Results of Proficiency Test
Gasoline - ASTM (summer)
February 2021

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis21B01ASTM

May 2021

CONTENTS

1 INTRODUCTION

Since 1995 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Gasoline twice a year. One round according to EN228 specification and one round according to ASTM D4814 specification. During the annual proficiency testing program 2020/2021 it was decided to continue the proficiency tests for the analysis of Gasoline summer quality in accordance with the latest version of ASTM D4814.

In this interlaboratory study registered for participation:
- 108 laboratories in 51 countries on Gasoline - ASTM (summer) iis21B01ASTM
- 74 laboratories in 37 countries on Gasoline - ASTM DVPE PT iis21B01DVPE
- 55 laboratories in 31 countries on Gasoline - ASTM RON and MON PT iis21B01RON

In total 113 laboratories in 53 different countries registered for participation. See appendix 4 for the number of participants per country. In this report the results of the three Gasoline-ASTM (summer) proficiency tests 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 (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory.
In this proficiency test, the participants received, depending on the registration, from one up to three different samples of Gasoline, see table below.

Samples	Purpose
#21015: 1x 1L	Regular analyzes
#21016: 1x 1L (75% filled)	DVPE
#21017: 2x 1L	RON/MON analyzes

Table 1: Gasoline samples used in PT iis21B01ASTM

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/IEC17043:2010 (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 June 2018 (iis-protocol, version 3.5). 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

For the preparation of the samples for the PT Gasoline ASTM (summer) and PT Gasoline ASTM RON and MON a batch of approximately 300 liters of Gasoline (summer quality) was obtained from the local market. The batch was spiked for Manganese and Lead. After homogenisation 130 and 140 amber glass bottles of 1L were filled and labelled #21015 and #21017 respectively.
The homogeneity of the subsamples of #21015 and # 21017 was checked by determination of Density at 15°C in accordance with ASTM D4052 on 10 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
sample-1	743.38
sample-2	743.37
sample-3	743.37
sample-4	743.35
sample-5	743.36
sample-6	743.37
sample-7	743.38
sample-8	743.36
sample-9	743.36
sample-10	743.38

Table 2: homogeneity test results of subsamples #21015 and #21017

From the above test results the repeatability was calculated and compared with 0.3 times the reproducibility of the reference test method in agreement with the procedure of ISO13528, Annex B2 in the next table.

	Density at 15°C in kg/m^3
r (observed)	0.03
reference test method	D4052:18a
0.3 x R (reference test method)	0.64

Table 3: evaluation of the repeatability of subsamples #21015 and #21017

The calculated repeatability is in agreement with 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.

For the preparation of the sample for the PT Gasoline ASTM DVPE a batch of approximately 115 liters of Gasoline (summer) was obtained from the local market. After homogenisation 108 amber glass bottles of 1L were filled with approximately 750mL Gasoline and labelled #21016.
The homogeneity of the subsamples was checked by the determination of DVPE in accordance with ASTM D5191 on 8 stratified randomly selected subsamples.

	DVPE in psi
Sample #21016-1	8.28
Sample #21016-2	8.30
Sample #21016-3	8.30
Sample #21016-4	8.28
Sample #21016-5	8.30
Sample #21016-6	8.30
Sample #21016-7	8.31
Sample #21016-8	8.30

Table 4: homogeneity test results of subsamples #21016

From the above test results the repeatability was calculated and compared with 0.3 times the reproducibility of the reference test method in agreement with the procedure of ISO13528, Annex B2 in the next table.

	DVPE in psi
r (observed)	0.03
reference test method	ASTM D5191:20
0.3 x R (reference test method)	0.10

Table 5: evaluation of the repeatability of subsamples #21016

The calculated repeatability is in agreement with 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.
Depending on the registration of the participant the appropriate set of PT samples was sent on February 3, 2021. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

The stability of Gasoil packed in amber 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 on sample #21015: API Gravity, Aromatics by FIA (without oxygenates correction), Benzene, Copper Corrosion, Silver Corrosion, Density at 15°C, Distillation at 760 mmHg (IBP, Temperaure at 10%, 50%, 90% evaporated and FBP), Doctor Test, Gum (solvent washed), Lead as Pb, Manganese as Mn, Olefins by FIA (without oxygenates correction), Oxidation Stability, Oxygenates (DIPE, ETBE, Ethanol, Methanol, MTBE, TAME, Other Oxygenates), Oxygen content, Phosphorus as P and Total Sulfur.
On sample #21016 it was requested to determine Total Vapour Pressure and Dry Vapour Pressure Equivalent (according to ASTM D5191 and EPA).
On sample #21017 it was requested to determine RON and MON.

It was explicitly requested to treat the samples as if they were routine samples and to report the test results using the indicated units on the report form and not to round the test results but report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluations.

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 (when applicable) 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 participating laboratories are also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisnl.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 appendices 1 and 2 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 reported test results (no reanalyzes). Additional or corrected test results are used for data analysis and the original test results are placed under ‘Remarks’ in the test result tables in appendix 1 or 2. 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

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 June 2018 (iis-protocol, version 3.5). For the statistical evaluation the *unrounded* (when available) figures 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.

The assigned value is determined by consensus based on the test results of the group of participants after rejection of the statistical outliers and/or suspect data.

According to ISO13528 all (original received or corrected) results per determination were submitted to outlier tests. In the iis procedure for proficiency tests, outliers are detected prior to calculation of the mean, standard deviation and reproducibility. For small data sets, Dixon (up to 20 test results) or Grubbs (up to 40 test results) outlier tests can be used. For larger data sets (above 20 test results) Rosner's outlier test can be used. 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. In this PT the criterion of ISO13528 paragraph 9.2.1 was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.

Finally, the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported 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 a cross. Accepted data are represented as a triangle.

Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also, a normal Gauss curve (dotted line) was projected over the Kernel Density Graph (smooth line) for reference. The Gauss curve is calculated from the consensus value and the corresponding standard deviation.

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 in this interlaboratory study.

This 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, like Horwitz or an estimated reproducibility based on former iis proficiency tests.

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 according to:

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

The $z_{(target)}$ scores are listed in the result tables of 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 proficiency test some problems were encountered with the dispatch of the samples. Therefore, the reporting time on the data entry portal was extended with another week. For the regular Gasoline PT seven participants reported test results after the extended reporting date and ten other participants did not report any test results.
For the PT on DVPE: two participants reported the test results after the extended reporting date and thirteen other participants did not report any test results at all.
For the PT on RON/MON two participants reported test results after the extended reporting date and six other participants did not report any test results.
Not all participants were able to report all tests requested.

In total 104 participants reported 1288 numerical test results. Observed were 38 outlying test results, which is 3.0% of the numerical test results. In proficiency studies, outlier percentages of 3%-7.5% are quite normal.

Not all 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.

4.1 EVALUATION PER SAMPLE AND PER TEST

In this section the reported test results are discussed per sample and per test. The test methods which were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original data. The abbreviations, used in these tables, are explained in appendix 5.

In the iis PT reports ASTM test methods are referred to with a number (e.g. D525) and an added designation for the year that the sub test method was adopted or revised (e.g. D525:12a). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D525:12a(2019)). In the test results tables of appendix 1 only the test method number and year of adoption or revision (e.g.D525:12a) will be used.

Sample #21015

API Gravity: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4052:18a.

Aromatics by FIA (without oxygenates correction): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1319:20a.

Benzene: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D3606:20e1 and ASTM D5580:21.

Copper Corrosion: This determination was not problematic. All reporting participants agreed on classification 1 (1a).

Silver Corrosion: This determination was not problematic. All reporting participants agreed on classification 0, except two participants who reported classification 1.

Density at 15°C: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4052:18a.

Distillation at 760 mmHg: The distillation may be problematic depending on the mode used. In total two statistical outliers were observed over five parameters. The calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D86:19 automated mode. When compared to the requirements of the manual mode only the calculated reproducibilities for Initial Boiling Point and Final Boiling Point are not in agreement.

Doctor Test: This determination was not problematic. All reporting laboratories, except one, agreed on the absence of Mercaptans and reported Negative.

Gum (solvent washed): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D381:19.

Lead as Pb: This determination was not problematic. One statistical outlier was observed and and five other test results were excluded. The batch was spiked with 7.1 mg/L Lead. The laboratories should be able to find at least 4.5 mg/L (7.1 mg/L - 2.6 mg/L $_{(R\ D3237:17)}$). Five laboratories reported a test result lower than 4.5 mg/L. Therefore, these test results were excluded from the statistical evaluation. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ASTM D3237:17.

Manganese as Mn: This determination was not problematic. No statistical outliers were observed but one test result was excluded. The batch was spiked with 5 mg/L Manganese. The laboratories should be able to find at least 1.3 mg/L (5 mg/L - 3.7 mg/L $_{(R\ D3831:12)}$). One laboratory reported a test result lower than 1.3 mg/L. Therefore, this test result was excluded from the statistical evaluation. The calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ASTM D3831:12.

Olefins by FIA (without oxygenates correction): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D1319:20a.

Oxidation Stability: This determination was not problematic. All of the reporting laboratories agreed that the Oxidation Stability is >241 minutes.

Ethanol: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D4815:15b(2019).

MTBE: 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 D4815:15b(2019).

The participants did agree on a concentration near or below the limit of detection for the other requested Oxygenates. Therefore, no z-scores were calculated. These components are listed in appendix 2.

Oxygen Content: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4815:15b(2019).

Phosphorus as P: This determination was not problematic. All reporting laboratories agreed on a Phosphorus concentration lower than 2 mg/L. Therefore, no z-scores were calculated.

Total Sulfur: 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 D5453:19a.

Sample #21016

TVP: This determination was problematic for a number of participants. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5191:20.

DVPE: The conversions of the measured Total Vapour Pressure to the Dry Vapour Pressure Equivalent (DVPE) as described in ASTM D5191:20 was problematic for a number of participants. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5191:20. One calculation difference was observed. The conversions of the measured Total Vapour Pressure to the Dry Vapour Pressure Equivalent (DVPE) as described in the U.S. EPA guidelines (40 CFR Part 80, App. E, Method 3) were problematic. In total three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements the EPA guidelines. One calculation difference was observed.

Sample #21017

RON: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D2699:19.

MON: This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D2700:19.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the reference test method and the reproducibility as found for the group of participating laboratories. The number of significant test results, the average, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility derived from literature reference test methods (in casu ASTM test methods) are presented in the next tables.

Parameter	unit	n	average	2.8 * sd	R(lit)
API Gravity		58	58.74	0.18	0.55
Aromatics by FIA *)	%V/V	35	30.9	3.2	3.7
Benzene	%V/V	49	0.79	0.07	0.15
Copper Corrosion 3 hrs at 50°C		75	1 (1a/1b)	n.a.	n.a.
Silver Corrosion 3 hrs at 50°C		18	0	n.a.	n.a.
Density at 15°C	kg/m^3	93	743.5	0.7	2.1
Initial Boiling Point	°C	92	36.6	4.8	4.7
Temp. at 10% evaporated	°C	93	52.0	1.9	3.9
Temp. at 50% evaporated	°C	93	93.5	3.6	4.0
Temp. at 90% evaporated	°C	93	147.1	4.0	5.5
Final Boiling Point	°C	91	177.8	4.9	7.1
Doctor Test		51	Negative	n.a.	n.a.
Existent Gum (solvent washed)	mg/100mL	38	0.61	0.84	2.15
Lead as Pb	mg/L	23	6.4	2.3	2.6
Manganese as Mn	mg/L	26	5.5	3.3	3.9
Olefins by FIA *)	%V/V	35	5.8	2.6	2.4
Oxidation Stability	minutes	39	>241	n.e.	n.e.
Ethanol	%V/V	51	4.6	0.4	0.5
MTBE	%V/V	46	2.7	0.3	0.2
Oxygen content	%M/M	41	2.2	0.2	0.2
Phosphorus as P	mg/L	13	<2	n.e.	n.e.
Total Sulfur	mg/kg	75	7.0	2.6	2.5

Table 6: reproducibilities of tests on sample #21015

*) without oxygenates correction

Parameter	unit	n	average	2.8 * sd	R(lit)
TVP	psi	42	9.2	0.3	0.3
DVPE according to ASTM D5191	psi	54	8.3	0.2	0.3
DVPE according to EPA	psi	32	8.4	0.4	0.3

Table 7: reproducibilities of tests on sample #21016

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		45	96.3	0.9	0.7
MON		31	86.1	0.9	0.9

Table 8: reproducibilities of tests on sample #21017

Without further statistical calculations, it can be concluded that for many tests there is a good compliance of the group of participating laboratories with the relevant reference test methods. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF FEBRUARY 2021 WITH PREVIOUS PTS

	February 2021	February 2020	February 2019	February 2018	February 2017
Number of reporting laboratories	104	99	106	110	111
Number of test results	1288	1158	1362	1327	1489
Number of statistical outliers	38	20	55	16	39
Percentage of statistical outliers	3.0%	1.7%	4.0%	1.2%	2.6%

Table 9: 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 reference test methods. The conclusions are given in the following table.

Parameter	February 2021	February 2020	February 2019	February 2018	February 2017
API Gravity	++	++	++	+	++
Aromatics by FIA *)	+	+/-	+/-	+/-	-
Benzene	++	+	++	+	+
Density at 15°C	++	++	++	++	++
Distillation at 760 mmHg	+	+	+	+	++
Gum (solvent washed)	++	++	++	++	++
Lead as Pb	+	n.e.	n.e.	+/-	+/-
Manganese as Mn	+	n.e.	+	++	+
Olefins by FIA *)	+/-	+	-	-	-
Ethanol	+	+/-	+	+/-	+/-
MTBE	-	-	-	-	-
Oxygen content	+	+	+/-	+/-	+/-
Phosphorus as P	n.e.	n.e.	--	-	--
Total Sulfur	+/-	+	+/-	+/-	+/-
TVP	+	+/-	+/-	+/-	+/-
DVPE	+/-	+/-	+/-	+	+/-
RON	-	+	-	-	-

Parameter	February 2021	February 2020	February 2019	February 2018	February 2017
MON	+/-	-	-	-	+/-

Table 10: comparison determinations against the reference test methods

*) without oxygenates correction

The following performance categories were used:

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

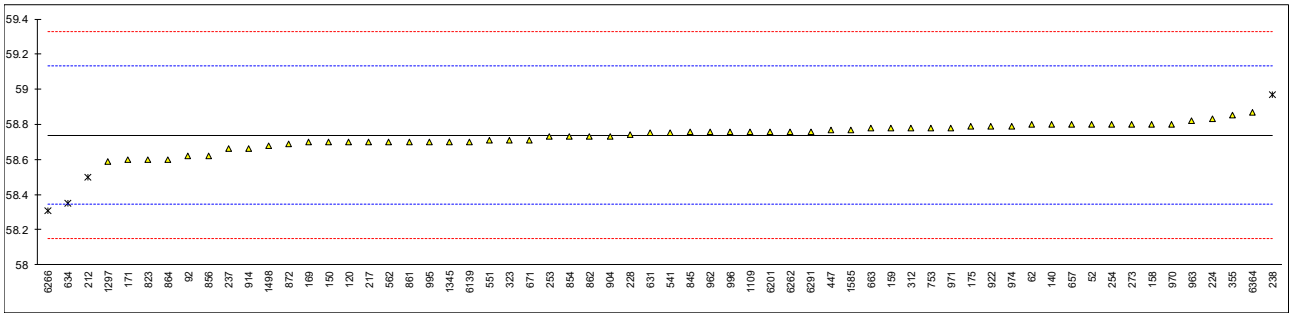
APPENDIX 1

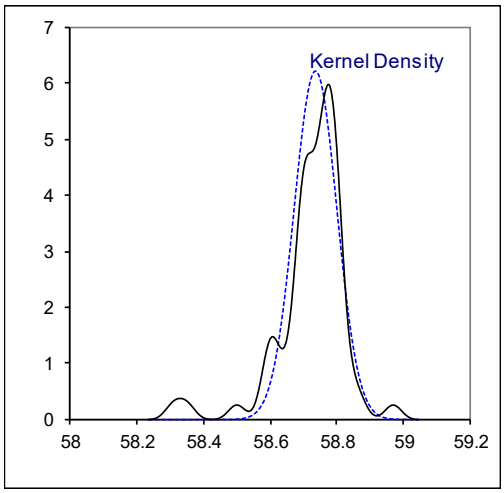
Determination of API Gravity on sample #21015;

