Institute for
Interlaboratory Studies

Results of Proficiency Test
Gasoline - ASTM (summer)
March 2023

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis23B01ASTM

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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 based on the latest version of EN228 and one round based on the latest version of ASTM D4814. During the annual proficiency testing program 2022/2023 it was decided to continue the round robin for the analysis of Gasoline summer quality based on the latest version of ASTM D4814.

In this interlaboratory study registered for participation:
- 103 laboratories in 50 countries for regular analyzes in Gasoline (summer) iis23B01ASTM
- 65 laboratories in 35 countries on DVPE analyzes in Gasoline iis23B01DVPE
- 49 laboratories in 28 countries on RON and MON analyzes in Gasoline iis23B01RON

In total 105 laboratories in 51 countries registered for participation in one or more proficiency tests, see appendix 4 for the number of participants per country. In this report the results of the 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.

Sample ID	PT ID	Quantity	Purpose
#23025	iis23B01ASTM	1x 1 L	Regular analyzes
#23026	iis23B01DVPE	1x 1 L (75% filled)	DVPE
#23027	iis23B01RON	2x 1 L	RON and MON

Table 1: Gasoline samples used in PT iis23B01ASTM

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 regular analyzes and for the RON and MON analyzes in Gasoline a batch of approximately 400 liters of Gasoline (summer quality) was obtained from the local market. After homogenization approximately 130 and 140 amber glass bottles of 1 L were filled and labelled #23025 and #23027 respectively.
The homogeneity of the subsamples was checked by determination of Density at 15 °C in accordance with ASTM D4052 on 12 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3		Density at 15 °C in kg/m^3
sample 1	739.95	sample 7	740.11
sample 2	739.97	sample 8	740.04
sample 3	740.02	sample 9	740.04
sample 4	739.99	sample 10	740.08
sample 5	739.96	sample 11	740.02
sample 6	740.01	sample 12	740.07

Table 2: homogeneity test results of subsamples of #23025 and #23027

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)	0.14
reference test method	D4052:22
0.3 x R (reference test method)	0.67

Table 3: evaluation of the repeatability of subsamples #23025 and #23027

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 determination of DVPE in Gasoline a batch of approximately 100 liters of Gasoline (summer quality) was obtained from the local market. After homogenization approximately 110 amber glass bottles of 1 L were filled with 750 mL Gasoline and labelled #23026.
The homogeneity of the subsamples was checked by the determination of DVPE in accordance with EN13016 on 8 stratified randomly selected subsamples.

	DVPE in kPa	
sample #23026-1	57.5	
sample #23026-2	57.5	
sample #23026-3	57.5	
sample #23026-4	57.5	
sample #23026-5	57.5	
sample #23026-6	56.7	G(0.01)
sample #23026-7	57.5	
sample #23026-8	57.6	

Table 4: homogeneity test results of subsamples #23026

Subsample 6 is a Grubbs outlier and therefore excluded from statistical evaluation of the homogeneity.

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 kPa
r (observed)	0.11
reference test method	ASTM D5191:22
0.3 x R (reference test method)	0.25

Table 5: evaluation of the repeatability of subsamples #23026

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 8, 2023. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

The stability of Gasoline 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 #23025: API Gravity, Appearance, Aromatics by FIA (without oxygenates correction), Benzene, Copper Corrosion 3 hrs at 50 °C, Silver Corrosion 3 hrs at 50 °C, 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 #23026 it was requested to determine Total Vapor Pressure and Dry Vapor Pressure Equivalent (according to ASTM D5191 and EPA).
On sample #23027 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 result tables in appendices 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 (derived from e.g. ISO or ASTM test methods), 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 test result tables of appendix 1.

Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore, the interpretation of z-scores is as follows:

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

4 EVALUATION

In this proficiency test some problems were encountered with the dispatch of the samples. Therefore, the reporting time on the data entry portal was extended with one week.
For the regular Gasoline PT seventeen participants reported test results after the extended reporting date and seven other participants did not report any test results.
For the PT on DVPE eight participants reported test results after the extended reporting date and nine other participants did not report any test results.
For the PT on RON/MON five participants reported test results after the extended reporting date and five other participants did not report any test results.
Not all participants were able to report all tests requested.

In total 99 participants reported 1119 numerical test results. Observed were 36 outlying test results, which is 3.2%. In proficiency tests 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 in appendix 1. 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 test method was adopted or revised (e.g. D525:12a). When a method has been reapproved an “R” will be added and the year of approval (e.g. D525:12aR19).

sample #23025

API Gravity: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D4052:22.

Appearance: This determination was not problematic. All reporting participants agreed about the appearance as Pass (Clear and Bright).

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

Benzene: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D3606:22.

Copper Corrosion 3 hrs at 50 °C: This determination was not problematic. All reporting participants agreed on classification 1 (1a).

Silver Corrosion 3 hrs at 50 °C:This determination was not problematic. Almost all reporting participants agreed on classification 0.

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 D4052:22.

Distillation at 760 mmHg: The distillation may be problematic for a number of participants. In total fourteen statistical outliers were observed and four other test results were excluded over five parameters. The calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ASTM D86:23 automated as well as for the manual mode for 10% evap., 50% evap.,90% evap.and FBP, but it is not in agreement for IBP manual mode.

Doctor Test: This determination was not problematic. All reporting participants agreed on the absence of Mercaptans or hydrogen sulfide 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 D381:22.

Lead as Pb: This determination was not problematic. Almost all reporting participants agreed on a value near or below the detection limit. Therefore, no z-scores are calculated.

Manganese as Mn:This determination was not problematic. Almost all reporting participants agreed on a value near or below the detection limit. Therefore, no z-scores are calculated.

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

Oxidation Stability: This determination was not problematic. All of the reporting participants agreed that the Oxidation Stability is >240 minutes. Therefore, no z-scores are calculated.

Ethanol: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D4815:22.

MTBE: 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 D4815:22.

The majority of the participants agreed on a concentration near or below the limit of detection for the other requested Oxygenates. Therefore, no z-scores are calculated for these components. The reported test results of these components are given in appendix 2.

Oxygen content: This determination was not problematic. Four statistical outlier were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4815:22.

Phosphorus as P: This determination was not problematic. All reporting laboratories agreed on a value near or below the detection limit. Therefore, no z-scores are calculated.

Total Sulfur: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D5453:19a.

sample #23026

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 agreement with the requirements of ASTM D5191:22.

DVPE: The conversion of the measured Total Vapor Pressure to the Dry Vapor Pressure Equivalent (DVPE) as described in ASTM D5191:22 was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5191:22. The conversion of the measured Total Vapor Pressure to the Dry Vapor Pressure Equivalent (DVPE) as described in the U.S. EPA guidelines (40 CFR Part 80, App. E, Method 3) was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of the EPA guidelines.

sample #23027

RON: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D2699:23.

MON: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D2700:23.

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 reference methods are presented in the next tables.

Parameter	unit	n	average	2.8 * sd	R(lit)
API Gravity		60	59.6	0.24	0.58
Appearance		64	Pass(C&B)	n.a.	n.a.
Aromatics by FIA *)	%V/V	31	26.8	3.9	3.7
Benzene	%V/V	44	0.88	0.07	0.16
Copper Corrosion 3 hrs at 50 °C		74	1 (1a)	n.a.	n.a.
Silver Corrosion 3 hrs at 50 °C		15	0	n.a.	n.a
Density at 15 °C	kg/m^3	90	740.2	0.7	2.2
Initial Boiling Point	°C	83	36.1	5.6	4.7
Temp. at 10% evaporated	°C	83	54.2	2.0	4.0
Temp. at 50% evaporated	°C	82	94.3	1.7	3.7
Temp. at 90% evaporated	°C	76	131.0	2.4	5.3
Final Boiling Point	°C	82	170.9	5.9	7.1
Doctor Test		50	negative	n.a.	n.a.
Gum (solvent washed)	mg/100 mL	40	0.54	0.61	2.07
Lead as Pb	mg/L	27	<2.5	n.e.	n.e.
Manganese as Mn	mg/L	16	<0.25	n.e.	n.e.
Olefins by FIA *)	%V/V	29	12.6	3.2	3.8
Oxidation Stability	minutes	34	>240	n.e.	n.e.
Ethanol	%V/V	39	4.7	0.5	0.6
MTBE	%V/V	33	4.6	0.3	0.3
Oxygen content	%M/M	30	2.6	0.2	0.3
Phosphorus as P	mg/L	12	<0.20	n.e.	n.e.
Total Sulfur	mg/kg	67	4.8	1.8	1.9

Table 6: reproducibilities of tests on sample #23025

*) without oxygenates correction

Parameter	unit	n	average	2.8 * sd	R(lit)
TVP	psi	36	9.2	0.3	0.3
DVPE according to ASTM D5191	psi	51	8.3	0.3	0.3
DVPE according to EPA	psi	26	8.4	0.3	0.3

Table 7: reproducibilities of tests on sample #23026

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		43	95.5	0.5	0.7
MON		31	85.3	0.8	0.9

Table 8: reproducibilities of tests on sample #23027

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF MARCH 2023 WITH PREVIOUS PTS

	March 2023	March 2022	February 2021	February 2020	February 2019
Number of reporting laboratories	99	96	104	99	106
Number of test results	1119	1081	1288	1158	1362
Number of statistical outliers	36	39	38	20	55
Percentage of statistical outliers	3.2%	3.6%	3.0%	1.7%	4.0%

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 to the requirements of the reference test methods. The conclusions are given in the following table.

Parameter	March 2023	March 2022	February 2021	February 2020	February 2019
API Gravity	++	++	++	++	++
Aromatics by FIA *)	+/-	+	+	+/-	+/-
Benzene	++	+	++	+	++
Density at 15 °C	++	++	++	++	++
Distillation at 760 mmHg	+	+	+	+	+
Gum (solvent washed)	++	++	++	++	++
Lead as Pb	n.e.	n.e.	+	n.e.	n.e.
Manganese as Mn	n.e.	n.e.	+	n.e.	+
Olefins by FIA *)	+	+/-	+/-	+	-
Ethanol	+	+	+	+/-	+
MTBE	+	-	-	-	-
Oxygen content	+	+	+	+	+/-
Phosphorus as P	n.e.	n.e.	n.e.	n.e.	--
Total Sulfur	+/-	+	+/-	+	+/-
TVP	+	+	+	+/-	+/-
DVPE	+/-	+	+/-	+/-	+/-
RON	+	+/-	-	+	-
MON	+	+	+/-	-	-

Table 10: comparison of determinations to 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

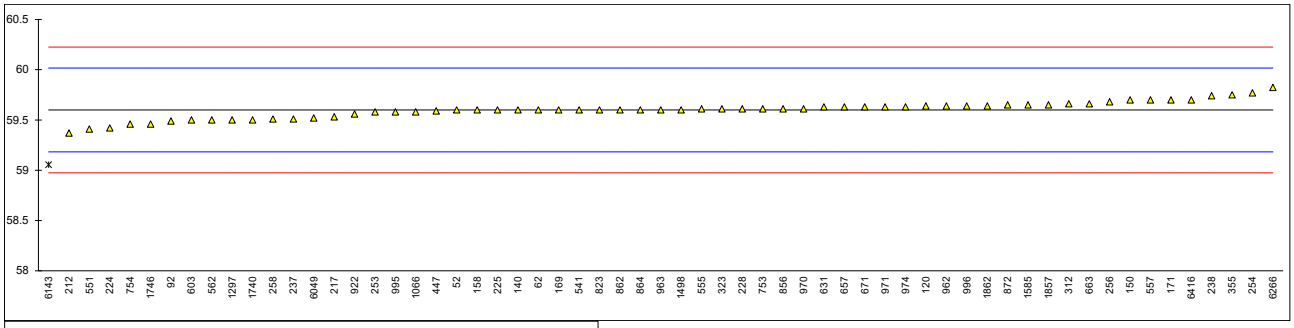
APPENDIX 1

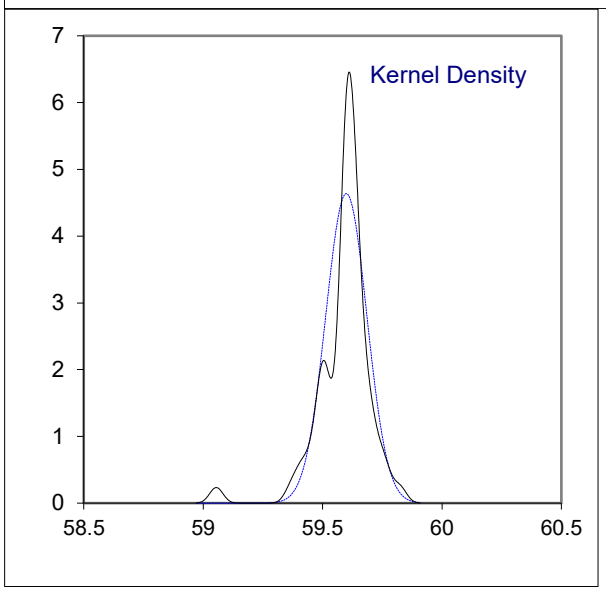
Determination of API Gravity on sample #23025;

lab	method	value	mark	z(targ)	remarks
52	D4052	59.6		0.00	
62	D4052	59.6		0.00	
92	D4052	59.49		-0.53	
120	D4052	59.64		0.19	
140	D4052	59.6		0.00	
150	D4052	59.7		0.48	
158	D4052	59.6		0.00	
159		-----		-----	
169	D4052	59.6	C	0.00	first reported 59.1
171	D4052	59.7		0.48	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212	ISO12185	59.37		-1.10	
217	D4052	59.53		-0.33	
221		-----		-----	
224	D1298	59.42		-0.86	
225	D4052	59.6		0.00	
228	D4052	59.61		0.05	
235		-----		-----	
237	D4052	59.51		-0.43	
238	D4052	59.74		0.67	
253	D4052	59.58		-0.09	
254	D4052	59.77		0.82	
256	D4052	59.68		0.39	
258	D4052	59.51		-0.43	
312	D4052	59.66		0.29	
323	D4052	59.61		0.05	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355	D4052	59.75		0.72	
365		-----		-----	
381		-----		-----	
447	D4052	59.59		-0.05	
480		-----		-----	
541	D4052	59.6		0.00	
551	D4052	59.41		-0.91	
554		-----		-----	
555	D4052	59.61		0.05	
557	D4052	59.700		0.48	
558		-----		-----	
562	D1298	59.5		-0.48	
603	D4052	59.5		-0.48	
631	D4052	59.63		0.15	
633		-----		-----	
634		-----		-----	
657	D4052	59.63		0.15	
663	D4052	59.66		0.29	
671	D4052	59.63		0.15	
753	D4052	59.61		0.05	
754	D4052	59.46		-0.67	
823	D4052	59.6		0.00	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D4052	59.61		0.05	
861		-----		-----	
862	D4052	59.6		0.00	
864	D4052	59.6		0.00	
872	D4052	59.65		0.24	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922	D4052	59.56		-0.19	
962	D4052	59.64		0.19	
963	D4052	59.6		0.00	
970	D4052	59.61		0.05	
971	D4052	59.63		0.15	
974	D4052	59.63		0.15	
995	D4052	59.58		-0.09	
996	D4052	59.64		0.19	
1006		-----		-----	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039		-----		-----	
1066	D4052	59.58		-0.09	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297	D4052	59.50		-0.48	
1299		-----		-----	
1399		-----		-----	
1498	D4052	59.6		0.00	
1531		-----		-----	
1585	D4052	59.65		0.24	
1730		-----		-----	
1740	D4052	59.5		-0.48	
1746	D4052	59.46		-0.67	
1807		-----		-----	
1857	D4052	59.65		0.24	
1862	D4052	59.64		0.19	
1984		-----		-----	
6049	D4052	59.52		-0.38	
6142		-----		-----	
6143	D4052	59.0549	R(0.01)	-2.61	
6163		-----		-----	
6172		-----		-----	
6266	D4052	59.824		1.08	
6404		-----		-----	
6416	D1298	59.7		0.48	
6447		-----		-----	

normality	OK
n	60
outliers	1
mean (n)	59.600
st.dev. (n)	0.0860
R(calc.)	0.241
st.dev.(D4052:22)	0.2086
R(D4052:22)	0.584





