996	Calc.	56.94		-0.19	
998		----		----	
1006		----		----	
1016		----		----	
1017		----		----	
1033		----		----	
1040		----		----	
1059	D4052	56.85		-0.71	
1067		----		----	

1080		----	----		
1105	D4052	56.98	0.05		
1109	D4052	56.90	-0.42		
1126		----	----		
1134		----	----		
1161	D287	57.066	0.55		
1186		----	----		
1194		----	----		
1199		----	----		
1213		----	----		
1297	D4052	56.83	-0.83		
1347	D4052	56.95	-0.13		
1348		----	----		
1357	D4052	57.02	0.28		
1376	D4052	57.02	0.28		
1385	D4052	56.865	-0.63		
1394		----	----		
1397		----	----		
1428		----	----		
1498	D4052	56.80	-1.01		
1531		----	----		
1634		----	----		
1720	D4052	56.89	-0.48		
1724	D4052	57.01	0.22		
1730		----	----		
1746		----	----		
1807		----	----		
1810		----	----		
1811		----	----		
1833		----	----		
1849		----	----		
1914	D4052	57.03	0.34		
1936		----	----		
1937		----	----		
1938		----	----		
2129	D4052Conversion	56.975	C	0.02	first reported: 59.795
2130	D4052	56.99		0.10	
6016		----	----		
6018		----	----		
6101	D4052	57.3071		1.96	
6108		----	----		

normality not OK
n 59
outliers 1
mean (n) 56.972
st.dev. (n) 0.0868
R(calc.) 0.243
R(D4052:16) 0.479

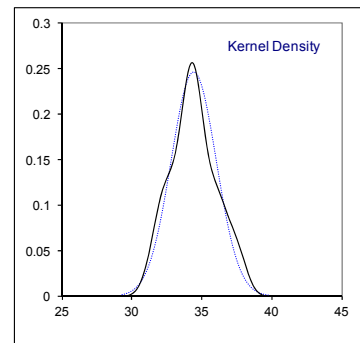
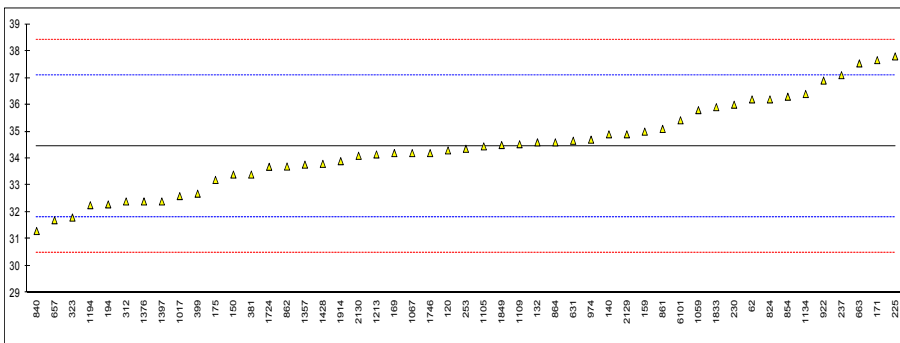


Determination of Aromatics by FIA on sample #17010; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62	D1319	36.2		1.33	
120	D1319	34.3		-0.10	
131		----		----	
132	D1319	34.6		0.12	
140	D1319	34.9		0.35	
150	D1319	33.4		-0.78	
158		----		----	
159	D1319	35.0		0.43	
169	D1319	34.2		-0.18	
171	D1319	37.66		2.44	
175	D1319	33.2		-0.94	
194	D1319	32.29		-1.62	
217		----		----	
221		----		----	
224		----		----	
225	D1319	37.8		2.55	
228		----		----	
230	D1319	36.002	C	1.18	first reported: 39.539
237	D1319	37.1		2.02	
238		----		----	
252		----		----	
253	D1319	34.36		-0.06	
254		----		----	
256		----		----	
258		----		----	
312	D1319	32.4		-1.54	
323	D1319	31.8		-2.00	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	EN15553	33.4		-0.78	
399	D1319	32.69		-1.32	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D1319	34.66	C	0.17	first reported: 24.66
657	D1319	31.7		-2.07	
663	D1319	37.54		2.35	
671		----		----	
823		----		----	
824	D1319	36.2		1.33	
840	D1319	31.30		-2.37	
854	D1319	36.3		1.41	
861	D1319	35.10		0.50	
862	D1319	33.7		-0.56	
864	D1319	34.6		0.12	
904		----		----	
912		----		----	
922	D1319	36.9		1.86	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D1319	34.7		0.20	
995		----		----	
996		----		----	
998		----		----	
1006		----		----	
1016		----		----	
1017	ISO22854	32.60		-1.39	
1033		----		----	
1040		----		----	
1059	D1319	35.8		1.03	
1067	D1319	34.2		-0.18	
1080		----		----	

1105	D1319	34.45	0.01
1109	D1319	34.53	0.07
1126		----	----
1134	D1319	36.4	1.49
1161		----	----
1186		----	----
1194	D1319	32.26	-1.65
1199		----	----
1213	D1319	34.15	-0.22
1297		----	----
1347		----	----
1348		----	----
1357	D1319	33.77	-0.50
1376	D1319	32.4	-1.54
1385		----	----
1394		----	----
1397	D1319	32.4	-1.54
1428	D1319	33.8	-0.48
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724	D1319	33.69	-0.56
1730		----	----
1746	D1319	34.2	-0.18
1807		----	----
1810		----	----
1811		----	----
1833	D1319	35.91	1.12
1849	EN15553	34.5	0.05
1914	D1319	33.9	-0.41
1936		----	----
1937		----	----
1938		----	----
2129	D1319	34.9	0.35
2130	D1319	34.1	-0.25
6016		----	----
6018		----	----
6101	D1319	35.42	0.74
6108		----	----

normality OK
n 49
outliers 0
mean (n) 34.44
st.dev. (n) 1.618
R(calc.) 4.53
R(D1319:15) 3.70



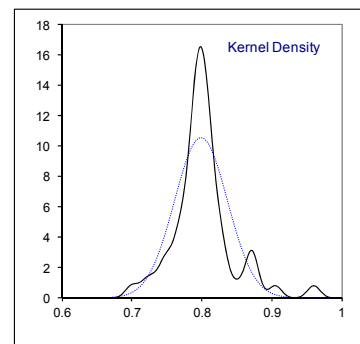
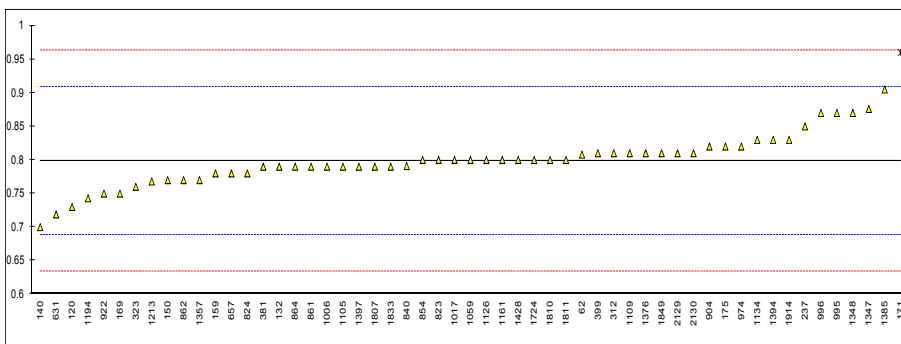
Determination of Benzene on sample #17010; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62		0.808		0.17	
120	D3606	0.73		-1.25	
131		----		----	
132	D3606	0.79		-0.16	
140	D3606	0.70		-1.80	
150	D3606	0.77		-0.53	
158		----		----	
159	D3606	0.78		-0.34	
169	D3606	0.75		-0.89	
171	D3606	0.96	R(0.01)	2.93	
175	D3606	0.82		0.38	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237	D5580	0.85		0.93	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D3606	0.81		0.20	
323	D3606	0.76		-0.71	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	ISO22854	0.79		-0.16	
399	EN22854	0.81		0.20	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D6730	0.719		-1.45	
657	D5580	0.78		-0.34	
663		----		----	
671		----		----	
823	D5580	0.80		0.02	
824	D5580	0.78		-0.34	
840	D6730	0.791		-0.14	
854	D5580	0.80		0.02	
861	D5580	0.79		-0.16	
862	D5580	0.77		-0.53	
864	D5580	0.79		-0.16	
904	D5580	0.82		0.38	
912		----		----	
922	D6277b	0.75		-0.89	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D5580	0.82		0.38	
995	D6729	0.87		1.29	
996	D6277	0.87		1.29	
998		----		----	
1006	D5580	0.79		-0.16	
1016		----		----	
1017	ISO22854	0.80		0.02	
1033		----		----	
1040		----		----	
1059	ISO22854	0.80		0.02	
1067		----		----	

1080		----	----
1105	D6839	0.79	-0.16
1109	D3606	0.810	0.20
1126	D6839	0.80	0.02
1134	D3606	0.83	0.57
1161	EN22854	0.80	0.02
1186		----	----
1194	D3606	0.743	-1.02
1199		----	----
1213	D3606	0.768	-0.56
1297		----	----
1347	D5580	0.876	1.40
1348	D5580	0.870	1.29
1357	D6839	0.77	-0.53
1376	D6730	0.810	0.20
1385	D5580	0.905	1.93
1394		0.83	0.57
1397	EN238	0.79	-0.16
1428	EN12177	0.80	0.02
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724	EN22854	0.80	0.02
1730		----	----
1746		----	----
1807	EN22854	0.79	-0.16
1810	ISO22854	0.80	0.02
1811	EN22854	0.80	0.02
1833	ISO22854	0.79	-0.16
1849	ISO22854	0.81	0.20
1914	In house	0.83	0.57
1936		----	----
1937		----	----
1938		----	----
2129	EN238	0.81	0.20
2130	D6730	0.81	0.20
6016		----	----
6018		----	----
6101		----	----
6108		----	----

normality suspect
 n 54
 outliers 1
 mean (n) 0.799
 st.dev. (n) 0.0378
 R(calc.) 0.106
 R(D3606:10e1) 0.154

Compare R(D5580:15) = 0.106



Determination of Copper Corrosion 3hrs at 50°C on sample #17010;

lab	method	value	mark	z(targ)	remarks
52	D130	1a		----	
53		----		----	
62	D130	1b		----	
120	D130	1A		----	
131	D130	1a		----	
132	D130	1a		----	
140	D130	1a		----	
150	D130	1a		----	
158		----		----	
159	D130	1a		----	
169	D130	1A		----	
171	D130	1a		----	
175	D130	1		----	
194	D130	1a		----	
217	D130	1a		----	
221		----		----	
224	D130	1a		----	
225	D130	1a		----	
228	D130	1A		----	
230	D130	1A		----	
237	D130	1A		----	
238	D130	1a		----	
252	D130	1a		----	
253	D130	1 A		----	
254	D130	1A		----	
256	D130	1A		----	
258	D130	1a		----	
312	D130	1a		----	
323	D130	1A		----	
333		----		----	
335	D130	1b		----	
336	D130	1		----	
337		----		----	
338		----		----	
353	D130	1A		----	
355		----		----	
381	ISO2160	1		----	
399	D130	1A		----	
433		----		----	
468	D130	1A		----	
485		----		----	
541	D130	1A		----	
556		----		----	
557		----		----	
558		----		----	
562	D130	1		----	
603	D130	1A		----	
631	D130	1A		----	
657	D130	1a		----	
663	D130	1a		----	
671	D130	1A		----	
823	D130	1a		----	
824	D130	1a		----	
840	D130	1a		----	
854	D130	1a		----	
861	D130	1a		----	
862	D130	1a		----	
864	D130	1a		----	
904	D130	1a		----	
912		----		----	
922	D130	1A		----	
962		----		----	
963		----		----	
970	D130	1a		----	
971	D130	1a		----	
974	D130	1a		----	
995	D130	1a		----	
996	D130	1a		----	
998		----		----	
1006	D130	1a		----	
1016	D130	1A		----	
1017	D130	1A		----	
1033		----		----	
1040		----		----	
1059	D130	1a		----	
1067	D130	1A		----	

1080	D130	1a	----
1105	D130	1a	----
1109	D130	1a	----
1126		----	----
1134	D130	1a	----
1161	ISO2160	1a	----
1186	D130	1A	----
1194		----	----
1199		----	----
1213	D130	1A	----
1297	D130	1A	----
1347	D130	1A	----
1348	D130	1A	----
1357	D130	1a	----
1376	D130	1A	----
1385	D130	1A	----
1394	ISO2160	1a	----
1397	D130	1	----
1428	D130	1a	----
1498		----	----
1531	D130	1a	----
1634	D130	1a	----
1720		----	----
1724	D130	1a	----
1730		----	----
1746	D130	1A	----
1807	D130	1a	----
1810		----	----
1811	ISO2160	1	----
1833	D130	No 1	----
1849	ISO2160	1A	----
1914	D130	1A	----
1936		----	----
1937		----	----
1938		----	----
2129	D130	1a	----
2130	D130	1a	----
6016		----	----
6018	ISO2160	1a	----
6101	D130	1a	----
6108		----	----
n		87	
mean (n)		1	

Determination of Silver Corrosion 3hrs at 50°C on sample #17010;

lab	method	value	mark	z(targ)	remarks
52	D7671-A	0		----	
53		----		----	
62	D7671-A	0		----	
120	D7671-A	0		----	
131		----		----	
132	D7671-A	0		----	
140	D7671-A	0		----	
150	D7671-A	0		----	
158		----		----	
159	D7671-A	0		----	
169	D7671-A	0		----	
171	D7671-A	0		----	
175		----		----	
194	D7671-A	0		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237		----		----	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D7671-A	0		----	
323	D7671-A	0		----	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381		----		----	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631		----		----	
657	D7667-A	0		----	
663	D7671-A	0		----	
671		----		----	
823	D7671-A	0		----	
824	D7671-A	0		----	
840		----		----	
854		----		----	
861		----		----	
862	D7671-A	0		----	
864		----		----	
904		----		----	
912		----		----	
922		----		----	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974		----		----	
995		----		----	
996		----		----	
998		----		----	
1006		----		----	
1016	D7671-A	0		----	
1017		----		----	
1033		----		----	
1040		----		----	
1059		----		----	
1067	D4814-A1	0		----	

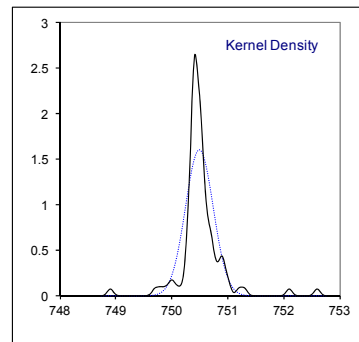
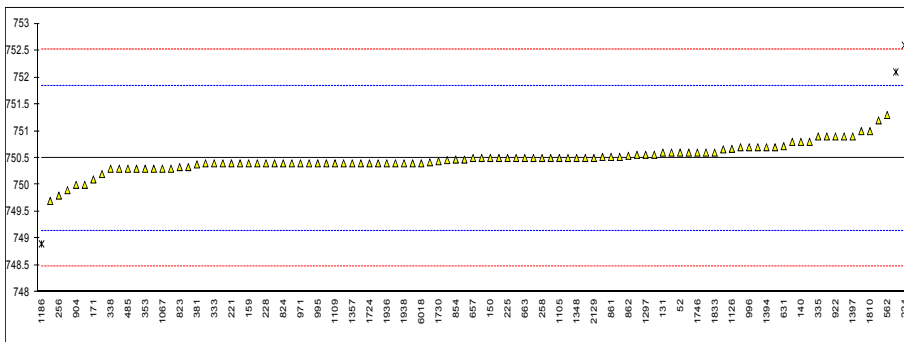
1080		----	----
1105		----	----
1109	D7671-A	1	----
1126		----	----
1134	D7671-A	1	----
1161		----	----
1186		----	----
1194		----	----
1199		----	----
1213		----	----
1297		----	----
1347		----	----
1348		----	----
1357		----	----
1376		----	----
1385		----	----
1394		----	----
1397		----	----
1428		----	----
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724		----	----
1730		----	----
1746		----	----
1807		----	----
1810		----	----
1811		----	----
1833		----	----
1849		----	----
1914	D7671-A	0	----
1936		----	----
1937		----	----
1938		----	----
2129	D7667-A	0	----
2130	D7671-A	0	----
6016		----	----
6018		----	----
6101	D7667-A	0	----
6108		----	----
n		25	
mean (n)		0	