lab	method	value	mark	z(targ)	remarks
52	D4052	58.8		0.32	
62	D4052	58.8		0.32	
92	D4052	58.62		-0.60	
120	D4052	58.7		-0.19	
140	D4052	58.8		0.32	
150	D4052	58.7		-0.19	
158	D4052	58.8		0.32	
159	D4052	58.78		0.21	
169	D4052	58.7		-0.19	
171	D4052	58.6		-0.70	
175	D4052	58.79		0.26	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212	ISO12185	58.5	R(0.05)	-1.21	
217	D4052	58.70		-0.19	
221		-----		-----	
224	D1298	58.83		0.47	
225		-----		-----	
228	D4052	58.74		0.01	
230		-----		-----	
237	D4052	58.66		-0.40	
238	D4052	58.97	R(0.05)	1.18	
253	D4052	58.73		-0.04	
254	D4052	58.8		0.32	
256		-----		-----	
258		-----		-----	
273	D4052	58.8		0.32	
312	D4052	58.78		0.21	
323	D4052	58.71		-0.14	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355	D4052	58.85		0.57	
365		-----		-----	
381		-----		-----	
447	D4052	58.77		0.16	
480		-----		-----	
541	D4052	58.75		0.06	
551	D4052	58.71		-0.14	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562	D1298	58.7		-0.19	
603		-----		-----	
631	D4052	58.75		0.06	
634	D4052	58.35	R(0.01)	-1.98	
657	D4052	58.8		0.32	
663	D4052	58.78		0.21	
671	D4052	58.71		-0.14	
753	D4052	58.78		0.21	
754		-----		-----	
823	D4052	58.6		-0.70	
845	D4052	58.76		0.11	
854	D4052	58.73		-0.04	
856	D4052	58.62		-0.60	
861	D4052	58.70		-0.19	
862	D4052	58.73		-0.04	
864	D4052	58.6		-0.70	
872	D4052	58.69		-0.24	
904	D4052	58.73		-0.04	
912		-----		-----	
913		-----		-----	
914	D4052	58.66		-0.40	
922	D4052	58.79		0.26	
962	D4052	58.76		0.11	
963	D4052	58.82		0.42	
970	D4052	58.80		0.32	
971	D4052	58.78		0.21	
974	D4052	58.79		0.26	
995	D4052	58.7		-0.19	
996	Calc.	58.76		0.11	

lab	method	value	mark	z(targ)	remarks
998		-----		-----	
1006		-----		-----	
1016		-----		-----	
1026		-----		-----	
1033		-----		-----	
1059		-----		-----	
1109	D287	58.76		0.11	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297	D4052	58.59		-0.75	
1299		-----		-----	
1345	D4052	58.70		-0.19	
1498	D4052	58.68		-0.30	
1531		-----		-----	
1585	D4052	58.77		0.16	
1730		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D4052	58.7		-0.19	
6142		-----		-----	
6172		-----		-----	
6201	D4052	58.76		0.11	
6233		-----		-----	
6262	D4052	58.76		0.11	
6266	D4052	58.31	R(0.01)	-2.18	
6291	D4052	58.76		0.11	
6364	D4052	58.8672		0.66	

normality	OK
n	58
outliers	4
mean (n)	58.738
st.dev. (n)	0.0646
R(calc.)	0.181
st.dev.(D4052:18a)	0.1963
R(D4052:18a)	0.550



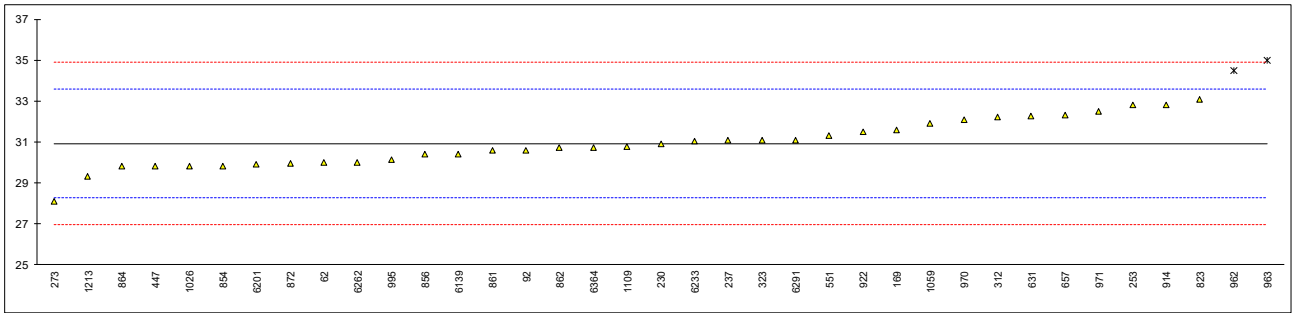


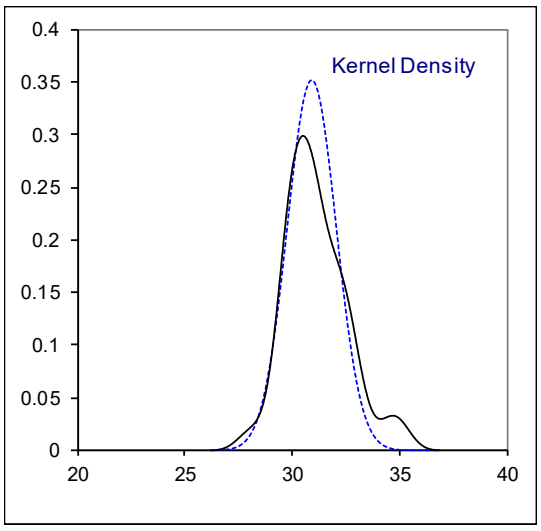
Determination of Aromatics by FIA (without oxygenates correction) on sample #21015; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	D1319	30.0		-0.70	
92	D1319	30.6		-0.24	
120		-----		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
159		-----		-----	
169	D1319	31.6		0.51	
171		-----		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230	D1319	30.9		-0.02	
237	D1319	31.1		0.13	
238		-----		-----	
253	D1319	32.8		1.42	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273	D1319	28.1		-2.14	
312	D1319	32.2		0.97	
323	D1319	31.1		0.13	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D1319	29.8		-0.85	
480		-----		-----	
541		-----		-----	
551	D1319	31.3		0.28	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D1319	32.24		1.00	
634		-----		-----	
657	D1319	32.3		1.04	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D1319	33.1		1.65	
845		-----		-----	
854	D1319	29.81		-0.84	
856	D1319	30.4		-0.40	
861	D1319	30.6		-0.24	
862	D1319	30.7		-0.17	
864	D1319	29.8		-0.85	
872	ISO22854 (A)	29.93		-0.75	
904		-----		-----	
912		-----		-----	
913		-----		-----	
914	D1319	32.8		1.42	
922	D1319	31.5		0.44	
962	D1319	34.5	DG(0.05)	2.71	
963	D1319	35.0	DG(0.05)	3.08	
970	D1319	32.1		0.89	
971	D1319	32.50		1.19	
974		-----		-----	
995	D1319	30.15		-0.59	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016		-----		-----	
1026	ISO22854	29.8		-0.85	
1033		-----		-----	
1059	D1319	31.9		0.74	
1109	D1319	30.75		-0.13	
1126		-----		-----	
1186		-----		-----	
1213	D1319	29.32		-1.21	
1297		-----		-----	
1299		-----		-----	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D1319	30.4		-0.40	
6142		-----		-----	
6172		-----		-----	
6201	D1319	29.9		-0.77	
6233	D1319	31.02		0.07	
6262	D1319	30.0		-0.70	
6266		-----		-----	
6291	D1319	31.1		0.13	
6364	D1319	30.7	C	-0.17	first reported 42.91

normality	OK
n	35
outliers	2
mean (n)	30.92
st.dev. (n)	1.134
R(calc.)	3.17
st.dev.(D1319:20a)	1.321
R(D1319:20a)	3.7



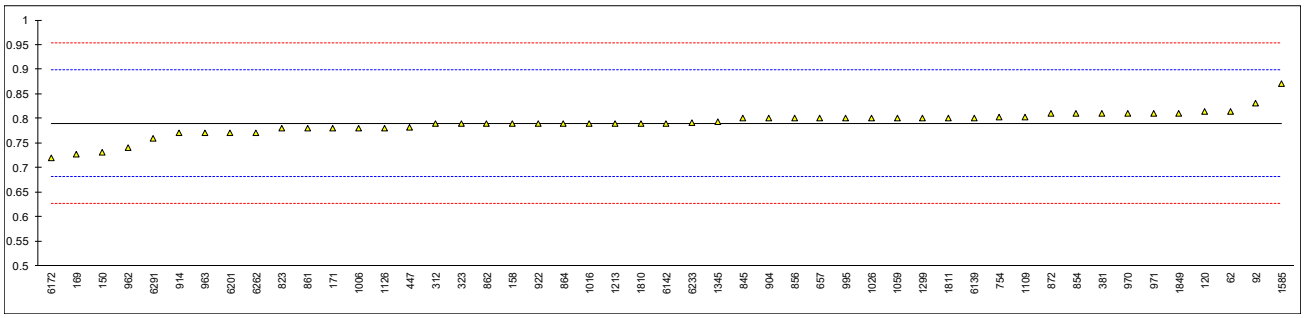


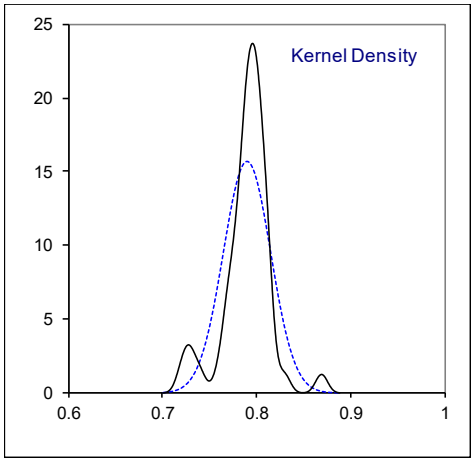
Determination of Benzene on sample #21015; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	INH-14.3	0.814		0.44	
92	INH-14.3	0.83		0.73	
120	D3606	0.814		0.44	
140		-----		-----	
150	D3606	0.73		-1.10	
158	D3606	0.79		0.00	
159		-----		-----	
169	D3606	0.727		-1.16	
171	D3606	0.78		-0.19	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D3606	0.79		0.00	
323	EN22854	0.79		0.00	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	EN22854	0.81		0.36	
447	EN238	0.782		-0.15	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
634		-----		-----	
657	D5580	0.8		0.18	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754	D6729	0.802		0.22	
823	D5580	0.78		-0.19	
845	D5580	0.80		0.18	
854	D5580	0.81		0.36	
856	D3606	0.80		0.18	
861	D5580	0.78		-0.19	
862	D5580	0.79		0.00	
864	D5580	0.79		0.00	
872	ISO22854 (A)	0.81		0.36	
904	EN12177	0.8		0.18	
912		-----		-----	
913		-----		-----	
914	D3606	0.77		-0.37	
922	D6277B	0.79		0.00	
962	D5580	0.74		-0.92	
963	D5580	0.77		-0.37	
970	D5580	0.81		0.36	
971	D5580	0.81		0.36	
974		-----		-----	
995	D6730	0.800		0.18	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006	D5580	0.78		-0.19	
1016	EN22854	0.79		0.00	
1026	ISO22854	0.80		0.18	
1033		-----		-----	
1059	ISO22854	0.80		0.18	
1109	D3606	0.802		0.22	
1126	EN22854	0.78		-0.19	
1186		-----		-----	
1213	D3606	0.79		0.00	
1297		-----		-----	
1299	EN22854	0.80		0.18	
1345		0.794		0.07	
1498		-----		-----	
1531		-----		-----	
1585	EN12177	0.87		1.46	
1730		-----		-----	
1807		-----		-----	
1810	EN22854	0.79		0.00	
1811	ISO22854	0.80		0.18	
1849	ISO22854	0.81		0.36	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D5580	0.80		0.18	
6142	ISO22854	0.79		0.00	
6172	D6277	0.72		-1.29	
6201	D3606	0.77		-0.37	
6233	D5580	0.792		0.03	
6262	EN22854	0.77		-0.37	
6266		-----		-----	
6291	D3606	0.76		-0.55	
6364		-----		-----	

	normality	not OK
	n	49
	outliers	0
	mean (n)	0.790
	st.dev. (n)	0.0254
	R(calc.)	0.071
	st.dev.(D3606:20e1)	0.0545
	R(D3606:20e1)	0.153
Compare		
	R(D5580:21)	0.105





Determination of Copper Corrosion 3hrs at 50°C on sample #21015;

lab	method	value	mark	z(targ)	remarks
52	D130	1a		-----	
62	D130	1a		-----	
92	D130	1a		-----	
120	D130	1A		-----	
140	D130	1a		-----	
150	D130	1a		-----	
158	D130	1A		-----	
159	D130	1A		-----	
169	D130	1a		-----	
171	D130	1a		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212	D130	1a		-----	
217	D130	1 a		-----	
221	D130	1A		-----	
224	D130	1A		-----	
225		-----		-----	
228		-----		-----	
230	D130	1a		-----	
237	D130	1A		-----	
238	D130	1a		-----	
253	D130	1A		-----	
254	D130	1A		-----	
256		-----		-----	
258		-----		-----	
273	D130	1a		-----	
312	D130	1a		-----	
323	D130	1A		-----	
328	D130	1		-----	
335	D130	1a		-----	
337		-----		-----	
355		-----		-----	
365	IP154	1a		-----	
381		-----		-----	
447	D130	1a		-----	
480		-----		-----	
541	D130	1a		-----	
551	D130	1a		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562	D130	1A		-----	
603	D130	1a		-----	
631	D130	1a		-----	
634	D130	1a		-----	
657	D130	1A		-----	
663	D130	1a		-----	
671	D130	1A		-----	
753	D130	1a		-----	
754	D130	1a		-----	
823	D130	1a		-----	
845	D130	1A1		-----	
854	D130	1A		-----	
856	D130	1a		-----	
861	D130	1a		-----	
862	D130	1a		-----	
864	D130	1a		-----	
872		-----		-----	
904	D130	1a		-----	
912		-----		-----	
913		-----		-----	
914	D130	1a		-----	
922	D130	1a		-----	
962	D130	1A		-----	
963	D130	1a		-----	
970	D130	1a		-----	
971	D130	1a		-----	
974	D130	1a		-----	
995	D130	1a		-----	
996	D130	1a		-----	
998	D130	1A		-----	

lab	method	value	mark	z(targ)	remarks
1006	D130	1a		-----	
1016	D130	1a		-----	
1026	ISO2160	1A		-----	
1033		-----		-----	
1059	ISO2160	1a		-----	
1109	D130	1a		-----	
1126		-----		-----	
1186	D130	1A		-----	
1213		-----		-----	
1297	D130	1A		-----	
1299	D130	1A		-----	
1345	D130	1a		-----	
1498		-----		-----	
1531	D130	1a		-----	
1585	D130	1A		-----	
1730		-----		-----	
1807	D130	1a		-----	
1810		-----		-----	
1811		-----		-----	
1849	ISO2160	1A		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D130	1a		-----	
6142		-----		-----	
6172		-----		-----	
6201	D130	1a		-----	
6233	D130	1a		-----	
6262	D130	1A		-----	
6266	D130	1a		-----	
6291	D130	1a		-----	
6364	D130	1A		-----	
	n	75			
	mean (n)	1 (1a/1b)			

Determination of Silver Corrosion 3hrs at 50°C on sample #21015;

lab	method	value	mark	z(targ)	remarks
52	D7671-A	0		-----	
62	D7671-A	0		-----	
92		-----		-----	
120	D7671-A	0		-----	
140	D7671-A	0		-----	
150	D7671-A	0		-----	
158	D7671-A	0		-----	
159		-----		-----	
169	D7671-A	0		-----	
171	D7671-A	1		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D7671-A	0		-----	
323	D7671-A	0		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D7671-A	0		-----	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
634		-----		-----	
657	D7671-A	0		-----	
663	D7671-A	0		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D7671-A	1		-----	
845		-----		-----	
854		-----		-----	
856		-----		-----	
861	D7671-A	0		-----	
862	D7671-A	0		-----	
864		-----		-----	
872		-----		-----	
904		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922		-----		-----	
962		-----		-----	
963		-----		-----	
970		-----		-----	
971		-----		-----	
974		-----		-----	
995		-----		-----	
996		-----		-----	
998		-----		-----	

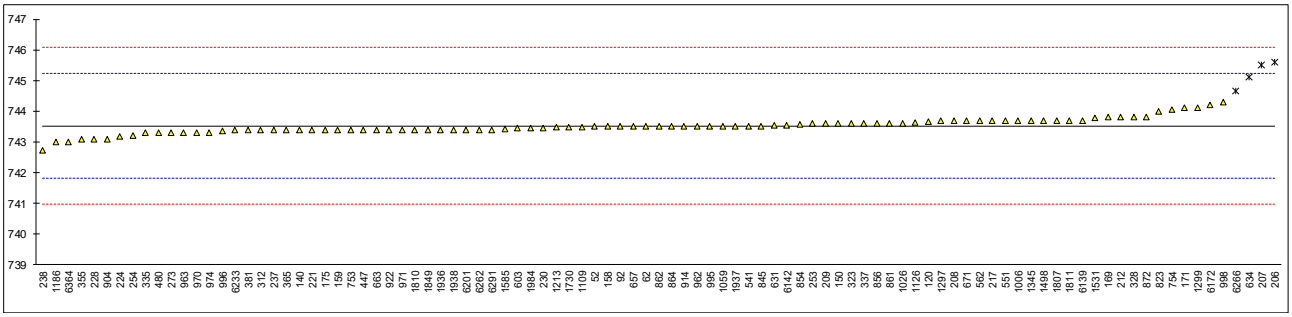
lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016	D7671-A	0		-----	
1026		-----		-----	
1033		-----		-----	
1059		-----		-----	
1109	D7671-A	0		-----	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297		-----		-----	
1299		-----		-----	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139		-----		-----	
6142		-----		-----	
6172		-----		-----	
6201	D7671-A	0		-----	
6233		-----		-----	
6262	D7671-A	0		-----	
6266		-----		-----	
6291		-----		-----	
6364		-----		-----	
	n	18			
	mean (n)	0			