Determination of Appearance on sample #23025;

lab	method	value	mark	z(targ)	remarks
52	D4176	Pass		-----	
62	D4176	pass		-----	
92	D4176	C & B		-----	
120	D4176	Clear & Bright		-----	
140	D4176	C&B		-----	
150		-----		-----	
158	D4176	C&B		-----	
159		-----		-----	
169	D4176	Pass		-----	
171	D4176	Clear and Bright		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212	D4176	Cl&Br		-----	
217	D4176	clear and bright :pass		-----	
221		-----		-----	
224		C&B		-----	
225	D4176	Clear & Bright		-----	
228	D4176	C&B		-----	
235	D4176	Pass		-----	
237	D4176	C&B		-----	
238	Visual	B & C		-----	
253	D4176	Clear & Bright		-----	
254	D4176	Clear & Bright		-----	
256	Visual	Clear & Bright		-----	
258		B &C		-----	
312		-----		-----	
323	D4176	CBL		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	Visual	Clear & Bright		-----	
480		-----		-----	
541		-----		-----	
551	D4176	Pass		-----	
554		Pass		-----	
555	D4176	Pass		-----	
557	Visual	Pass		-----	
558	Visual	Pass		-----	
562		-----		-----	
603	Visual	Bright and Clear		-----	
631	D4176	clear & bright		-----	
633	Visual	Clear & Bright		-----	
634	Visual	Clear & Bright		-----	
657	D4176	Bright & Clear		-----	
663	D4176	Bright and Clear		-----	
671	D4176	C/B		-----	
753	D4176	Pass		-----	
754	D4176	pass		-----	
823	D4176	Pass		-----	
845		-----		-----	
846		Pass		-----	
854		-----		-----	
856	D4176	Clear&Bright		-----	
861		-----		-----	
862	D4176	PASS		-----	
864	D4176	Clear&Bright		-----	
872	D4176	Pass		-----	
912	Visual	Clear and Bright		-----	
913		-----		-----	
914		-----		-----	
922	Visual	Clear & Bright		-----	
962	D4176	Clear & Bright		-----	
963	D4176	Pass		-----	
970	D4176	Clear & Bright		-----	
971	D4176	Pass		-----	
974	D4176	Clear and Bright		-----	
995	D4176	C&B		-----	
996	D4176	C&B pass		-----	
1006		-----		-----	
1012		-----		-----	

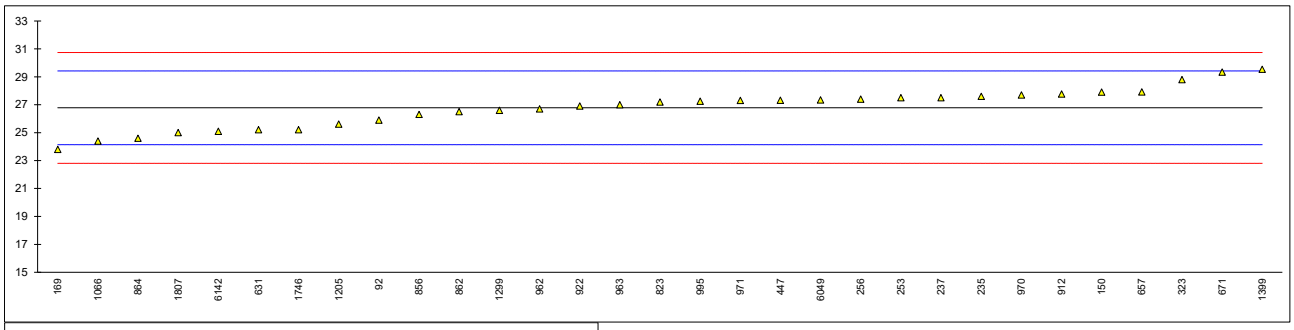
lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039	D4176	Clear & Bright		-----	
1066		-----		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299	Visual	CL&BR		-----	
1399	Visual	clear, bright no sediment		-----	
1498	D4176	B&C		-----	
1531	D4176	clear & bright		-----	
1585	D4176	pass		-----	
1730		-----		-----	
1740	D4176	clear & bright		-----	
1746		-----		-----	
1807		-----		-----	
1857	D4176	clear & bright		-----	
1862	D4176	clear&bright		-----	
1984		-----		-----	
6049	D4176	pass		-----	
6142		C&B		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266	Visual	Clear and Bright		-----	
6404		-----		-----	
6416	D4176	Clear & Bright		-----	
6447		-----		-----	
	n	64			
	mean (n)	Pass (Clear & Bright)			

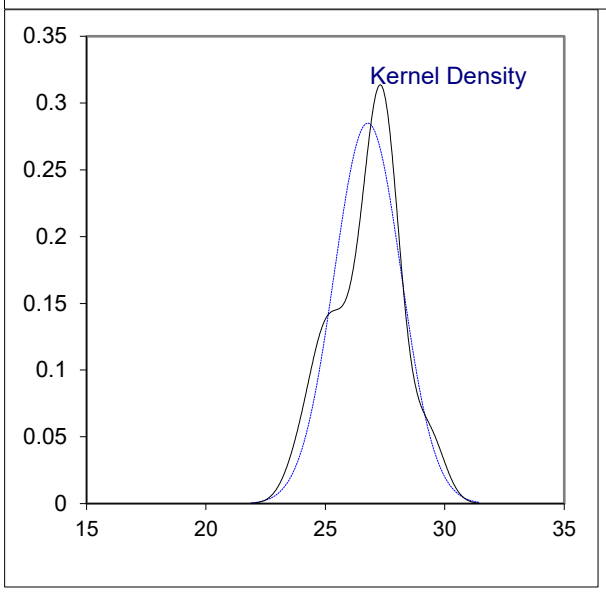
Determination of Aromatics by FIA (without oxygenates correction) on sample #23025; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
92	D1319	25.9		-0.67	
120		-----		-----	
140		-----		-----	
150	D1319	27.9	C	0.85	first reported 31.3
158		-----		-----	
159		-----		-----	
169	D1319	23.8	C	-2.25	first reported 20.8
171		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235	D1319	27.6		0.62	
237	D1319	27.5		0.55	
238		-----		-----	
253	D1319	27.50		0.55	
254		-----		-----	
256	D5986	27.4		0.47	
258		-----		-----	
312		-----		-----	
323	D1319	28.8		1.53	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D1319	27.32		0.41	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D1319	25.2		-1.20	
633		-----		-----	
634		-----		-----	
657	D1319	27.91		0.86	
663		-----		-----	
671	D1319	29.34		1.94	
753		-----		-----	
754		-----		-----	
823	D1319	27.2		0.32	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D1319	26.3		-0.36	
861		-----		-----	
862	D1319	26.5		-0.21	
864	GB/T11132	24.6		-1.65	
872		-----		-----	
912	D1319	27.76		0.74	
913		-----		-----	
914		-----		-----	
922	D1319	26.9		0.09	
962	D1319	26.7		-0.06	
963	D1319	27.0		0.17	
970	D1319	27.7		0.70	
971	D1319	27.3		0.39	
974		-----		-----	
995	D1319	27.25		0.36	
996		-----		-----	
1006		-----		-----	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039		-----		-----	
1066	D1319	24.4		-1.80	
1126		-----		-----	
1186		-----		-----	
1205	D8071	25.603		-0.89	
1297		-----		-----	
1299	D1319	26.6		-0.14	
1399	D1319	29.54		2.09	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746	D1319	25.2		-1.20	
1807	ISO22854	25.0		-1.35	
1857		-----		-----	
1862		-----		-----	
1984		-----		-----	
6049	D1319	27.34		0.42	
6142	ISO22854	25.09		-1.28	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	

normality	OK
n	31
outliers	0
mean (n)	26.78
st.dev. (n)	1.400
R(calc.)	3.92
st.dev.(D1319:20a)	1.321
R(D1319:20a)	3.7



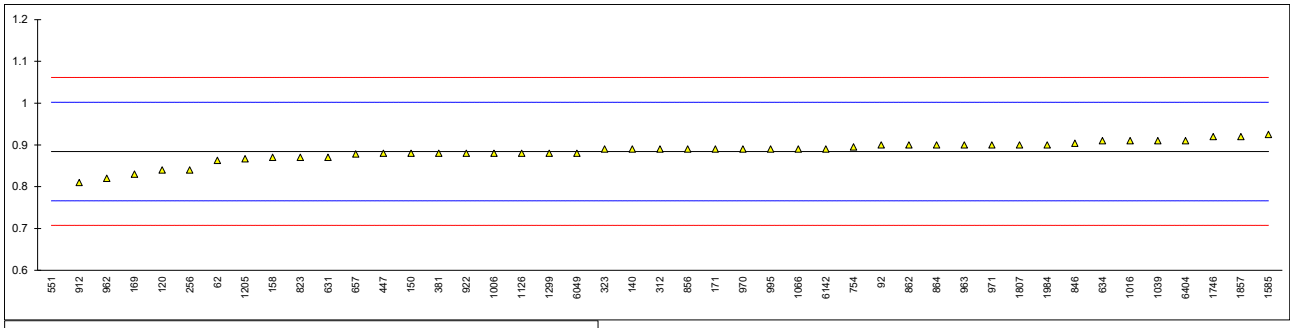


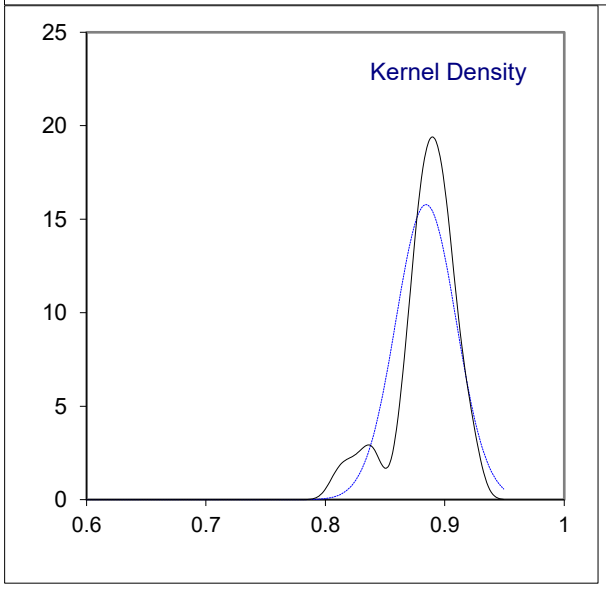
Determination of Benzene on sample #23025; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	CAN/CGSB-3.0 NO 14.3	0.863		-0.36	
92	CAN/CGSB	0.900		0.27	
120	D3606	0.84		-0.75	
140	D3606	0.89		0.10	
150	D3606	0.88		-0.07	
158	D5580	0.87		-0.24	
159		-----		-----	
169	D3606	0.83		-0.92	
171	D3606	0.89		0.10	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256	D5986	0.84		-0.75	
258		-----		-----	
312	D3606	0.89		0.10	
323	EN22854	0.89		0.10	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	EN22854	0.88		-0.07	
447	IP429	0.88		-0.07	
480		-----		-----	
541		-----		-----	
551	D3606	0.31	R(0.01)	-9.75	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D6277	0.87		-0.24	
633		-----		-----	
634	D6277	0.91		0.44	
657	D5580	0.878		-0.11	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754	D6729	0.895		0.18	
823	D5580	0.87		-0.24	
845		-----		-----	
846	SH/T0713	0.904		0.33	
854		-----		-----	
856	D3606	0.89		0.10	
861		-----		-----	
862	D3606	0.9		0.27	
864	SH/T0693	0.9		0.27	
872		-----		-----	
912	D5808	0.81		-1.26	
913		-----		-----	
914		-----		-----	
922	D6277	0.88		-0.07	
962	D5580	0.82		-1.09	
963	D5580	0.9		0.27	
970	D5580	0.89		0.10	
971	D5580	0.90		0.27	
974		-----		-----	
995	EN12177	0.89		0.10	
996		-----		-----	
1006	D5580	0.88		-0.07	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016	EN22854	0.91		0.44	
1039	ISO22854	0.91		0.44	
1066	EN22854	0.89		0.10	
1126	EN22854	0.88		-0.07	
1186		-----		-----	
1205	D3606	0.867		-0.29	
1297		-----		-----	
1299	EN22854	0.88		-0.07	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN12177	0.925		0.69	
1730		-----		-----	
1740		-----		-----	
1746	D3606	0.92		0.60	
1807	EN22854	0.90		0.27	
1857	ISO22854	0.92		0.60	
1862		-----		-----	
1984	EN238	0.9		0.27	
6049	EN22854	0.88		-0.07	
6142	EN22854	0.89		0.10	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404	ISO22854	0.91		0.44	
6416		-----		-----	
6447		-----		-----	

	normality	suspect
	n	44
	outliers	1
	mean (n)	0.884
	st.dev. (n)	0.0253
	R(calc.)	0.071
	st.dev.(D3606:22)	0.0589
	R(D3606:22)	0.165
Compare		
	R(D5580:21)	0.113





Determination of Copper Corrosion 3 hrs at 50 °C on sample #23025;