Determination of Density at 15°C on sample #17010; results in kg/m³

lab	method	value	mark	z(targ)	remarks
52	D4052	750.6		0.16	
53		-----		-----	
62	D4052	750.5		0.01	
120	D4052	750.4		-0.14	
131	D4052	750.6		0.16	
132	D4052	750.4		-0.14	
140	D4052	750.8		0.46	
150	D4052	750.5		0.01	
158		-----		-----	
159	D4052	750.4		-0.14	
169	D4052	750.8		0.46	
171	D1298	750.1		-0.58	
175	D4052	750.5		0.01	
194	D4052	750.3		-0.29	
217	D4052	750.8		0.46	
221	D4052	750.4		-0.14	
224	D1298	752.6	R(0.01)	3.13	
225	D4052	750.5		0.01	
228	D4052	750.4		-0.14	
230	D4052	750.52	C	0.04	first reported: 735.94
237	D4052	750.33		-0.24	
238	D4052	750.2		-0.43	
252		-----		-----	
253	D4052	750.7		0.31	
254	D4052	749.9		-0.88	
256	D4052	749.8		-1.03	
258	D4052	750.5		0.01	
312	D4052	750.3		-0.29	
323	D4052	750.5		0.01	
333	D4052	750.4		-0.14	
335	D4052	750.9		0.61	
336	D4052	750.9		0.61	
337	D4052	750.6		0.16	
338	D4052	750.3		-0.29	
353	IP365	750.3		-0.29	
355	D4052	750.66		0.25	
381	D4052	750.38		-0.17	
399	D4052	749.7		-1.18	
433	ISO12185	750.4		-0.14	
468	D4052	750.3		-0.29	
485	D4052	750.3		-0.29	
541	D4052	750.4		-0.14	
556		-----		-----	
557		-----		-----	
558		-----		-----	
562	D1298	751.3		1.20	
603	D4052	750.4		-0.14	
631	D4052	750.72		0.34	
657	D4052	750.5		0.01	
663	D4052	750.50		0.01	
671	D4052	750.5		0.01	
823	D4052	750.33		-0.24	
824	D4052	750.4		-0.14	
840	D4052	750.42		-0.11	
854	D4052	750.47		-0.03	
861	D4052	750.52		0.04	
862	D4052	750.54		0.07	
864	D4052	750.52		0.04	
904	D4052	750.0		-0.73	
912		-----		-----	
922	D4052	750.9		0.61	
962		-----		-----	
963		-----		-----	
970	D4052	750.4		-0.14	
971	D4052	750.4		-0.14	
974	D4052	750.4		-0.14	
995	D4052	750.4		-0.14	
996	D4052	750.7		0.31	
998		-----		-----	
1006	D4052	750.7		0.31	
1016		-----		-----	
1017	ISO12185	750.46		-0.05	
1033	IP365	751		0.76	
1040		-----		-----	
1059	D4052	750.5		0.01	
1067	D4052	750.3		-0.29	

1080	D4052	750.4		-0.14	
1105	D4052	750.5		0.01	
1109	D4052	750.4		-0.14	
1126	D4052	750.67		0.26	
1134	D4052	750.5	C	0.01	reported: 0.7505, probably a unit error?
1161	D4052	750.40		-0.14	
1186	D1298	748.9	R(0.01)	-2.37	
1194		----		----	
1199		----		----	
1213	D4052	750.47		-0.03	
1297	D4052	750.56		0.10	
1347	D4052	750.56		0.10	
1348	D4052	750.50		0.01	
1357	D4052	750.4		-0.14	
1376	D4052	750.6		0.16	
1385	D4052	750.90		0.61	
1394	D4052	750.7		0.31	
1397	D4052	750.9		0.61	
1428	D4052	750.4		-0.14	
1498	D4052	751.2		1.05	
1531	D4052	752.1	R(0.01)	2.39	
1634	D4052	750.559		0.10	
1720	D4052	750.5		0.01	
1724	D4052	750.4		-0.14	
1730	ISO12185	750.44		-0.08	
1746	D4052	750.6		0.16	
1807	ISO12185	750.60		0.16	
1810	ISO12185	751.0		0.76	
1811	ISO12185	750.7		0.31	
1833	D4052	750.6		0.16	
1849	ISO12185	750.4		-0.14	
1914	D4052	750.3		-0.29	
1936	ISO12185	750.4		-0.14	
1937	ISO12185	750.4		-0.14	
1938	ISO12185	750.4		-0.14	
2129	D4052	750.5		0.01	
2130	D4052	750.4		-0.14	
6016		----		----	
6018	ISO12185	750.4		-0.14	
6101	D4052	750.0		-0.73	
6108		----		----	

normality not OK
n 98
outliers 3
mean (n) 750.492
st.dev. (n) 0.2484
R(calc.) 0.696
R(D4052:16) 1.883



Determination of Distillation at 760 mm Hg ASTM D86 on sample #17010; results in °C

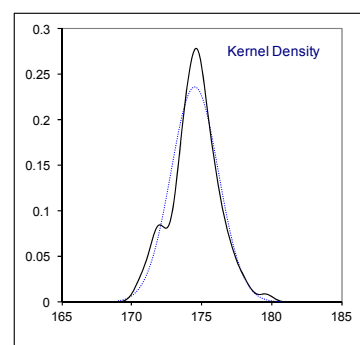
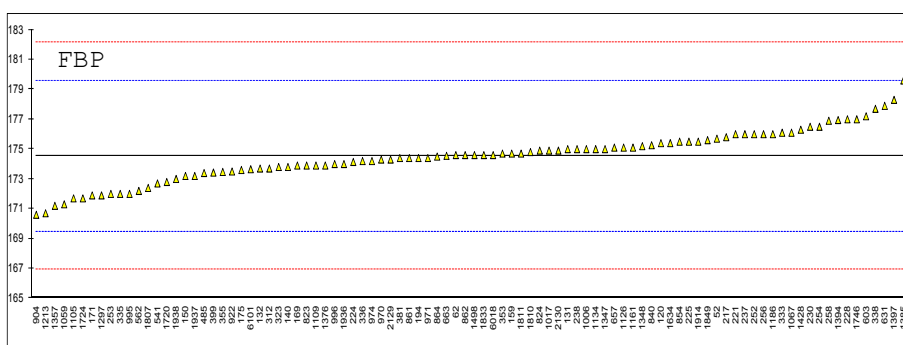
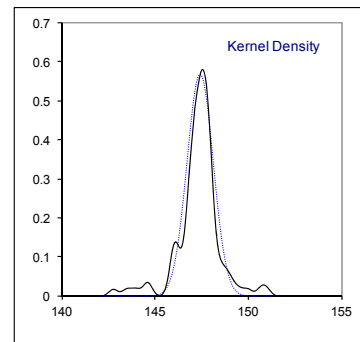
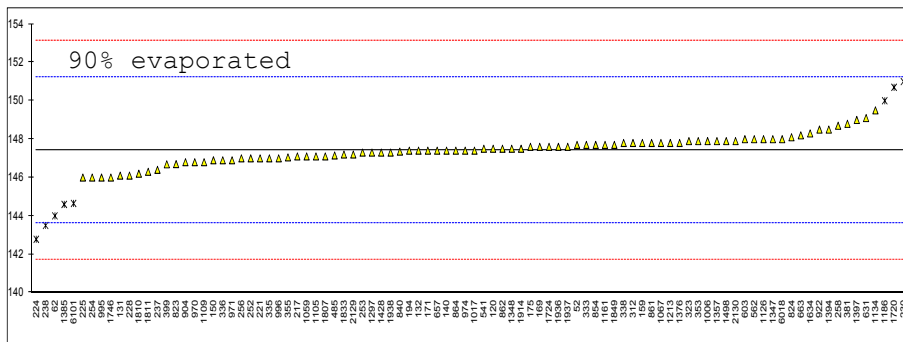
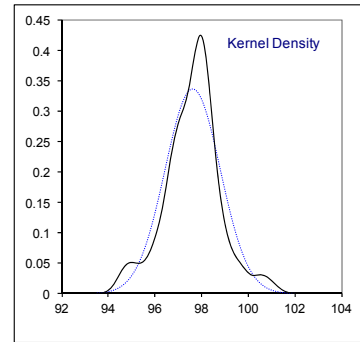
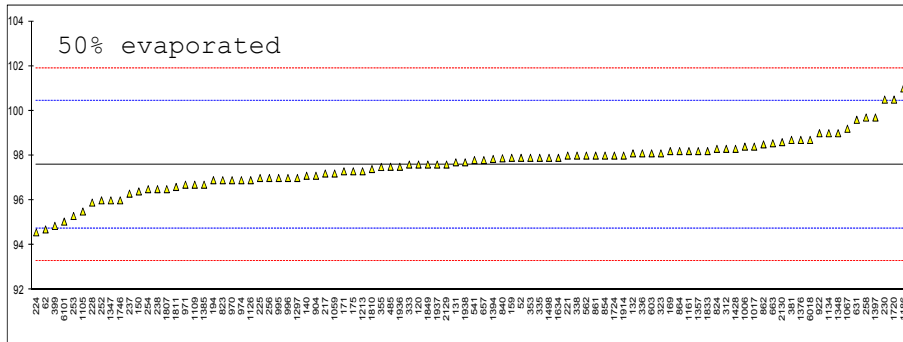
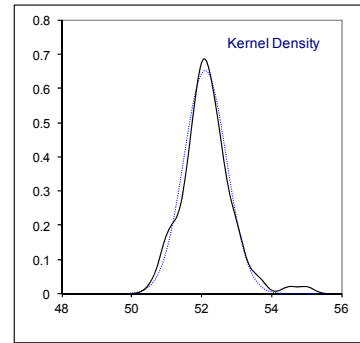
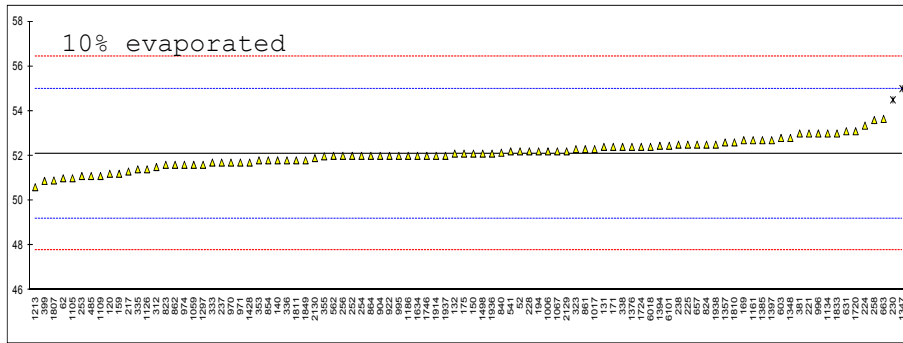
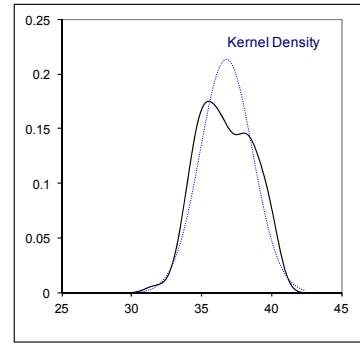
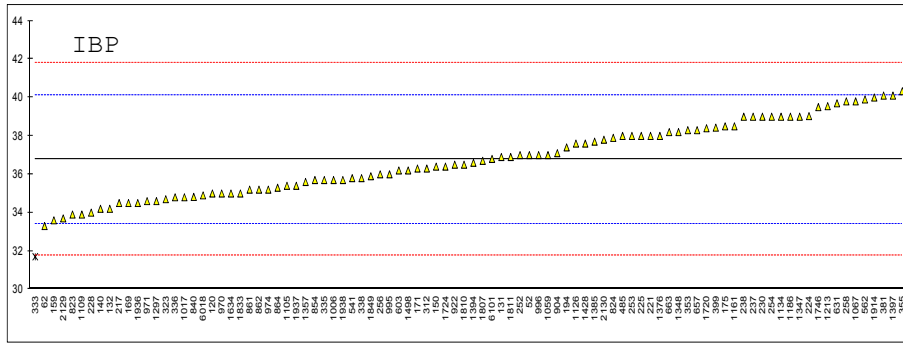
lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
52	D86-Automated	37.0		52.2		97.9		147.7		175.7	
53		----		----		----		----		----	
62	D86-Automated	33.3		51.0		94.7		144.0	R(0.05)	174.6	
120	D86-Automated	35.0		51.2		97.6		147.5		175.4	
131	D86-Automated	36.9		52.4		97.7		146.1		175.0	
132	D86-Automated	34.2		52.1		98.1		147.4		173.7	
140	D86-Automated	34.2		51.8	C	97.1		147.4		173.8	
150	D86-Automated	36.4		52.1		96.4		146.9		173.2	
158		----		----		----		----		----	
159	D86-Automated	33.6		51.2		97.9		147.8		174.7	
169	D86-Automated	34.5		52.7		98.2		147.6		173.9	
171	D86-Automated	36.3		52.4		97.3		147.4		171.9	
175	D86-Automated	38.5		52.1		97.3		147.6		173.6	
194	D86-Automated	37.4		52.2		96.9		147.4		174.4	
217	D86-Automated	34.5		51.3		97.2		147.1		175.8	
221		38.0		53.0		98.0		147.0		176.0	
224	D86-Manual	39.03		53.35		94.57		142.78	R(0.01)	174.14	
225	D86-Manual	38.0		52.5		97.0		146.0		175.5	
228		34.0		52.2		95.9		146.1		177.0	
230	D86-Manual	39.0		54.5	R(0.05)	100.5		151.0	R(0.05)	176.5	
237	D86-Manual	39.0		51.7		96.3		146.4		176.0	
238	D86-Manual	39.0		52.5		96.5		143.5	R(0.05)	175.0	
252		37.0		52.0		96.0		147.0		176.0	
253	D86-Manual	38.0		51.1		95.3		147.3		172.0	
254	D86-Manual	39.0		52.0		96.5		146.0		176.5	
256	D86-Manual	36.0		52.0		97.0		147.0		176.0	
258	D86-Automated	39.8		53.6		99.7		148.7		176.9	
312	D86-Automated	36.3		51.5		98.3		147.8		173.7	
323	D86-Automated	34.7		52.3		98.1		147.9		173.8	
333	D86-Automated	31.7	R(0.05)	51.7		97.6		147.7		176.1	
335	D86-Automated	35.7		51.4		97.9		147.0		172.0	
336	D86-Automated	34.8		51.8		98.1		146.9		174.2	
337		----		----		----		----		----	
338	D86-Automated	35.8		52.4		98.0		147.8		177.7	
353	IP123-Automated	38.3		51.8		97.9		147.9		174.7	
355	D86-Manual	40.33		51.98		97.49		147.05		173.47	
381	D86-Automated	40.1		53.0		98.7		148.8		174.4	
399	D86-Automated	38.43		50.88		94.86		146.69		173.43	
433		----		----		----		----		----	
468		----		----		----		----		----	
485	D86-Automated	38.0		51.1		97.5		147.15		173.4	
541		35.8		52.2		97.8		147.5		172.7	
556		----		----		----		----		----	
557		----		----		----		----		----	
558		----		----		----		----		----	
562	D86-Automated	39.9		52		98		148		172.2	
603	D86-Automated	36.2		52.8		98.1		148.0		177.2	
631	D86-Automated	39.7		53.1		99.6		149.1		177.9	
657	D86-Automated	38.3		52.5		97.8		147.4		175.1	
663	D86-Automated	38.20		53.65		98.55		148.20		174.55	
671		----		----		----		----		----	
823	D86-Automated	33.9		51.6		96.9		146.7		173.9	
824	D86-Automated	37.9		52.5		98.3		148.1		174.9	
840	D86-Automated	34.82		52.14		97.88		147.35		175.26	
854	D86-Automated	35.7		51.8		98.0		147.7		175.5	
861	D86-Automated	35.2		52.3		98.0		147.8		174.4	
862	D86-Automated	35.2		51.6		98.5		147.5		174.6	
864	D86-Automated	35.3		52.0		98.2		147.4		174.5	
904	D86-Automated	37.1		52.0		97.1		146.8		170.6	
912		----		----		----		----		----	
922	D86-Manual	36.5		52.0		99.0		148.5		173.5	
962		----		----		----		----		----	
963		----		----		----		----		----	
970		35.0		51.7		96.9		146.8		174.3	
971	D86-Automated	34.6		51.7		96.7		146.9		174.4	
974	D86-Automated	35.2		51.6		96.9		147.4		174.2	
995	D86-Manual	36.0		52.0		97.0		146.0		172.0	
996	D86-Manual	37.0		53.0		97.0		147.0		174.0	
998		----		----		----		----		----	
1006		35.7		52.2		98.4		147.9		175.0	
1016		----		----		----		----		----	
1017	ISO3405-Automated	34.8		52.3		98.4		147.4		174.9	
1033		----		----		----		----		----	
1040		----		----		----		----		----	
1059	D86-Automated	37.0		51.6		97.2		147.1		171.3	
1067	D86-Automated	39.8		52.2		99.2		147.8		176.1	