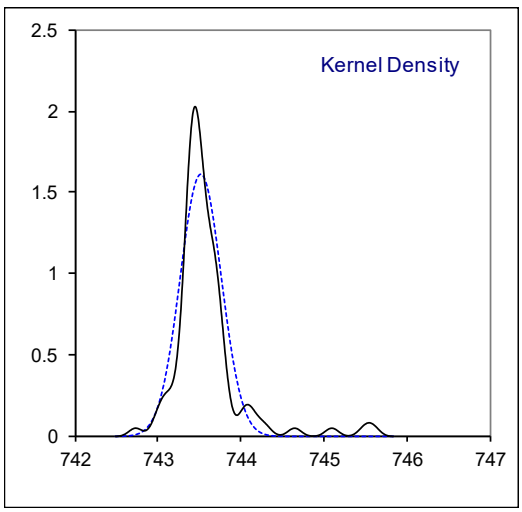
Determination of Density at 15°C on sample #21015; results in kg/m^3

lab	method	value	mark	z(targ)	remarks
52	D4052	743.5		-0.02	
62	D4052	743.5		-0.02	
92	D4052	743.5		-0.02	
120	D4052	743.65		0.18	
140	D4052	743.4	C	-0.15	first reported 0.7434 without unit
150	D4052	743.6		0.11	
158	D4052	743.5		-0.02	
159	D4052	743.4		-0.15	
169	D4052	743.8		0.37	
171	D4052	744.1		0.77	
175	D4052	743.4		-0.15	
206	D7777	745.6	R(0.01)	2.75	
207	D7777	745.5	R(0.01)	2.62	
208	D7777	743.7	C	0.24	first reported 0.7456 kg/L
209	D7777	743.6	C	0.11	first reported 0.7456 kg/L
212	ISO12185	743.8		0.37	
217	D4052	743.7		0.24	
221	D4052	743.4		-0.15	
224	D1298	743.18		-0.44	
225		-----		-----	
228	D4052	743.1		-0.55	
230	D4052	743.46		-0.08	
237	D4052	743.4		-0.15	
238	D4052	742.73		-1.04	
253	D4052	743.6		0.11	
254	D4052	743.2		-0.42	
256		-----		-----	
258		-----		-----	
273	D4052	743.3	C	-0.29	first reported 0.7433 kg/m^3
312	D4052	743.4		-0.15	
323	D4052	743.6		0.11	
328	D4052	743.8		0.37	
335	ISO12185	743.3		-0.29	
337	ISO12185	743.6		0.11	
355	D4052	743.1		-0.55	
365	IP365	743.4		-0.15	
381	D4052	743.4		-0.15	
447	D4052	743.4		-0.15	
480	D4052	743.3		-0.29	
541	D4052	743.52		0.00	
551	D4052	743.7		0.24	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562	D1298	743.7		0.24	
603	D4052	743.45		-0.09	
631	D4052	743.53		0.02	
634	D4052	745.1	R(0.01)	2.09	
657	D4052	743.5		-0.02	
663	D4052	743.40		-0.15	
671	D4052	743.7		0.24	
753	D4052	743.4		-0.15	
754	D4052	744.05		0.70	
823	ISO12185	744.0		0.64	
845	D4052	743.52		0.00	
854	D4052	743.57		0.07	
856	ISO12185	743.60		0.11	
861	D4052	743.6		0.11	
862	D4052	743.5		-0.02	
864	D4052	743.5		-0.02	
872	D4052	743.8	C	0.37	first reported 0.7438 kg/m^3
904	D4052	743.1		-0.55	
912		-----		-----	
913		-----		-----	
914	D4052	743.5		-0.02	
922	D4052	743.4		-0.15	
962	D4052	743.5		-0.02	
963	D4052	743.3		-0.29	
970	D4052	743.3		-0.29	
971	D4052	743.4		-0.15	
974	D4052	743.3		-0.29	
995	D4052	743.5		-0.02	
996	D1298	743.35		-0.22	
998	D4052	744.3		1.03	

lab	method	value	mark	z(targ)	remarks
1006	D4052	743.7		0.24	
1016		-----		-----	
1026	D4052	743.6		0.11	
1033		-----		-----	
1059	D4052	743.5		-0.02	
1109	D4052	743.49		-0.04	
1126	D4052	743.64		0.16	
1186	D1298	743.0		-0.68	
1213	D4052	743.47		-0.06	
1297	D4052	743.69		0.23	
1299	D4052	744.1		0.77	
1345	D4052	743.7		0.24	
1498	D4052	743.7	C	0.24	first reported 733.7
1531	ISO12185	743.78		0.35	
1585	D4052	743.43		-0.12	
1730	D4052	743.48		-0.05	
1807	D4052	743.7		0.24	
1810	ISO12185	743.4		-0.15	
1811	D4052	743.7		0.24	
1849	ISO12185	743.4		-0.15	
1936	ISO12185	743.4		-0.15	
1937	ISO12185	743.5		-0.02	
1938	ISO12185	743.4		-0.15	
1984	ISO12185	743.45		-0.09	
6139	D4052	743.7		0.24	
6142	ISO12185	743.55		0.04	
6172	D4052	744.2		0.90	
6201	D4052	743.4		-0.15	
6233	D4052	743.39		-0.17	
6262	D4052	743.4		-0.15	
6266	D4052	744.65	R(0.01)	1.49	
6291	D4052	743.4		-0.15	
6364	D4052	743.0		-0.68	

normality	suspect
n	93
outliers	4
mean (n)	743.517
st.dev. (n)	0.2483
R(calc.)	0.695
st.dev.(D4052:18a)	0.7582
R(D4052:18a)	2.123



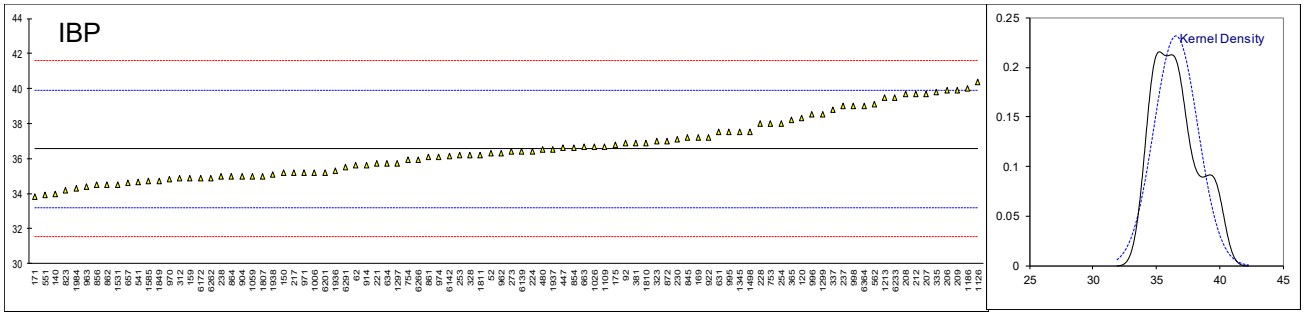


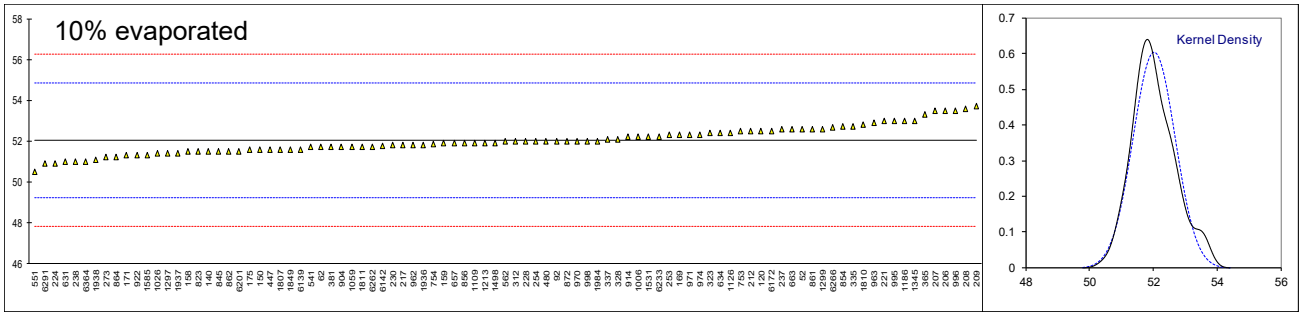
Determination of Distillation at 760 mmHg on sample #21015; results in °C

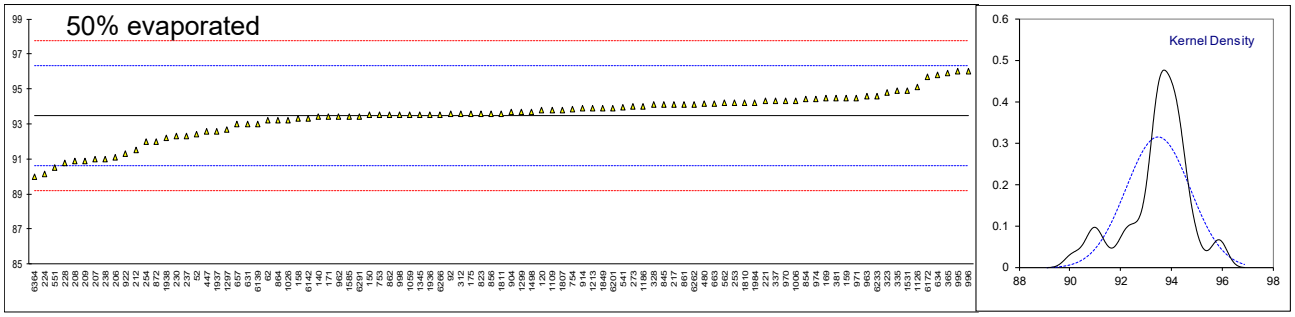
lab	method	IBP	10%-evaporated	50%-evaporated	90%-evaporated	FBP
52	D86-automated	36.3	52.6	92.4	146.6	177.7
62	D86-automated	35.6	51.7	93.2	145.6	178.2
92	D86-automated	36.9	52.0	93.6	146.8	181.2
120	D86-automated	38.3	52.5	93.8	147.2	180.2
140	D86-automated	34.0	51.5	93.4	147.0	175.9
150	D86-automated	35.2	51.6	93.5	146.9	176.2
158	D86-automated	-----	51.5	93.3	147.5	175.3
159	D86-automated	34.9	51.9	94.5	147.6	179.9
169	D86-automated	37.2	52.3	94.5	145.5	175.9
171	D86-automated	33.8	51.3	93.4	145.8	177.0
175	D86-automated	36.8	51.6	93.6	147.1	176.9
206	D7345	39.9	53.5	91.1	149.6	177.7
207	D7345	39.7	53.5	91.0	149.5	177.9
208	D7345	39.7	53.6	90.9	149.8	177.8
209	D7345	39.9	53.7	90.9	149.5	177.8
212	ISO3405-automated	39.7	52.5	91.5	146.2	176.7
217	D86-automated	35.2	51.8	94.1	146.7	181.3
221	D86	35.7	53.0	94.3	148.1	175.0
224	D86-manual	36.42	50.92	90.16	143.66	177.25
225		-----	-----	-----	-----	-----
228	D86-manual	38.0	52.0	90.8	142.8	177.0
230	D86	37.1	51.8	92.3	146.6	177.2
237	D86-manual	39.0	52.6	92.3	143.3	177.0
238	D86-manual	35.0	51.0 C	91.0 C	143.0 C	177.0
253	D86-manual	36.2	52.3	94.2	148.6	178.8
254	D86-manual	38.0	52.0	92.0	144.0	180.0
256		-----	-----	-----	-----	-----
258		-----	-----	-----	-----	-----
273	D86-automated	36.4	51.2	94.0	147.2	176.8
312	D86-automated	34.9	52.0	93.6	146.8	179.4
323	D86-automated	37.0	52.4	94.8	147.8	180.5
328	D86-automated	36.2	52.1	94.1	147.2	176.9
335	D86	39.8	52.7 C	94.9	147.7	177.4
337	D86-automated	38.8	52.1	94.3	145.7	174.0 C
355		-----	-----	-----	-----	-----
365	IP123-automated	38.2	53.3	95.9	151.1	180.2
381	D86-automated	36.9	51.7	94.5	148.6	176.2
447	D86-automated	36.6	51.6	92.6	147.0	178.1
480	D86-automated	36.5	52.0	94.15	147.15	179.3
541	D86-automated	34.64	51.70	93.95	147.30	178.15
551	D86-automated	33.9	50.5	90.5	145.9	172.2
554		-----	-----	-----	-----	-----
555		-----	-----	-----	-----	-----
557		-----	-----	-----	-----	-----
558		-----	-----	-----	-----	-----
562	D86-automated	39.1	52.0	94.2	146.5	177.4
603		-----	-----	-----	-----	-----
631	D86-manual	37.5	51.0	93.0	145.5	178.5
634	D86-automated	35.7	52.4	95.8	149.8	179.0
657	D86-automated	34.6	51.9	93.0	145.8	176.7
663	D86-automated	36.70	52.60	94.15	146.80	175.25
671		-----	-----	-----	-----	-----
753	D86-manual	38.0	52.5	93.5	147.5	179.0
754	D86-automated	35.95	51.85	93.85	147.35	177.9
823	D86-automated	34.2	51.5	93.6	147.1	179.8
845	D86-automated	37.2	51.5	94.1	147.1	178.1
854	D86-automated	36.6	52.7	94.4	147.3	179.8
856	D86-automated	34.5	51.9	93.6	147.2	174.6
861	D86-automated	36.1	52.6	94.1	147.0	178.3
862	D86-automated	34.5	51.5	93.5	147.1	174.8
864	D86-automated	35.0	51.2	93.2	146.5	176.6
872		37	52	92	148	178
904	D86-automated	35.0	51.7	93.7	146.7	178.5
912		-----	-----	-----	-----	-----
913		-----	-----	-----	-----	-----
914	D86-automated	35.6	52.2	93.9	146.9	179.2
922	D86-automated	37.2	51.3	91.3	147.0	178.6
962	D86-automated	36.3	51.8	93.4	146.1	175.5
963	D86-automated	34.4	52.9	94.6	147.0	175.5
970	D86-automated	34.8	52.0	94.3	147.7	179.3
971	D86-automated	35.2	52.3	94.5	148.4	179.4
974	D86-automated	36.1	52.3	94.4	149.0	179.4
995	D86-manual	37.5	53.0	96.0	150.0	176.5
998	D86-manual	39.0	52.0	93.5	148.0	179.0