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		-----		-----	
169	D130	1a		-----	
171	D130	1a		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212	D130	1a		-----	
217	D130	1A		-----	
221	D130	1		-----	
224	D130	1A		-----	
225	D130	1A		-----	
228	D130	1A		-----	
235	D130	1a		-----	
237	D130	1A		-----	
238	D130	1A		-----	
253	D130	1A		-----	
254	D130	1A		-----	
256	D130	1A		-----	
258	D130	1A		-----	
312	D130	1a		-----	
323	D130	1A		-----	
328	D130	1a		-----	
335	D130	1A		-----	
337		-----		-----	
355		-----		-----	
365	IP154	1a		-----	
381		-----		-----	
447	D130	1A		-----	
480		-----		-----	
541	D130	1a		-----	
551	D130	1A		-----	
554		-----		-----	
555	D130	1a		-----	
557	D130	1A		-----	
558		-----		-----	
562		-----		-----	
603	D130	1A		-----	
631	D130	1a		-----	
633	D130	1a		-----	
634	D130	1a		-----	
657	D130	1a		-----	
663	D130	1a		-----	
671	D130	1A		-----	
753	ISO2160	1A		-----	
754	D130	1a		-----	
823	D130	1a		-----	
845		-----		-----	
846	GB/T5096	1a		-----	
854		-----		-----	
856	D130	1a		-----	
861		-----		-----	
862	D130	1a		-----	
864	D130	1a		-----	
872		-----		-----	
912	D130	1a		-----	
913		-----		-----	
914		-----		-----	
922	D130	1a		-----	
962	D130	1a		-----	
963	D130	1a		-----	
970	D130	1a		-----	
971	D130	1a		-----	
974	D130	1a		-----	
995	D130	1A		-----	
996	D130	1a		-----	
1006	D130	1a		-----	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016	D130	1		-----	
1039	ISO2160	1A		-----	
1066	D130	1A		-----	
1126		-----		-----	
1186	D130	1 A		-----	
1205		-----		-----	
1297	D130	1A		-----	
1299	D130	1A		-----	
1399	D130	1		-----	
1498		-----		-----	
1531	D130	1a		-----	
1585	D130	1a		-----	
1730		-----		-----	
1740	D130	1a		-----	
1746	D130	1a		-----	
1807	D130	1a		-----	
1857	D130	1?		-----	
1862	D130	1A		-----	
1984	ISO2160	1a		-----	
6049	D130	1a		-----	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266	D130	1a		-----	
6404		-----		-----	
6416	D130	1a		-----	
6447		-----		-----	
	n	74			
	mean (n)	1 (1a)			

Determination of Silver Corrosion 3 hrs at 50 °C on sample #23025;

lab	method	value	mark	z(targ)	remarks
52	D7671-A	0		-----	
62	CAN/CGSB-3.0 NO 60.32	A		-----	
92		-----		-----	
120	D7667-A	0		-----	
140	D7671-B	0		-----	
150	D7671-A	0		-----	
158	D7667-A	0		-----	
159		-----		-----	
169		-----		-----	
171	D7671-A	0		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D7671-A	0		-----	
323	D7671-A	0		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D7671-A	1		-----	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
633		-----		-----	
634		-----		-----	
657	D7671-A	0		-----	
663	D7671-A	0		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D7671-A	0		-----	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856		-----		-----	
861		-----		-----	
862	D4814-A	0		-----	
864		-----		-----	
872		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922		-----		-----	
962	D7671-A	0		-----	
963		-----		-----	
970		-----		-----	
971		-----		-----	
974		-----		-----	
995		-----		-----	
996		-----		-----	
1006		-----		-----	
1012		-----		-----	

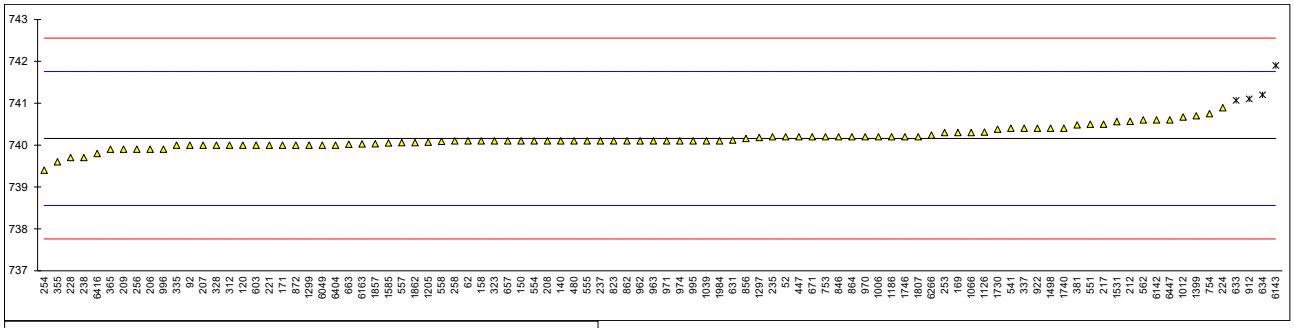
lab	method	value	mark	z(targ)	remarks
1016	D7671-A	0		-----	
1039	D7671-A	0		-----	
1066	D7671-A	1		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299		-----		-----	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746		-----		-----	
1807		-----		-----	
1857		-----		-----	
1862		-----		-----	
1984		-----		-----	
6049		-----		-----	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	
	n	15			
	mean (n)	0			

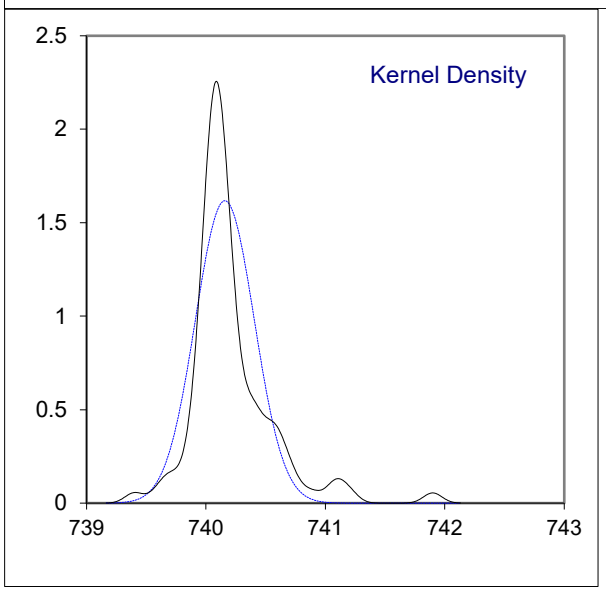
Determination of Density at 15 °C on sample #23025; results in kg/m^3

lab	method	value	mark	z(targ)	remarks
52	D4052	740.2		0.05	
62	D4052	740.1		-0.07	
92	D4052	740.0		-0.20	
120	D4052	740.0		-0.20	
140	D4052	740.1		-0.07	
150	D4052	740.1		-0.07	
158	D4052	740.1		-0.07	
159		-----		-----	
169	D4052	740.3	C	0.18	first reported 742.3
171	D4052	740.0		-0.20	
206	D7777	739.9		-0.32	
207	D7777	740.0		-0.20	
208	D7777	740.1		-0.07	
209	D7777	739.9		-0.32	
212	ISO12185	740.57		0.51	
217	D4052	740.5		0.43	
221	D4052	740.0		-0.20	
224	D1298	740.89		0.91	
225		-----		-----	
228	D4052	739.7		-0.57	
235	D4052	740.20		0.05	
237	D4052	740.1		-0.07	
238	D4052	739.7		-0.57	
253	D4052	740.3		0.18	
254	D4052	739.4		-0.95	
256	D4052	739.9		-0.32	
258	D4052	740.1		-0.07	
312	D4052	740.0		-0.20	
323	D4052	740.1		-0.07	
328	D4052	740.0		-0.20	
335	D4052	740.0		-0.20	
337	D4052	740.4		0.30	
355	D4052	739.6		-0.70	
365	IP365	739.9		-0.32	
381	ISO12185	740.48		0.40	
447	D4052	740.2		0.05	
480	D4052	740.1		-0.07	
541	D4052	740.4		0.30	
551	D4052	740.5		0.43	
554	D4052	740.1		-0.07	
555	D4052	740.10		-0.07	
557	D4052	740.06		-0.12	
558	D4052	740.09		-0.09	
562	D1298	740.6		0.55	
603	D4052	740.0		-0.20	
631	D4052	740.12		-0.05	
633	D4052	741.07	R(0.05)	1.14	
634	D4052	741.2	R(0.05)	1.30	
657	D4052	740.1		-0.07	
663	D4052	740.02		-0.17	
671	D4052	740.2		0.05	
753	D4052	740.2		0.05	
754	D4052	740.75		0.74	
823	ISO12185	740.1		-0.07	
845		-----		-----	
846	SH/T0604	740.2		0.05	
854		-----		-----	
856	D4052	740.16		0.00	
861		-----		-----	
862	D4052	740.1		-0.07	
864	D4052	740.2		0.05	
872	D4052	740.0		-0.20	
912	D4052	741.1	R(0.05)	1.18	
913		-----		-----	
914		-----		-----	
922	D4052	740.4		0.30	
962	D4052	740.1		-0.07	
963	D4052	740.1		-0.07	
970	D4052	740.2		0.05	
971	D4052	740.1		-0.07	
974	D4052	740.1		-0.07	
995	D4052	740.1		-0.07	
996	D4052	739.9		-0.32	
1006	D4052	740.2		0.05	
1012	D4052	740.67		0.64	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039	ISO12185	740.1		-0.07	
1066	D4052	740.3		0.18	
1126	D4052	740.31		0.19	
1186	D1298	740.2		0.05	
1205	ISO12185	740.07		-0.11	
1297	D4052	740.18		0.03	
1299	D4052	740.0		-0.20	
1399	D4052	740.7		0.68	
1498	D4052	740.4		0.30	
1531	ISO12185	740.56		0.50	
1585	ISO12185	740.05		-0.14	
1730	D4052	740.38		0.28	
1740	ISO12185	740.4		0.30	
1746	D4052	740.2		0.05	
1807	ISO12185	740.2		0.05	
1857	D4052	740.03		-0.16	
1862	D4052	740.06		-0.12	
1984	ISO12185	740.1		-0.07	
6049	D4052	740.0		-0.20	
6142	ISO12185	740.6		0.55	
6143	D4052	741.9	R(0.01)	2.18	
6163	ISO12185	740.028		-0.16	
6172		-----		-----	
6266	D4052	740.24		0.10	
6404	ISO12185	740		-0.20	
6416	D1298	739.8		-0.45	
6447	D4052	740.6		0.55	

normality	suspect
n	90
outliers	4
mean (n)	740.159
st.dev. (n)	0.2465
R(calc.)	0.690
st.dev.(D4052:22)	0.7995
R(D4052:22)	2.239



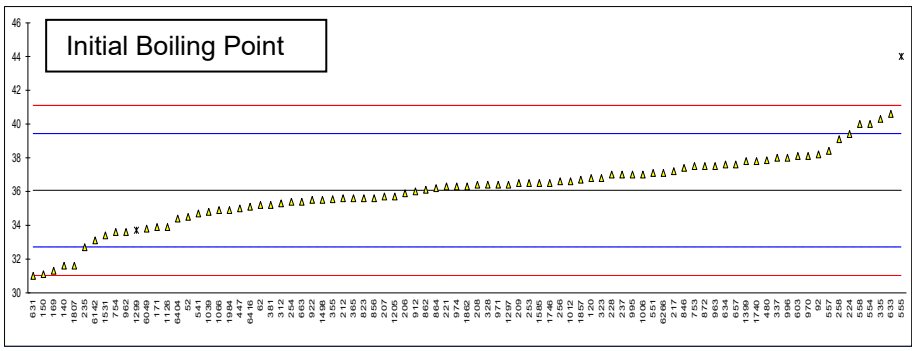


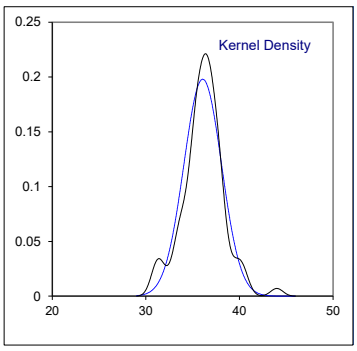
Determination of Distillation at 760 mmHg on sample #23025; results in °C

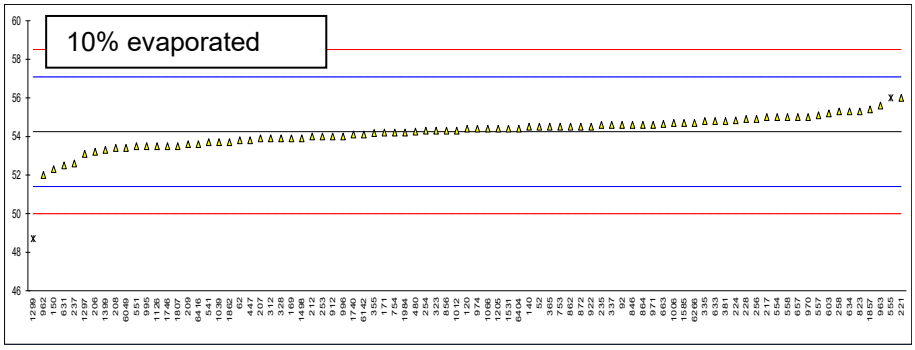
lab	Method	IBP	10% evaporated	50% evaporated	90% evaporated	FBP
52	D86-automated	34.5	54.5	94.6	131.3	169.4
62	D86-automated	35.2	53.8	94.2	129.8	170.3
92	D86-automated	38.2	54.6	94.6	130.9	174.2
120	D86-automated	36.8	54.4	94.8	131.5	171.2
140	D86-automated	31.6	54.5	94.8	131.4	171.1
150	D86-automated	31.1	52.3	93.0	129.7	167.1
158		-----	-----	-----	-----	-----
159		-----	-----	-----	-----	-----
169	D86-automated	31.3	53.9	93.8	130.8	172.8
171		33.9	54.2	94.3	130.3	-----
206	D7345	35.9	53.2	93.7	131.0	171.8
207	D7345	35.7	53.9	94.1	130.8	172.8
208	D7345	36.4	53.4	93.1	131.2	170.8
209	D7345	36.5	53.6	93.5	131.1	171.3
212	ISO3405-automated	35.6	54.0	94.6	131.3	172.1
217	D86-automated	37.2	55.0	94.5	130.2	169.0
221		36.3	56.0	95.9	133.6	172.9
224	D86-manual	39.40	54.83	94.86	127.65 R(0.05)	166.40
225		-----	-----	-----	-----	-----
228	D86-manual	37.0	54.9	93.7	127.5 R(0.01)	175.0
235	D86-automated	32.7	54.6	94.4	131.5	171.5
237	D86-manual	37.0	52.6	94.3 C	131.0 C	168.0
238		-----	-----	-----	-----	-----
253	D86-manual	36.5	54.0	95.0	130.8	173.0
254	D86-automated	35.4	54.3	94.3	130.9	165.5
256	D86-automated	36.6	54.9	94.3	128.9	172.3
258	D86-automated	39.1	55.3	95.6	131.1	174.7
312	D86	35.3	53.9	94.5	130.7	168.9
323	D86-automated	36.8	54.3 C	94.5 C	131.4 C	170.4
328	D86-automated	36.4	53.9	93.9	130.8	170.2
335	D86-automated	40.3	54.8	94.7	132.1	167.5
337	D86-automated	38.0	54.6	94.4	131.4	167.0
355	D86-manual	35.545	54.175	93.01 C	130.683	167.815
365	D86-automated	35.6	54.5	94.0	130.7	170.7
381	ISO3405-automated	35.2	54.8	94.4	129.8	169.5
447	D86-automated	35.0	53.8	94.1	130.7	169.3
480	D86-automated	37.85	54.25	94.10	131.00	170.05
541	D86-automated	34.7	53.7	94.0	130.7	171.9
551	D86-automated	37.1	53.5	94.7	131.9	173.2
554	D86-manual	40	55	95	140 R(0.01)	170
555	D86-manual	44 R(0.05)	56 ex	92 R(0.05)	125 R(0.01)	165 ex
557	D86-automated	38.4	55.1	96.5 R(0.05)	135.4 R(0.01)	177.0
558	D86-manual	40.0	55.0	94.0	135.0 R(0.01)	170.0
562		-----	-----	-----	-----	-----
603	D86-automated	38.1	55.2	95.2	137.1 C, R(0.01)	170.1
631	D86-manual	31.0	52.5	93.5	131.5	173.5
633	D86-automated	40.6	54.8	94.9	132.3	173.3
634	D86	37.6	55.3	95.8	135.2 R(0.01)	171.1
657	D86-automated	37.6	55.0	94.8	131.2	171.5
663		35.40	54.65	94.45	130.85	169.55
671		-----	-----	-----	-----	-----
753	D86-manual	37.5	54.5	94.5	131.0	171.0
754	D86-automated	33.6	54.2	94.7	130.9	173.6
823	D86-automated	35.6	55.3	94.5	131.4	169.4
845		-----	-----	-----	-----	-----
846	GB/T6536	37.4	54.6	94.7	131.4	172.6
854		-----	-----	-----	-----	-----
856	D86	35.6	54.3	93.8	130.6	172.4
861		-----	-----	-----	-----	-----
862	D86-manual	36.1	54.5	94.8	130.8	172.0
864	D86	36.2	54.6	95.8	131.8	172
872	D86	37.5	54.5	94.0	132.5	170.5
912	D86	36	54	93	129	171
913		-----	-----	-----	-----	-----
914		-----	-----	-----	-----	-----
922	D86-manual	35.5	54.5	94.5	132.0	169.0
962	D86-automated	33.6	52.0	93.2	130.0	170.7
963	D86-automated	37.5	55.6	94.7	130.2	170.4
970	D86-automated	38.1	55.0 C	94.0 C	130.5 C	172.0 C
971	D86-automated	36.4	54.6	94.2	130.5	172.3
974	D86-automated	36.3	54.4	94.7	131.0	171.8
995	D86-manual	37.0	53.5	94.5	130.0 C	170.0
996	D86-manual	38.0	54.0	95.0	134.0	169.0
1006	D86-automated	37.0	54.7	94.6	131.4	168.8
1012		36.6	54.3	94.3	130.9	171.8