1080		----	----	----	----	----
1105	D86-Automated	35.4	51.0	95.5	147.1	171.7
1109	D86-Automated	33.9	51.1	96.7	146.8	173.9
1126	D86-Automated	37.6	51.4	96.9	148.0	175.1
1134	D86-Manual	39.0	53.0	99.0	149.5	175.0
1161	D86-Automated	38.5	52.7	98.2	147.7	175.1
1186		39.0	C 52.0	C 101	150	R(0.05) 176
1194	D86-Automated	----	----	----	----	----
1199		----	----	----	----	----
1213	D86-Manual	39.55	50.6	97.3	147.8	170.7
1297	D86-Automated	34.6	51.6	97	147.3	171.9
1347	D86-Manual	39.0	55.0	R(0.01) 96.0	148.0	175.0
1348	D86-Automated	38.2	52.8	99.0	147.5	175.2
1357	D86-Automated	35.6	52.6	98.2	147.9	171.2
1376	D86-Automated	38.0	52.4	98.7	147.8	173.9
1385	D86-Manual	37.7	52.7	96.7	144.6	R(0.05) 179.6
1394		36.60	52.45	97.85	148.50	176.95
1397	D86-Automated	40.1	52.7	99.7	149.0	178.3
1428	D86-Automated	37.6	51.7	98.3	147.3	176.3
1498	D86-Automated	36.2	52.1	97.9	147.9	174.6
1531		----	----	----	----	----
1634	D86-Automated	35.0	52.0	97.9	148.3	175.4
1720	D86-Automated	38.4	53.1	100.5	150.7	R(0.05) 172.8
1724	D86-Automated	36.4	52.4	98	147.6	171.7
1730		----	----	----	----	----
1746	D86-Manual	39.5	52.0	96.0	146.0	177.0
1807	ISO3405-Automated	36.7	50.9	96.5	147.1	172.4
1810	ISO3405-Automated	36.5	52.6	97.4	146.2	174.8
1811	D86-Automated	36.9	51.8	96.6	146.3	174.7
1833	D86-Automated	35	53	98.2	147.2	174.6
1849	ISO3405-Automated	35.9	51.8	97.6	147.7	175.6
1914	D86-Manual	40.0	52.0	98.0	147.5	175.5
1936	ISO3405-Automated	34.5	52.1	97.5	147.6	174.0
1937	ISO3405-Automated	35.4	52.0	97.6	147.6	173.2
1938	ISO3405-Automated	35.7	52.5	97.7	147.3	173.0
2129	D86-Automated	33.7	52.2	97.6	147.2	174.3
2130	D86-Automated	37.8	51.9	98.6	147.9	174.9
6016		----	----	----	----	----
6018	ISO3405-Automated	34.9	52.4	98.7	148.0	174.6
6101	D86-Automated	36.8	52.45	C 95.05	144.65	R(0.05) 173.65
6108		----	----	----	----	----
	normality	OK	OK	OK	OK	OK
	n	93	92	94	86	94
	outliers	1	2	0	8	0
	mean (n)	36.78	52.10	97.60	147.44	174.53
	st.dev. (n)	1.866	0.611	1.186	0.703	1.689
	R(calc.)	5.23	1.71	3.32	1.97	4.73
	R(D86:16a Automated)	4.70	4.04	4.01	5.32	7.10
	R(D86:16a Manual)	(4.27)	(3.42)	(3.39)	(3.85)	(3.10)

Lab 140 first reported for temperature at 10% evaporated: 47.8

Lab 1186 first reported for IBP: 43 and for temperature at 10% evaporated: 57

Lab 6101 first reported for temperature at 10% evaporated: 46.45



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Determination of Doctor Test on sample #17010;

lab	method	value	mark	z(targ)	remarks
52	D4952	Neg		----	
53		----		----	
62		----		----	
120	D4952	Negative		----	
131		----		----	
132	D4952	Negative		----	
140	D4952	Negative		----	
150	D4952	Negative		----	
158		----		----	
159	D4952	negative		----	
169		----		----	
171	D4952	Negative		----	
175		----		----	
194		----		----	
217	D4952	negative		----	
221		----		----	
224		----		----	
225	D4952	Negative		----	
228		----		----	
230	D4952	Negative		----	
237	D4952	Negative		----	
238	D4952	Negative		----	
252	IP30	Negative		----	
253		----		----	
254	IP30	NEGATIVE		----	
256	D4952	Negative		----	
258	D4952	Negative		----	
312	IP30	Negative		----	
323	D4952	Negative		----	
333		----		----	
335		----		----	
336	D4952	Negative		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381		----		----	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541	IP30	Negative		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631		----		----	
657	D4952	sweet		----	
663	D4952	Positive		----	Possible false positive result?
671		----		----	
823	D4952	negative		----	
824	D4952	Negative		----	
840	D4952	Negative		----	
854	D4952	negative	C	----	
861	D4952	negative		----	
862	D4952	negative		----	
864	D4952	Negative		----	
904	D4952	negative		----	
912		----		----	
922	D4952	Negative		----	
962		----		----	
963		----		----	
970	D4952	Negative		----	
971	D4952	Negative		----	
974	D4952	Negative		----	
995	D4952	negative		----	
996	D4952	neg		----	
998		----		----	
1006		----		----	
1016		----		----	
1017		----		----	
1033		----		----	
1040		----		----	
1059	D4952	negative		----	

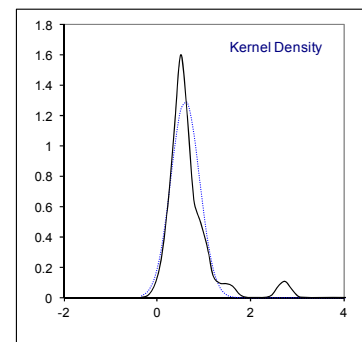
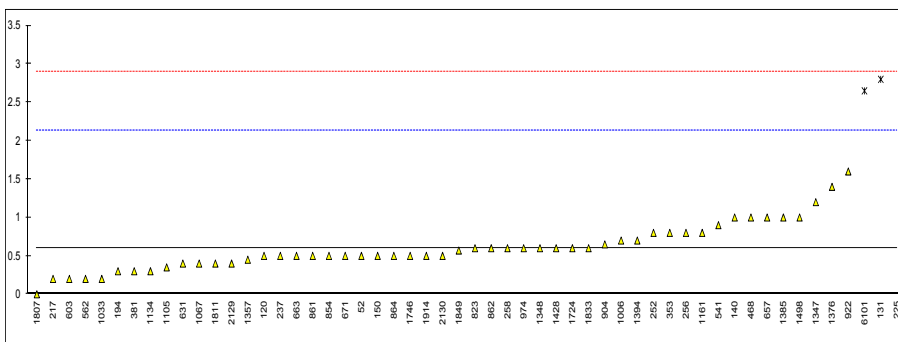
1067	IP30	Negative	----
1080		----	----
1105	D4952	negative	----
1109	IP30	Negative	----
1126		----	----
1134	IP30	Negative	----
1161		----	----
1186		----	----
1194		----	----
1199		----	----
1213	D4952	Negative	----
1297	D4952	NEGATIVE	----
1347		----	----
1348		----	----
1357	D4952	Negative	----
1376		----	----
1385		----	----
1394		----	----
1397		----	----
1428	D4952	Negative	----
1498		----	----
1531		----	----
1634		----	----
1720	D4952	Negative	----
1724	IP30	neg	----
1730		----	----
1746	D4952	Negative	----
1807	D4952	negative	----
1810		----	----
1811		----	----
1833	D4952	NEG	----
1849	TS2884	Negative	----
1914	D4952	negative	---- remark lab: the test negative and consider the sample as sweet
1936		----	----
1937		----	----
1938		----	----
2129	IP30	Negative	----
2130	IP30	Negative	----
6016		----	----
6018		----	----
6101	D4952	Negative	----
6108		----	----
n		54	
mean (n)		negative or sweet	

Determination of Existent Gum (washed) on sample #17010; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D381	0.5		-0.14	
53		----		----	
62		----		----	
120	D381	0.5		-0.14	
131	D381	2.8	R(0.01)	2.87	
132	D381	<0.5		----	
140	D381	1.0		0.52	
150	D381	0.5		-0.14	
158		----		----	
159		----		----	
169		----		----	
171	D381	<0.5		----	
175	D381	<0.5		----	
194	D381	0.3		-0.40	
217	D381	0.2		-0.53	
221		----		----	
224		----		----	
225	D381	35.0	R(0.01)	44.91	
228		----		----	
230		----		----	
237	D381	0.5		-0.14	
238		----		----	
252	D381	0.8		0.26	
253	IP540	< 1		----	
254		----		----	
256	D381	0.8		0.26	
258	D381	0.6		-0.01	
312		----		----	
323	D381	<0.5		----	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353	IP131	0.8		0.26	
355		----		----	
381	ISO6246	0.3		-0.40	
399		----		----	
433		----		----	
468	D381	1.0		0.52	
485		----		----	
541	D381	0.90		0.39	
556		----		----	
557		----		----	
558		----		----	
562	D381	0.2		-0.53	
603	D381	0.2		-0.53	
631	D381	0.4		-0.27	
657	D381	1.0		0.52	
663	D381	0.5		-0.14	
671	D381	0.5		-0.14	
823	D381	0.6		-0.01	
824	D381	<0.5		----	
840		----		----	
854	D381	0.5		-0.14	
861	D381	0.5		-0.14	
862	D381	0.6		-0.01	
864	D381	0.5		-0.14	
904	D381	0.65		0.06	
912		----		----	
922	D381	1.6		1.30	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D381	0.6		-0.01	
995		----		----	
996		----		----	
998		----		----	
1006	D381	0.7		0.12	
1016		----		----	
1017		----		----	
1033	IP131	0.2		-0.53	
1040		----		----	
1059	ISO6246	<1		----	
1067	D381	0.4		-0.27	

1080		----	----
1105	D381	0.35	-0.33
1109	D381	<0.5	----
1126		----	----
1134	D381	0.3	-0.40
1161	ISO6246	0.8	0.26
1186		----	----
1194		----	----
1199		----	----
1213	D381	<0.5	----
1297		----	----
1347	D381	1.2	0.78
1348	D381	0.6	-0.01
1357	D381	0.45	-0.20
1376	D381	1.4	1.04
1385	D381	1.0	0.52
1394		0.7	0.12
1397		----	----
1428	D381	0.6	-0.01
1498	D381	1.0	0.52
1531		----	----
1634		----	----
1720		----	----
1724	D381	0.6	-0.01
1730		----	----
1746	D381	0.5	-0.14
1807	ISO6246	0	-0.79
1810		----	----
1811	D381	0.4	-0.27
1833	D381	0.6	-0.01
1849	ISO6246	0.57	-0.04
1914	D381	0.5	-0.14
1936		----	----
1937		----	----
1938		----	----
2129	D381	0.40	-0.27
2130	D381	0.5	-0.14
6016		----	----
6018		----	----
6101	D381	2.65	R(0.01) 2.67
6108		----	----

normality not OK
n 51
outliers 3
mean (n) 0.604
st.dev. (n) 0.3068
R(calc.) 0.859
R(D381:12) 2.144



Determination of Lead as Pb on sample #17010; results in mg/L

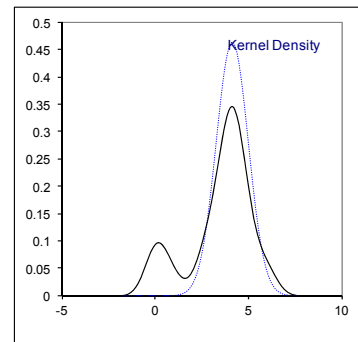
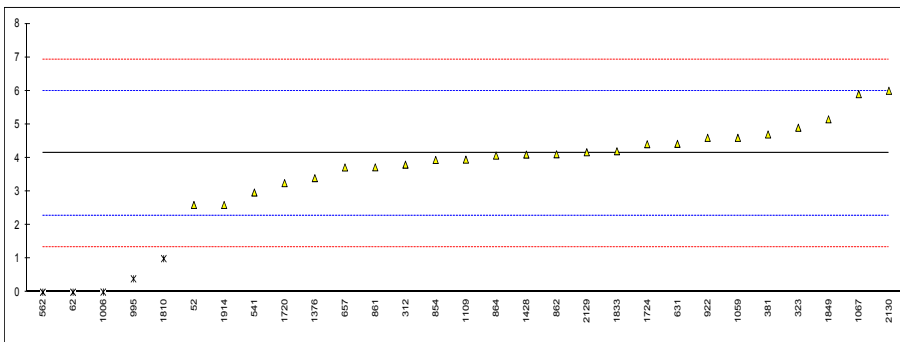
lab	method	value	mark	z(targ)	remarks
52	D3237	2.6		-1.65	
53		----		----	
62	D3237	0	ex	-4.45	test result excluded, for zero is not a real value
120	D3237	<2.5		----	possible false negative test result?
131		----		----	
132	D3237	<2.5		----	possible false negative test result?
140		----		----	
150	D3237	<2.5		----	possible false negative test result?
158		----		----	
159		----		----	
169		----		----	
171	D3237	<0.1		----	possible false negative test result?
175		----		----	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230	D3237	<2.5		----	possible false negative test result?
237		----		----	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D3237	3.8		-0.36	
323	D3237	4.9		0.82	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	EN237	4.7		0.61	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541	D3237	2.97		-1.26	
556		----		----	
557		----		----	
558		----		----	
562	D3237	0	ex	-4.45	test result excluded, for zero is not a real value
603		----		----	
631	D3237	4.42		0.31	
657	D3237	3.717		-0.45	
663		----		----	
671		----		----	
823	D3237	<0.25		----	possible false negative test result?
824	D3237	<2.5		----	possible false negative test result?
840	D3237	<2.5		----	possible false negative test result?
854	D3237	3.94		-0.21	
861	D3237	3.72		-0.45	
862	D3237	4.11		-0.03	
864	D3237	4.07		-0.07	
904	D3237	< 2,5		----	possible false negative test result?
912		----		----	
922	D3237	4.6		0.50	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974		----		----	
995	D3237	0.4	R(0.05)	-4.02	
996		----		----	
998		----		----	
1006	D3237	0.005	R(0.05)	-4.45	
1016		----		----	
1017		----		----	
1033		----		----	
1040		----		----	
1059	EN13723Mod.	4.6		0.50	
1067	EN237	5.9		1.90	