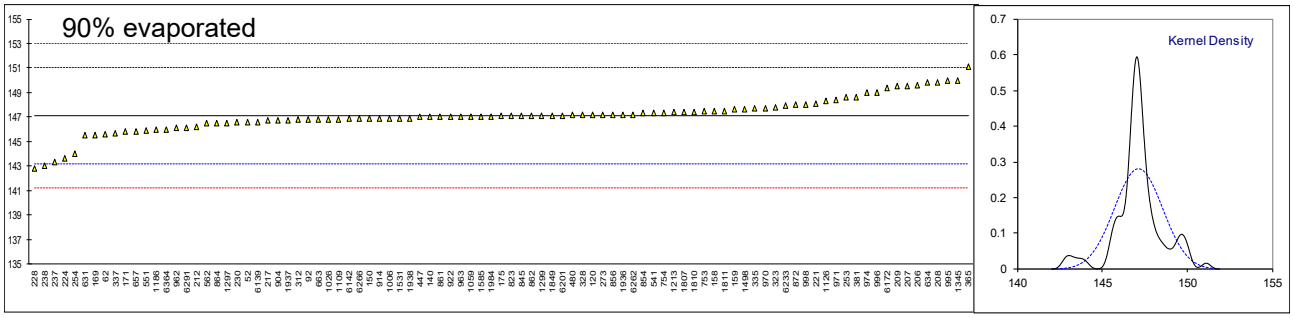
lab	method	IBP	10%-evaporated		50%-evaporated	90%-evaporated	FBP	
1006	D86-automated	35.2	52.2		94.3	146.9	177.3	
1016		-----	-----		-----	-----	-----	
1026	ISO3405-automated	36.7	51.4		93.2	146.8	177.5	
1033		-----	-----		-----	-----	-----	
1059	D86-automated	35.0	51.7		93.5	147.0	177.2	
1109	D86-automated	36.7	51.9		93.8	146.8	179.5	
1126	D86-automated	40.4	52.4		95.1	148.3	186.5	R(0.01)
1186	D86-manual	40.0	53.0		94.0	146.0	168.0	R(0.01)
1213	D86-automated	39.5	51.9		93.9	147.4	179.4	
1297	D86-automated	35.7	51.4		92.7	146.5	176.3	
1299	D86-automated	38.5	52.6		93.7	147.1	180.1	
1345	D86-manual	37.5	53.0		93.5	150.0	177.5	
1498		37.5	51.9		93.7	147.6	179.6	
1531	D86-automated	34.5	52.2		94.9	146.9	177.0	
1585	D86-automated	34.7	51.3		93.4	147.0	177.2	
1730		-----	-----		-----	-----	-----	
1807	D86-automated	35.0	51.6		93.8	147.4	179.4	
1810	D86-automated	36.9	52.8		94.2	147.4	177.8	
1811	D86-automated	36.2	51.7		93.6	147.5	177.9	
1849	ISO3405-automated	34.7	51.6		93.9	147.1	178.8	
1936	ISO3405-automated	35.3	51.8		93.5	147.2	177.7	
1937	ISO3405-automated	36.5	51.4	C	92.6	146.7	178.8	
1938	ISO3405-automated	35.1	51.1		92.2	146.9	176.7	
1984	ISO3405-automated	34.3	52.0		94.2	147.05	179.25	
6139	D86-automated	36.4	51.6		93.0	146.6	175.4	
6142	ISO3405-automated	36.15	51.75		93.3	146.85	177.6	
6172		34.9	52.5		95.7	149.4	174.5	
6201	D86-automated	35.2	51.5		93.9	147.1	178.2	
6233	D86-automated	39.50	52.20		94.60	147.90	175.70	
6262	D86-automated	34.9	51.7		94.1	147.2	177.9	
6266	D86-automated	35.95	52.67		93.52	146.87	182.38	
6291	D86-automated	35.5	50.9		93.4	146.1	179.0	
6364	D86-manual	39.0	51.0		90.0	146.0	180.0	
	normality	OK	OK		OK	not OK	OK	
	n	92	93		93	93	91	
	outliers	0	0		0	0	2	
	mean (n)	36.57	52.03		93.48	147.12	177.79	
	st.dev. (n)	1.726	0.661		1.267	1.418	1.755	
	R(calc.)	4.83	1.85		3.55	3.97	4.91	
	st.dev.(D86-A:19)	1.679	1.408		1.430	1.965	2.536	
	R(D86-A:19)	4.7	3.94		4.00	5.50	7.1	
Compare								
	R(D86-M:19)	4.24	3.31		3.38	4.04	3.10	

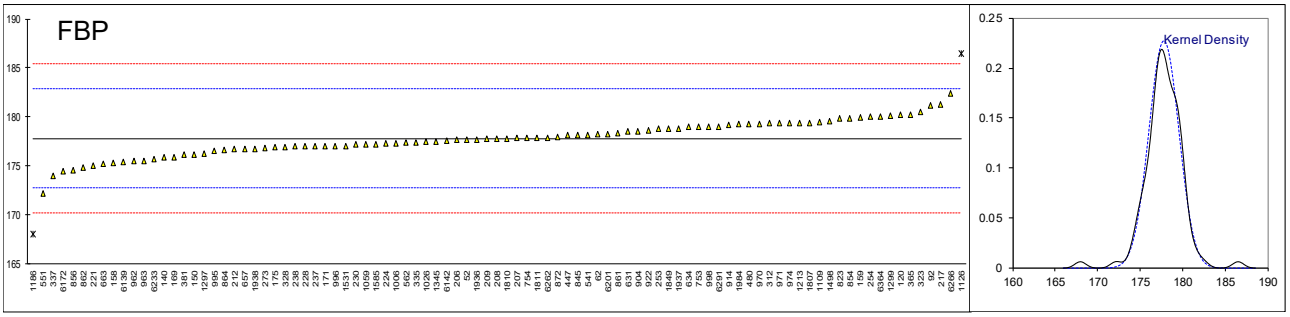
Lab 238: first reported 48.0, 89.0, 141.0
Lab 335: first reported 49.9
Lab 337: first reported 171.4
Lab 1937: first reported 49.7


IBP
Kernel Density


10% evaporated
Kernel Density


50% evaporated
Kernel Density


90% evaporated
Kernel Density


FBP
Kernel Density

Determination of Doctor Test on sample #21015;

lab	method	value	mark	z(targ)	remarks
52	D4952	Negative		-----	
62		-----		-----	
92	D4952	Neg		-----	
120	D4952	NEGATIVE		-----	
140	D4952	Negative		-----	
150	D4952	Neg		-----	
158	D4952	Negative		-----	
159		-----		-----	
169		-----		-----	
171	D4952	Negative		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217	D4952	Negative		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230	D4952	Negative		-----	
237	D4952	Negative		-----	
238	D4952	Negative		-----	
253		-----		-----	
254	D4952	Negative		-----	
256		-----		-----	
258		-----		-----	
273	IP30	negative		-----	
312	IP30	negative		-----	
323	IP30	negative		-----	
328	D4952	Negative		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D4952	Negative		-----	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
634		-----		-----	
657	IP30	Negative		-----	
663	D4952	negative		-----	
671		-----		-----	
753		-----		-----	
754	D4952	negative		-----	
823	D4952	Negative		-----	
845	IP30	Negative		-----	
854	IP30	Negative		-----	
856	D4952	Negative		-----	
861	D4952	Negative		-----	
862	D4952	Negative		-----	
864	IP30	Negative		-----	
872		-----		-----	
904	D4952	negative		-----	
912		-----		-----	
913		-----		-----	
914	D4952	Negative		-----	
922	D4952	Negative		-----	
962	D4952	Negative		-----	
963	D4952	Negative		-----	
970	D4952	Negative		-----	
971	D4952	Negative		-----	
974	IP30	Negative		-----	
995	D4952	negative		-----	
996	D4952	Negative		-----	
998		-----		-----	

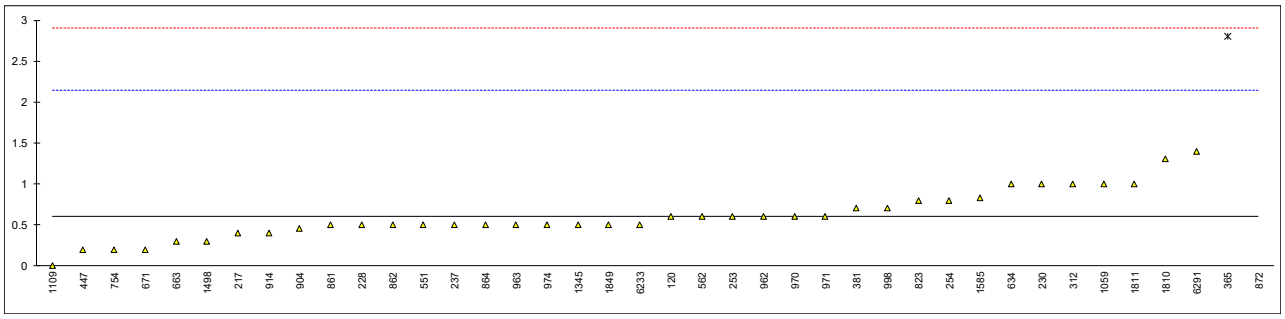
lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016	D4952	Negative		-----	
1026	D4952	Negative		-----	
1033		-----		-----	
1059	D4952	negative		-----	
1109	IP30	Negative		-----	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297	D4952	NEGATIVE		-----	
1299		-----		-----	
1345	D4952	negative		-----	
1498		-----		-----	
1531		-----		-----	
1585	IP30	negative		-----	
1730		-----		-----	
1807	D4952	negative		-----	
1810		-----		-----	
1811		-----		-----	
1849	TS2884	Negative		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D4952	pass		-----	
6142	IP30	Neg		-----	
6172		-----		-----	
6201	D4952	negative		-----	
6233		-----		-----	
6262	IP30	Neg		-----	
6266		-----		-----	
6291	IP30	negative		-----	
6364	D4952	POSTIVE		-----	
	n	51	1		
	mean (n)	Negative	Positive		

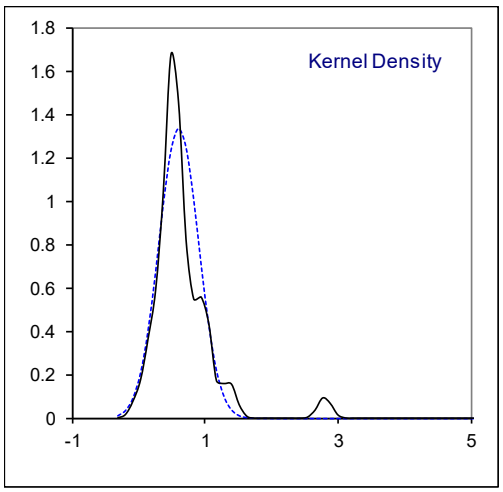
Determination of Gum (solvent washed) on sample #21015; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D381	<0.5		-----	
62	D381	<0.5		-----	
92	D381	<0.5		-----	
120	D381	0.6		-0.01	
140	D381	<0.5		-----	
150	D381	<0.5		-----	
158	D381	<0.5		-----	
159		-----		-----	
169	D381	<0.5		-----	
171	D381	<0.5		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217	D381	0.4		-0.27	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228	D381	0.5		-0.14	
230	D381	1.00		0.51	
237	D381	0.5		-0.14	
238		-----		-----	
253	IP540	0.6		-0.01	
254	D381	0.8		0.25	
256		-----		-----	
258		-----		-----	
273	D381	<0.5		-----	
312	D381	1.0		0.51	
323	D381	< 0.5		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365	IP131	2.8	R(0.01)	2.86	
381	ISO6246	0.7		0.12	
447	D381	0.2		-0.53	
480		-----		-----	
541	D381	<0.5		-----	
551	D381	0.5		-0.14	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562	D381	0.6		-0.01	
603	D381	<1.0		-----	
631		-----		-----	
634	D381	1		0.51	
657	D381	<0.5		-----	
663	D381	0.3		-0.40	
671	IP540	0.2		-0.53	
753		-----		-----	
754	D381	0.2		-0.53	
823	D381	0.8		0.25	
845	D381	<0.5		-----	
854	D381	<0.5		-----	
856	D381	<0.5		-----	
861	D381	0.5		-0.14	
862	D381	0.5		-0.14	
864	D381	0.5		-0.14	
872	D381	28.5	R(0.01)	36.36	
904	D381	0.46		-0.19	
912		-----		-----	
913		-----		-----	
914	D381	0.4		-0.27	
922	D381	<0.5		-----	
962	D381	0.6		-0.01	
963	D381	0.5		-0.14	
970	D381	0.6		-0.01	
971	D381	0.60		-0.01	
974	D381	0.5		-0.14	
995		-----		-----	
996		-----		-----	
998	D381	0.7		0.12	

lab	method	value	mark	z(targ)	remarks
1006	D381	<0.5		-----	
1016		-----		-----	
1026	ISO6246	<0.5		-----	
1033		-----		-----	
1059	ISO6246	1.0		0.51	
1109	D381	0.00		-0.79	
1126		-----		-----	
1186		-----		-----	
1213	D381	<0.5		-----	
1297		-----		-----	
1299	D381	<0.5		-----	
1345	D381	0.5		-0.14	
1498	D381	0.3		-0.40	
1531		-----		-----	
1585	D381	0.83		0.29	
1730		-----		-----	
1807	D381	<0.5		-----	
1810	ISO6246	1.3		0.90	
1811	D381	1.00		0.51	
1849	ISO6246	0.5		-0.14	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D381	＜0.5		-----	
6142		-----		-----	
6172		-----		-----	
6201	D381	<0,5		-----	
6233	D381	0.50		-0.14	
6262	D381	<0.5		-----	
6266		-----		-----	
6291	D381	1.4		1.03	
6364	D381	<0.5		-----	

normality	OK
n	38
outliers	2
mean (n)	0.608
st.dev. (n)	0.2991
R(calc.)	0.838
st.dev.(D381:19)	0.7671
R(D381:19)	2.148



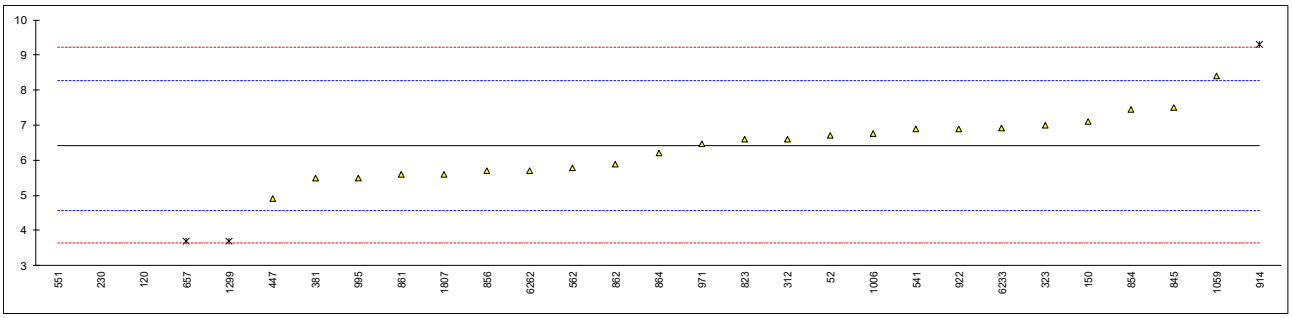


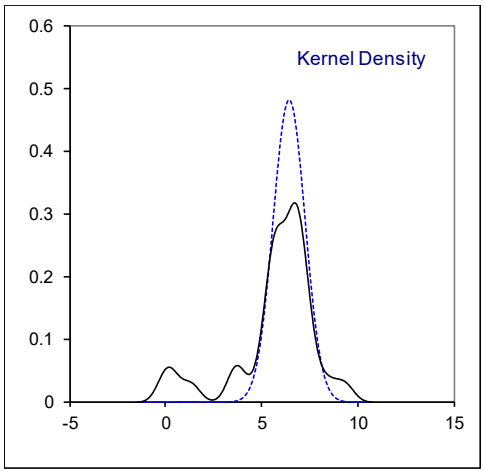
Determination of Lead as Pb on sample #21015; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3237	6.7		0.30	
62		-----		-----	
92		-----		-----	
120	D3237	1.32	ex,C	-5.49	test result excluded see 4.1, first reported <2.5
140		-----		-----	
150	D3237	7.1	C	0.73	first reported <2.5
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D3237	<2.5		<-4.22	possibly a false negative test result?
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230	D3237	0.3	ex	-6.59	test result excluded see 4.1
237	IP352	<2.5		<-4.22	possibly a false negative test result?
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D3237	6.6		0.19	
323	EN237	7.0		0.62	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	EN237	5.5		-0.99	
447	IP428	4.9		-1.64	
480		-----		-----	
541	D3237	6.90		0.52	
551	D3237	0.0	ex	-6.92	test result excluded see 4.1
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562	D3237	5.79		-0.68	
603		-----		-----	
631	D3237	<3	C	<-3.68	first reported <2.5, possibly a false negative test result?
634		-----		-----	
657	D3237	3.7	ex	-2.93	test result excluded see 4.1
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D3237	6.6		0.19	
845	D3237	7.5		1.16	
854	D3237	7.46		1.12	
856	D3237	5.7		-0.78	
861	D3237	5.6		-0.88	
862	D3237	5.9		-0.56	
864	D3237	6.2		-0.24	
872		-----		-----	
904	D3237	<2,5		<-4.22	possibly a false negative test result?
912		-----		-----	
913		-----		-----	
914	INH-3263	9.3	C,D(0.05)	3.10	first reported 14.9
922	D3237	6.9		0.52	
962		-----		-----	
963		-----		-----	
970		-----		-----	
971	D3237	6.48		0.06	
974		-----		-----	
995	D3237	5.5		-0.99	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006	D3237	6.75		0.35	
1016		-----		-----	
1026		-----		-----	
1033		-----		-----	
1059		8.4		2.13	
1109		-----		-----	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297		-----		-----	
1299	EN237	3.7	ex	-2.93	test result excluded see 4.1
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807	D3237	5.6		-0.88	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139		-----		-----	
6142		-----		-----	
6172		-----		-----	
6201	D3237	<2,5		<-4.22	possibly a false negative test result?
6233	D3237	6.91		0.53	
6262	EN237	5.7		-0.78	
6266		-----		-----	
6291		-----	W	-----	first reported <2.5
6364		-----		-----	

normality	OK
n	23
outliers	1+5ex
mean (n)	6.421
st.dev. (n)	0.8264
R(calc.)	2.314
st.dev.(D3237:17)	0.9286
R(D3237:17)	2.6