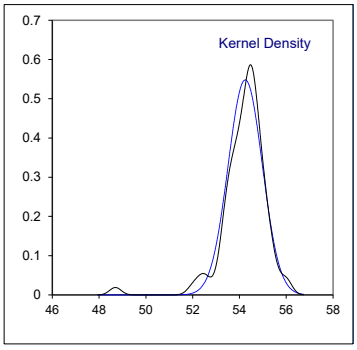
lab	Method	IBP	10% evaporated	50% evaporated	90% evaporated	FBP
1016		-----	-----	-----	-----	-----
1039	ISO3405-automated	34.8	53.7	94.2	130.8	171.4
1066	D86-automated	34.9	54.4	94.7	131.4	169.4
1126	D86-automated	33.9	53.5	94.6	130.6	171.0
1186		-----	-----	-----	-----	-----
1205	D86-automated	35.7	54.4	94.8	131.3	173.4
1297	D86-automated	36.4	53.1	93.8	130.8	171.3
1299	D86-automated	33.7 ex	48.7 R(0.01)	86.2 R(0.01)	140.1 R(0.01)	171.9 ex
1399		37.8	53.3	93.2	130.6	172.9
1498	D86-automated	35.5	53.9	94.4	131.2	172.8
1531	D86-automated	33.4	54.4	94.4	130.4	169.6
1585	D86-automated	36.5	54.7	94.7	131.4	173.5
1730		-----	-----	-----	-----	-----
1740	ISO3405-automated	37.8	54.1	94.1	130.5	171.3
1746	D86-manual	36.5	53.5	94.0	132.0	172.0
1807	ISO3405-automated	31.6	53.5	93.0	129.5	166.6
1857	D86-automated	36.7	55.4	94.6	130.6	169.3
1862	D86-automated	36.3	53.7	94.1	131.0	171.2
1984	ISO3405-automated	34.9	54.2	94.7	131.5	173.8
6049	D86-automated	33.8	53.4	94.0	130.7	168.0
6142	ISO3405-automated	33.1	54.1	93.8	131.8	169.2
6143		-----	-----	-----	-----	-----
6163		-----	-----	-----	-----	-----
6172		-----	-----	-----	-----	-----
6266	D86	37.1	54.7	94.8	130.8	172.5
6404	D86-automated	34.4	54.4	94.7	132.4	171.5
6416	D86-automated	35.1	53.6	93.8	132.4	169.2
6447		-----	-----	-----	-----	-----
	normality	OK	OK	OK	not OK	OK
	n	83	83	82	76	82
	outliers	1 + 1ex	1 + 1ex	3	9	0 + 2ex
	mean (n)	36.07	54.25	94.34	131.03	170.93
	st.dev. (n)	2.015	0.728	0.613	0.842	2.096
	R(calc.)	5.64	2.04	1.72	2.36	5.87
	st.dev.(D86-A:23)	1.679	1.420	1.331	1.899	2.536
	R(D86-A:23)	4.7	3.98	3.73	5.32	7.1
Compare						
	R(D86-M:23)	4.49	3.35	3.08	3.84	4.78

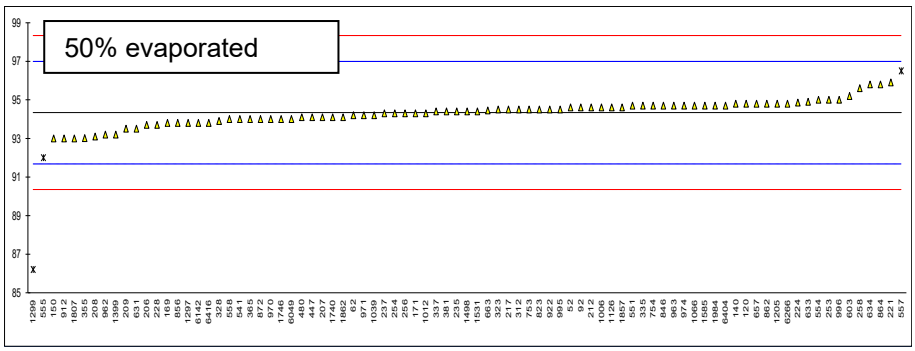
Lab 237 first reported 92.5 (50%); 127.4 (90%)
Lab 323 first reported 55.0 (10%); 95.5 (50%); 133.8 (90%)
Lab 355 first reported 91.928 (50%)
Lab 603 first reported 134.4 (90%)
Lab 970 first reported 59.9 (10%), 92.6 (50%), 126.7 (90%), 168.5 (FBP)
Lab 995 first reported 135.0 (90%)

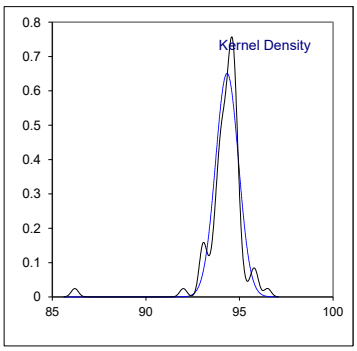

Initial Boiling Point

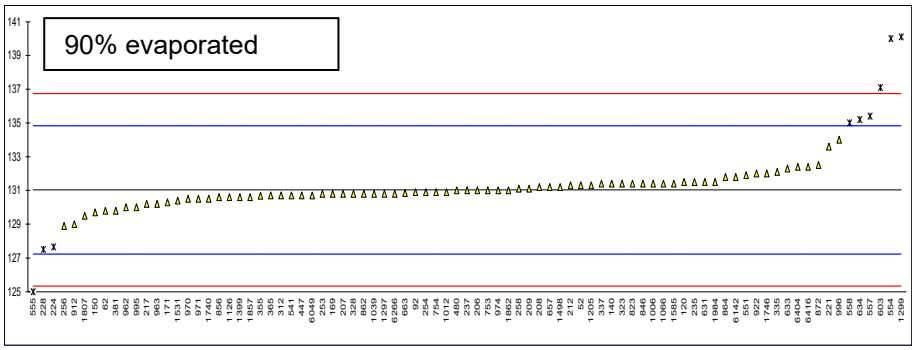

Kernel Density

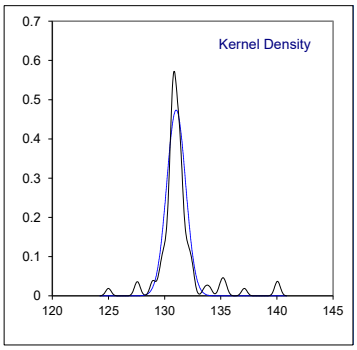

10% evaporated

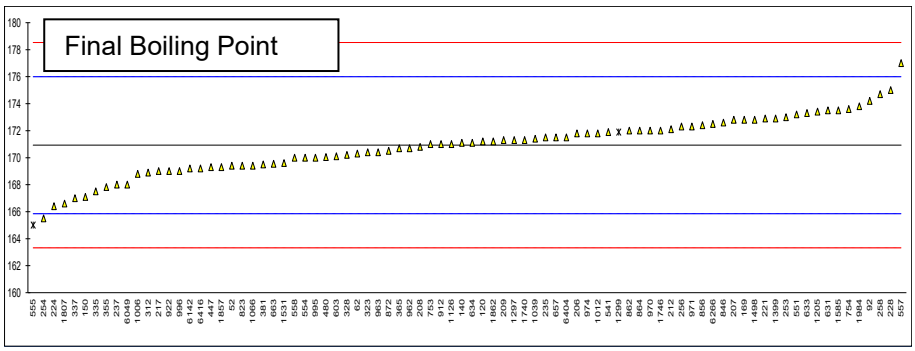

Kernel Density

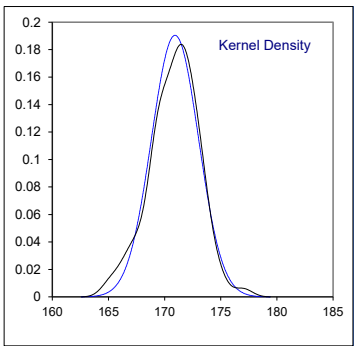

50% evaporated


Kernel Density


90% evaporated


Kernel Density


Final Boiling Point


Kernel Density

Determination of Doctor Test on sample #23025;

lab	method	value	mark	z(targ)	remarks
52	D4952	Negative		-----	
62		-----		-----	
92	D4952	Neg		-----	
120	D4952	Negative		-----	
140	D4952	Negative		-----	
150	D4952	Negative		-----	
158	D4952	Negative		-----	
159		-----		-----	
169		-----		-----	
171	D4952	Negative		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217	D4952	negative		-----	
221		-----		-----	
224		-----		-----	
225	D4952	Négative		-----	
228	D4952	Negative		-----	
235	D4952	negative		-----	
237	D4952	NEGATIVE		-----	
238	D4952	Negative		-----	
253		-----		-----	
254	D4952	Negative		-----	
256	D4952	NEGATIVE		-----	
258	D4952	Negative		-----	
312		-----		-----	
323	D4952	Neg		-----	
328	D4952	negative		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D4952	Sweet [negative]		-----	
480		-----		-----	
541		-----		-----	
551	D4952	Negative		-----	
554		-----		-----	
555		-----		-----	
557	D4952	Negative		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
633		-----		-----	
634		-----		-----	
657	IP30	Negative		-----	
663	D4952	Negative		-----	
671		-----		-----	
753		-----		-----	
754	D4952	negative		-----	
823	D4952	Negative		-----	
845		-----		-----	
846	NB/SH/T0174	negative		-----	
854		-----		-----	
856	IP30	Negative		-----	
861		-----		-----	
862	D4952	Negative		-----	
864	IP30	pass		-----	
872		-----		-----	
912	D4952	Negative		-----	
913		-----		-----	
914		-----		-----	
922	D4952	Negative		-----	
962	D4952	Negative		-----	
963	D4952	Negative		-----	
970	D4952	Nagative		-----	
971	D4952	Negative		-----	
974	D4952	Negative		-----	
995	IP30	negative		-----	
996	D4952	negative		-----	
1006		-----		-----	
1012		-----		-----	

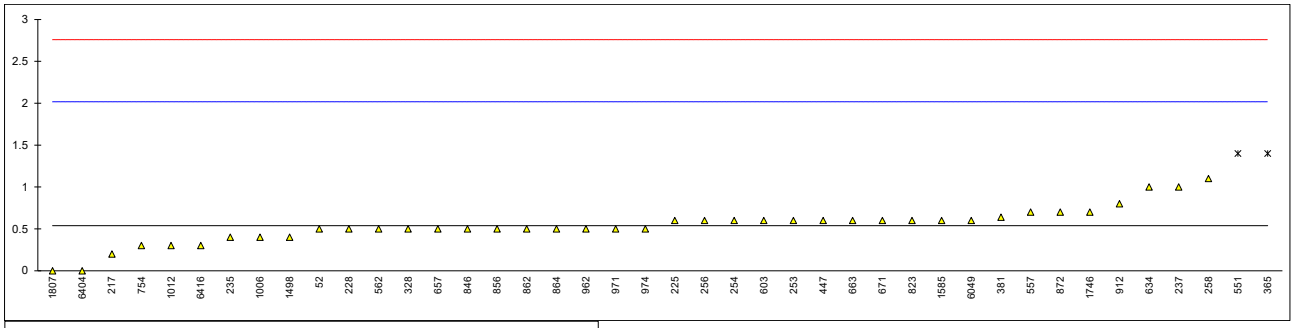
lab	method	value	mark	z(targ)	remarks
1016	D4952	neg		-----	
1039	D4952	negative		-----	
1066	D4952	negative		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297	D4952	NEGATIVE		-----	
1299		-----		-----	
1399	IP30	Negative		-----	
1498		-----		-----	
1531		-----		-----	
1585	IP30	negative		-----	
1730		-----		-----	
1740		-----		-----	
1746	D4952	negative		-----	
1807	D4952	negative		-----	
1857		-----		-----	
1862	D4952	negative		-----	
1984		-----		-----	
6049	IP30	Negative		-----	
6142	IP30	Negative		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266	D4952	Negative		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	
	n	50			
	mean (n)	negative			