1080		----	----
1105		----	----
1109	D3237	3.95	-0.20
1126		----	----
1134		----	----
1161	EN237	<2,5	----- possible false negative test result?
1186		----	----
1194		----	----
1199		----	----
1213		----	----
1297		----	----
1347	D5059	< 2.5	----- possible false negative test result?
1348	D3237	nil	----- possible false negative test result?
1357		----	----
1376	D3237	3.4	-0.79
1385		----	----
1394		<2.5	----- possible false negative test result?
1397		----	----
1428	EN237	4.1	-0.04
1498		----	----
1531		----	----
1634		----	----
1720	D3237	3.25	-0.95
1724	EN237	4.41	0.29
1730		----	----
1746		----	----
1807		----	----
1810		1.0	R(0.05) -3.38
1811		----	----
1833	EN237	4.2	0.07
1849	EN237	5.15	1.09
1914	D3237	2.6	-1.65
1936		----	----
1937		----	----
1938		----	----
2129	EN237	4.17	0.04
2130	IP352	6	2.01
6016		----	----
6018		----	----
6101		----	----
6108		----	----

normality OK
 n 24
 outliers 3 (+2ex) spike:
 mean (n) 4.137 4.15
 st.dev. (n) 0.8611
 R(calc.) 2.411
 R(D3237:12) 2.600

recovery: 99.7%
 Compare R(EN237:04) = 0.62

range D3237: 2.5 – 25 mg/L
 range EN237: 2.5 – 40 mg/L

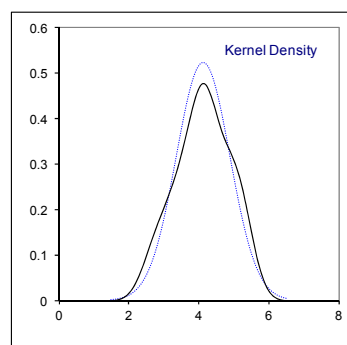
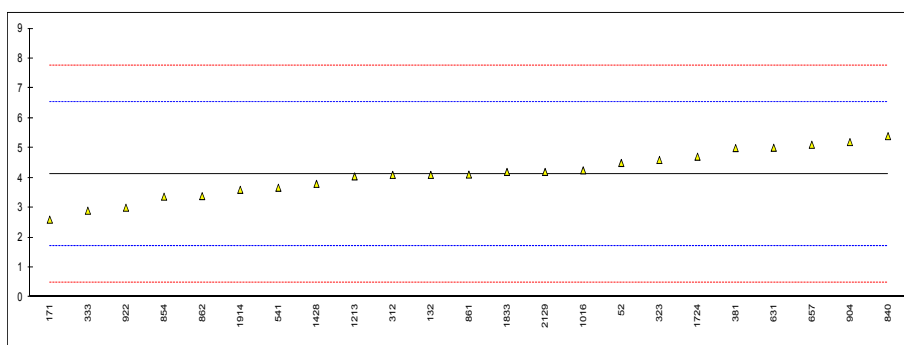


Determination of Manganese as Mn on sample #17010; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3831	4.5		0.31	
53		----		----	
62	D3831	<0.1		<-3.32	possible false negative test result
120		----		----	
131		----		----	
132	D3831	4.1		-0.02	
140		----		----	
150		----		----	
158		----		----	
159		----		----	
169		----		----	
171	D3831	2.6		-1.26	
175		----		----	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237		----		----	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	EN16136	4.1		-0.02	
323	EN16576	4.6		0.39	
333	EN16136	2.9		-1.01	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	EN16136	5.0		0.72	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541	D3831	3.67		-0.38	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D3831	5.01		0.73	
657	D3831	5.11	C	0.81	first reported: 6.444
663		----		----	
671		----		----	
823	D3831	<0.25		<-3.20	possible false negative test result
824		----		----	
840	D3831	5.4	C	1.05	first reported: 0.54
854	D3831	3.37		-0.62	
861	D3831	4.11		-0.01	
862	D3831	3.39		-0.61	
864		----		----	
904	D3831	5.2		0.89	
912		----		----	
922	D3831	3.0	C	-0.93	first reported: 6.5
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974		----		----	
995		----		----	
996		----		----	
998		----		----	
1006		----		----	
1016	EN16136	4.2535		0.11	
1017		----		----	
1033		----		----	
1040		----		----	
1059		----		----	
1067		----		----	

1080		----	----
1105		----	----
1109		----	----
1126		----	----
1134		----	----
1161	D3831	<0,25	<-3.20 possible false negative test result
1186		----	----
1194		----	----
1199		----	----
1213	D3831	4.05	-0.06
1297		----	----
1347		----	----
1348		----	----
1357		----	----
1376		----	----
1385		----	----
1394		----	----
1397		----	----
1428		3.8	-0.27
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724	EN16576	4.71	0.48
1730		----	----
1746		----	----
1807		----	----
1810		----	----
1811		----	----
1833	EN16576	4.2	0.06
1849		----	----
1914	D3831	3.6	-0.43
1936		----	----
1937		----	----
1938		----	----
2129	D3831	4.20	0.06
2130		----	----
6016		----	----
6018		----	----
6101		----	----
6108		----	----

normality	OK		
n	23		
outliers	0	<u>spike:</u>	
mean (n)	4.125	3.91	recovery: 105.5%
st.dev. (n)	0.7638		
R(calc.)	2.139		
R(D3831:12)	3.394		range D3831: 0.25 – 40 mg/L

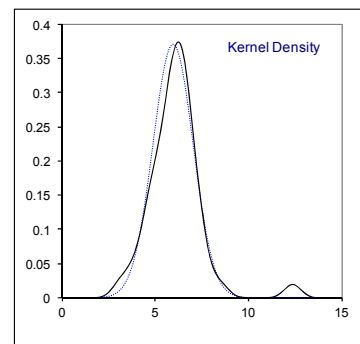
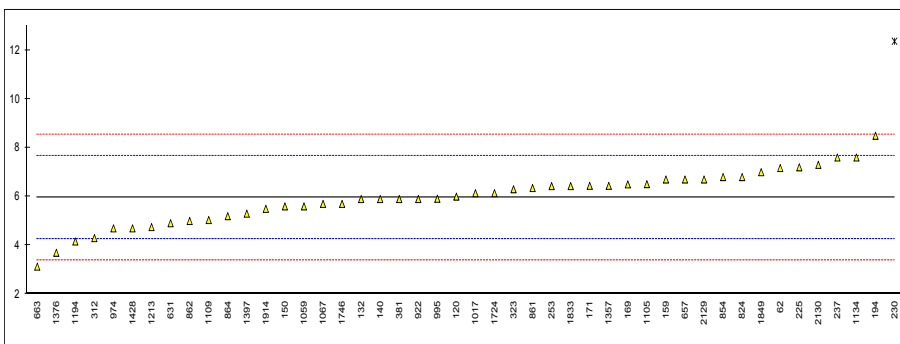


Determination of Olefins by FIA on sample #17010; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62	D1319	7.17		1.41	
120	D1319	6.0		0.05	
131		----		----	
132	D1319	5.9		-0.07	
140	D1319	5.9		-0.07	
150	D1319	5.6		-0.42	
158		----		----	
159	D1319	6.7		0.86	
169	D1319	6.5		0.63	
171	D1319	6.44		0.56	
175		----		----	
194	D1319	8.49		2.96	
217		----		----	
221		----		----	
224		----		----	
225	D1319	7.2		1.45	
228		----		----	
230	D1319	12.360	C,R(0.01)	7.49	first reported: 13.147
237	D1319	7.6		1.92	
238		----		----	
252		----		----	
253	D1319	6.43		0.55	
254		----		----	
256		----		----	
258		----		----	
312	D1319	4.3		-1.94	
323	D1319	6.3		0.40	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	D1319	5.9		-0.07	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D1319	4.91	C	-1.23	first reported: 19.07
657	D1319	6.7		0.86	
663	D1319	3.13		-3.31	
671		----		----	
823		----		----	
824	D1319	6.8		0.98	
840		----		----	
854	D1319	6.8		0.98	
861	D1319	6.35		0.46	
862	D1319	5.0		-1.12	
864	D1319	5.2		-0.89	
904		----		----	
912		----		----	
922	D1319	5.9		-0.07	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D1319	4.7		-1.48	
995	D6729	5.91		-0.06	
996		----		----	
998		----		----	
1006		----		----	
1016		----		----	
1017	ISO22854	6.14		0.21	
1033		----		----	
1040		----		----	
1059	D1319	5.6		-0.42	
1067	D1319	5.7		-0.31	

1080		----	----
1105	D1319	6.51	0.64
1109	D1319	5.04	-1.08
1126		----	----
1134	D1319	7.6	1.92
1161		----	----
1186		----	----
1194	D1319	4.16	-2.11
1199		----	----
1213	D1319	4.75	-1.42
1297		----	----
1347		----	----
1348		----	----
1357	D1319	6.44	0.56
1376	D1319	3.7	-2.65
1385		----	----
1394		----	----
1397	D1319	5.3	-0.77
1428	D1319	4.7	-1.48
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724	D1319	6.14	0.21
1730		----	----
1746	D1319	5.7	-0.31
1807		----	----
1810		----	----
1811		----	----
1833	D1319	6.43	0.55
1849	EN15553	7.0	1.22
1914	D1319	5.5	-0.54
1936		----	----
1937		----	----
1938		----	----
2129	D1319	6.7	0.86
2130	D1319	7.3	1.57
6016		----	----
6018		----	----
6101		----	----
6108		----	----

normality OK
n 45
outliers 1
mean (n) 5.961
st.dev. (n) 1.0745
R(calc.) 3.009
R(D1319:15) 2.393



Determination of Oxidation Stability on sample #17010; results in minutes

lab	method	value	mark	z(targ)	remarks
52	D525	>600		----	
53		----		----	
62		----		----	
120	D525	>360		----	
131		----		----	
132	D525	>1061		----	
140	D525	>772		----	
150	D525	>900		----	
158		----		----	
159		----		----	
169		----		----	
171	D525	901		----	
175		----		----	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225	D525	780		----	
228		----		----	
230		----		----	
237	D525	>540		----	
238		----		----	
252	D525	>360		----	
253		----		----	
254		----		----	
256	D525	>360		----	
258		----		----	
312	D525	>900		----	
323		----		----	
333		----		----	
335		----		----	
336	D525	>600		----	
337	D525	> 360		----	
338		----		----	
353		----		----	
355		----		----	
381		----		----	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D525	>480		----	
657	D525	>900		----	
663		----		----	
671		----		----	
823	D525	>720		----	
824	D525	>900		----	
840		----		----	
854	D525	>900		----	
861	D525	>900		----	
862	D525	>960		----	
864	D525	>900		----	
904	D525	360+		----	
912		----		----	
922	D525	>360		----	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D525	>900		----	
995		----		----	
996		----		----	
998		----		----	
1006	D525	900		----	
1016	D525	>480		----	
1017		----		----	
1033	ISO7536	>960		----	
1040		----		----	
1059	ISO7536	>900		----	
1067	D525	360+		----	

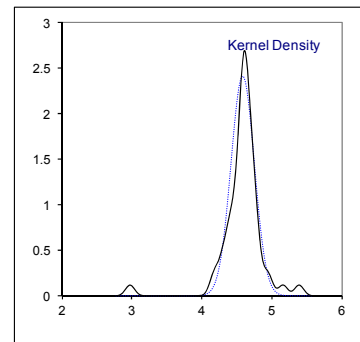
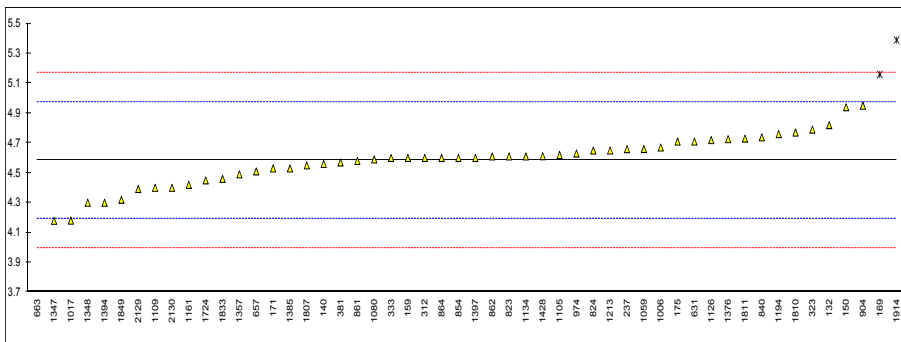
1080		----	----
1105	D525	>480	----
1109	D525	>900	----
1126		----	----
1134	D525	>1380	----
1161	ISO7536	>900	----
1186		----	----
1194		----	----
1199		----	----
1213	D525	> 480	----
1297		----	----
1347	D525	>360	----
1348	D525	>360	----
1357	D525	>480	----
1376		----	----
1385	D525	> 360	----
1394		----	----
1397		----	----
1428	D525	>900	----
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724	D525	>1440	----
1730		----	----
1746	D525	>900	----
1807	D525	>380	----
1810		----	----
1811		----	----
1833	D525	>360	----
1849	ISO7536	> 1440	----
1914	D525	> 1200	----
1936		----	----
1937		----	----
1938		----	----
2129	D525	>1000	----
2130	D525	>900	----
6016		----	----
6018		----	----
6101	D525	360	----
6108		----	----
n		46	
mean (n)		>360	