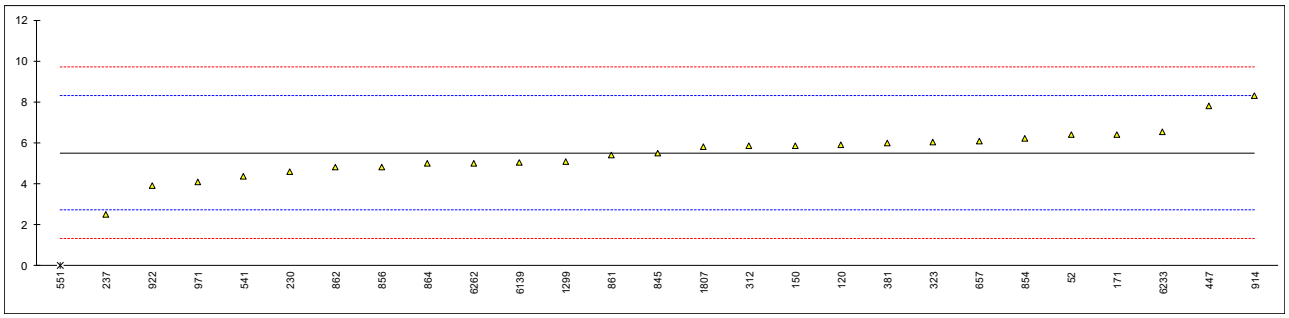


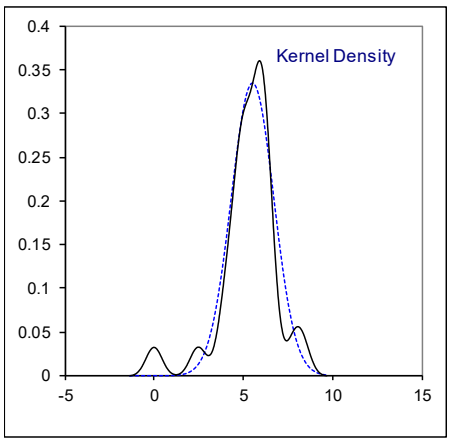
Determination of Manganese as Mn on sample #21015; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3831	6.4		0.64	
62		-----		-----	
92		-----		-----	
120	D3831	5.893		0.27	
140		-----		-----	
150	D3831	5.86		0.25	
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D3831	6.4		0.64	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230	IP588	4.6		-0.65	
237	EN16136	2.48		-2.17	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273	D3831	<0.1		<-3.87	possibly a false negative test result?
312	EN16136	5.84		0.24	
323	EN16136	6.03		0.37	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	EN16135	6.0		0.35	
447	EN16135	7.8		1.64	
480		-----		-----	
541	D3831	4.36		-0.82	
551	D3831	0.014	ex	-3.94	test result excluded see 4.1
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
634		-----		-----	
657	D3831	6.1		0.42	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823		-----		-----	
845	D3831	5.5		-0.01	
854	D3831	6.24		0.52	
856	D3831	4.83		-0.49	
861	D3831	5.4		-0.08	
862	D3831	4.8		-0.51	
864	D3831	5.0		-0.37	
872		-----		-----	
904	D3831	<2		-----	
912		-----		-----	
913		-----		-----	
914	INH-3263	8.3	C	2.00	first reported 10.4
922	D3831	3.9		-1.15	
962		-----		-----	
963		-----		-----	
970		-----		-----	
971	D3831	4.08		-1.02	
974		-----		-----	
995		-----		-----	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016		-----		-----	
1026		-----		-----	
1033		-----		-----	
1059		-----		-----	
1109		-----		-----	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297		-----		-----	
1299	EN16135	5.1		-0.29	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807	EN16135	5.8		0.21	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	EN16136	5.03		-0.34	
6142		-----		-----	
6172		-----		-----	
6201	D3831	<0,25		<-3.77	possibly a false negative test result?
6233	D3831	6.54		0.74	
6262	D3831	5.0		-0.37	
6266		-----		-----	
6291		-----	W	-----	first reported 2.5
6364		-----		-----	

normality	Suspect
n	26
outliers	0+1ex
mean (n)	5.511
st.dev. (n)	1.1898
R(calc.)	3.332
st.dev.(D3831:12)	1.3966
R(D3831:12)	3.911



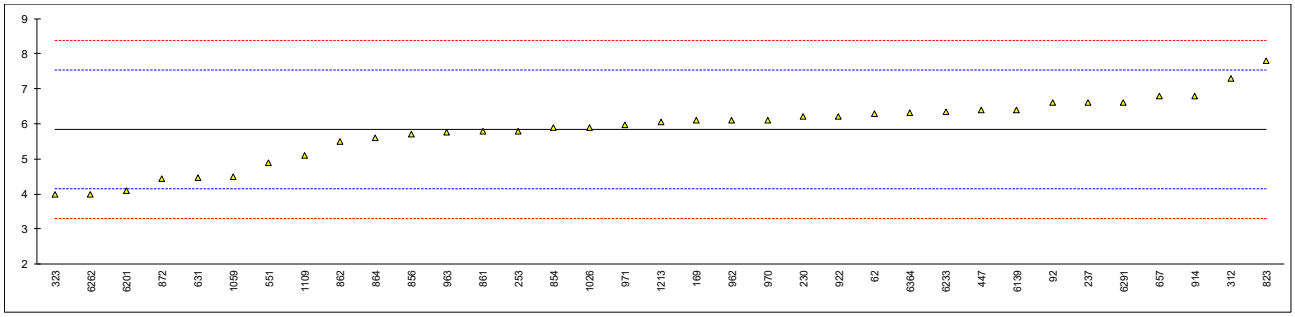


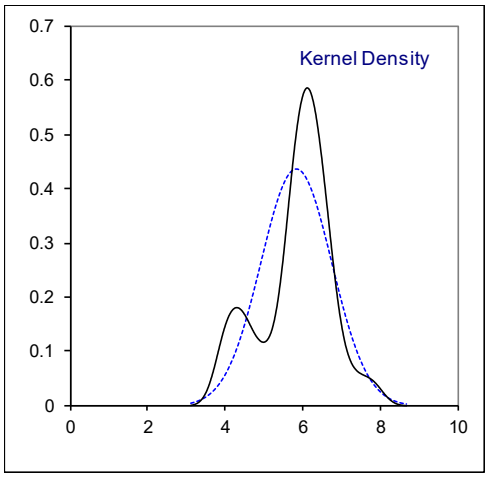
Determination of Olefins by FIA (without oxygenates correction) on sample #21015; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	D1319	6.3		0.54	
92	D1319	6.6		0.90	
120		-----		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
159		-----		-----	
169	D1319	6.1		0.31	
171		-----		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230	D1319	6.2		0.42	
237	D1319	6.6		0.90	
238		-----		-----	
253	D1319	5.8		-0.05	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D1319	7.3		1.73	
323	D1319	4.0		-2.18	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D1319	6.4		0.66	
480		-----		-----	
541		-----		-----	
551	D1319	4.9		-1.12	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D1319	4.46		-1.64	
634		-----		-----	
657	D1319	6.8		1.13	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D1319	7.8		2.32	
845		-----		-----	
854	D1319	5.9		0.07	
856	D1319	5.7		-0.17	
861	D1319	5.8		-0.05	
862	D1319	5.5		-0.40	
864	D1319	5.6		-0.29	
872	ISO22854 (A)	4.44		-1.66	
904		-----		-----	
912		-----		-----	
913		-----		-----	
914	D1319	6.8		1.13	
922	D1319	6.2		0.42	
962	D1319	6.1	C	0.31	first reported 1.1
963	D1319	5.76	C	-0.10	first reported 0.9
970	D1319	6.1		0.31	
971	D1319	5.97		0.15	
974		-----		-----	
995		-----		-----	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016		-----		-----	
1026	ISO22854	5.9		0.07	
1033		-----		-----	
1059	D1319	4.5		-1.59	
1109	D1319	5.11		-0.87	
1126		-----		-----	
1186		-----		-----	
1213	D1319	6.06		0.26	
1297		-----		-----	
1299		-----		-----	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139	D1319	6.4		0.66	
6142		-----		-----	
6172		-----		-----	
6201	D1319	4.1		-2.06	
6233	D1319	6.34		0.59	
6262	D1319	4.0		-2.18	
6266		-----		-----	
6291	D1319	6.6		0.90	
6364	D1319	6.32		0.57	

normality	OK
n	35
outliers	0
mean (n)	5.842
st.dev. (n)	0.9152
R(calc.)	2.563
st.dev.(D1319:20a)	0.8445
R(D1319:20a)	2.364





Determination of Oxidation Stability on sample #21015; results in minutes

lab	method	value	mark	z(targ)	remarks
52	D525	>480		-----	
62		-----		-----	
92		-----		-----	
120		-----		-----	
140	D525	>900		-----	
150	D525	>900		-----	
158	D525	>900		-----	
159		-----		-----	
169		-----		-----	
171	D525	>241		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228	D525	>900		-----	
230		-----		-----	
237	D525	>900		-----	
238		-----		-----	
253		-----		-----	
254	D525	>900		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D525	>900		-----	
323	D525	900		-----	
328	D525	>900		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D525	>900		-----	
480		-----		-----	
541		-----		-----	
551	D525	>900		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D525	>900		-----	
634		-----		-----	
657	D525	>900		-----	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D525	>720		-----	
845	D525	>900		-----	
854	D525	>900		-----	
856	D525	>900		-----	
861	D525	>900		-----	
862	D525	>900		-----	
864	D525	>900		-----	
872		-----		-----	
904	D525	360+		-----	
912		-----		-----	
913		-----		-----	
914	D525	450		-----	
922	D525	>360		-----	
962	D525	>360		-----	
963	D525	>360		-----	
970	D525	>360		-----	
971	D525	>360		-----	
974		-----		-----	
995		-----		-----	
996		-----		-----	
998		-----		-----	

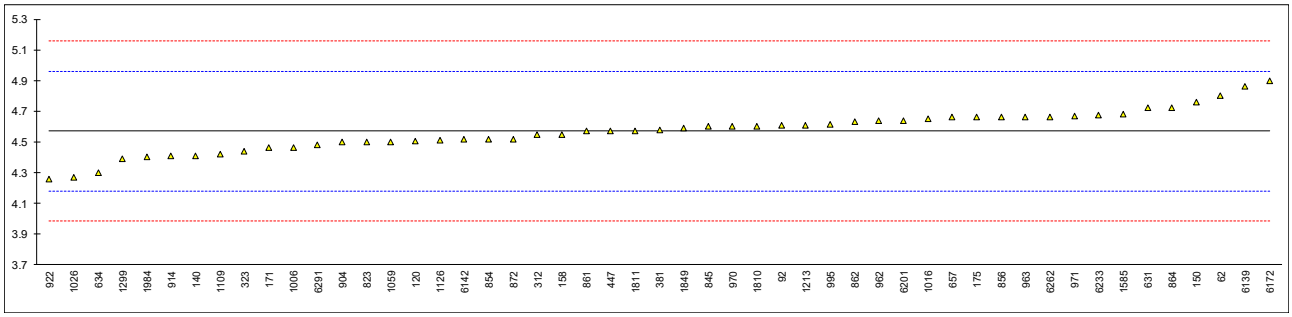
lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016	D525	>960		-----	
1026		-----		-----	
1033		-----		-----	
1059	ISO7536	>900		-----	
1109		-----		-----	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297		-----		-----	
1299	D525	>960		-----	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807	D525	>380		-----	
1810		-----		-----	
1811		-----		-----	
1849	ISO7536	>900		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139		-----		-----	
6142		-----		-----	
6172		-----		-----	
6201	D525	>360		-----	
6233	D525	>900		-----	
6262	D525	>900		-----	
6266		-----		-----	
6291	D525	>900		-----	
6364	D525	>360		-----	
	n	39			
	mean (n)	>241			

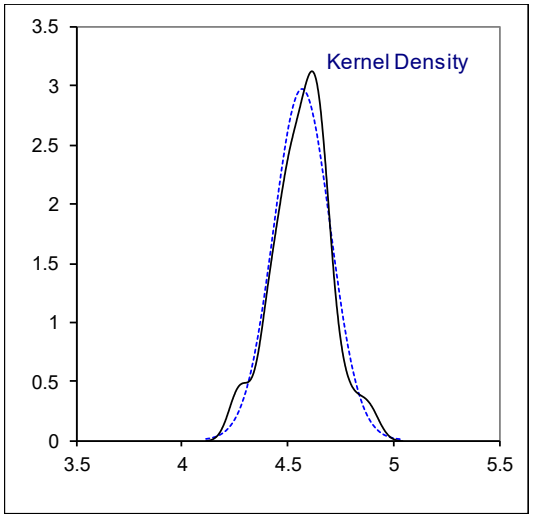
Determination of Ethanol on sample #21015; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	INH-14.3	4.80		1.18	
92	INH-14.3	4.61		0.21	
120	D5599	4.506		-0.32	
140	D5599	4.41		-0.82	
150	D5599	4.76		0.98	
158	D4815	4.55		-0.10	
159		-----		-----	
169		-----		-----	
171	D4815	4.46		-0.56	
175	D5599	4.66		0.47	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D4815	4.55		-0.10	
323	ISO22854-A	4.44		-0.66	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	ISO22854-A	4.58		0.06	
447	IP466	4.57		0.00	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5845	4.72		0.77	
634	D5845	4.3		-1.38	
657	D4815	4.66		0.47	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D4815	4.5		-0.35	
845	D4815	4.60		0.16	
854	D4815	4.52		-0.25	
856	D4815	4.66		0.47	
861	D4815	4.57		0.00	
862	D4815	4.63		0.31	
864	D4815	4.72		0.77	
872		4.52		-0.25	
904		4.5		-0.35	
912		-----		-----	
913		-----		-----	
914	D4815	4.41		-0.82	
922	D4815	4.26		-1.58	
962	D4815	4.64		0.36	
963		4.66		0.47	
970	D4815	4.60		0.16	
971	D4815	4.67		0.52	
974		-----		-----	
995	D6730	4.613		0.22	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006	D4815	4.46		-0.56	
1016		4.65		0.41	
1026	ISO22854-A	4.27		-1.53	
1033		-----		-----	
1059	ISO22854-A	4.50		-0.35	
1109	D6839	4.42		-0.76	
1126		4.51		-0.30	
1186		-----		-----	
1213		4.61		0.21	
1297		-----		-----	
1299	ISO22854-A	4.39		-0.92	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN13132	4.68	C	0.57	first reported 3.88
1730		-----		-----	
1807		-----		-----	
1810	ISO22854-A	4.60		0.16	
1811		4.57		0.00	
1849	ISO22854-A	4.59		0.11	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984	EN1601	4.4		-0.87	
6139	D4815	4.86		1.49	
6142	ISO22854-A	4.515		-0.28	
6172		4.9		1.69	
6201		4.64		0.36	
6233		4.674		0.54	
6262	ISO22854-A	4.66		0.47	
6266		-----		-----	
6291	ISO22854-A	4.48		-0.46	
6364		-----		-----	

normality	OK
n	51
outliers	0
mean (n)	4.569
st.dev. (n)	0.1344
R(calc.)	0.376
st.dev.(D4815:15b)	0.1953
R(D4815:15b)	0.547