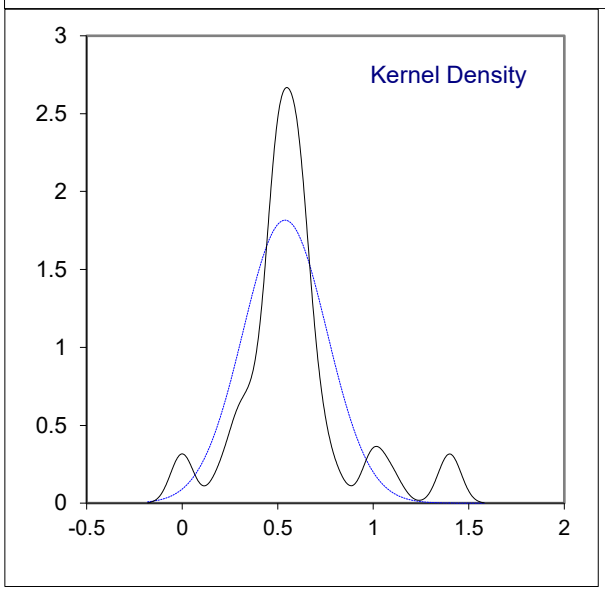
Determination of Gum (solvent washed) on sample #23025; results in mg/100 mL

lab	method	value	mark	z(targ)	remarks
52	D381	0.5		-0.05	
62	D381	<0.5		-----	
92		-----		-----	
120		-----		-----	
140	D381	<0.5		-----	
150	D381	<0.5		-----	
158	D381	<0.5		-----	
159		-----		-----	
169	D381	<0.5		-----	
171		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217	D381	0.2		-0.46	
221	D381	<0.5		-----	
224		-----		-----	
225	D381	0.6		0.08	
228	D381	0.5		-0.05	
235	D381	0.4		-0.19	
237	D381	1.0		0.62	
238		-----		-----	
253	IP540	0.60		0.08	
254	D381	0.6		0.08	
256	D381	0.60		0.08	
258	D381	1.1		0.76	
312	D381	<0.5		-----	
323	D381	< 0.5		-----	
328	D381	0.5		-0.05	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365	IP131	1.4	R(0.05)	1.16	
381	ISO6246	0.64	C	0.14	first reported 2
447	D381	0.6		0.08	
480		-----		-----	
541	D381	<0.5		-----	
551	D381	1.4	R(0.05)	1.16	
554		-----		-----	
555		-----		-----	
557	D381	0.7000		0.22	
558		-----		-----	
562	D381	0.5		-0.05	
603	D381	0.6		0.08	
631	D381	<0.5		-----	
633	D381	<1		-----	
634	D381	1		0.62	
657	D381	0.5		-0.05	
663	D381	0.6		0.08	
671	D381	0.6		0.08	
753		-----		-----	
754	D381	0.3		-0.32	
823	D381	0.6		0.08	
845		-----		-----	
846	GB/T8019	0.5		-0.05	
854		-----		-----	
856	D381	0.5		-0.05	
861		-----		-----	
862	D381	0.5		-0.05	
864	GB/T8019	0.5		-0.05	
872	D381	0.7		0.22	
912	D381	0.80		0.35	
913		-----		-----	
914		-----		-----	
922	D381	<0.5		-----	
962	D381	0.5		-0.05	
963	D381	<0.5		-----	
970	D381	<0.5		-----	
971	D381	0.5		-0.05	
974	D381	0.5		-0.05	
995		-----		-----	
996		-----		-----	
1006	D381	0.4		-0.19	
1012	D381	0.3		-0.32	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039	ISO6246	<1		-----	
1066		-----		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299	D381	<0.5		-----	
1399		-----		-----	
1498	D381	0.4		-0.19	
1531		-----		-----	
1585	D381	0.60		0.08	
1730		-----		-----	
1740		-----		-----	
1746	D381	0.7		0.22	
1807	ISO6246	0		-0.73	
1857	D381	<0.5		-----	
1862		-----		-----	
1984		-----		-----	
6049	D381	0.6		0.08	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404	ISO6246	0.0		-0.73	
6416	D381	0.3		-0.32	
6447		-----		-----	

normality	suspect
n	40
outliers	2
mean (n)	0.539
st.dev. (n)	0.2196
R(calc.)	0.615
st.dev.(D381:22)	0.7398
R(D381:22)	2.071





Determination of Lead as Pb on sample #23025; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3237	<2.5		-----	
62		-----		-----	
92		-----		-----	
120		-----		-----	
140	D3237	<2.5		-----	
150	D3237	>0.100		-----	
158	D3237	<2.5		-----	
159		-----		-----	
169		-----		-----	
171	D3237	<2.5		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237	IP352	<2.5		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D3237	<2.5		-----	
323	D3237	< 2.5		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	EN237	<2,5		-----	
447	IP428	1.1		-----	
480		-----		-----	
541		-----		-----	
551	INH-2047	<0.16		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D3237	<2.5		-----	
633		-----		-----	
634		-----		-----	
657	D3237	<2.5		-----	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D3237	<2.5		-----	
845		-----		-----	
846	GB/T8020	<2.5		-----	
854		-----		-----	
856	D3237	<2.5		-----	
861		-----		-----	
862	D3237	<2.5		-----	
864	D3237	<2.5		-----	
872		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922	D3237	<2.5		-----	
962	D3237	<2.5		-----	
963		-----		-----	
970		-----		-----	
971	D3237	<2.5		-----	
974		-----		-----	
995	D3237	<2.50		-----	
996		-----		-----	
1006	D3237	<2.5		-----	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039		-----		-----	
1066		-----		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299	EN237	<0.0025		-----	
1399		<0.29		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746	D3237	1.6		-----	
1807		-----		-----	
1857	EN237	<2.5		-----	
1862	EN237	<2.5		-----	
1984		-----		-----	
6049	EN237	<3		-----	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	
	n	27			
	mean (n)	<2.5			

Determination of Manganese as Mn on sample #23025; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3831	<0.25		-----	
62		-----		-----	
92		-----		-----	
120		-----		-----	
140	D3831	0.6		-----	
150		-----		-----	
158		<0.25		-----	
159		-----		-----	
169		-----		-----	
171	D3831	<0.25		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237	EN16136	<0.5		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D3831	<0.25		-----	
323	D3831	< 0.25		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	EN16135	<2,0		-----	
447	IP588	0		-----	
480		-----		-----	
541		-----		-----	
551	INH-2047	<0.023		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
633		-----		-----	
634		-----		-----	
657	D3831	<0.25		-----	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D3831	<0.5		-----	
845		-----		-----	
846	SH/T0713	<0.25		-----	
854		-----		-----	
856	D3831	<0.25		-----	
861		-----		-----	
862	D3831	<0.25		-----	
864	D3831	<0.25		-----	
872		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922	D3831	<0.25		-----	
962	D3831	<0.25		-----	
963		-----		-----	
970		-----		-----	
971	D3831	<0.5		-----	
974		-----		-----	
995		-----		-----	
996		-----		-----	
1006		-----		-----	
1012		-----		-----	

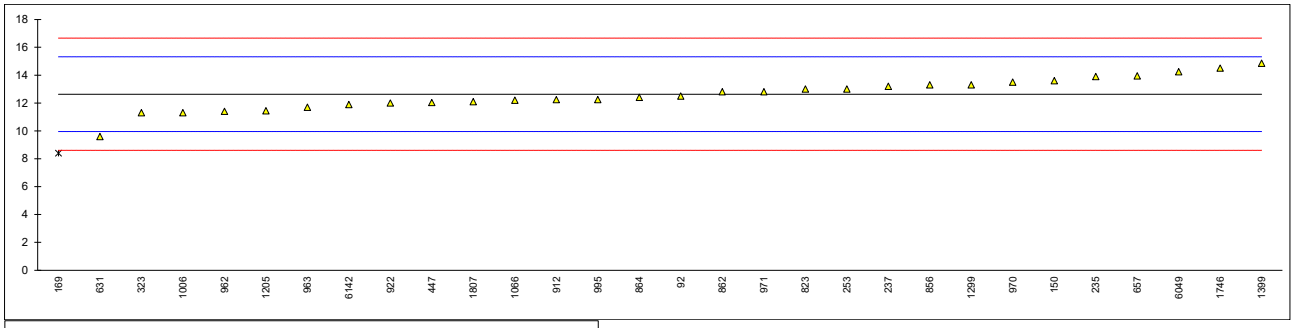
lab	method	value	mark	z(targ)	remarks
1016	EN16136	0.137		-----	
1039		-----		-----	
1066		-----		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299	EN16135	<2.0		-----	
1399		<0.26		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746		-----		-----	
1807		-----		-----	
1857	D3831	<0.25		-----	
1862		-----		-----	
1984		-----		-----	
6049	EN16136	<0.5		-----	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	
	n	16			
	mean (n)	<0.25			ASTM D3831:22 range 0.25 – 40 mg/L

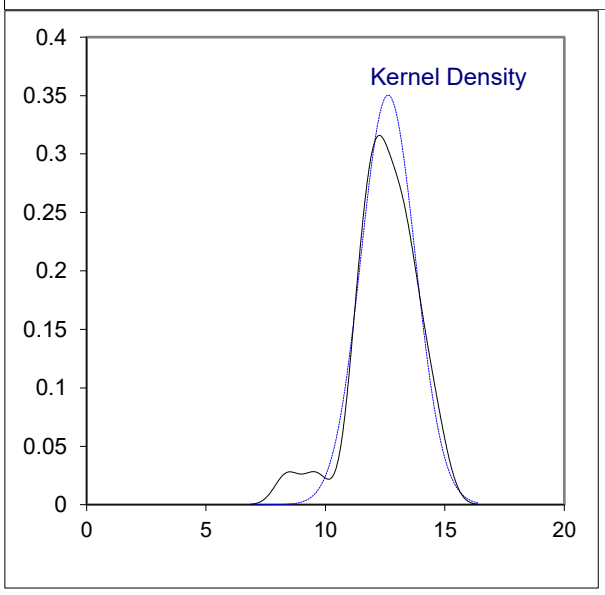
Determination of Olefins by FIA (without oxygenates correction) on sample #23025; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62		-----		-----	
92	D1319	12.5		-0.10	
120		-----		-----	
140		-----		-----	
150	D1319	13.6		0.72	
158		-----		-----	
159		-----		-----	
169	D1319	8.4	C,R(0.05)	-3.15	first reported 7.4
171		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235	D1319	13.9		0.95	
237	D1319	13.2		0.42	
238		-----		-----	
253	D1319	13.0		0.27	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312		-----		-----	
323	D1319	11.3		-0.99	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D1319	12.03		-0.45	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D1319	9.6		-2.26	
633		-----		-----	
634		-----		-----	
657	D1319	13.95		0.98	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D1319	13.0		0.27	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D1319	13.3		0.50	
861		-----		-----	
862	D1319	12.8		0.13	
864	GB/T11132	12.4		-0.17	
872		-----		-----	
912	D1319	12.24		-0.29	
913		-----		-----	
914		-----		-----	
922	D1319	12.0		-0.47	
962	D1319	11.4		-0.92	
963	D1319	11.7		-0.69	
970	D1319	13.5		0.65	
971	D1319	12.8		0.13	
974		-----		-----	
995	D1319	12.25		-0.28	
996		-----		-----	
1006		11.3		-0.99	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039		-----		-----	
1066	D1319	12.2		-0.32	
1126		-----		-----	
1186		-----		-----	
1205	D8071	11.450		-0.88	
1297		-----		-----	
1299	D1319	13.3		0.50	
1399	D1319	14.855		1.66	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746	D1319	14.5		1.39	
1807	ISO22854	12.1		-0.40	
1857		-----		-----	
1862		-----		-----	
1984		-----		-----	
6049	D1319	14.24		1.20	
6142	ISO22854	11.89		-0.55	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	

normality	OK
n	29
outliers	1
mean (n)	12.631
st.dev. (n)	1.1382
R(calc.)	3.187
st.dev.(D1319:20a)	1.3413
R(D1319:20a)	3.756





Determination of Oxidation Stability on sample #23025; results in minutes

lab	method	value	mark	z(targ)	remarks
52	D525	>480		-----	
62	D525	>240		-----	
92		-----		-----	
120		-----		-----	
140	D525	>900		-----	
150		-----		-----	
158	D525	>900		-----	
159		-----		-----	
169		-----		-----	
171	D525	>240		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225	D525	> 900		-----	
228	D525	>900		-----	
235		-----		-----	
237	D525	>900		-----	
238		-----		-----	
253		-----		-----	
254	D525	>900		-----	
256	D525	>900		-----	
258		-----		-----	
312	D525	>900		-----	
323	D525	>900		-----	
328	D525	>600		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447	D525	>900		-----	
480		-----		-----	
541		-----		-----	
551	D525	>240		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D525	>360		-----	
633		-----		-----	
634		-----		-----	
657	D525	>900		-----	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D525	>900		-----	
845		-----		-----	
846	GB/T8018	>900		-----	
854		-----		-----	
856	D525	>900		-----	
861		-----		-----	
862	D525	>900		-----	
864	GB/T8018	>480		-----	
872		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922	D525	>360		-----	
962	D525	>360		-----	
963	D525	>480		-----	
970	D525	>360		-----	
971	D525	>900		-----	
974		-----		-----	
995	D525	>900		-----	
996		-----		-----	
1006		-----		-----	
1012		-----		-----	

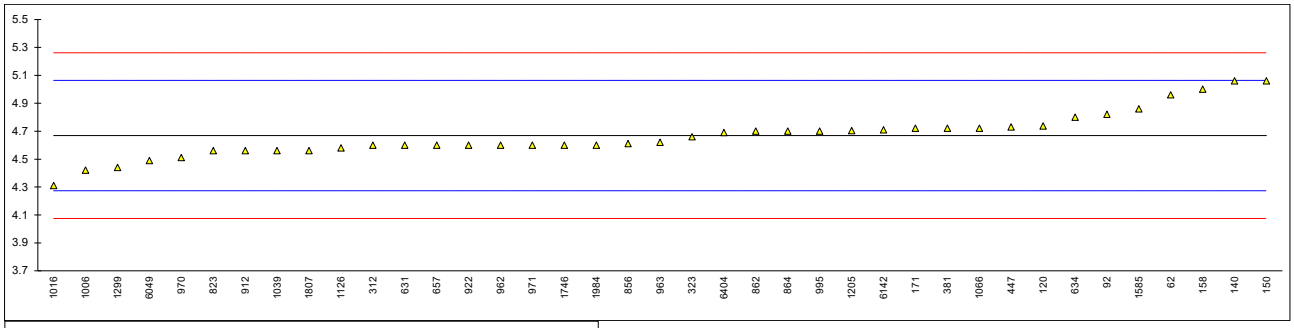
lab	method	value	mark	z(targ)	remarks
1016	D525	>480		-----	
1039	ISO7536	>900		-----	
1066		-----		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299	D525	>900		-----	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746		-----		-----	
1807	D525	>380		-----	
1857	D525	>1200		-----	
1862		-----		-----	
1984		-----		-----	
6049	D525	>900		-----	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	
	n	34			
	mean (n)	>240			