Determination of Ethanol on sample #17010; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62		----		----	
120		----		----	
131		----		----	
132	D5599	4.82		1.20	
140	D5599	4.56		-0.13	
150	D5599	4.94		1.82	
158		----		----	
159	D5599	4.60		0.08	
169	D4815	5.16	R(0.05)	2.94	
171	D5599	4.53		-0.28	
175	D5599	4.71		0.64	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237	D4815	4.659		0.38	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D4815	4.6		0.08	
323	ISO22854	4.79		1.05	
333	ISO22854	4.6		0.08	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	ISO22854	4.57		-0.08	
399	ISO22854	----		----	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D6730	4.71	C	0.64	first reported: 3.7157
657	D4815	4.51		-0.38	
663	D4815	2.978	R(0.01)	-8.21	
671		----		----	
823	D4815	4.61		0.13	
824	D4815	4.65		0.33	
840	D6730	4.738		0.78	
854	D4815	4.60		0.08	
861	D4815	4.58		-0.02	
862	D4815	4.61		0.13	
864	D4815	4.60		0.08	
904	D4815	4.95		1.87	
912		----		----	
922		----		----	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D4815	4.63		0.23	
995		----		----	
996		----		----	
998		----		----	
1006	D4815	4.67		0.44	
1016		----		----	
1017	ISO22854	4.18		-2.07	
1033		----		----	
1040		----		----	
1059	ISO22854	4.66		0.38	
1067		----		----	

1080	D4815	4.59	0.03
1105	D6839	4.62	0.18
1109	D6839	4.40	-0.94
1126		4.72	0.69
1134	ISO22854	4.61	0.13
1161	EN13132	4.42	-0.84
1186		----	----
1194	D5845	4.76	0.90
1199		----	----
1213	D4815	4.65	0.33
1297		----	----
1347	D4815	4.179	-2.07
1348	D4815	4.3	-1.46
1357	D6839	4.49	-0.48
1376	D6730	4.726	0.72
1385	D4815	4.53	-0.28
1394		4.3	-1.46
1397	EN13132	4.6	0.08
1428	EN13132	4.612	0.14
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724	ISO22854	4.45	-0.69
1730		----	----
1746		----	----
1807	ISO22854	4.55	-0.18
1810	ISO22854	4.77	0.95
1811	ISO22854	4.73	0.74
1833	ISO22854	4.46	-0.64
1849	ISO22854	4.32	-1.35
1914	In house	5.39	R(0.01) 4.12
1936		----	----
1937		----	----
1938		----	----
2129	D6730	4.392	-0.99
2130	D6730	4.4	-0.94
6016		----	----
6018		----	----
6101		----	----
6108		----	----

normality OK
n 49
outliers 3
mean (n) 4.585
st.dev. (n) 0.1658
R(calc.) 0.464
R(D4815:15b) 0.549

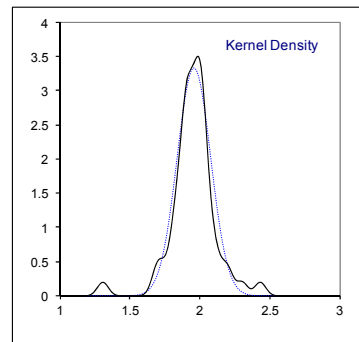
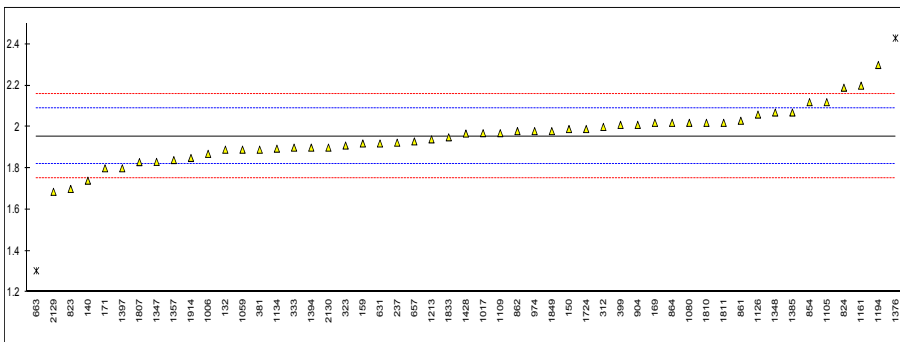


Determination of MTBE on sample #17010; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62		----		----	
120		----		----	
131		----		----	
132	D5599	1.89		-0.97	
140	D5599	1.74		-3.21	
150	D5599	1.99		0.52	
158		----		----	
159	D5599	1.92		-0.53	
169	D4815	2.02		0.96	
171	D5599	1.80		-2.31	
175	D5599	----		----	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237	D4815	1.924		-0.47	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D4815	2.0		0.66	
323	ISO22854	1.91		-0.68	
333	ISO22854	1.9		-0.82	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	ISO22854	1.89		-0.97	
399	ISO22854	2.01		0.81	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D6730	1.92	C	-0.53	first reported: 1.5199
657	D4815	1.93		-0.38	
663	D4815	1.304	R(0.01)	-9.70	
671		----		----	
823	D4815	1.70		-3.80	
824	D4815	2.19		3.49	
840	D6730	----		----	
854	D4815	2.12		2.45	
861	D4815	2.03		1.11	
862	D4815	1.98		0.37	
864	D4815	2.02		0.96	
904	D4815	2.01		0.81	
912		----		----	
922		----		----	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D4815	1.98		0.37	
995		----		----	
996		----		----	
998		----		----	
1006	D4815	1.87		-1.27	
1016		----		----	
1017	ISO22854	1.97		0.22	
1033		----		----	
1040		----		----	
1059	ISO22854	1.89		-0.97	
1067		----		----	

1080	D4815	2.02		0.96
1105	D6839	2.12		2.45
1109	D6839	1.97		0.22
1126		2.06		1.56
1134	ISO22854	1.895		-0.90
1161	EN13132	2.2		3.64
1186		----		----
1194	D5845	2.3		5.13
1199		----		----
1213	D4815	1.94		-0.23
1297		----		----
1347	D4815	1.831		-1.85
1348	D4815	2.07		1.71
1357	D6839	1.84		-1.72
1376	D6730	2.430	R(0.05)	7.07
1385	D4815	2.07		1.71
1394		1.9		-0.82
1397	EN13132	1.8		-2.31
1428	EN13132	1.968		0.19
1498		----		----
1531		----		----
1634		----		----
1720		----		----
1724	ISO22854	1.99		0.52
1730		----		----
1746		----		----
1807	ISO22854	1.83	C	-1.87
1810	ISO22854	2.02		0.96
1811	ISO22854	2.02		0.96
1833	ISO22854	1.95		-0.08
1849	ISO22854	1.98		0.37
1914	In house	1.85		-1.57
1936		----		----
1937		----		----
1938		----		----
2129	D6730	1.686		-4.01
2130	D6730	1.9		-0.82
6016		----		----
6018		----		----
6101		----		----
6108		----		----
normality		OK		
n		49		
outliers		2		
mean (n)		1.955		
st.dev. (n)		0.1200		
R(calc.)		0.336		
R(D4815:15b)		0.188		

first reported: 0.05



Determination of DIPE, ETBE, Methanol, TAME and other Oxygenates on sample #17010; results in %V/V

Lab	Method	DIPE	mark	ETBE	mark	Methanol	mark	TAME	mark	Other Oxy	mark
52		----		----		----		----		----	
53		----		----		----		----		----	
62		0.076		----		----		----		----	
120		----		----		----		----		----	
131		----		----		----		----		----	
132	D5599	<0.10		<0.10		<0.10		<0.10		<0.10	
140	D5599	<0.10		<0.10		<0.10		<0.10		<0.10	
150	D5599	<0.10		<0.10		<0.10		<0.10		<0.10	
158		----		----		----		----		----	
159	D5599	----		----		----		----		----	
169	D4815	ND		ND		ND		ND		----	
171	D5599	<0.10		<0.10		<0.10		<0.10		<0.10	
175	D5599	----		----		----		----		----	
194		----		----		----		----		----	
217		----		----		----		----		----	
221		----		----		----		----		----	
224		----		----		----		----		----	
225		----		----		----		----		----	
228		----		----		----		----		----	
230		----		----		----		----		----	
237	D4815	<0.2		<0.2		----		<0.2		----	
238		----		----		----		----		----	
252		----		----		----		----		----	
253		----		----		----		----		----	
254		----		----		----		----		----	
256		----		----		----		----		----	
258		----		----		----		----		----	
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	ISO22854	<0.8		<0.8		<0.8		<0.8		<0.8	
335		----		----		----		----		----	
336		----		----		----		----		----	
337		----		----		----		----		----	
338		----		----		----		----		----	
353		----		----		----		----		----	
355		----		----		----		----		----	
381	ISO22854	<0,2		<0,2		<0,2		<0,2		<0,2	
399	ISO22854	----		----		----		----		----	
433		----		----		----		----		----	
468		----		----		----		----		----	
485		----		----		----		----		----	
541		----		----		----		----		----	
556		----		----		----		----		----	
557		----		----		----		----		----	
558		----		----		----		----		----	
562		----		----		----		----		----	
603		----		----		----		----		----	
631	D6730	Not detect.		0.3709		Not Detect.		ND		----	
657	D4815	N.D		N.D		N.D		N.D		N.D	
663	D4815	----		----		<0.01		----		----	
671		----		----		----		----		----	
823	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
824	D4815	<0.20		<0.20		<0.20		<0.20		<0.20	
840	D6730	----		----		----		----		----	
854	D4815	<0.20		<0.20		<0.20		<0.20		<0.20	
861	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
862	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
864	D4815	<0.2		<0.2		<0.2		<0.2		<0.2	
904	D4815	<0,2		<0,2		< 0,2		<0,20		<0,2	
912		----		----		----		----		----	
922		----		----		----		----		----	
962		----		----		----		----		----	
963		----		----		----		----		----	
970		----		----		----		----		----	
971		----		----		----		----		----	
974	D4815	<0.20		<0.20		<0.20		<0.20		----	
995		----		----		----		----		----	
996		----		----		----		----		----	
998		----		----		----		----		----	
1006	D4815	ND		ND		--		ND		--	
1016		----		----		----		----		----	
1017	ISO22854	<0.10		<0.10		<0.10		<0.10		<0.10	
1033		----		----		----		----		----	
1040		----		----		----		----		----	
1059	ISO22854	<0,20		<0,20		<0,20		<0,20		<0,20	
1067		----		----		----		----		----	

Lab	Method	DIPE	mark	ETBE	mark	Methanol	mark	TAME	mark	Other Oxy	mark
1080	D4815	0.00		0.09		0.00		0.00		0.02	
1105	D6839	<0.1		<0.1		<0.1		<0.1		<0.1	
1109	D6839	0.00		0.02		0.00		0.00		0.01	
1126		----		----		----		----		----	
1134	ISO22854	0.05		0.00		0.00		0.00		0.00	
1161	EN13132	<0,17		<0,17		<0,17		<0,17		<0,17	
1186		----		----		----		----		----	
1194	D5845	0.9		0		0		0.8		----	
1199		----		----		----		----		----	
1213	D4815	----		----		----		----		----	
1297		----		----		----		----		----	
1347	D4815	0		0.05		0		0		0.11	
1348	D4815	<0.1		0.16		0		0.046		<0.2	C
1357	D6839	----		----		----		----		----	
1376	D6730	----		----		----		----		----	
1385	D4815	0.055		0.273		0		0.156		<0.2	C
1394		<0.2		<0.2		<0.2		<0.2		<0.2	
1397	EN13132	----		<0,2		----		----		----	
1428	EN13132	----		<0,17		<0,17		----		----	
1498		----		----		----		----		----	
1531		----		----		----		----		----	
1634		----		----		----		----		----	
1720		----		----		----		----		----	
1724	ISO22854	----		----		<0,17		----		----	
1730		----		----		----		----		----	
1746		----		----		----		----		----	
1807	ISO22854	----		0.05	C	----		----		----	
1810	ISO22854	----		----		----		----		0.16	
1811	ISO22854	----		----		----		----		----	
1833	ISO22854	<0.8		<0.8		<0.8		<0.8		<0.8	
1849	ISO22854	----		----		----		----		----	
1914	In house	0.09		< 0.01		0.03		0.02		0.04	
1936		----		----		----		----		----	
1937		----		----		----		----		----	
1938		----		----		----		----		----	
2129	D6730	0.0		0.0		0.0		0.0		0.0	
2130	D6730	<0.1		<0.1		<0.1		<0.1		<0.1	
6016		----		----		----		----		----	
6018		----		----		----		----		----	
6101		----		----		----		----		----	
6108		----		----		----		----		----	
	n	35		36		36		34		30	
	mean (n)	<0.2 or n.d.		<0.2 or n.d.		<0.2 or n.d.		<0.2 or n.d.		<0.2 or n.d.	

Lab 1807 first reported for ETBE: 1.72
 Lab 1347 first reported for Other Oxygenates: 0.72
 Lab 1385 first reported for Other Oxygenates: 0.34

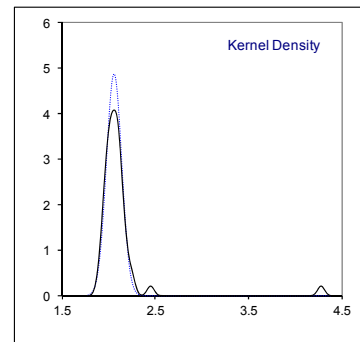
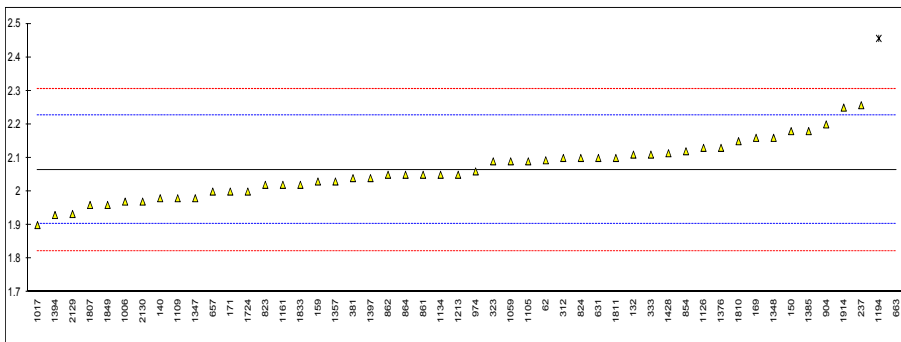
Determination of Oxygen Content on sample #17010; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62		2.093		0.36	
120		----		----	
131		----		----	
132	D5599	2.11		0.57	
140	D5599	1.98		-1.04	
150	D5599	2.18		1.43	
158		----		----	
159	D4815	2.03		-0.43	
169	D4815	2.16		1.19	
171	D5599	2.0		-0.80	
175		----		----	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237	D4815	2.257		2.39	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312	D4815	2.1		0.44	
323	ISO22854	2.09		0.32	
333	ISO22854	2.11		0.57	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381	ISO22854	2.04		-0.30	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631	D6730	2.1	C	0.44	first reported: 1.7332
657	D4815	2.00		-0.80	
663	D4815	4.282	R(0.01)	27.48	
671		----		----	
823	D4815	2.02		-0.55	
824	D4815	2.10		0.44	
840		----		----	
854	D4815	2.12		0.69	
861	D4815	2.05		-0.18	
862	D4815	2.05		-0.18	
864	D4815	2.05		-0.18	
904	D4815	2.2		1.68	
912		----		----	
922		----		----	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974	D4815	2.06		-0.05	
995		----		----	
996		----		----	
998		----		----	
1006	D4815	1.97		-1.17	
1016		----		----	
1017	ISO22854	1.90		-2.04	
1033		----		----	
1040		----		----	
1059	ISO22854	2.09		0.32	
1067		----		----	