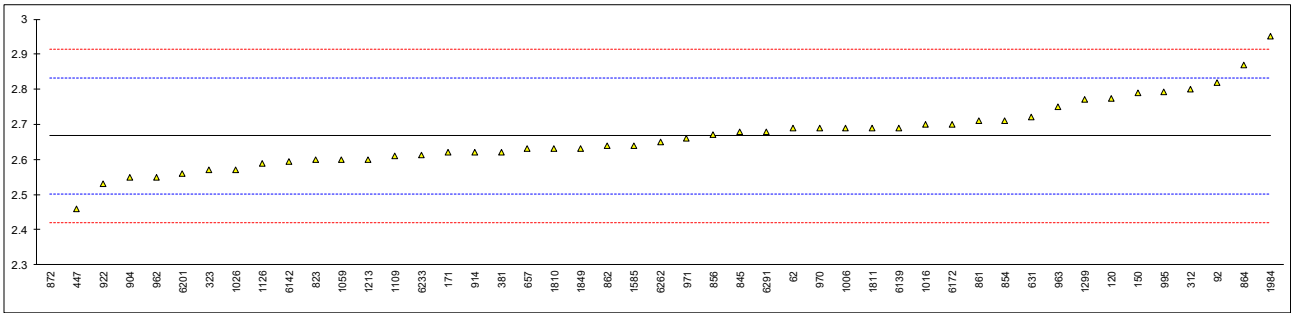


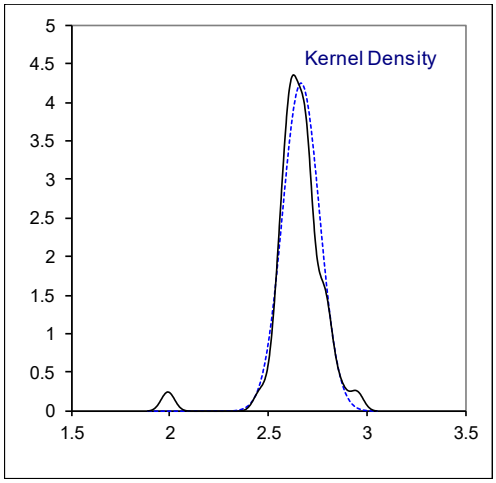
Determination of MTBE on sample #21015; results in %V/V

lab	method	Value	mark	z(targ)	remarks
52		-----		-----	
62	INH-14.3	2.69		0.28	
92	INH-14.3	2.82		1.85	
120	D5599	2.775		1.31	
140	D5599	<0.10		<-31.04	possibly a false negative test result?
150	D5599	2.79		1.49	
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D4815	2.62		-0.57	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D4815	2.80		1.61	
323	ISO22854-A	2.57		-1.17	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	ISO22854-A	2.62		-0.57	
447	IP466	2.46		-2.50	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5845	2.72		0.64	
634		-----		-----	
657	D4815	2.63		-0.45	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D4815	2.6		-0.81	
845	D4815	2.68		0.16	
854	D4815	2.71		0.52	
856	D4815	2.67		0.04	
861	D4815	2.71		0.52	
862	D4815	2.64		-0.32	
864	D4815	2.87		2.46	
872		1.99	R(0.01)	-8.19	
904		2.55		-1.41	
912		-----		-----	
913		-----		-----	
914	D4815	2.62		-0.57	
922	D4815	2.53		-1.65	
962	D4815	2.55		-1.41	
963		2.75		1.01	
970	D4815	2.69		0.28	
971	D4815	2.66		-0.08	
974		-----		-----	
995	D6730	2.792		1.51	
996		-----		-----	
998		-----		-----	

lab	method	Value	mark	z(targ)	remarks
1006	D4815	2.69		0.28	
1016		2.70		0.40	
1026	ISO22854-A	2.57		-1.17	
1033		-----		-----	
1059	ISO22854-A	2.60		-0.81	
1109	D6839	2.61		-0.69	
1126		2.59		-0.93	
1186		-----		-----	
1213		2.60		-0.81	
1297		-----		-----	
1299	ISO22854-A	2.77		1.25	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN13132	2.64		-0.32	
1730		-----		-----	
1807		-----		-----	
1810	ISO22854-A	2.63		-0.45	
1811		2.69		0.28	
1849	ISO22854-A	2.63		-0.45	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984	EN1601	2.95		3.42	
6139	D4815	2.69		0.28	
6142	ISO22854-A	2.595		-0.87	
6172		2.7		0.40	
6201		2.56		-1.29	
6233		2.612		-0.66	
6262	ISO22854-A	2.65		-0.20	
6266		-----		-----	
6291	ISO22854-A	2.68		0.16	
6364		-----		-----	

normality	OK
n	46
outliers	1
mean (n)	2.667
st.dev. (n)	0.0939
R(calc.)	0.263
st.dev.(D4815:15b)	0.0827
R(D4815:15b)	0.232



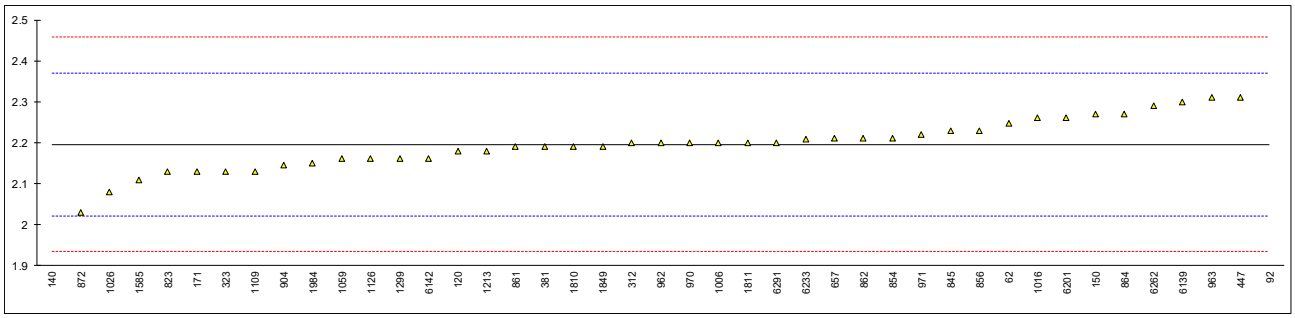


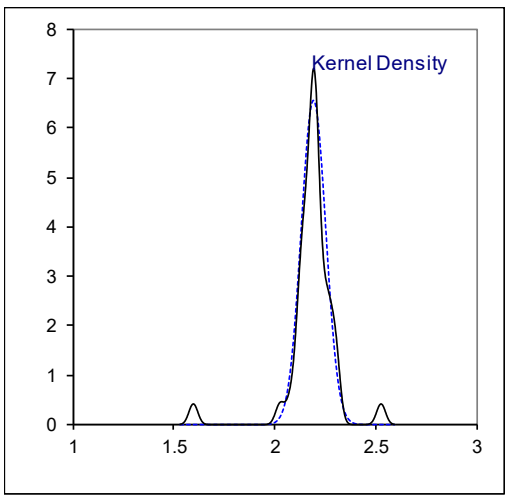
Determination of Oxygen Content on sample #21015; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	INH-14.3	2.247		0.59	
92	INH-14.3	2.531	R(0.01)	3.84	
120	D5599	2.18		-0.18	
140	D5599	1.6	R(0.01)	-6.83	
150	D5599	2.27		0.85	
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D4815	2.13	C	-0.75	first reported 7.39
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D4815	2.20		0.05	
323	ISO22854	2.13		-0.75	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	ISO22854	2.19		-0.07	
447	IP466	2.31		1.31	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
634		-----		-----	
657	D4815	2.21		0.16	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D4815	2.13		-0.75	
845	D4815	2.23		0.39	
854	D4815	2.21		0.16	
856	D4815	2.23		0.39	
861	D4815	2.19		-0.07	
862	D4815	2.21		0.16	
864	D4815	2.27		0.85	
872	ISO22854	2.03		-1.90	
904	D4815	2.146		-0.57	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922		-----		-----	
962	D4815	2.2		0.05	
963	D4815	2.31		1.31	
970	D4815	2.20		0.05	
971	D4815	2.22		0.28	
974		-----		-----	
995		-----		-----	
996		-----		-----	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006	D4815	2.20		0.05	
1016	ISO22854	2.26		0.73	
1026	ISO22854	2.08		-1.33	
1033		-----		-----	
1059	ISO22854	2.16		-0.41	
1109	D6839	2.13		-0.75	
1126	ISO22854	2.16		-0.41	
1186		-----		-----	
1213	D4815	2.18		-0.18	
1297		-----		-----	
1299	ISO22854	2.16		-0.41	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN13132	2.11	C	-0.98	first reported 1.86
1730		-----		-----	
1807		-----		-----	
1810	ISO22854	2.19		-0.07	
1811	D4815	2.20		0.05	
1849	ISO22854	2.19		-0.07	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984	EN1601	2.15		-0.53	
6139	D4815	2.30		1.19	
6142	ISO22854	2.16		-0.41	
6172		-----		-----	
6201	D4815	2.26		0.73	
6233	D4815	2.208		0.14	
6262	D4815	2.29		1.08	
6266		-----		-----	
6291	ISO22854	2.2	C	0.05	first reported 2.7
6364		-----		-----	

normality	OK
n	41
outliers	2
mean (n)	2.196
st.dev. (n)	0.0607
R(calc.)	0.170
st.dev.(D4815:15b)	0.0873
R(D4815:15b)	0.244





Determination of Phosphorus as P on sample #21015; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3231	0.53		-----	
62	D3231	<0.20		-----	
92		-----		-----	
120		-----		-----	
140		-----		-----	
150	D3231	<0.20		-----	
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D3231	0.58		-----	
175		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273		-----		-----	
312	D3231	<0.2		-----	
323		-----		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447		-----		-----	
480		-----		-----	
541		-----		-----	
551	D3231	0.0		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
634		-----		-----	
657	D3231	<0.2		-----	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754	D3231	0.537		-----	
823	D3231	<1		-----	
845		-----		-----	
854		-----		-----	
856		-----		-----	
861		-----		-----	
862		-----		-----	
864		-----		-----	
872		-----		-----	
904	D3231	<2		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922		-----		-----	
962		-----		-----	
963		-----		-----	
970		-----		-----	
971		-----		-----	
974		-----		-----	
995		-----		-----	
996		-----		-----	
998		-----		-----	

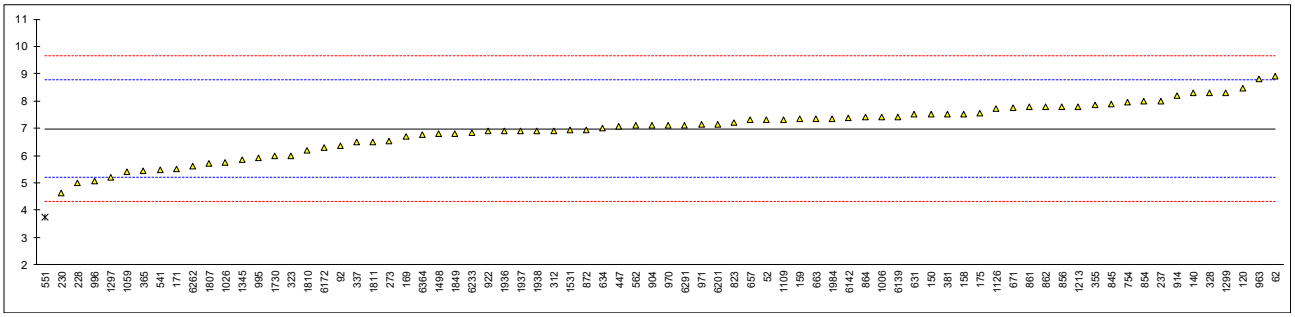
lab	method	value	mark	z(targ)	remarks
1006		-----		-----	
1016		-----		-----	
1026		-----		-----	
1033		-----		-----	
1059		-----		-----	
1109	D3231	0.759		-----	
1126		-----		-----	
1186		-----		-----	
1213		-----		-----	
1297		-----		-----	
1299		-----		-----	
1345		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1984		-----		-----	
6139		-----		-----	
6142		-----		-----	
6172		-----		-----	
6201	D3231	<0,2		-----	
6233		-----		-----	
6262		-----		-----	
6266		-----		-----	
6291	D3231	<0.2		-----	
6364		-----		-----	
	n	13			
	mean (n)	<2			

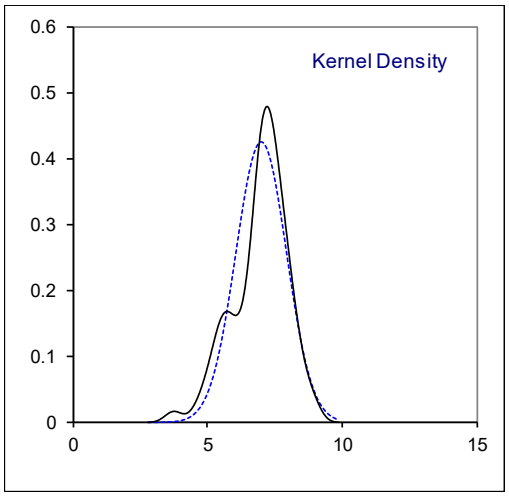
Determination of Total Sulfur on sample #21015; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	7.3		0.36	
62	D5453	8.9		2.16	
92	D5453	6.37		-0.69	
120	D5453	8.45		1.65	
140	D2622	8.3		1.48	
150	D5453	7.5		0.58	
158	D2622	7.5		0.58	
159	D2622	7.33		0.39	
169	D5453	6.7		-0.32	
171	D5453	5.5		-1.67	
175	D5453	7.54		0.63	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228	D2622	5		-2.23	
230	D5453	4.635		-2.64	
237	D5453	8.0		1.14	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
273	D5453	6.53		-0.51	
312	D5453	6.91		-0.08	
323	D5453	6.0		-1.11	
328	D5453	8.3		1.48	
335		-----		-----	
337	ISO20846	6.5		-0.54	
355	D2622	7.84		0.96	
365	ISO20846	5.45		-1.72	
381	ISO20846	7.5		0.58	
447	IP490	7.06		0.09	
480		-----		-----	
541	D5453	5.48		-1.69	
551	D5453	3.74	R(0.05)	-3.65	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562	D5453	7.1		0.13	
603		-----		-----	
631	D7039	7.5		0.58	
634	D4294	7	C	0.02	first reported 17
657	D5453	7.3		0.36	
663	D5453	7.33		0.39	
671	D5453	7.76		0.87	
753	D4294	<20		-----	
754	D5453	7.96		1.10	
823	D5453	7.2		0.24	
845	D5453	7.9		1.03	
854	D5453	8.0		1.14	
856	D5453	7.8		0.92	
861	D5453	7.8		0.92	
862	D5453	7.8		0.92	
864	D5453	7.4		0.47	
872	D5453	6.93		-0.06	
904	D5453	7.1		0.13	
912		-----		-----	
913		-----		-----	
914	D5453	8.2		1.37	
922	D5453	6.9		-0.09	
962		-----		-----	
963	D5453	8.8		2.04	
970	D5453	7.1		0.13	
971	D5453	7.14		0.18	
974		-----		-----	
995	D5453	5.9		-1.22	
996	D5453	5.05		-2.17	
998		-----		-----	

lab	method	value	mark	z(targ)	remarks
1006	D5453	7.4		0.47	
1016		-----		-----	
1026	ISO20846	5.73		-1.41	
1033		-----		-----	
1059	ISO20846	5.4		-1.78	
1109	D7039	7.32		0.38	
1126	ISO20846	7.73		0.84	
1186		-----		-----	
1213	D5453	7.8		0.92	
1297	D5453	5.20		-2.00	
1299	ISO20884	8.3		1.48	
1345	D5453	5.84		-1.29	
1498	D5453	6.8		-0.21	
1531	ISO20846	6.92		-0.07	
1585		-----		-----	
1730	ISO20846	5.98		-1.13	
1807	D5453	5.7		-1.44	
1810	D5453	6.2		-0.88	
1811	D5453	6.5		-0.54	
1849	ISO20846	6.80		-0.21	
1936	ISO20846	6.9		-0.09	
1937	ISO20846	6.9		-0.09	
1938	ISO20846	6.9		-0.09	
1984	ISO20846	7.35		0.41	
6139	D5453	7.4		0.47	
6142	ISO20846	7.385		0.45	
6172	D5453	6.3		-0.77	
6201	D5453	7.15		0.19	
6233	D5453	6.82		-0.18	
6262	ISO20846	5.597		-1.56	
6266		-----		-----	
6291		7.1		0.13	
6364	D5453	6.75	C	-0.26	first reported 16.68

normality	OK
n	75
outliers	1
mean (n)	6.983
st.dev. (n)	0.9359
R(calc.)	2.620
st.dev.(D5453:19a)	0.8894
R(D5453:19a)	2.490