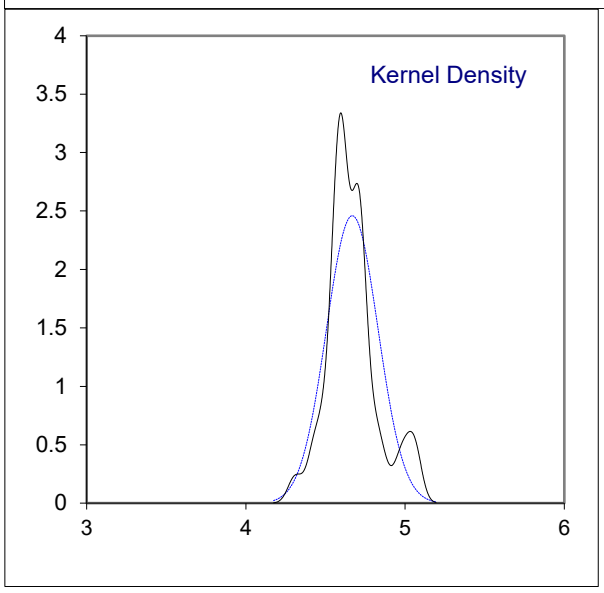
Determination of Ethanol on sample #23025; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	CAN/CGSB-3.0 NO14.3	4.96		1.47	
92	CAN/CGSB	4.82		0.77	
120	D5599	4.737		0.35	
140	D5599	5.06		1.98	
150	D5599	5.06		1.98	
158		5.00		1.68	
159		-----		-----	
169		-----		-----	
171	D4815	4.72		0.26	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D4815	4.6		-0.35	
323	ISO22854-A	4.66		-0.04	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	ISO22854-A	4.72		0.26	
447	IP466	4.73		0.31	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5845	4.6		-0.35	
633		-----		-----	
634	D5845	4.8		0.67	
657	D4815	4.60		-0.35	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D4815	4.56		-0.55	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D4815	4.61		-0.30	
861		-----		-----	
862	D4815	4.70		0.16	
864	D4815	4.7		0.16	
872		-----		-----	
912	D4815	4.56		-0.55	
913		-----		-----	
914		-----		-----	
922	D4815	4.6		-0.35	
962	D4815	4.60		-0.35	
963	D4815	4.62		-0.25	
970	D4815	4.51		-0.80	
971	D4815	4.6		-0.35	
974		-----		-----	
995	EN13132	4.7		0.16	
996		-----		-----	
1006	D4815	4.42		-1.26	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016	ISO22854-A	4.31		-1.81	
1039	ISO22854-A	4.56		-0.55	
1066	ISO22854-A	4.72		0.26	
1126		4.58		-0.45	
1186		-----		-----	
1205	D8071	4.704		0.18	
1297		-----		-----	
1299	ISO22854-A	4.44		-1.16	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN13132	4.86		0.97	
1730		-----		-----	
1740		-----		-----	
1746	D4815	4.60		-0.35	
1807	ISO22854-A	4.56		-0.55	
1857		-----		-----	
1862		-----		-----	
1984	EN13132	4.6		-0.35	
6049	ISO22854-A	4.49		-0.90	
6142		4.71		0.21	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404	ISO22854-A	4.69		0.11	
6416		-----		-----	
6447		-----		-----	

normality	OK
n	39
outliers	0
mean (n)	4.668
st.dev. (n)	0.1621
R(calc.)	0.454
st.dev.(D4815:22)	0.1977
R(D4815:22)	0.554



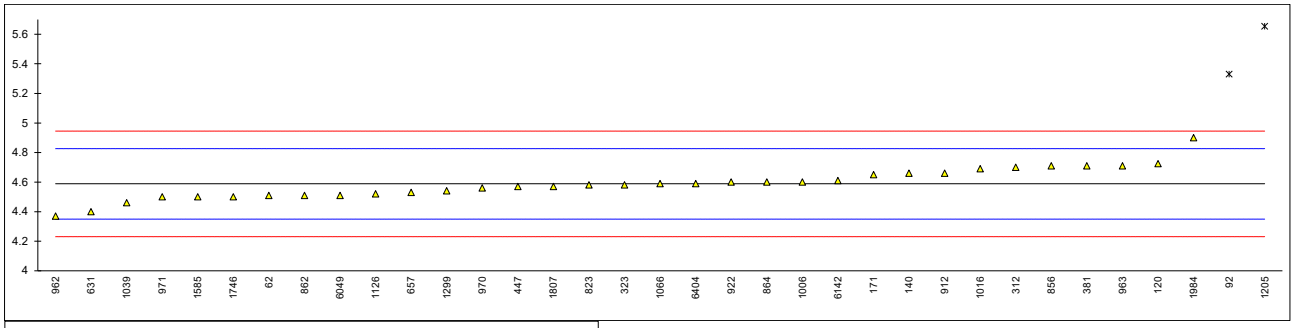


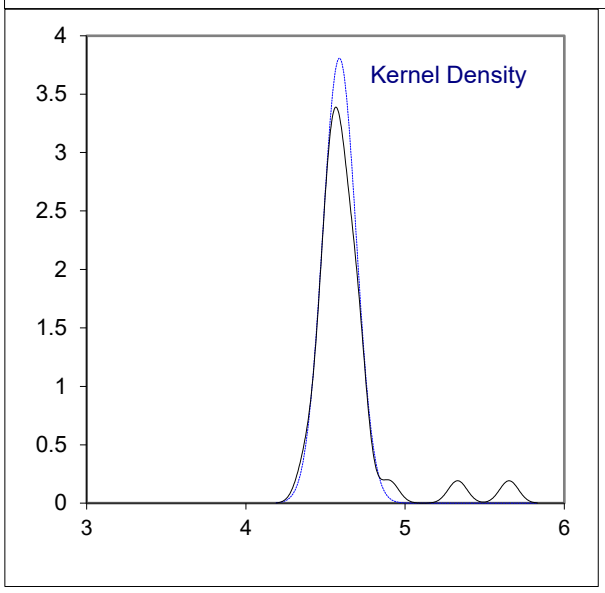
Determination of MTBE on sample #23025; results in %V/V

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	CAN/CGSB-3.0 NO 14.3	4.51		-0.66	
92	CAN/CGSB	5.33	R(0.01)	6.24	
120	D5599	4.724		1.14	
140	D5599	4.66		0.60	
150	D5599	<0.10		<-37.74	possibly a false negative test result?
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D4815	4.65		0.52	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D4815	4.7		0.94	
323	ISO22854-A	4.58		-0.07	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	ISO22854-A	4.71		1.02	
447	IP466	4.57		-0.15	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5845	4.40	C	-1.58	first reported 4.1
633		-----		-----	
634		-----		-----	
657	D4815	4.53		-0.49	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D4815	4.58		-0.07	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D4815	4.71		1.02	
861		-----		-----	
862	D4815	4.51		-0.66	
864	D4815	4.6		0.10	
872		-----		-----	
912	D4815	4.66		0.60	
913		-----		-----	
914		-----		-----	
922	D4815	4.6		0.10	
962	D4815	4.37		-1.84	
963	D4815	4.71		1.02	
970	D4815	4.56	C	-0.24	first reported 5.02
971	D4815	4.5		-0.74	
974		-----		-----	
995		-----		-----	
996		-----		-----	
1006	D4815	4.60		0.10	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016	ISO22854-A	4.69		0.86	
1039	ISO22854-A	4.46		-1.08	
1066	ISO22854-A	4.59		0.01	
1126		4.52		-0.57	
1186		-----		-----	
1205	D8071	5.653	R(0.01)	8.95	
1297		-----		-----	
1299	ISO22854-A	4.54		-0.41	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN13132	4.50		-0.74	
1730		-----		-----	
1740		-----		-----	
1746	D4815	4.50		-0.74	
1807	ISO22854-A	4.57		-0.15	
1857		-----		-----	
1862		-----		-----	
1984	EN13132	4.9		2.62	
6049	ISO22854-A	4.51		-0.66	
6142		4.61		0.18	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404	ISO22854-A	4.59		0.01	
6416		-----		-----	
6447		-----		-----	

normality	suspect
n	33
outliers	2
mean (n)	4.588
st.dev. (n)	0.1048
R(calc.)	0.293
st.dev.(D4815:22)	0.1189
R(D4815:22)	0.333



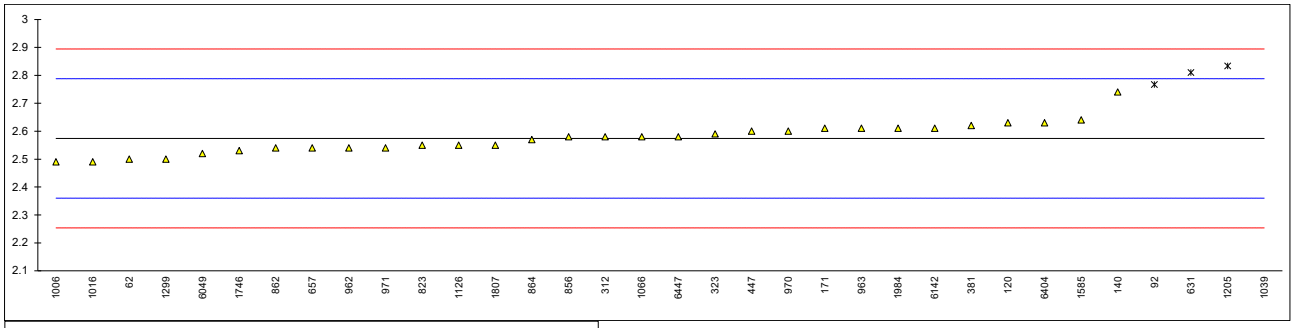


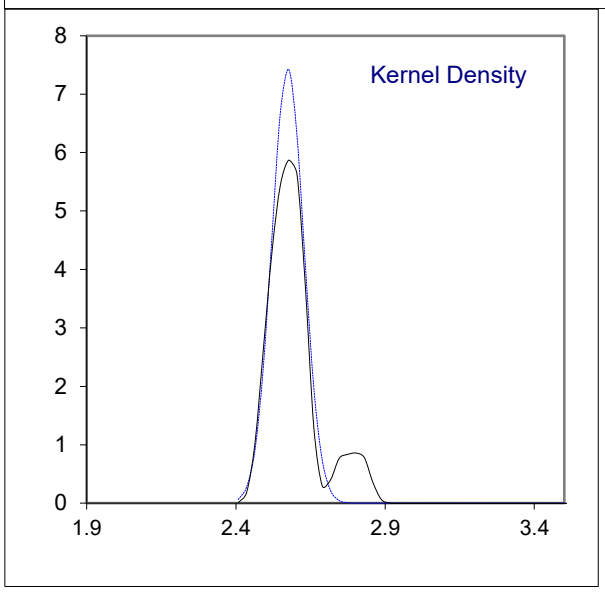
Determination of Oxygen content on sample #23025; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		-----		-----	
62	CAN/CGSB-3.0 NO 14.3	2.5		-0.69	
92	CAN/CGSB	2.767	R(0.05)	1.81	
120	D5599	2.63		0.52	
140	D5599	2.74		1.55	
150		-----		-----	
158		-----		-----	
159		-----		-----	
169		-----		-----	
171	D4815	2.61		0.34	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D4815	2.58		0.06	
323	ISO22854	2.59		0.15	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381	ISO22854	2.62		0.43	
447	IP466	2.60		0.24	
480		-----		-----	
541		-----		-----	
551		-----		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D5845	2.81	R(0.05)	2.21	
633		-----		-----	
634		-----		-----	
657	D4815	2.54		-0.32	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754		-----		-----	
823	D4815	2.55		-0.22	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D4815	2.58		0.06	
861		-----		-----	
862	D4815	2.54		-0.32	
864	D4815	2.57		-0.04	
872		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922		-----		-----	
962	D4815	2.54		-0.32	
963	D4815	2.61		0.34	
970	D4815	2.60		0.24	
971	D4815	2.54		-0.32	
974		-----		-----	
995		-----		-----	
996		-----		-----	
1006	D4815	2.49		-0.79	
1012		-----		-----	

lab	method	value	mark	z(targ)	remarks
1016	ISO22854	2.49		-0.79	
1039	ISO22854	9.51	R(0.01)	64.95	
1066	ISO22854	2.58		0.06	
1126	ISO22854	2.55		-0.22	
1186		-----		-----	
1205	D8071	2.833	R(0.05)	2.43	
1297		-----		-----	
1299	ISO22854	2.5		-0.69	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585	EN13132	2.64		0.62	
1730		-----		-----	
1740		-----		-----	
1746	D4815	2.53		-0.41	
1807	ISO22854	2.55		-0.22	
1857		-----		-----	
1862		-----		-----	
1984	EN13132	2.61		0.34	
6049	ISO22854	2.52		-0.51	
6142	ISO22854	2.61		0.34	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404	ISO22854	2.63		0.52	
6416		-----		-----	
6447	D5622	2.58		0.06	

normality	suspect
n	30
outliers	4
mean (n)	2.574
st.dev. (n)	0.0537
R(calc.)	0.150
st.dev.(D4815:22)	0.1068
R(D4815:22)	0.299





Determination of Phosphorus as P on sample #23025; results in mg/L

lab	method	value	mark	z(targ)	remarks
52	D3231	<0.20		-----	
62		-----		-----	
92		-----		-----	
120		-----		-----	
140	D3231	<0.20		-----	
150	D3231	<0.2		-----	
158	D3231	<0.20		-----	
159		-----		-----	
169		-----		-----	
171		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235		-----		-----	
237		-----		-----	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256		-----		-----	
258		-----		-----	
312	D3231	<0.2		-----	
323		-----		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
355		-----		-----	
365		-----		-----	
381		-----		-----	
447		-----		-----	
480		-----		-----	
541		-----		-----	
551	INH-2047	<0.04		-----	
554		-----		-----	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631		-----		-----	
633		-----		-----	
634		-----		-----	
657	D3231	<0.2		-----	
663		-----		-----	
671		-----		-----	
753		-----		-----	
754	D3231	0.017		-----	
823	D3231	<0.20		-----	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856		-----		-----	
861		-----		-----	
862	D3231	<0.2		-----	
864	D5185	<0.20		-----	
872		-----		-----	
912		-----		-----	
913		-----		-----	
914		-----		-----	
922		-----		-----	
962	D3231	<0.2		-----	
963		-----		-----	
970		-----		-----	
971		-----		-----	
974		-----		-----	
995		-----		-----	
996		-----		-----	
1006		-----		-----	
1012		-----		-----	

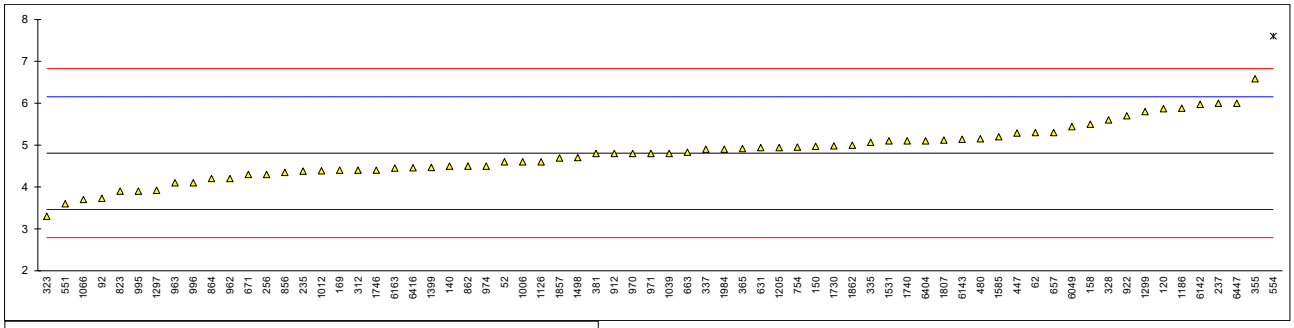
lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039		-----		-----	
1066		-----		-----	
1126		-----		-----	
1186		-----		-----	
1205		-----		-----	
1297		-----		-----	
1299		-----		-----	
1399		-----		-----	
1498		-----		-----	
1531		-----		-----	
1585		-----		-----	
1730		-----		-----	
1740		-----		-----	
1746		-----		-----	
1807		-----		-----	
1857		-----		-----	
1862		-----		-----	
1984		-----		-----	
6049		-----		-----	
6142		-----		-----	
6143		-----		-----	
6163		-----		-----	
6172		-----		-----	
6266		-----		-----	
6404		-----		-----	
6416		-----		-----	
6447		-----		-----	
	n	12			
	mean (n)	<0.20			