1080		----		----
1105	D4815	2.09		0.32
1109	D6839	1.98		-1.04
1126	D6839	2.13	C	0.81 first reported: 7.07
1134	ISO22854	2.05		-0.18
1161	EN13132	2.02		-0.55
1186		----		----
1194	D5845	2.456	R(0.01)	4.85
1199		----		----
1213	D4815	2.05		-0.18
1297		----		----
1347	D4815	1.980		-1.04
1348	D4815	2.16		1.19
1357	D6839	2.03		-0.43
1376	D6730	2.13	C	0.81 first reported: 1.7
1385	D4815	2.18		1.43
1394		1.93		-1.66
1397	EN13132	2.04		-0.30
1428	EN13132	2.114		0.62
1498		----		----
1531		----		----
1634		----		----
1720		----		----
1724	ISO22854	2.0		-0.80
1730		----		----
1746		----		----
1807	ISO22854	1.96		-1.29
1810	ISO22854	2.15		1.06
1811	ISO22854	2.10		0.44
1833	ISO22854	2.02		-0.55
1849	ISO22854	1.96		-1.29
1914	D4815	2.25		2.30
1936		----		----
1937		----		----
1938		----		----
2129	D6730	1.933		-1.63
2130	D6730	1.97		-1.17
6016		----		----
6018		----		----
6101		----		----
6108		----		----

normality OK
n 48
outliers 2
mean (n) 2.064
st.dev. (n) 0.0818
R(calc.) 0.229
R(D4815:15b) 0.226

Compare R(D5599:15) = 0.237

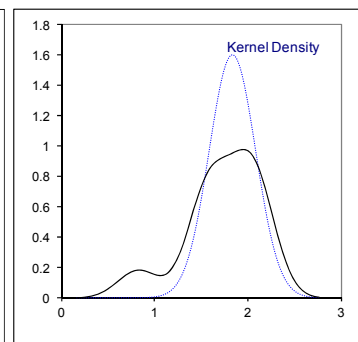
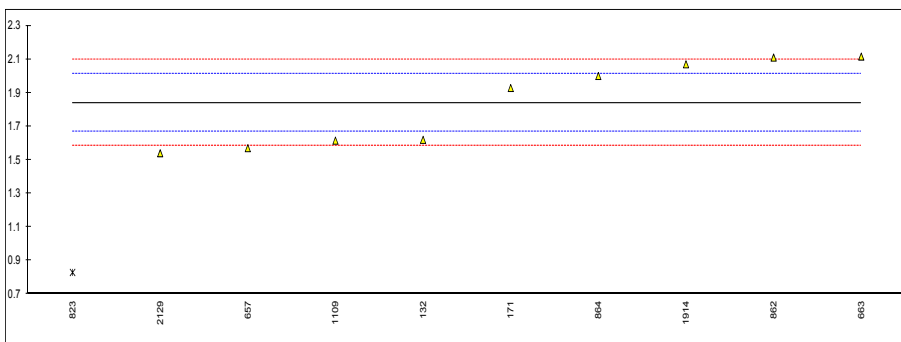


Determination of Phosphorus as P on sample #17010; results in mg/L

lab	method	value	mark	z(targ)	remarks
52		----		----	
53		----		----	
62		----		----	
120		----		----	
131		----		----	
132	D3231	1.62		-2.59	
140		----		----	
150	D3231	<0.20		<-19.23	possible false negative test result?
158		----		----	
159		----		----	
169		----		----	
171	D3231	1.93	C	1.02	reported: 0.0073 g/gallon, which iis calculated to 1.93 mg/L
175		----		----	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237		----		----	
238		----		----	
252		----		----	
253		----		----	
254		----		----	
256		----		----	
258		----		----	
312		----		----	
323		----		----	
333		----		----	
335		----		----	
336		----		----	
337		----		----	
338		----		----	
353		----		----	
355		----		----	
381		----		----	
399		----		----	
433		----		----	
468		----		----	
485		----		----	
541		----		----	
556		----		----	
557		----		----	
558		----		----	
562		----		----	
603		----		----	
631		----		----	
657	D3231	1.57		-3.17	
663	D3231	2.116		3.22	
671		----		----	
823	D3231	0.83	G(0.05)	-11.83	
824		----		----	
840		----		----	
854		----		----	
861		----		----	
862	D3231	2.11		3.15	
864	D3231	2.0		1.86	
904		----		----	
912		----		----	
922		----		----	
962		----		----	
963		----		----	
970		----		----	
971		----		----	
974		----		----	
995		----		----	
996		----		----	
998		----		----	
1006		----		----	
1016		----		----	
1017		----		----	
1033		----		----	
1040		----		----	
1059		----		----	
1067		----		----	

1080		----	----
1105		----	----
1109	D3231	1.615	-2.64
1126		----	----
1134		----	----
1161		----	----
1186		----	----
1194		----	----
1199		----	----
1213		----	----
1297		----	----
1347		----	----
1348		----	----
1357		----	----
1376		----	----
1385		----	----
1394		----	----
1397		----	----
1428		----	----
1498		----	----
1531		----	----
1634		----	----
1720		----	----
1724		----	----
1730		----	----
1746		----	----
1807		----	----
1810		----	----
1811		----	----
1833		----	----
1849		----	----
1914	D3231	2.07	2.68
1936		----	----
1937		----	----
1938		----	----
2129		1.54	-3.52
2130		----	----
6016		----	----
6018		----	----
6101		----	----
6108		----	----

normality OK
 n 9
 outliers 1 Spike:
 mean (n) 1.841 1.78 recovery: 103%
 st.dev. (n) 0.2493
 R(calc.) 0.698
 R(D3231:13) 0.239

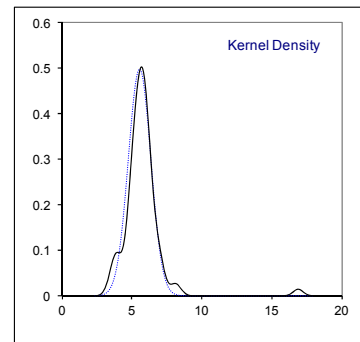
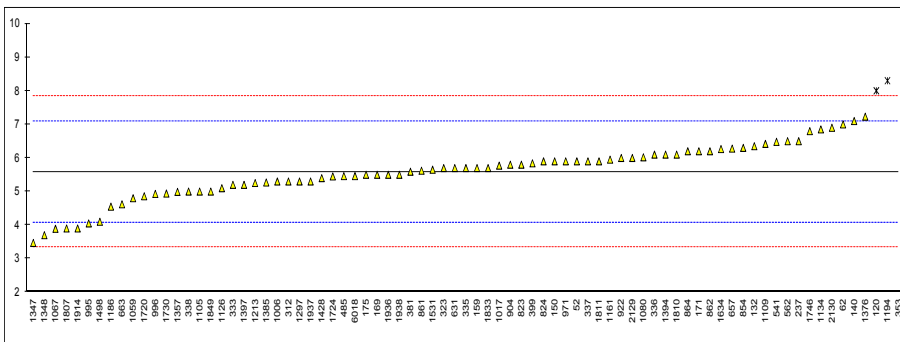


Determination of Sulphur on sample #17010; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	5.9		0.42	
53		----		----	
62	D5453	7.0		1.88	
120	D2622	8.0	R(0.05)	3.21	
131		----		----	
132	D2622	6.35		1.02	
140	D2622	7.1		2.01	
150	D5453	5.9		0.42	
158		----		----	
159	D5453	5.7		0.15	
169	D5453	5.5		-0.11	
171	D5453	6.2		0.82	
175	D5453	5.5		-0.11	
194		----		----	
217		----		----	
221		----		----	
224		----		----	
225		----		----	
228		----		----	
230		----		----	
237	D5453	6.5		1.22	
238		----		----	
252		----		----	
253		----		----	
254	D4294	<20		----	
256	D4294	<20		----	
258		----		----	
312	D5453	5.3		-0.38	
323	D5453	5.7		0.15	
333	D5453	5.2		-0.51	
335	ISO20846	5.7		0.15	
336	ISO20846	6.1		0.68	
337		5.9		0.42	
338	D5453	5.0		-0.78	
353	IP531	16.9	R(0.01)	15.04	
355		----		----	
381	D5453	5.59		0.01	
399	D5453	5.84		0.34	
433		----		----	
468		----		----	
485	D5453	5.46		-0.17	
541	D5453	6.48		1.19	
556		----		----	
557		----		----	
558		----		----	
562	D5453	6.5		1.22	
603		----		----	
631	D7039	5.7		0.15	
657	D613	6.278		0.92	
663	D5453	4.62		-1.28	
671		----		----	
823	D5453	5.8		0.28	
824	D5453	5.9		0.42	
840		----		----	
854	D5453	6.3		0.95	
861	D5453	5.62		0.05	
862	D5453	6.2		0.82	
864	D5453	6.2		0.82	
904	D5453	5.8		0.28	
912		----		----	
922	D5453	6.0		0.55	
962		----		----	
963		----		----	
970		----		----	
971	D5453	5.90		0.42	
974		----		----	
995	D5453	4.05		-2.04	
996	D5453	4.93		-0.87	
998		----		----	
1006	D5453	5.3		-0.38	
1016		----		----	
1017	ISO20846	5.772		0.25	
1033		----		----	
1040		----		----	
1059	ISO20846	4.8		-1.04	
1067	D5453	3.89		-2.25	

1080	D5453	6.02		0.58
1105	D5453	5.0		-0.78
1109	D7039	6.42		1.11
1126	ISO20846	5.1		-0.65
1134	D5453	6.85		1.68
1161	ISO20846	5.95		0.48
1186	D5453	4.55		-1.38
1194	D4294	8.3	R(0.05)	3.61
1199		----		----
1213	D5453	5.253		-0.44
1297	D5453	5.30		-0.38
1347	D5453	3.47		-2.81
1348	D5453	3.7		-2.51
1357	D5453	4.99		-0.79
1376	D5453	7.23		2.19
1385	D5453	5.27		-0.42
1394	ISO20846	6.1		0.68
1397	ISO20846	5.2		-0.51
1428	D5453	5.4		-0.25
1498	D5453	4.1		-1.97
1531	ISO20846	5.65		0.09
1634	D5453	6.265		0.90
1720	D5453	4.86		-0.96
1724	D5453	5.45		-0.18
1730	ISO20846	4.94		-0.86
1746	D5453	6.8		1.61
1807	ISO20846	3.9		-2.24
1810	D5453	6.1		0.68
1811	D5453	5.9		0.42
1833	D5453	5.7		0.15
1849	ISO20846	5.0		-0.78
1914	D5453	3.9		-2.24
1936	ISO20846	5.5		-0.11
1937	ISO20846	5.3		-0.38
1938	ISO20846	5.5		-0.11
2129	D5453	6.00		0.55
2130	D5453	6.9		1.75
6016		----		----
6018	ISO20846	5.46		-0.17
6101	D2622	<17	C	----- first reported: 87.6
6108		----		----

normality OK
n 76
outliers 3
mean (n) 5.586
st.dev. (n) 0.8014
R(calc.) 2.244
R(D5453:12) 2.125

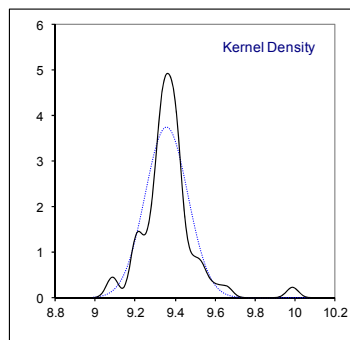
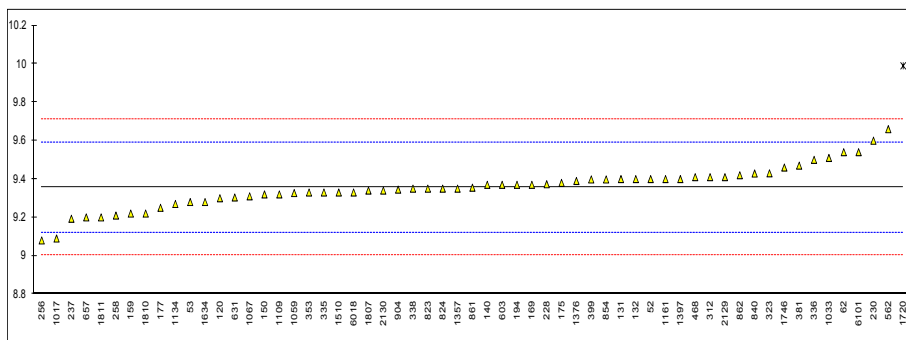


Determination of TVP on sample #17011; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	9.40		0.37	
53	D5191	9.28	C	-0.65	first reported: 66.4 kPa (=9.63 psi)
62	D5191	9.54		1.56	
120	D5191	9.30		-0.48	
131	D5191	9.40		0.37	
132	D5191	9.40		0.37	
140	D5191	9.37		0.11	
150	D5191	9.32		-0.31	
158		----		----	
159	D5191	9.22		-1.16	
169	D5191	9.37		0.11	
171		----		----	
175	D5191	9.38		0.20	
177	D5191	9.25		-0.90	
194	D5191	9.37		0.11	
225		----		----	
228	D5191	9.373		0.14	
230	D5191	9.60		2.06	
237	D5191	9.193		-1.39	
238		----		----	
256	D5191	9.08		-2.35	
258	D5191	9.2098		-1.24	
312	D5191	9.41		0.45	
323	D5191	9.43		0.62	
333		----		----	
335	D5191	9.33		-0.23	
336	D5191	9.50		1.22	
337		----		----	
338	D5191	9.35		-0.06	
353	D5191	9.33		-0.23	
381	D5191	9.47	C	0.96	first reported: 67.2 kPa (=9.75 psi)
399	D5191	9.398		0.35	
444		----		----	
468	D5191	9.41		0.45	
485		----		----	
541		----		----	
557		----		----	
562	D5191	9.66		2.57	
603	D5191	9.37		0.11	
631	D5191	9.304		-0.45	
657	D5191	9.20		-1.33	
823	D5191	9.35		-0.06	
824	D5191	9.35		-0.06	
840	D5191	9.429		0.61	
854	D5191	9.398		0.35	
861	D5191	9.355		-0.01	
862	D5191	9.42		0.54	
904	D5191	9.345		-0.10	
963		----		----	
970		----		----	
974		----		----	
1006		----		----	
1017	EN13016-1	9.09		-2.26	
1033	EN13016-1	9.51		1.30	
1040		----		----	
1059	D5191	9.327		-0.25	
1067	D5191	9.31		-0.40	
1105		----		----	
1109	D5191	9.320		-0.31	
1134	D5191	9.27		-0.73	
1161	EN13016-1	9.40		0.37	
1194		----		----	
1357	D5191	9.35		-0.06	
1376	D5191	9.39		0.28	
1397	EN13016-1	9.40		0.37	
1428		----		----	
1510	D5191	9.33		-0.23	
1634	D5191	9.28		-0.65	
1720	D5191	9.99	R(0.01)	5.37	
1724		----		----	
1730		----		----	
1746	D5191	9.46		0.88	
1807	EN13016-1	9.34		-0.14	
1810	EN13016-1	9.22		-1.16	
1811	D5191	9.20		-1.33	
1833		----		----	

1849		----	----
1936		----	----
1937		----	----
1938		----	----
2129	D5191	9.41	0.45
2130	D5191	9.34	-0.14
6016		----	----
6018	EN13016-1	9.33	-0.23
6101	D5191	9.54	1.56
6108		----	----

normality suspect
n 58
outliers 1
mean (n) 9.357
st.dev. (n) 0.1070
R(calc.) 0.300
R(D5191:15) 0.330