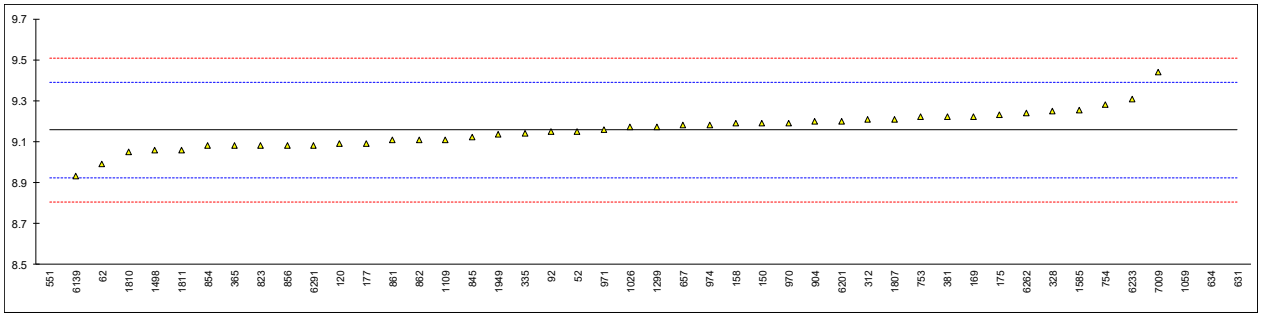


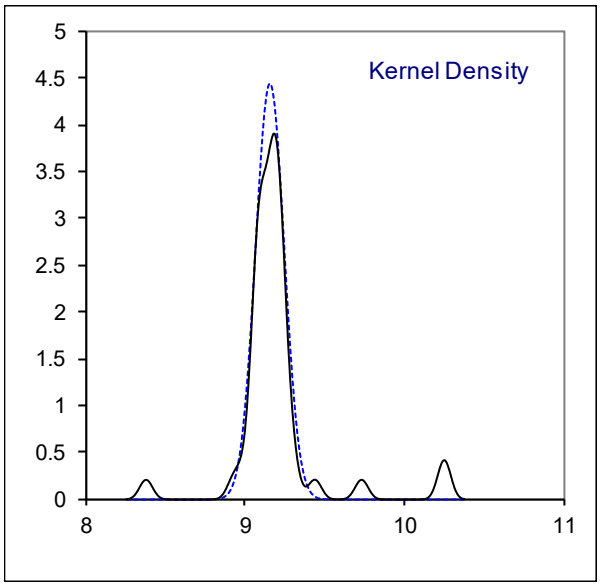


Determination of Total Vapour Pressure on sample #21016; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	9.15		-0.06	
62	D5191	8.99		-1.43	
92	D5191	9.15		-0.06	
120	D5191	9.09		-0.57	
140		-----		-----	
150	D5191	9.19		0.28	
158	D5191	9.19		0.28	
159		-----		-----	
169	D5191	9.22		0.53	
171		-----		-----	
175	D5191	9.23		0.62	
177	D5191	9.09		-0.57	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
256		-----		-----	
258		-----		-----	
312	D5191	9.21		0.45	
323		-----		-----	
328	D5191	9.25		0.79	
335	D5191	9.14		-0.15	
337		-----		-----	
365	D5191	9.08		-0.66	
381	EN13016-1	9.22		0.53	
433		-----		-----	
480		-----		-----	
541		-----		-----	
551	D5191	8.38	R(0.01)	-6.63	
557		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5191	10.254	C,R(0.01)	9.36	first reported 9.73
634	D5191	10.25	C,R(0.01)	9.32	first reported 66.4 kPa
657	D5191	9.18		0.19	
753	D5191	9.22		0.53	
754	D5191	9.28		1.05	
823	D5191	9.08		-0.66	
845	D5191	9.12		-0.32	
854	D5191	9.079		-0.67	
856	D5191	9.08		-0.66	
861	D5191	9.11		-0.40	
862	D5191	9.11		-0.40	
904	D5191	9.2		0.36	
963		-----		-----	
970	D5191	9.19		0.28	
971	D5191	9.16		0.02	
974	D5191	9.18		0.19	
1006		-----		-----	
1026	D5191	9.17		0.11	
1033		-----		-----	
1059	D5191	9.733	R(0.01)	4.91	
1109	D5191	9.11		-0.40	
1299	D5191	9.17		0.11	
1498	D5191	9.06		-0.83	
1585	D5191	9.253		0.82	
1730		-----		-----	
1807	EN13016-1	9.21		0.45	
1810	EN13016-1	9.05		-0.92	
1811	D5191	9.06		-0.83	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1949	D5191	9.137		-0.17	
1984		-----		-----	
6139	D5191	8.93		-1.94	
6142		-----		-----	
6201	D5191	9.20		0.36	
6233	D5191	9.31		1.30	
6262	EN13016-1	9.24		0.71	
6291	EN13016-1	9.08		-0.66	
7009	D323	9.44		2.41	

normality	suspect
n	42
outliers	4
mean (n)	9.157
st.dev. (n)	0.0900
R(calc.)	0.250
st.dev.(D5191:20)	0.1172
R(D5191:20)	0.328

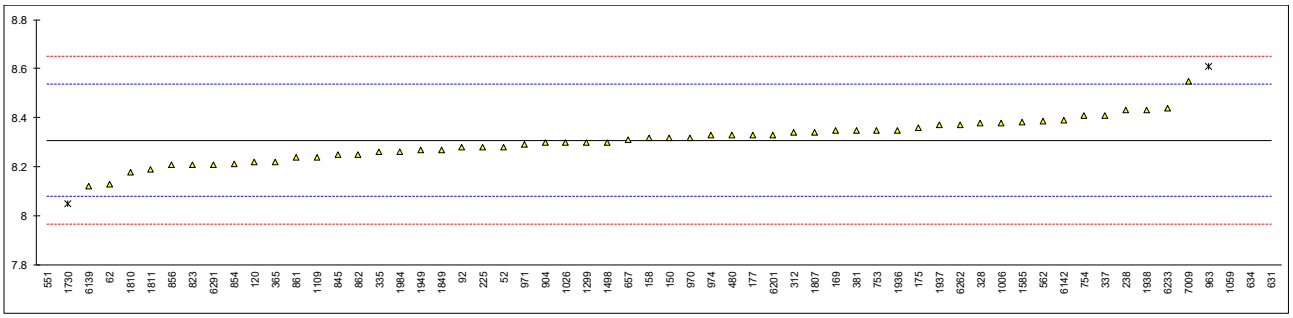


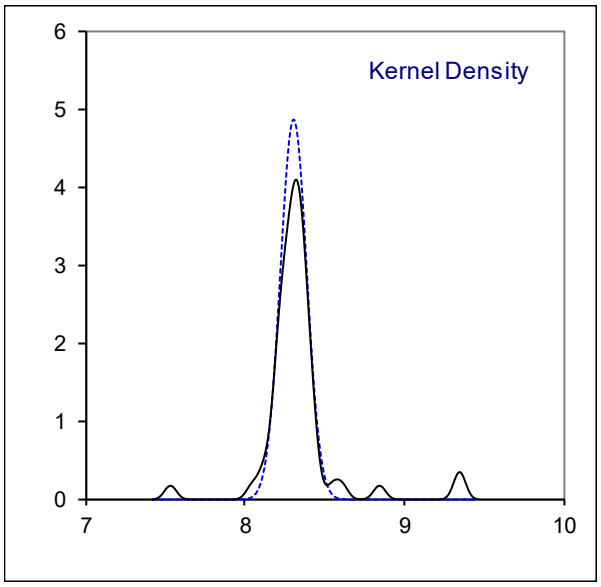


Determination of DVPE acc. to ASTM D5191 on sample #21016; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.28		-0.24	
62	D5191	8.13		-1.56	
92	D5191	8.28		-0.24	
120	D5191	8.22		-0.77	
140		-----		-----	
150	D5191	8.32		0.11	
158	D5191	8.32		0.11	
159		-----		-----	
169	D5191	8.35		0.37	
171		-----		-----	
175	D5191	8.36		0.46	
177	D5191	8.33	E	0.19	iis calculated for DVPE 8.22
225	D5191	8.28		-0.24	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238	D5191	8.43		1.07	
256		-----		-----	
258		-----		-----	
312	D5191	8.34		0.28	
323		-----		-----	
328	D5191	8.38		0.63	
335	D5191	8.26		-0.42	
337	EN13016-1	8.41	C	0.89	first reported 61.1 kPa
365	D5191	8.22		-0.77	
381	EN13016-1	8.35		0.37	
433		-----		-----	
480	D5191	8.33		0.19	
541		-----		-----	
551	D5191	7.54	R(0.01)	-6.73	
557		-----		-----	
562	D5191	8.388		0.70	
603		-----		-----	
631	D5191	9.347	C,R(0.01)	9.11	first reported 8.84
634	D5191	9.34	C,R(0.01)	9.04	first reported 60.3 kPa
657	D5191	8.31		0.02	
753	D5191	8.35		0.37	
754	D5191	8.41		0.89	
823	D5191	8.21		-0.86	
845	D5191	8.25		-0.51	
854	D5191	8.212		-0.84	
856	D5191	8.21		-0.86	
861	D5191	8.24		-0.60	
862	D5191	8.25		-0.51	
904	D5191	8.3		-0.07	
963	D5191	8.61	C,R(0.05)	2.65	first reported 9.23
970	D5191	8.32		0.11	
971	D5191	8.29		-0.16	
974	D5191	8.329		0.18	
1006	D5191	8.38		0.63	
1026	D5191	8.30		-0.07	
1033		-----		-----	
1059	D5191	8.844	R(0.01)	4.70	
1109	D5191	8.24		-0.60	
1299	D5191	8.30		-0.07	
1498	D5191	8.30	E	-0.07	iis calculated for DVPE 8.19
1585	D5191	8.381		0.64	
1730	EN13016-1	8.05	R(0.05)	-2.26	
1807	EN13016-1	8.34		0.28	
1810	EN13016-1	8.18		-1.12	
1811	D5191	8.19		-1.03	
1849	EN13016-1	8.27		-0.33	
1936	EN13016-1	8.35		0.37	
1937	EN13016-1	8.37		0.54	
1938	EN13016-1	8.43		1.07	
1949	D5191	8.269		-0.34	
1984	EN13016-1	8.26	C	-0.42	test result reported first for TVP
6139	D5191	8.12		-1.65	
6142	EN13016-1	8.39		0.72	
6201	D5191	8.33		0.19	
6233	D5191	8.44		1.16	
6262	EN13016-1	8.37		0.54	
6291	EN13016-1	8.21		-0.86	
7009	D5191	8.55		2.12	

normality	OK
n	54
outliers	6
mean (n)	8.308
st.dev. (n)	0.0818
R(calc.)	0.230
st.dev.(D5191:20)	0.1141
R(D5191:20)	0.319

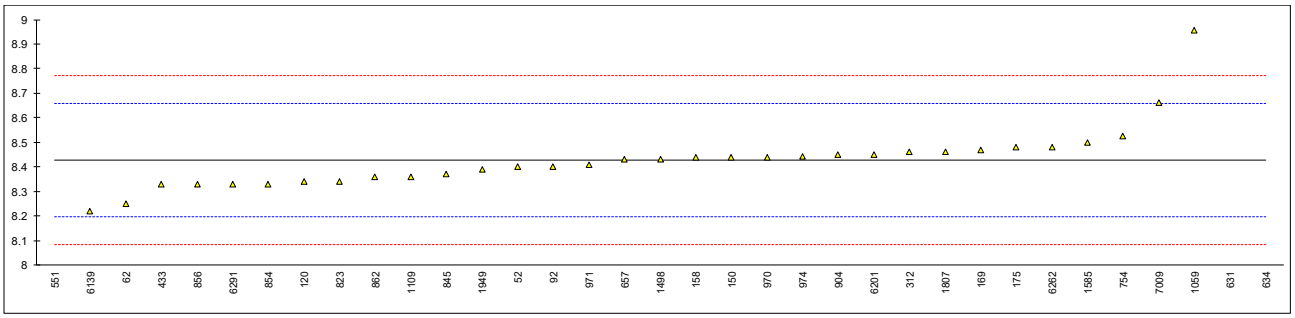


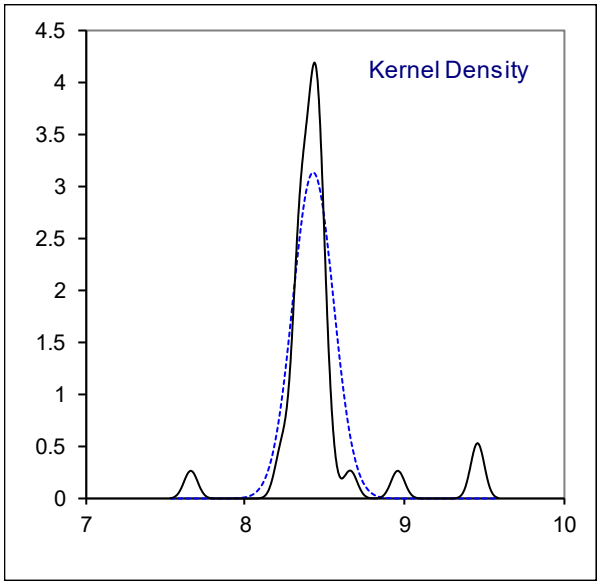


Determination of DVPE acc. to EPA on sample #21016; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.40		-0.24	
62	D5191	8.25		-1.55	
92	D5191	8.40		-0.24	
120	D5191	8.34		-0.76	
140		-----		-----	
150	D5191	8.44		0.11	
158	D5191	8.44		0.11	
159		-----		-----	
169	D5191	8.47		0.37	
171		-----		-----	
175	D5191	8.48		0.46	
177		-----		-----	
225		-----		-----	
228		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
256		-----		-----	
258		-----		-----	
312	D5191	8.46		0.28	
323		-----		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
365		-----		-----	
381		-----		-----	
433	EN13016-1	8.33		-0.85	
480		-----		-----	
541		-----		-----	
551	D5191	7.66	R(0.01)	-6.70	
557		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5191	9.456	C,R(0.01)	8.98	first reported 8.89
634	D5191	9.46	C,R(0.01)	9.02	first reported 61.0 kPa
657	D5191	8.43		0.02	
753		-----		-----	
754	D5191	8.527		0.87	
823	D5191	8.34		-0.76	
845	D5191	8.37		-0.50	
854	D5191	8.331		-0.84	
856	D5191	8.33		-0.85	
861		-----		-----	
862	D5191	8.36		-0.59	
904	D5191	8.45		0.20	
963		-----		-----	
970	D5191	8.44		0.11	
971	D5191	8.41		-0.15	
974	D5191	8.444		0.14	
1006		-----		-----	
1026		-----		-----	
1033		-----		-----	
1059	D5191	8.958		4.63	
1109	D5191	8.36		-0.59	
1299		-----		-----	
1498	D5191	8.43	E	0.02	iis calculated for DVPE 8.31
1585	D5191	8.499		0.63	
1730		-----		-----	
1807	EN13016-1	8.46		0.28	
1810		-----		-----	
1811		-----		-----	
1849		-----		-----	
1936		-----		-----	
1937		-----		-----	
1938		-----		-----	
1949	D5191	8.388		-0.34	
1984		-----		-----	
6139	D5191	8.22		-1.81	
6142		-----		-----	
6201	D5191	8.45		0.20	
6233		-----		-----	
6262	EN13016-1	8.48		0.46	
6291	EN13016-1	8.33		-0.85	
7009	D5191	8.66		2.03	

normality	not OK
n	32
outliers	3
mean (n)	8.427
st.dev. (n)	0.1277
R(calc.)	0.360
st.dev.(D5191:20)	0.1145
R(D5191:20)	0.321

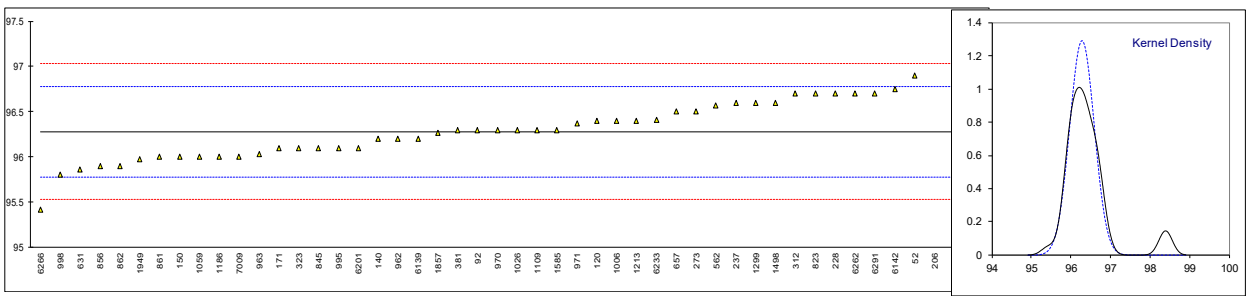




Determination of RON on sample #21017;

lab	method	Value	mark	z(targ)	remarks
52	D2699	96.9		2.48	
62		-----		-----	
92	D2699	96.3		0.08	
120	D2699	96.4		0.48	
140	D2699	96.2		-0.32	
150	D2699	96.0		-1.12	
159		-----		-----	
169		-----		-----	
171	D2699	96.1		-0.72	
206	INH-FTIR	98.4	R(0.01)	8.48	
207	INH-FTIR	98.4	R(0.01)	8.48	
209	INH-FTIR	98.4	R(0.01)	8.48	
228	D2699	96.7		1.68	
237	D2699	96.6		1.28	
256		-----		-----	
273	D2699	96.5		0.88	
312	D2699	96.70		1.68	
323	D2699	96.1		-0.72	
381	D2699	96.3		0.08	
541		-----		-----	
562	D2699	96.57		1.16	
631	D2699	95.86		-1.68	
657	D2699	96.5		0.88	
754		-----		-----	
823	D2699	96.7		1.68	
845	D2699	96.1		-0.72	
856	D2699	95.9		-1.52	
861	D2699	96.0		-1.12	
862	D2699	95.9		-1.52	
922		-----		-----	
962	D2699	96.2		-0.32	
963	D2699	96.03		-1.00	
970	D2699	96.3		0.08	
971	D2699	96.37		0.36	
995	D2699	96.1		-0.72	
998	GOST8226	95.8		-1.92	
1006	D2699	96.4		0.48	
1026	ISO5164	96.3		0.08	
1059	D2699	96.0		-1.12	
1109	D2699	96.3		0.08	
1186	D2699	96.0		-1.12	
1213	D2699	96.4		0.48	
1299	D2699	96.6		1.28	
1498	D2699	96.6		1.28	
1585	GOST8226	96.3		0.08	
1857	D2699	96.27		-0.04	
1949	GOST8226	95.97		-1.24	
6139	D2699	96.2		-0.32	
6142	ISO5164	96.75		1.88	
6201	D2699	96.1		-0.72	
6233	D2699	96.41		0.52	
6262	D2699	96.7		1.68	
6266	D2699	95.42		-3.44	
6291	D2699	96.7		1.68	
7009	In house	96.0		-1.12	