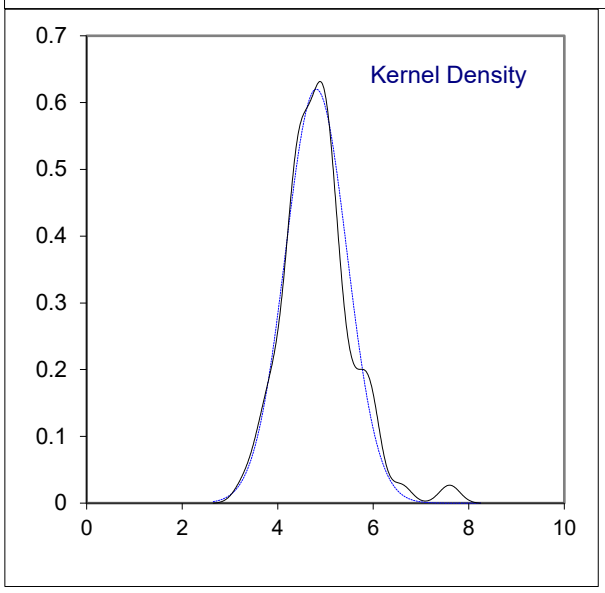
Determination of Total Sulfur on sample #23025; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	4.6		-0.31	
62	D5453	5.3		0.73	
92	D5453	3.728		-1.61	
120	D2622	5.87		1.58	
140	D5453	4.5		-0.46	
150	D2622	4.97		0.24	
158	D2622	5.5		1.03	
159		-----		-----	
169	D5453	4.4		-0.61	
171		-----		-----	
206		-----		-----	
207		-----		-----	
208		-----		-----	
209		-----		-----	
212		-----		-----	
217		-----		-----	
221		-----		-----	
224		-----		-----	
225		-----		-----	
228		-----		-----	
235	D5453	4.377		-0.64	
237	D5453	6.0		1.77	
238		-----		-----	
253		-----		-----	
254		-----		-----	
256	D5453	4.30		-0.76	
258		-----		-----	
312	D2622	4.4		-0.61	
323	D5453	3.3		-2.24	
328	D5453	5.6		1.18	
335	D5453	5.069		0.39	
337	D5453	4.9		0.14	
355	D2622	6.585		2.64	
365	ISO20846	4.919		0.16	
381	ISO20846	4.8		-0.01	
447	IP490	5.29		0.72	
480	ISO20846	5.15		0.51	
541		-----		-----	
551	D5453	3.6		-1.80	
554	D7039	7.6	R(0.01)	4.15	
555		-----		-----	
557		-----		-----	
558		-----		-----	
562		-----		-----	
603		-----		-----	
631	D4294	4.94		0.20	
633	D4294	<20		-----	
634	D4294	<20		-----	
657	D5453	5.3		0.73	
663	D5453	4.83		0.03	
671	D7039	4.3		-0.76	
753		-----		-----	
754	D5453	4.95		0.21	
823	D5453	3.9		-1.35	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D5453	4.35		-0.68	
861		-----		-----	
862	D5453	4.5		-0.46	
864	SH/T0689	4.2		-0.91	
872		-----		-----	
912	D5453	4.8		-0.01	
913		-----		-----	
914		-----		-----	
922	D5453	5.7		1.33	
962	D5453	4.2		-0.91	
963	D5453	4.1		-1.05	
970	D5453	4.8		-0.01	
971	D5453	4.8		-0.01	
974	D5453	4.5		-0.46	
995	D5453	3.9		-1.35	
996	D5453	4.1		-1.05	
1006	D5453	4.6		-0.31	
1012	D5453	4.386		-0.63	

lab	method	value	mark	z(targ)	remarks
1016		-----		-----	
1039	ISO20846	4.8		-0.01	
1066	D2622	3.7		-1.65	
1126	ISO20846	4.6		-0.31	
1186	D5453	5.88		1.59	
1205	ISO20846	4.94		0.20	
1297	D5453	3.92		-1.32	
1299	ISO20884	5.8		1.47	
1399	D5453	4.465		-0.51	
1498	D5453	4.7		-0.16	
1531	ISO20846	5.1		0.43	
1585	ISO20884	5.2		0.58	
1730	ISO20846	4.98		0.26	
1740	ISO20846	5.1		0.43	
1746	D7039	4.4		-0.61	
1807	ISO20846	5.12		0.46	
1857	D5453	4.69		-0.18	
1862	D5453	5.0		0.28	
1984	ISO20846	4.9		0.14	
6049	D5453	5.44		0.94	
6142	ISO20846	5.97		1.73	
6143	D2622	5.14		0.49	
6163	ISO20846	4.451		-0.53	
6172		-----		-----	
6266		-----		-----	
6404	D5453	5.1		0.43	
6416	D5453	4.457		-0.52	
6447	D2622	6		1.77	

normality	OK
n	67
outliers	1
mean (n)	4.808
st.dev. (n)	0.6433
R(calc.)	1.801
st.dev.(D5453:19a)	0.6723
R(D5453:19a)	1.882

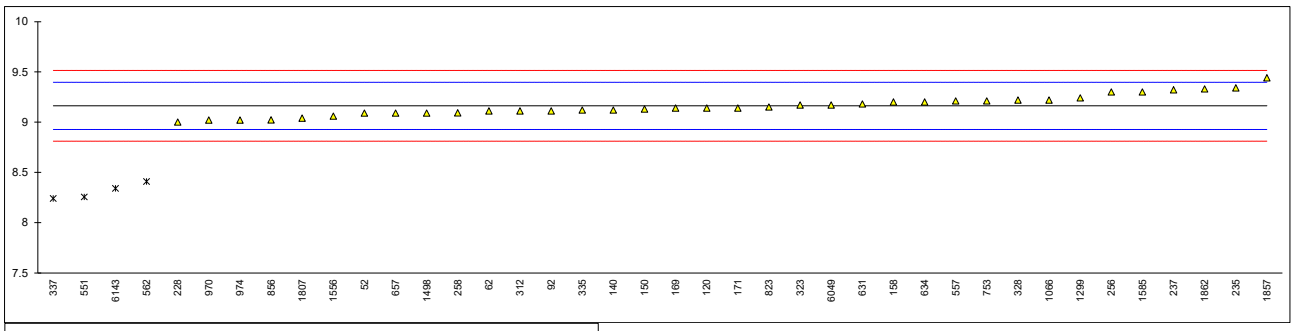


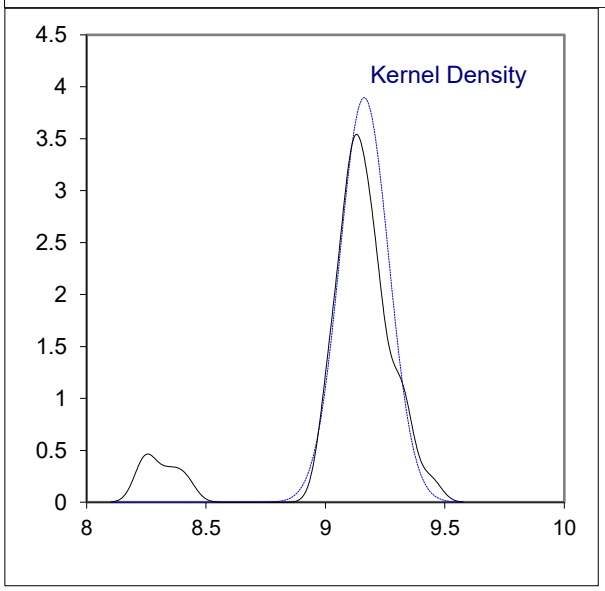


Determination of Total Vapor Pressure on sample #23026; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	9.09	C	-0.62	first reported 56.7 kPa
62	D5191	9.11		-0.45	
92	D5191	9.11		-0.45	
120	D5191	9.14		-0.19	
140	D5191	9.12		-0.36	
150	D5191	9.13		-0.28	
158	D5191	9.20		0.32	
159		-----		-----	
169	D5191	9.14		-0.19	
171	D5191	9.14		-0.19	
225		-----		-----	
228	D5191	9.00		-1.39	
235	D5191	9.34	C	1.52	first reported 66.0 kPa
237	D5191	9.32		1.35	
238		-----		-----	
256	D5191	9.30		1.17	
258	D5191	9.093		-0.59	
312	D5191	9.11		-0.45	
323	D5191	9.17		0.07	
328	D5191	9.22		0.49	
335	D5191	9.12		-0.36	
337	EN13016-1	8.24	R(0.01)	-7.87	
365		-----		-----	
381		-----		-----	
433		-----		-----	
480		-----		-----	
541		-----		-----	
551	D5191	8.255	R(0.01)	-7.74	
557	D5191	9.209896		0.41	
562	D5191	8.41	C,R(0.01)	-6.42	first reported 8.38
603		-----		-----	
631	D5191	9.18		0.15	
633		-----		-----	
634	D5191	9.2		0.32	
657	D5191	9.09		-0.62	
753	D5191	9.21		0.41	
754		-----		-----	
823	D5191	9.15		-0.11	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D5191	9.021		-1.21	
861		-----		-----	
862		-----		-----	
963		-----		-----	
970	D5191	9.02		-1.21	
971		-----		-----	
974	D5191	9.02		-1.21	
1006		-----		-----	
1039		-----		-----	
1066	D5191	9.22		0.49	
1299	D5191	9.24		0.66	
1399		-----		-----	
1498	D5191	9.09		-0.62	
1556	EN13016-1	9.06		-0.87	
1585	D5191	9.30	C	1.17	first reported 9.43
1730		-----		-----	
1746		-----		-----	
1807	EN13016-1	9.04		-1.04	
1857	D5191	9.44		2.37	
1862	D5191	9.33		1.43	
1984		-----		-----	
6049	D5191	9.17		0.07	
6142		-----		-----	
6143	D323	8.34	R(0.01)	-7.02	

normality	OK
n	36
outliers	4
mean (n)	9.162
st.dev. (n)	0.1024
R(calc.)	0.287
st.dev.(D5191:22)	0.1172
R(D5191:22)	0.328

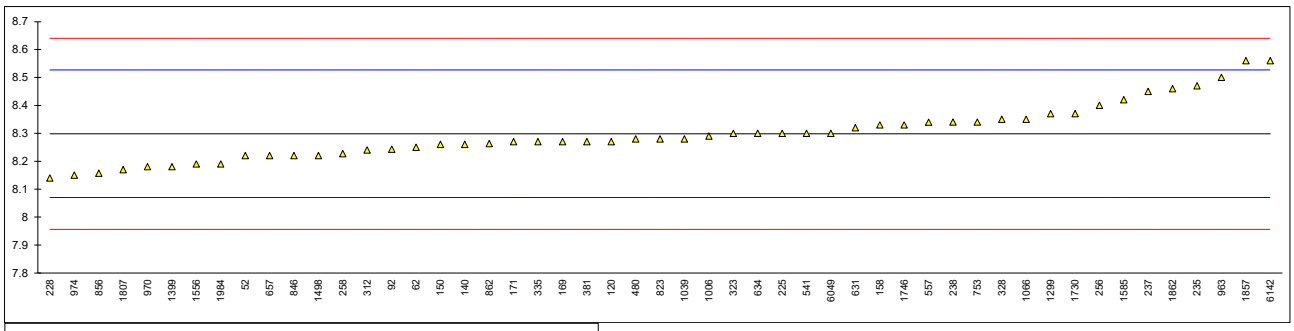

10
9.5
9
8.5
8
7.5
337 551 6143 562 228 970 974 856 1807 1556 52 657 1498 258 62 312 92 335 140 150 169 120 171 823 323 6049 631 158 634 557 753 328 1066 1299 256 1585 237 1862 235 1857

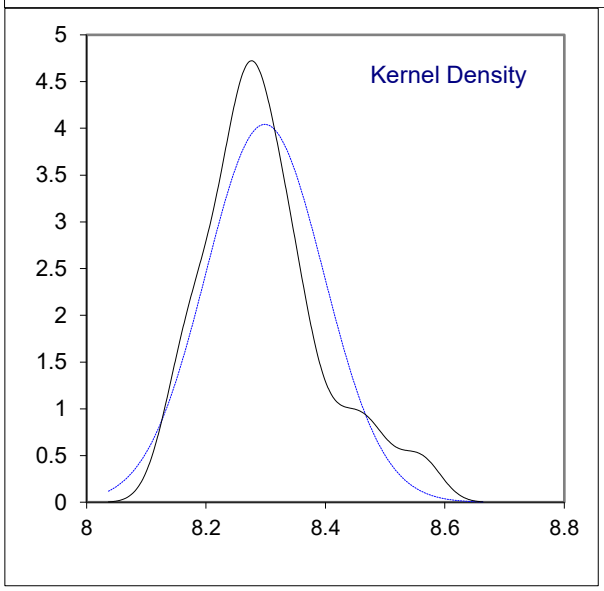

Kernel Density
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
8
8.5
9
9.5
10

Determination of DVPE acc. to ASTM D5191 on sample #23026; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.22	C	-0.69	first reported 62.7 kPa
62	D5191	8.25	C	-0.42	first reported 51.9 kPa
92	D5191	8.243		-0.49	
120	D5191	8.27		-0.25	
140	D5191	8.26		-0.34	
150	D5191	8.26		-0.34	
158	D5191	8.33		0.28	
159		-----		-----	
169	D5191	8.27		-0.25	
171	D5191	8.27		-0.25	
225	D5191	8.30		0.01	
228	D5191	8.14		-1.39	
235	D5191	8.47	C	1.50	first reported 59.9 kPa
237	D5191	8.45		1.33	
238	D5191	8.34		0.36	
256	D5191	8.40		0.89	
258	D5191	8.227		-0.63	
312	D5191	8.24		-0.51	
323	D5191	8.30		0.01	
328	D5191	8.35	C	0.45	first reported 53.6 kPa
335	D5191	8.27		-0.25	
337		-----		-----	
365		-----		-----	
381	EN13016-1	8.27		-0.25	
433		-----		-----	
480	D5191	8.28		-0.16	
541	D6378	8.30		0.01	
551		-----		-----	
557	D5191	8.339670		0.36	
562		-----		-----	
603		-----		-----	
631	D5191	8.32		0.19	
633		-----		-----	
634	D5191	8.3		0.01	
657	D5191	8.22		-0.69	
753	D5191	8.34		0.36	
754		-----		-----	
823	D5191	8.28		-0.16	
845		-----		-----	
846	D5191	8.22		-0.69	
854		-----		-----	
856	D5191	8.157		-1.24	
861		-----		-----	
862	D5191	8.263		-0.31	
963	D5191	8.5		1.77	
970	D5191	8.18		-1.04	
971		-----		-----	
974	D5191	8.15		-1.30	
1006	D5191	8.29		-0.07	
1039	EN13016-1	8.28		-0.16	
1066	D5191	8.35		0.45	
1299	D5191	8.37		0.63	
1399	D5191	8.18		-1.04	
1498	D5191	8.22		-0.69	
1556	EN13016-1	8.19		-0.95	
1585	D5191	8.42	C	1.07	first reported 8.55
1730	EN13016-1	8.37		0.63	
1746	D5191	8.33		0.28	
1807	EN13016-1	8.17		-1.13	
1857	D5191	8.56		2.29	
1862	D5191	8.46		1.42	
1984	EN13016-1	8.19		-0.95	
6049	D5191	8.30		0.01	
6142	EN13016-1	8.56		2.29	
6143		-----		-----	

normality	OK
n	51
outliers	0
mean (n)	8.298
st.dev. (n)	0.0987
R(calc.)	0.276
st.dev.(D5191:22)	0.1141
R(D5191:22)	0.319