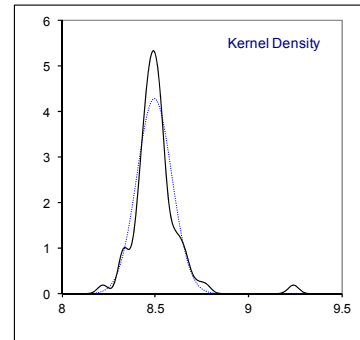
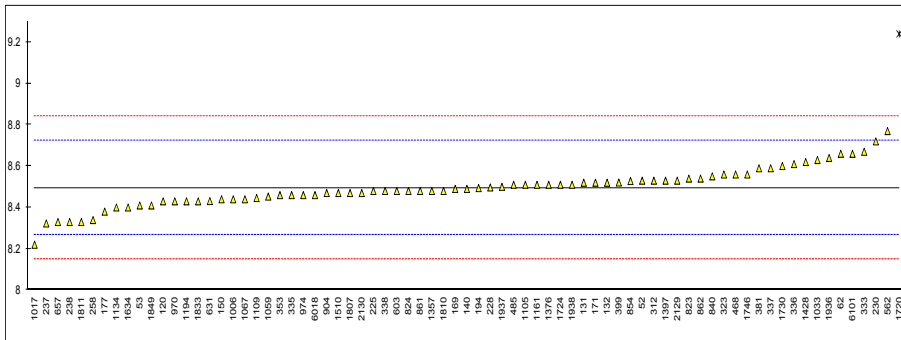


Determination of DVPE (acc. to ASTM D5191) on sample #17011; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.53		0.30	
53	D5191	8.41	C	-0.74	first reported: 63.7 kPa (= 9.24 psi)
62	D5191	8.66		1.43	
120	D5191	8.43		-0.57	
131	D5191	8.52		0.21	
132	D5191	8.52		0.21	
140	D5191	8.49		-0.05	
150	D5191	8.44		-0.48	
158		-----		-----	
159		-----		-----	
169	D5191	8.49		-0.05	
171	D5191	8.52		0.21	
175		-----		-----	
177	D5191	8.38		-1.00	
194	D5191	8.494		-0.01	
225	D5191	8.48		-0.13	
228	D5191	8.497		0.01	
230	D5191	8.72		1.96	
237	D5191	8.323		-1.50	
238	D5191	8.33		-1.44	
256		-----		-----	
258	D5191	8.3394		-1.36	
312	D5191	8.53		0.30	
323	D5191	8.56		0.56	
333	D5191	8.67		1.52	
335	D5191	8.46		-0.31	
336	D5191	8.61		1.00	
337	EN13016-1	8.6		0.82	
338	D5191	8.48		-0.13	
353	D5191	8.46		-0.31	
381	D5191	8.59	C	0.82	first reported: 63.7 kPa (=8.85 psi)
399	D5191	8.521		0.22	
444		-----		-----	
468	D5191	8.56		0.56	
485	D5191	8.51		0.13	
541		-----		-----	
557		-----		-----	
562	D5191	8.77		2.39	
603	D5191	8.48		-0.13	
631	D5191	8.431		-0.56	
657	D5191	8.33		-1.44	
823	D5191	8.54		0.39	
824	D5191	8.48		-0.13	
840	D5191	8.551		0.48	
854	D5191	8.528		0.28	
861	D5191	8.480		-0.13	
862	D5191	8.54		0.39	
904	D5191	8.47		-0.22	
963		-----		-----	
970	D5191	8.43		-0.57	
974	D5191	8.46		-0.31	
1006	D5191	8.44		-0.48	
1017	EN13016-1	8.22		-2.40	
1033	EN13016-1	8.63		1.17	
1040		-----		-----	
1059	D5191	8.453		-0.37	
1067	D5191	8.44		-0.48	
1105	D6378	8.51		0.13	
1109	D5191	8.446		-0.43	
1134	D5191	8.40		-0.83	
1161	EN13016-1	8.51		0.13	
1194	EN13016-1	8.43		-0.57	
1357	D5191	8.48		-0.13	
1376	D5191	8.51		0.13	
1397	EN13016-1	8.53		0.30	
1428	D5191	8.62		1.09	
1510	D5191	8.47		-0.22	
1634	D5191	8.40		-0.83	
1720	D5191	9.24	R(0.01)	6.49	
1724	EN13016-1	8.51		0.13	
1730	EN13016-1	8.601		0.92	
1746	D5191	8.56		0.56	
1807	EN13016-1	8.47		-0.22	
1810	EN13016-1	8.48		-0.13	
1811	D5191	8.33		-1.44	
1833	D5191	8.43	C	-0.57	first reported as TVP

1849	EN13016-1	8.41		-0.74	
1936	EN13016-1	8.64	C	1.26	first reported as TVP
1937	EN13016-1	8.50		0.04	
1938	EN13016-1	8.51		0.13	
2129	D5191	8.53		0.30	
2130	D5191	8.47		-0.22	
6016		----		----	
6018	EN13016-1	8.46		-0.31	
6101	D5191	8.66		1.43	
6108		----		----	

normality suspect
n 74
outliers 1
mean (n) 8.495
st.dev. (n) 0.0935
R(calc.) 0.262
R(D5191:15) 0.321

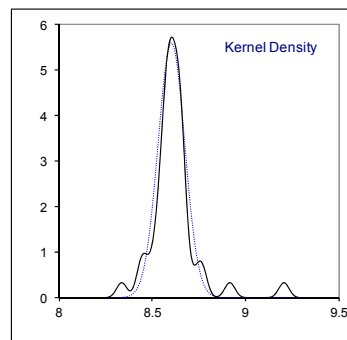
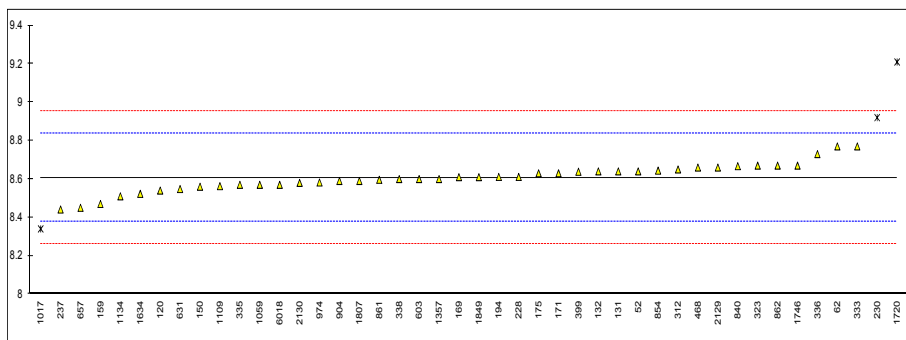


Determination of DVPE (acc. to EPA) on sample #17011; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.64		0.29	
53		----		----	
62	D5191	8.77		1.42	
120	D5191	8.54		-0.58	
131	D5191	8.64		0.29	
132	D5191	8.64		0.29	
140		----		----	
150	D5191	8.56		-0.41	
158		----		----	
159	D5191	8.47		-1.19	
169	D5191	8.61		0.03	
171	D5191	8.63		0.20	
175	D5191	8.63		0.20	
177		----		----	
194	D5191	8.611		0.04	
225		----		----	
228	D5191	8.611		0.04	
230	D5191	8.92	R(0.05)	2.72	
237	D5191	8.4413		-1.44	
238		----		----	
256		----		----	
258		----		----	
312	D5191	8.65		0.38	
323	D5191	8.67		0.55	
333	D5191	8.77		1.42	
335	D5191	8.57		-0.32	
336	D5191	8.73		1.07	
337		----		----	
338	D5191	8.60		-0.06	
353		----		----	
381		----		----	
399	D5191	8.638		0.27	
444		----		----	
468	D5191	8.66		0.46	
485		----		----	
541		----		----	
557		----		----	
562		----		----	
603	D5191	8.60		-0.06	
631	D5191	8.548		-0.51	
657	D5191	8.45		-1.36	
823		----		----	
824		----		----	
840	D5191	8.667		0.52	
854	D5191	8.644		0.32	
861	D5191	8.596		-0.09	
862	D5191	8.67		0.55	
904	D5191	8.59		-0.14	
963		----		----	
970		----		----	
974	D5191	8.582	C	-0.21	first reported: 61.363 kPa (= 9.34 psi)
1006		----		----	
1017	EN13016-1	8.34	R(0.05)	-2.32	
1033		----		----	
1040		----		----	
1059	D5191	8.570		-0.32	
1067		----		----	
1105		----		----	
1109	D5191	8.563		-0.38	
1134	D5191	8.51		-0.84	
1161		----		----	
1194		----		----	
1357	D5191	8.60		-0.06	
1376		----		----	
1397		----		----	
1428		----		----	
1510		----		----	
1634	D5191	8.523		-0.73	
1720	D5191	9.21	R(0.01)	5.24	
1724		----		----	
1730		----		----	
1746	D5191	8.67		0.55	
1807	EN13016-1	8.59		-0.14	
1810		----		----	
1811		----		----	
1833		----		----	

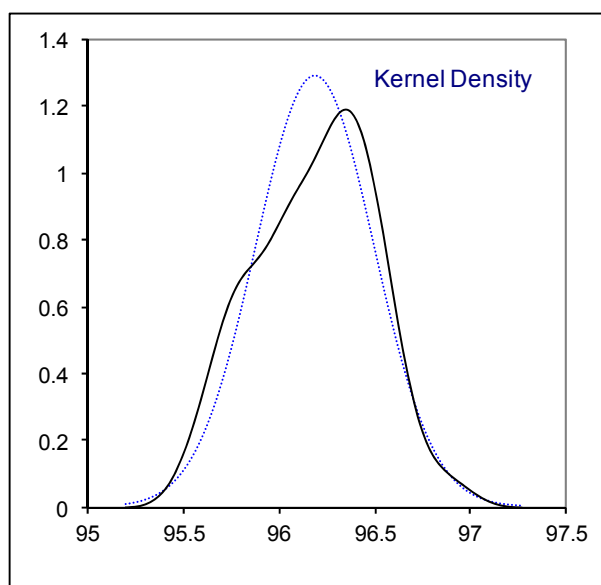
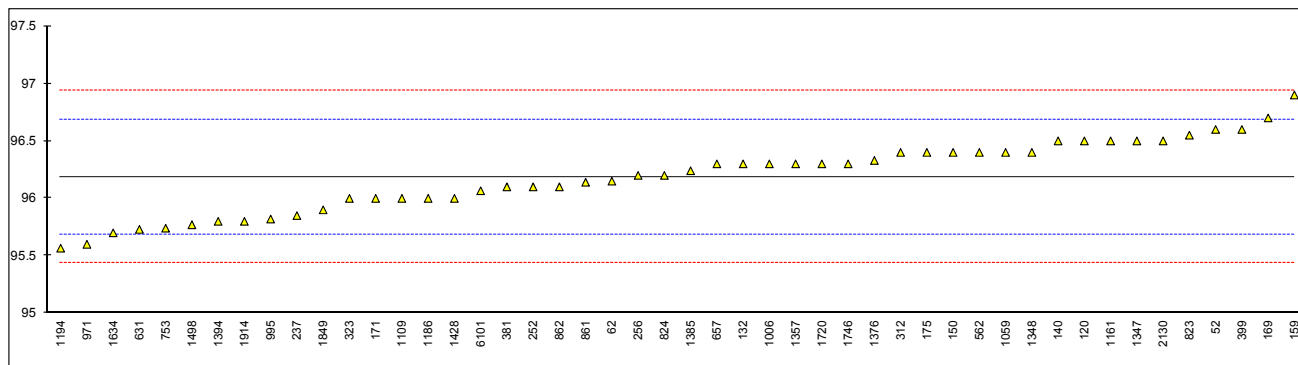
1849	EN13016-1	8.61	0.03
1936		----	----
1937		----	----
1938		----	----
2129	D5191	8.66	0.46
2130	D5191	8.58	-0.23
6016		----	----
6018	EN13016-1	8.57	-0.32
6101		----	----
6108		----	----

normality OK
 n 41
 outliers 3
 mean (n) 8.607
 st.dev. (n) 0.0714
 R(calc.) 0.200
 R(D5191:15) 0.323



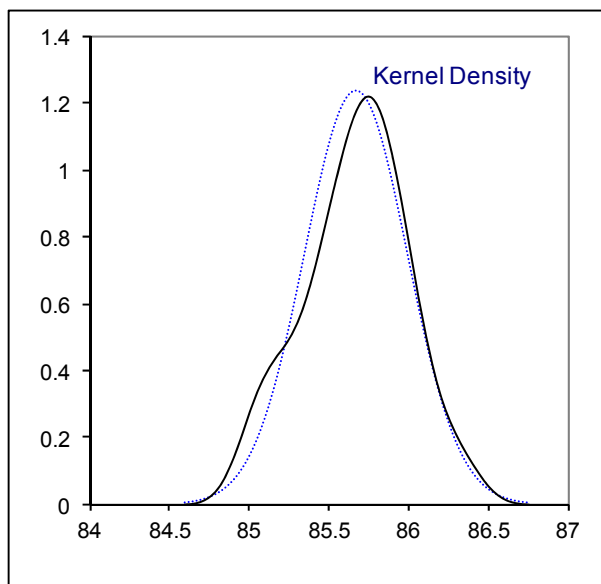
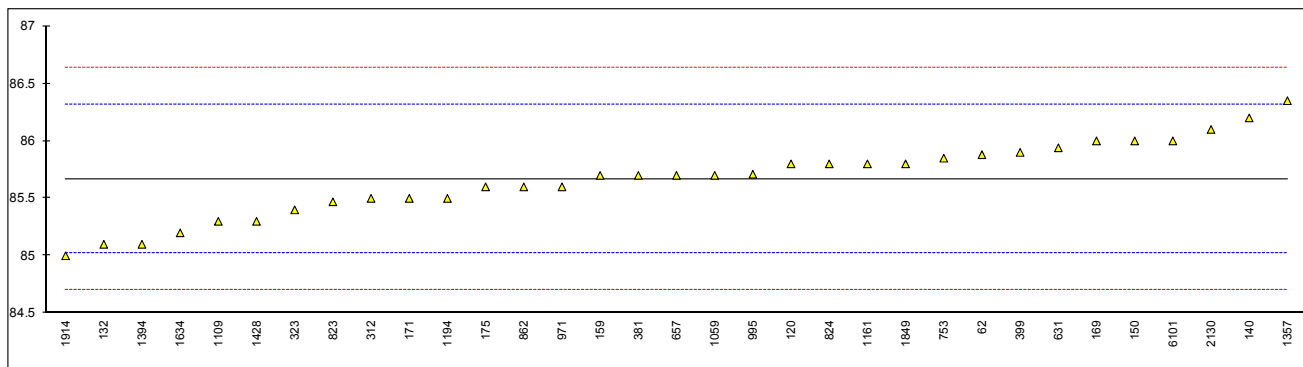
Determination of RON on sample #17012;

lab	method	value	mark	z(targ)	remarks
52	D2699	96.6		1.65	
62	D2699	96.15		-0.15	
120	D2699	96.5		1.25	
132	D2699	96.3		0.45	
140	D2699	96.5		1.25	
150	D2699	96.4		0.85	
159	D2699	96.9		2.85	
169	D2699	96.7	C	2.05	first reported: 97
171	D2699	96.0		-0.75	
175	D2699	96.4		0.85	
237	D2699	95.85		-1.35	
252	D2699	96.1		-0.35	
256	D2699	96.2		0.05	
312	D2699	96.4		0.85	
323	D2699	96.0		-0.75	
381	D2699	96.1		-0.35	
399	D2699	96.6		1.65	
541		----		----	
562	D2699	96.4		0.85	
631	D2699	95.73		-1.83	
657	D2699	96.3		0.45	
753	D2699	95.74		-1.79	
823	D2699	96.55		1.45	
824	D2699	96.2		0.05	
861	D2699	96.14		-0.19	
862	D2699	96.1		-0.35	
922		----		----	
962		----		----	
970		----		----	
971	D2699	95.6		-2.35	
995	D2699	95.82		-1.47	
998		----		----	
1006	D2699	96.3		0.45	
1059	D2699	96.4		0.85	
1109	D2699	96.0		-0.75	
1134		----		----	
1161	ISO5164	96.5		1.25	
1186	D2699	96.0		-0.75	
1194	INH-2699	95.566		-2.48	
1347	D2699	96.50		1.25	
1348	D2699	96.40		0.85	
1357	D2699	96.3		0.45	
1376	D2699	96.33		0.57	
1379		----		----	
1385	D2699	96.24		0.21	
1394		95.8	C	-1.55	first reported: 95.3
1428	D2699	96.0		-0.75	
1498	D2699	95.77		-1.67	
1634		95.7		-1.95	
1720	D2699	96.3		0.45	
1746	D2699	96.3		0.45	
1849	ISO5164	95.9		-1.15	
1914	D2699	95.8		-1.55	
2130	D2699	96.5		1.25	
6101	D2699	96.066	C	-0.48	first reported: 97.266
6108		----		----	
	normality	OK			
	n	48			
	outliers	0			
	mean (n)	96.186			
	st.dev. (n)	0.3095			
	R(calc.)	0.867			
	R(D2699:15a)	0.700			