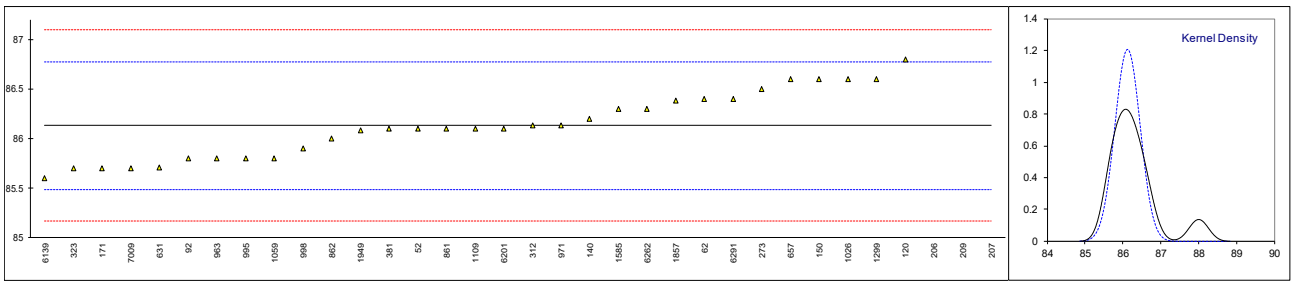
normality	OK
n	45
outliers	3
mean (n)	96.280
st.dev. (n)	0.3100
R(calc.)	0.866
st.dev.(D2699:19)	0.2500
R(D2699:19)	0.7



Determination of MON on sample #21017;

lab	method	value	mark	z(targ)	remarks
52	D2700	86.1		-0.09	
62	D2700	86.4		0.84	
92	D2700	85.8		-1.03	
120	D2700	86.8		2.08	
140	D2700	86.2		0.22	
150	D2700	86.6		1.46	
159		-----		-----	
169		-----		-----	
171	D2700	85.7		-1.34	
206	INH-FTIR	87.9	R(0.01)	5.51	
207	INH-FTIR	88.1	R(0.01)	6.13	
209	INH-FTIR	88.0	R(0.01)	5.82	
228		-----		-----	
237		-----		-----	
256		-----		-----	
273	D2700	86.5		1.15	
312	D2700	86.13		0.00	
323	D2700	85.7		-1.34	
381	D2700	86.1		-0.09	
541		-----		-----	
562		-----		-----	
631	D2700	85.71		-1.31	
657	D2700	86.6		1.46	
754		-----		-----	
823		-----		-----	
845		-----		-----	
856		-----		-----	
861	D2700	86.1		-0.09	
862	D2700	86.0		-0.40	
922		-----		-----	
962		-----		-----	
963	D2700	85.8		-1.03	
970		-----		-----	
971	D2700	86.13		0.00	
995	D2700	85.8		-1.03	
998	GOST511	85.9		-0.72	
1006		-----		-----	
1026	ISO5163	86.6		1.46	
1059	D2700	85.8		-1.03	
1109	D2700	86.1		-0.09	
1186		-----		-----	
1213		-----		-----	
1299	D2700	86.6		1.46	
1498		-----		-----	
1585	GOST511	86.3		0.53	
1857	D2700	86.38		0.78	
1949	GOST511	86.08		-0.16	
6139	D2700	85.6		-1.65	
6142		-----		-----	
6201	D2700	86.1		-0.09	
6233		-----		-----	
6262	D2700	86.3		0.53	
6266		-----		-----	
6291	D2700	86.4		0.84	
7009	In house	85.7		-1.34	

normality	OK
n	31
outliers	3
mean (n)	86.130
st.dev. (n)	0.3300
R(calc.)	0.924
st.dev.(D2700:19)	0.3214
R(D2700:19)	0.9



APPENDIX 2

Determination of other oxygenates on sample #21015; in %V/V

lab	DIPE	ETBE	Methanol	TAME	Other Oxygenates
52	-----	-----	-----	-----	-----
62	-----	-----	-----	-----	-----
92	-----	-----	-----	-----	-----
120	<0.10	<0.10	<0.10	<0.10	<0.10
140	<0.10	<0.10	<0.10	<0.10	-----
150	0	0	0	0	0
158	-----	-----	-----	-----	-----
159	-----	-----	-----	-----	-----
169	-----	-----	-----	-----	-----
171	ND	ND	ND	ND	-----
175	-----	-----	-----	-----	-----
206	-----	-----	-----	-----	-----
207	-----	-----	-----	-----	-----
208	-----	-----	-----	-----	-----
209	-----	-----	-----	-----	-----
212	-----	-----	-----	-----	-----
217	-----	-----	-----	-----	-----
221	-----	-----	-----	-----	-----
224	-----	-----	-----	-----	-----
225	-----	-----	-----	-----	-----
228	-----	-----	-----	-----	-----
230	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----
253	-----	-----	-----	-----	-----
254	-----	-----	-----	-----	-----
256	-----	-----	-----	-----	-----
258	-----	-----	-----	-----	-----
273	-----	-----	-----	-----	-----
312	<0.2	<0.2	<0.2	<0.2	<0.2
323	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
328	-----	-----	-----	-----	-----
335	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----
355	-----	-----	-----	-----	-----
365	-----	-----	-----	-----	-----
381	<0,8	<0,8	<0,8	<0,8	<0,8
447	<0.17	<0.17	0.32	<0.17	<0.17
480	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----
551	-----	-----	-----	-----	-----
554	-----	-----	-----	-----	-----
555	-----	-----	-----	-----	-----
557	-----	-----	-----	-----	-----
558	-----	-----	-----	-----	-----
562	-----	-----	-----	-----	-----
603	-----	-----	-----	-----	-----
631	<0.1	<0.1	-----	-----	-----
634	-----	-----	<0.7	-----	-----
657	<0.2	<0.2	<0.2	<0.2	-----
663	-----	-----	-----	-----	-----
671	-----	-----	-----	-----	-----
753	-----	-----	-----	-----	-----
754	-----	-----	-----	-----	-----
823	<0.20	<0.20	<0.20	<0.20	<0.20
845	<0.2	<0.2	<0.2	<0.2	<0.2
854	<0.2	<0.2	<0.2	<0.2	<0.2
856	<0.20	<0.20	<0.20	<0.20	<0.20
861	<0.2	<0.2	<0.2	<0.2	<0.2
862	<0.20	<0.20	<0.20	<0.20	<0.2
864	<0.2	<0.2	<0.2	<0.2	<0.2
872	<0.1	<0.1	<0.1	<0.1	<0.8
904	<0,2	<0,2	<0,2	<0,2	<0,2
912	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----
922	<0.2	<0.2	<0.2	<0.2	<0.2
962	<0.2	<0.2	<0.2	<0.2	<0.2
963	<0.2	<0.2	<0.2	<0.2	<0.2
970	<0.20	<0.20	<0.20	<0.20	<0.20
971	<0.20	<0.20	<0.20	<0.20	<0.20
974	-----	-----	-----	-----	-----
995	-----	-----	-----	-----	-----
996	-----	-----	-----	-----	-----
998	-----	-----	-----	-----	-----

lab	DIPE	ETBE	Methanol	TAME	Other Oxygenates
1006	<0.1	<0.1	<0.1	<0.1	-----
1016	0.02	<0.01	0.02	-----	-----
1026	<0.01	<0.01	<0.01	0.02	0.13
1033	-----	-----	-----	-----	-----
1059	<0,20	<0,20	<0,20	<0,20	<0,20
1109	0.03	0.04	0.00	0.00	0.00
1126	0.03	<0,05	<0,05	<0,05	<0,1
1186	-----	-----	-----	-----	-----
1213	not detected	not detected	not detected	not detected	not detected
1297	-----	-----	-----	-----	-----
1299	-----	<0.01	<0.01	-----	0.02
1345	-----	-----	-----	-----	-----
1498	-----	-----	-----	-----	-----
1531	-----	-----	-----	-----	-----
1585	<0.17	<0.17	<0.17	<0.17	<0.17
1730	-----	-----	-----	-----	-----
1807	-----	-----	-----	-----	-----
1810	-----	0	-----	-----	-----
1811	-----	0.03	-----	-----	-----
1849	-----	-----	-----	-----	-----
1936	-----	-----	-----	-----	-----
1937	-----	-----	-----	-----	-----
1938	-----	-----	-----	-----	-----
1984	<0.17	<0.17	<0.17	<0.17	<0.17
6139	Not detected	Not detected	Not detected	Not detected	Not detected
6142	-----	-----	-----	-----	-----
6172	0.4	0.0	0.0	0.0	2.4
6201	0.14	<0,2	<0,2	<0,2	<0,2
6233	n.d	n.d	n.d	n.d	n.d
6262	<0.20	<0.20	<0.20	<0.20	<0.20
6266	-----	-----	-----	-----	-----
6291	<0.20	<0.20	<0.2	<0.2	<0.2
6364	-----	-----	-----	-----	-----

APPENDIX 3

Distillation z-scores

lab	IBP	10%evaporated	50%evaporated	90%evaporated	FBP
52	-0.16	0.40	-0.76	-0.27	-0.04
62	-0.58	-0.24	-0.20	-0.77	0.16
92	0.20	-0.02	0.08	-0.16	1.34
120	1.03	0.33	0.22	0.04	0.95
140	-1.53	-0.38	-0.06	-0.06	-0.75
150	-0.81	-0.31	0.01	-0.11	-0.63
158	-----	-0.38	-0.13	0.19	-0.98
159	-0.99	-0.09	0.71	0.24	0.83
169	0.38	0.19	0.71	-0.83	-0.75
171	-1.65	-0.52	-0.06	-0.67	-0.31
175	0.14	-0.31	0.08	-0.01	-0.35
206	1.99	1.04	-1.67	1.26	-0.04
207	1.87	1.04	-1.74	1.21	0.04
208	1.87	1.11	-1.81	1.36	0.00
209	1.99	1.19	-1.81	1.21	0.00
212	1.87	0.33	-1.39	-0.47	-0.43
217	-0.81	-0.16	0.43	-0.21	1.38
221	-0.52	0.69	0.57	0.50	-1.10
224	-0.09	-0.79	-2.32	-1.76	-0.21
225	-----	-----	-----	-----	-----
228	0.85	-0.02	-1.88	-2.20	-0.31
230	0.32	-0.16	-0.83	-0.27	-0.23
237	1.45	0.40	-0.83	-1.94	-0.31
238	-0.93	-0.73	-1.74	-2.10	-0.31
253	-0.22	0.19	0.50	0.75	0.40
254	0.85	-0.02	-1.04	-1.59	0.87
256	-----	-----	-----	-----	-----
258	-----	-----	-----	-----	-----
273	-0.10	-0.59	0.36	0.04	-0.39
312	-0.99	-0.02	0.08	-0.16	0.63
323	0.26	0.26	0.92	0.35	1.07
328	-0.22	0.05	0.43	0.04	-0.35
335	1.93	0.48	0.99	0.29	-0.16
337	1.33	0.05	0.57	-0.72	-1.50
355	-----	-----	-----	-----	-----
365	0.97	0.90	1.69	2.02	0.95
381	0.20	-0.24	0.71	0.75	-0.63
447	0.02	-0.31	-0.62	-0.06	0.12
480	-0.04	-0.02	0.47	0.01	0.59
541	-1.15	-0.24	0.33	0.09	0.14
551	-1.59	-1.09	-2.09	-0.62	-2.21
554	-----	-----	-----	-----	-----
555	-----	-----	-----	-----	-----
557	-----	-----	-----	-----	-----
558	-----	-----	-----	-----	-----
562	1.51	-0.02	0.50	-0.32	-0.16
603	-----	-----	-----	-----	-----
631	0.56	-0.73	-0.34	-0.83	0.28
634	-0.52	0.26	1.62	1.36	0.48
657	-1.17	-0.09	-0.34	-0.67	-0.43
663	0.08	0.40	0.47	-0.16	-1.00
671	-----	-----	-----	-----	-----
753	0.85	0.33	0.01	0.19	0.48
754	-0.37	-0.13	0.26	0.12	0.04
823	-1.41	-0.38	0.08	-0.01	0.79
845	0.38	-0.38	0.43	-0.01	0.12
854	0.02	0.48	0.64	0.09	0.79
856	-1.23	-0.09	0.08	0.04	-1.26
861	-0.28	0.40	0.43	-0.06	0.20
862	-1.23	-0.38	0.01	-0.01	-1.18
864	-0.93	-0.59	-0.20	-0.32	-0.47
872	0.26	-0.02	-1.04	0.45	0.08
904	-0.93	-0.24	0.15	-0.21	0.28
912	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----
914	-0.58	0.12	0.29	-0.11	0.55
922	0.38	-0.52	-1.53	-0.06	0.32
962	-0.16	-0.16	-0.06	-0.52	-0.90
963	-1.29	0.62	0.78	-0.06	-0.90
970	-1.05	-0.02	0.57	0.29	0.59
971	-0.81	0.19	0.71	0.65	0.63
974	-0.28	0.19	0.64	0.96	0.63
995	0.56	0.69	1.76	1.46	-0.51
996	1.15	1.04	1.76	0.96	-0.31
998	1.45	-0.02	0.01	0.45	0.48

lab	IBP	10%evaporated	50%evaporated	90%evaporated	FBP
1006	-0.81	0.12	0.57	-0.11	-0.19
1016	-----	-----	-----	-----	-----
1026	0.08	-0.45	-0.20	-0.16	-0.12
1033	-----	-----	-----	-----	-----
1059	-0.93	-0.24	0.01	-0.06	-0.23
1109	0.08	-0.09	0.22	-0.16	0.67
1126	2.28	0.26	1.13	0.60	3.43
1186	2.05	0.69	0.36	-0.57	-3.86
1213	1.75	-0.09	0.29	0.14	0.63
1297	-0.52	-0.45	-0.55	-0.32	-0.59
1299	1.15	0.40	0.15	-0.01	0.91
1345	0.56	0.69	0.01	1.46	-0.12
1498	0.56	-0.09	0.15	0.24	0.71
1531	-1.23	0.12	0.99	-0.11	-0.31
1585	-1.11	-0.52	-0.06	-0.06	-0.23
1730	-----	-----	-----	-----	-----
1807	-0.93	-0.31	0.22	0.14	0.63
1810	0.20	0.55	0.50	0.14	0.00
1811	-0.22	-0.24	0.08	0.19	0.04
1849	-1.11	-0.31	0.29	-0.01	0.40
1936	-0.75	-0.16	0.01	0.04	-0.04
1937	-0.04	-0.45	-0.62	-0.21	0.40
1938	-0.87	-0.66	-0.90	-0.11	-0.43
1984	-1.35	-0.02	0.50	-0.04	0.57
6139	-0.10	-0.31	-0.34	-0.27	-0.94
6142	-0.25	-0.20	-0.13	-0.14	-0.08
6172	-0.99	0.33	1.55	1.16	-1.30
6201	-0.81	-0.38	0.29	-0.01	0.16
6233	1.75	0.12	0.78	0.40	-0.83
6262	-0.99	-0.24	0.43	0.04	0.04
6266	-0.37	0.45	0.03	-0.13	1.81
6291	-0.63	-0.80	-0.06	-0.52	0.48
6364	1.45	-0.73	-2.44	-0.57	0.87

APPENDIX 4 Number of participants per country

1 lab in	AFGHANISTAN
1 lab in	ALBANIA
1 lab in	ARGENTINA
1 lab in	AUSTRALIA
1 lab in	AUSTRIA
2 labs in	BELGIUM
5 labs in	BRAZIL
3 labs in	CANADA
2 labs in	CHILE
7 labs in	CHINA, People's Republic
1 lab in	COTE D'IVOIRE
2 labs in	CZECH REPUBLIC
1 lab in	DJIBOUTI
4 labs in	FRANCE
3 labs in	GEORGIA
3 labs in	GREECE
1 lab in	GUAM
1 lab in	GUINEA REPUBLIC
3 labs in	INDIA
1 labs in	IRAN
2 labs in	IRELAND
1 lab in	ISRAEL
2 labs in	KENYA
1 lab in	MALAYSIA
1 lab in	MAURITIUS
5 labs in	MOROCCO
1 lab in	MOZAMBIQUE
6 labs in	NETHERLANDS
2 labs in	NIGERIA
1 lab in	OMAN
1 lab in	PAKISTAN
2 labs in	PHILIPPINES
1 lab in	POLAND
6 labs in	RUSSIAN FEDERATION
2 labs in	SAUDI ARABIA
1 lab in	SENEGAL
1 lab in	SERBIA
1 lab in	SINGAPORE
1 lab in	SLOVENIA
1 lab in	SOUTH AFRICA
1 lab in	SOUTH KOREA
2 labs in	SPAIN
1 lab in	TAIWAN
2 labs in	TANZANIA
1 lab in	THAILAND
1 lab in	TOGO
1 lab in	TUNISIA
5 labs in	TURKEY
1 lab in	TURKMENISTAN
2 labs in	UNITED ARAB EMIRATES
2 labs in	UNITED KINGDOM
9 labs in	UNITED STATES OF AMERICA
2 labs in	VIETNAM

APPENDIX 5

Abbreviations

C	= final test 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)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
E	= calculation difference between reported test result and result calculated by iis
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

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