Determination of MON on sample #17012;

lab	method	value	mark	z(targ)	remarks
52		----		----	
62	D2700	85.88		0.65	
120	D2700	85.8		0.41	
132	D2700	85.1		-1.77	
140	D2700	86.2		1.65	
150	D2700	86.0		1.03	
159	D2700	85.7		0.09	
169	D2700	86.0	C	1.03	first reported: 87.2
171	D2700	85.5		-0.53	
175	D2700	85.6		-0.22	
237		----		----	
252		----		----	
256		----		----	
312	D2700	85.5		-0.53	
323	D2700	85.4		-0.84	
381	D2700	85.7		0.09	
399	D2700	85.9		0.72	
541		----		----	
562		----		----	
631	D2700	85.94		0.84	
657	D2700	85.7		0.09	
753	D2700	85.85		0.56	
823	D2700	85.47		-0.62	
824	D2700	85.8		0.41	
861		----		----	
862	D2700	85.6		-0.22	
922		----		----	
962		----		----	
970		----		----	
971	D2700	85.6		-0.22	
995	D2700	85.71		0.13	
998		----		----	
1006		----		----	
1059	D2700	85.7		0.09	
1109	D2700	85.3		-1.15	
1134		----		----	
1161	ISO5163	85.8		0.41	
1186		----		----	
1194	INH-2700	85.5		-0.53	
1347		----		----	
1348		----		----	
1357	D2700	86.35		2.12	
1376		----		----	
1379		----		----	
1385		----		----	
1394		85.1		-1.77	
1428	D2700	85.3		-1.15	
1498		----		----	
1634		85.2		-1.46	
1720		----		----	
1746		----		----	
1849	ISO5163	85.8		0.41	
1914	D2700	85.0		-2.08	
2130	D2700	86.1		1.34	
6101	D2700	86.0	C	1.03	first reported: 87
6108		----		----	
	normality	OK			
	n	33			
	outliers	0			
	mean (n)	85.670			
	st.dev. (n)	0.3230			
	R(calc.)	0.904			
	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	0.13	0.07	0.21	0.14	0.46
53	----	----	----	----	----
62	-2.07	-0.76	-2.03	-1.81	0.03
120	-1.06	-0.62	0.00	0.03	0.34
131	0.07	0.21	0.07	-0.71	0.19
132	-1.54	0.00	0.35	-0.02	-0.33
140	-1.54	-0.21	-0.35	-0.02	-0.29
150	-0.23	0.00	-0.84	-0.29	-0.52
158	----	----	----	----	----
159	-1.89	-0.62	0.21	0.19	0.07
169	-1.36	0.42	0.42	0.08	-0.25
171	-0.29	0.21	-0.21	-0.02	-1.04
175	1.02	0.00	-0.21	0.08	-0.37
194	0.37	0.07	-0.49	-0.02	-0.05
217	-1.36	-0.55	-0.28	-0.18	0.50
221	0.73	0.63	0.28	-0.23	0.58
224	1.34	0.87	-2.12	-2.45	-0.15
225	0.73	0.28	-0.42	-0.76	0.38
228	-1.66	0.07	-1.19	-0.71	0.97
230	1.32	1.67	2.02	1.87	0.78
237	1.32	-0.28	-0.91	-0.55	0.58
238	1.32	0.28	-0.77	-2.07	0.19
252	0.13	-0.07	-1.12	-0.23	0.58
253	0.73	-0.69	-1.61	-0.07	-1.00
254	1.32	-0.07	-0.77	-0.76	0.78
256	-0.46	-0.07	-0.42	-0.23	0.58
258	1.80	1.04	1.46	0.66	0.93
312	-0.29	-0.41	0.49	0.19	-0.33
323	-1.24	0.14	0.35	0.24	-0.29
333	-3.03	-0.28	0.00	0.14	0.62
335	-0.64	-0.48	0.21	-0.23	-1.00
336	-1.18	-0.21	0.35	-0.29	-0.13
337	----	----	----	----	----
338	-0.58	0.21	0.28	0.19	1.25
353	0.91	-0.21	0.21	0.24	0.07
355	2.11	-0.08	-0.08	-0.21	-0.42
381	1.98	0.63	0.77	0.71	-0.05
399	0.98	-0.84	-1.92	-0.40	-0.43
433	----	----	----	----	----
468	----	----	----	----	----
485	0.73	-0.69	-0.07	-0.15	-0.45
541	-0.58	0.07	0.14	0.03	-0.72
556	----	----	----	----	----
557	----	----	----	----	----
558	----	----	----	----	----
562	1.86	-0.07	0.28	0.29	-0.92
603	-0.35	0.49	0.35	0.29	1.05
631	1.74	0.69	1.39	0.87	1.33
657	0.91	0.28	0.14	-0.02	0.23
663	0.85	1.08	0.66	0.40	0.01
671	----	----	----	----	----
823	-1.72	-0.35	-0.49	-0.39	-0.25
824	0.67	0.28	0.49	0.35	0.15
840	-1.17	0.03	0.19	-0.05	0.29
854	-0.64	-0.21	0.28	0.14	0.38
861	-0.94	0.14	0.28	0.19	-0.05
862	-0.94	-0.35	0.63	0.03	0.03
864	-0.88	-0.07	0.42	-0.02	-0.01
904	0.19	-0.07	-0.35	-0.34	-1.55
912	----	----	----	----	----
922	-0.17	-0.07	0.97	0.56	-0.41
962	----	----	----	----	----
963	----	----	----	----	----
970	-1.06	-0.28	-0.49	-0.34	-0.09
971	-1.30	-0.28	-0.63	-0.29	-0.05
974	-0.94	-0.35	-0.49	-0.02	-0.13
995	-0.46	-0.07	-0.42	-0.76	-1.00
996	0.13	0.63	-0.42	-0.23	-0.21
998	----	----	----	----	----
1006	-0.64	0.07	0.56	0.24	0.19
1016	----	----	----	----	----
1017	-1.18	0.14	0.56	-0.02	0.15

1033	----	----	----	----	----
1040	----	----	----	----	----
1059	0.13	-0.35	-0.28	-0.18	-1.27
1067	1.80	0.07	1.11	0.19	0.62
1080	----	----	----	----	----
1105	-0.82	-0.76	-1.47	-0.18	-1.12
1109	-1.72	-0.69	-0.63	-0.34	-0.25
1126	0.49	-0.48	-0.49	0.29	0.23
1134	1.32	0.63	0.97	1.08	0.19
1161	1.02	0.42	0.42	0.14	0.23
1186	1.32	-0.07	2.37	<u>1.35</u>	0.58
1194	----	----	----	----	----
1199	----	----	----	----	----
1213	1.65	-1.04	-0.21	0.19	-1.51
1297	-1.30	-0.35	-0.42	-0.07	-1.04
1347	1.32	<u>2.01</u>	-1.12	0.29	0.19
1348	0.85	0.49	0.97	0.03	0.26
1357	-0.70	0.35	0.42	0.24	-1.31
1376	0.73	0.21	0.77	0.19	-0.25
1385	0.55	0.42	-0.63	<u>-1.49</u>	2.00
1394	-0.11	0.24	0.17	0.56	0.95
1397	1.98	0.42	1.46	0.82	1.49
1428	0.49	-0.28	0.49	-0.07	0.70
1498	-0.35	0.00	0.21	0.24	0.03
1531	----	----	----	----	----
1634	-1.06	-0.07	0.21	0.45	0.34
1720	0.96	0.69	2.02	<u>1.71</u>	-0.68
1724	-0.23	0.21	0.28	0.08	-1.12
1730	----	----	----	----	----
1746	1.62	-0.07	-1.12	-0.76	0.97
1807	-0.05	-0.83	-0.77	-0.18	-0.84
1810	-0.17	0.35	-0.14	-0.65	0.11
1811	0.07	-0.21	-0.70	-0.60	0.07
1833	-1.06	0.63	0.42	-0.13	0.03
1849	-0.52	-0.21	0.00	0.14	0.42
1914	1.92	-0.07	0.28	0.03	0.38
1936	-1.36	0.00	-0.07	0.08	-0.21
1937	-0.82	-0.07	0.00	0.08	-0.52
1938	-0.64	0.28	0.07	-0.07	-0.60
2129	-1.84	0.07	0.00	-0.13	-0.09
2130	0.61	-0.14	0.70	0.24	0.15
6016	----	----	----	----	----
6018	-1.12	0.21	0.77	0.29	0.03
6101	0.01	0.24	-1.79	<u>-1.47</u>	-0.35
6108	----	----	----	----	----

Outliers are marked in **bold and underlined** text

APPENDIX 3**Number of participants per country****Regular sample #17010**

2 labs in AFGHANISTAN
 1 lab in ALBANIA
 1 lab in ARGENTINA
 1 lab in AUSTRALIA
 1 lab in AUSTRIA
 2 labs in BELGIUM
 3 labs in BRAZIL
 3 labs in CANADA
 2 labs in CHILE
 4 labs in CHINA, People's Republic
 1 lab in COTE D'IVOIRE
 1 lab in CROATIA
 1 lab in CYPRUS
 2 labs in CZECH REPUBLIC
 1 lab in DJIBOUTI
 5 labs in FRANCE
 1 lab in GEORGIA
 1 lab in GERMANY
 3 labs in GREECE
 1 lab in GUAM
 1 lab in GUINEA REPUBLIC
 1 lab in HONG KONG
 1 lab in HUNGARY
 1 lab in INDIA
 1 lab in IRELAND
 1 lab in ISRAEL
 1 lab in ITALY
 1 lab in KAZAKHSTAN
 2 labs in KENYA
 1 lab in LATVIA
 3 labs in LEBANON
 1 lab in MALAYSIA
 1 lab in MAURITIUS
 1 lab in MOZAMBIQUE
 4 labs in NETHERLANDS
 1 lab in NIGER
 2 labs in NIGERIA
 2 labs in OMAN
 1 lab in PAKISTAN
 1 lab in PHILIPPINES
 1 lab in POLAND
 2 labs in PORTUGAL
 1 lab in RUSSIAN FEDERATION
 2 labs in SAUDI ARABIA
 1 lab in SENEGAL
 1 lab in SERBIA
 1 lab in SINGAPORE
 1 lab in SLOVENIA
 2 labs in SOUTH KOREA
 1 lab in SPAIN
 1 lab in SUDAN
 1 lab in SWEDEN
 1 lab in TAIWAN
 1 lab in TANZANIA
 1 lab in THAILAND
 1 lab in TOGO
 1 lab in TUNISIA
 9 labs in TURKEY
 1 lab in TURKMENISTAN
 3 labs in UNITED ARAB EMIRATES
 4 labs in UNITED KINGDOM
 11 labs in UNITED STATES OF AMERICA
 1 lab in URUGUAY
 3 labs in VIETNAM

DVPE sample #17011

1 lab in AFGHANISTAN
 1 lab in ARGENTINA
 1 lab in AUSTRALIA
 2 labs in BELGIUM
 1 lab 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
 1 lab in CYPRUS
 2 labs in CZECH REPUBLIC
 5 labs in FRANCE
 1 lab in GERMANY
 1 lab in GREECE
 1 lab in IRELAND
 1 lab in ITALY
 1 lab in KAZAKHSTAN
 1 lab in MALAYSIA
 1 lab in MAURITIUS
 1 lab in MOZAMBIQUE
 2 labs in NETHERLANDS
 1 lab in NIGER
 2 labs in NIGERIA
 2 labs in OMAN
 1 lab in PHILIPPINES
 1 lab in POLAND
 2 labs in PORTUGAL
 1 lab in SAUDI ARABIA
 1 lab in SERBIA
 1 lab in SINGAPORE
 1 lab in SLOVENIA
 2 labs in SOUTH KOREA
 1 lab in SPAIN
 1 lab in SUDAN
 1 lab in SWEDEN
 1 lab in TAIWAN
 1 lab in TANZANIA
 1 lab in TOGO
 9 labs in TURKEY
 2 labs in UNITED ARAB EMIRATES
 6 labs in UNITED KINGDOM
 12 labs in UNITED STATES OF AMERICA
 1 lab in URUGUAY
 2 labs in VIETNAM

RON/MON sample #17012

2 labs in AFGHANISTAN
 1 lab in ARGENTINA
 1 lab in AUSTRALIA
 1 lab in BELGIUM
 2 labs in CANADA
 2 labs in CHILE
 2 labs in CHINA, People's Republic
 1 lab in CYPRUS
 2 labs in GEORGIA
 1 lab in ISRAEL
 1 lab in ITALY
 1 lab in KENYA
 1 lab in LATVIA
 3 labs in LEBANON
 1 lab in NETHERLANDS
 1 lab in NIGER
 1 lab in NIGERIA
 2 labs in OMAN
 1 lab in PAKISTAN
 1 lab in PHILIPPINES
 1 lab in PORTUGAL
 2 labs in RUSSIAN FEDERATION
 1 lab in SAUDI ARABIA
 1 lab in SERBIA
 1 lab in SINGAPORE
 1 lab in SLOVENIA
 2 labs in SOUTH KOREA
 1 lab in SUDAN
 1 lab in TAIWAN
 1 lab in TANZANIA
 3 labs in TURKEY
 1 lab in UNITED ARAB EMIRATES
 2 labs in UNITED KINGDOM
 8 labs in UNITED STATES OF AMERICA
 1 lab in URUGUAY
 1 lab in VIETNAM

APPENDIX 4

Abbreviations:

C	= final result after checking of first reported suspect test 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's outlier test
R(0.05)/R(5)	= straggler in Rosner's outlier test
E	= probably an error in calculations
W	= test result withdrawn on request of participant
ex	= test result excluded from statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported
SDS	= Safety Data Sheet

Literature:

- 1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, March 2017
- 2 ASTM E178:02
- 3 ASTM E1301:03
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- 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)