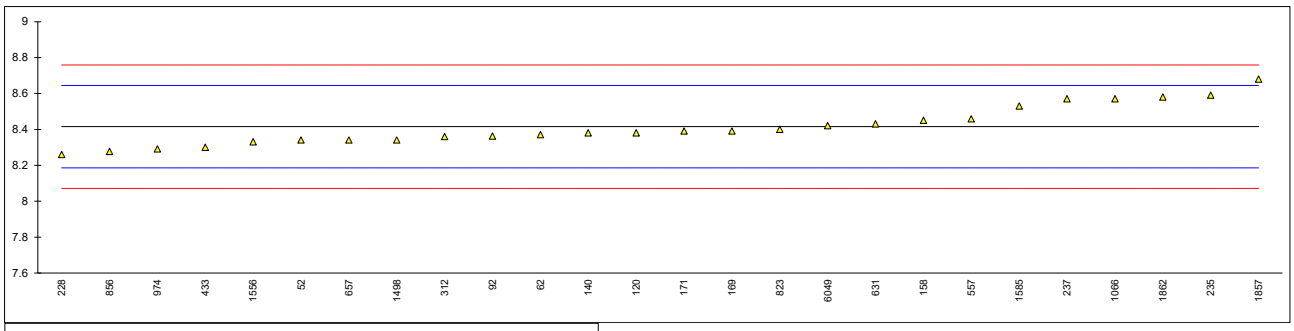

8.7
8.6
8.5
8.4
8.3
8.2
8.1
8
7.9
7.8
228 974 856 1807 970 1399 1556 1984 52 657 846 1498 258 312 92 62 150 140 862 171 335 169 381 120 480 823 1039 1006 323 634 225 541 6049 631 158 1746 557 238 753 328 1066 1299 1730 256 1585 237 1862 235 963 1857 6142

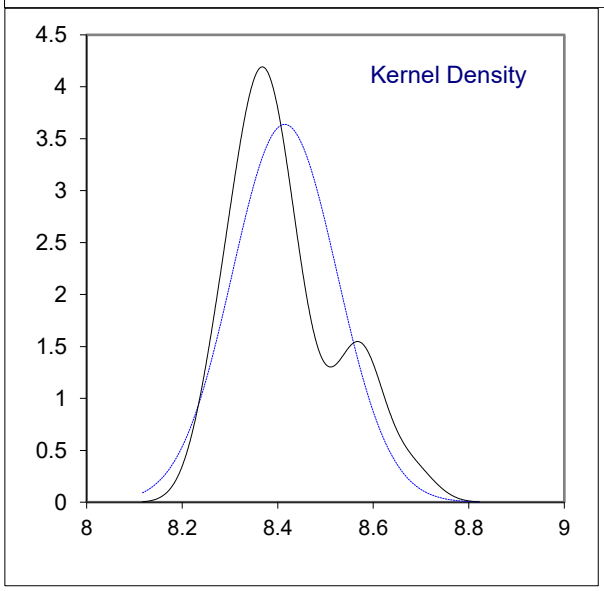

Kernel Density
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
8
8.2
8.4
8.6
8.8

Determination of DVPE acc. to EPA on sample #23026; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	8.34		-0.65	
62	D5191	8.37		-0.39	
92	D5191	8.362		-0.46	
120	D5191	8.38		-0.30	
140	D5191	8.38		-0.30	
150		-----		-----	
158	D5191	8.45		0.31	
159		-----		-----	
169	D5191	8.39		-0.22	
171	D5191	8.39		-0.22	
225		-----		-----	
228	D5191	8.26		-1.35	
235	D5191	8.59	C	1.53	first reported 60.7 kPA
237	D5191	8.57		1.35	
238		-----		-----	
256		-----		-----	
258		-----		-----	
312	D5191	8.36		-0.48	
323		-----		-----	
328		-----		-----	
335		-----		-----	
337		-----		-----	
365		-----		-----	
381		-----		-----	
433	EN13016-1	8.30		-1.00	
480		-----		-----	
541		-----		-----	
551		-----		-----	
557	D5191	8.457661		0.37	
562		-----		-----	
603		-----		-----	
631	D5191	8.43		0.13	
633		-----		-----	
634		-----		-----	
657	D5191	8.34		-0.65	
753		-----		-----	
754		-----		-----	
823	D5191	8.40		-0.13	
845		-----		-----	
846		-----		-----	
854		-----		-----	
856	D5191	8.277		-1.20	
861		-----		-----	
862		-----		-----	
963		-----		-----	
970		-----		-----	
971		-----		-----	
974	D5191	8.29		-1.09	
1006		-----		-----	
1039		-----		-----	
1066	D5191	8.57		1.35	
1299		-----		-----	
1399		-----		-----	
1498	D5191	8.34		-0.65	
1556	EN13016-1	8.33		-0.74	
1585	D5191	8.53	C	1.01	first reported 8.67
1730		-----		-----	
1746		-----		-----	
1807		-----		-----	
1857	D5191	8.68		2.32	
1862	D5191	8.58		1.44	
1984		-----		-----	
6049	D5191	8.42		0.04	
6142		-----		-----	
6143		-----		-----	

normality	OK
n	26
outliers	0
mean (n)	8.415
st.dev. (n)	0.1096
R(calc.)	0.307
st.dev.(D5191:22)	0.1145
R(D5191:22)	0.321

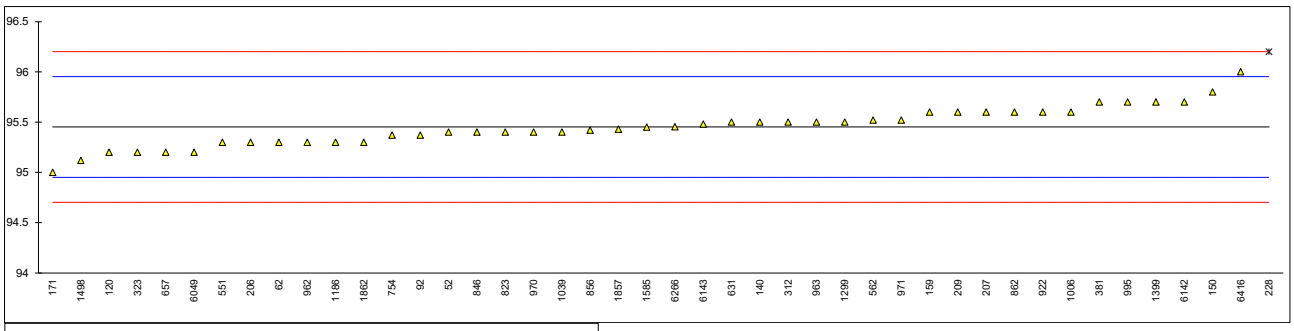

9
8.8
8.6
8.4
8.2
8
7.8
7.6
228
856
974
433
1556
52
657
1498
312
92
62
140
120
171
169
823
6049
631
158
557
1585
237
1066
1862
235
1857

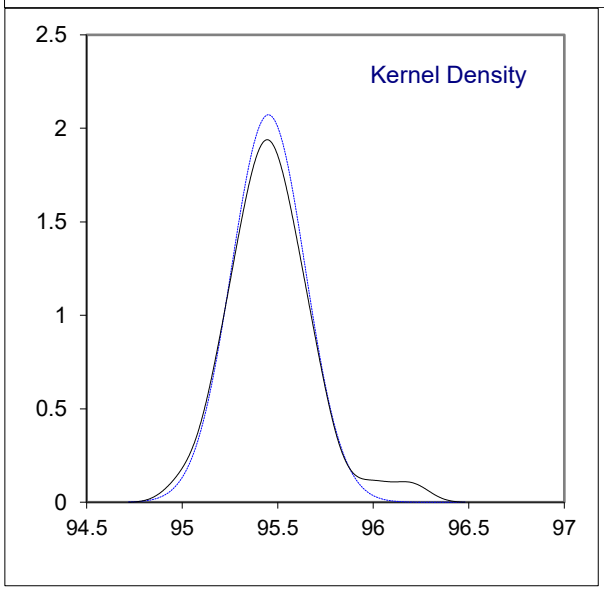

Kernel Density
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
8
8.2
8.4
8.6
8.8
9

Determination of RON on sample #23027;

lab	method	value	mark	z(targ)	remarks
52	D2699	95.4		-0.21	
62	D2699	95.3		-0.61	
92	D2699	95.37		-0.33	
120	D2699	95.2	C	-1.01	first reported 96.3
140	D2699	95.5		0.19	
150	D2699	95.8		1.39	
159	D2699	95.6		0.59	
169		-----		-----	
171	D2699	95.0		-1.81	
206	FTIR	95.3		-0.61	
207	FTIR	95.6		0.59	
209	FTIR	95.6		0.59	
228	D2699	96.2	R(0.05)	2.99	
237		-----		-----	
256		-----		-----	
312	D2699	95.5		0.19	
323	D2699	95.2		-1.01	
381	D2699	95.7		0.99	
551	D2699	95.3		-0.61	
562	D2699	95.52		0.27	
631	D2699	95.50		0.19	
657	D2699	95.2		-1.01	
754	D2699	95.37		-0.33	
823	D2699	95.4		-0.21	
845		-----		-----	
846	GB/T5487	95.4		-0.21	
856	D2699	95.42		-0.13	
861		-----		-----	
862	D2699	95.6		0.59	
922	D2699	95.6		0.59	
962	D2699	95.3		-0.61	
963	D2699	95.5		0.19	
970	D2699	95.4		-0.21	
971	D2699	95.52		0.27	
995	D2699	95.7		0.99	
1006	D2699	95.6		0.59	
1039	ISO5164	95.40		-0.21	
1186	D2699	95.3		-0.61	
1299	D2699	95.5		0.19	
1399	D2699	95.7		0.99	
1498	D2699	95.12	C	-1.33	first reported 91.12
1585	GOST8226	95.45		-0.01	
1857	D2699	95.43		-0.09	
1862	D2699	95.3		-0.61	
6049	D2699	95.2		-1.01	
6142	ISO5164	95.7		0.99	
6143	D2699	95.48		0.11	
6266	D2699	95.453		0.00	
6416	D2699	96.0		2.19	

normality	OK
n	43
outliers	1
mean (n)	95.452
st.dev. (n)	0.1925
R(calc.)	0.539
st.dev.(D2699:23)	0.2500
R(D2699:23)	0.7

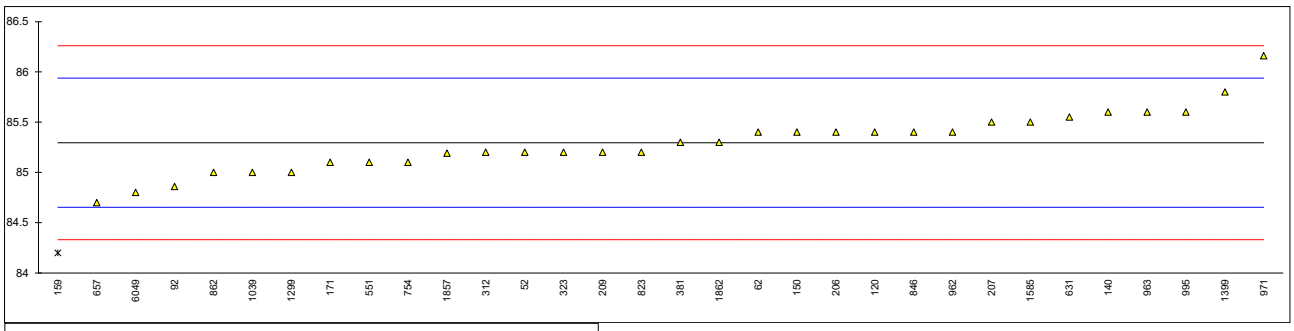

96.5
96
95.5
95
94.5
94
171 1498 120 323 657 6049 551 206 62 962 1186 1862 754 92 52 846 823 970 1039 856 1857 1585 6266 6143 631 140 312 963 1299 562 971 159 209 207 862 922 1006 381 995 1399 6142 150 6416 228

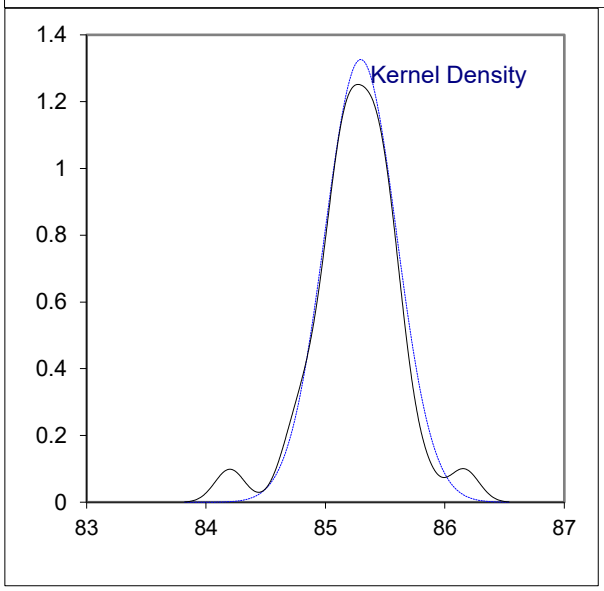

Kernel Density
2.5
2
1.5
1
0.5
0
94.5 95 95.5 96 96.5 97

Determination of MON on sample #23027;

lab	method	value	mark	z(targ)	remarks
52	D2700	85.2		-0.30	
62	D2700	85.4		0.33	
92	D2700	84.86		-1.35	
120	D2700	85.4		0.33	
140	D2700	85.6		0.95	
150	D2700	85.4		0.33	
159	D2700	84.2	R(0.05)	-3.41	
169		-----		-----	
171	D2700	85.1		-0.61	
206	FTIR	85.4		0.33	
207	FTIR	85.5		0.64	
209	FTIR	85.2		-0.30	
228		-----		-----	
237		-----		-----	
256		-----		-----	
312	D2700	85.2		-0.30	
323	D2700	85.2		-0.30	
381	D2700	85.3		0.01	
551	D2700	85.1		-0.61	
562		-----		-----	
631	D2700	85.55		0.79	
657	D2700	84.7		-1.85	
754	D2700	85.1		-0.61	
823	D2700	85.2		-0.30	
845		-----		-----	
846	GB/T503	85.4		0.33	
856		-----		-----	
861		-----		-----	
862	D2699	85.0		-0.92	
922		-----		-----	
962	D2700	85.4		0.33	
963	D2700	85.6		0.95	
970		-----		-----	
971	D2700	86.16		2.69	
995	D2700	85.6		0.95	
1006		-----		-----	
1039	ISO5163	85.00		-0.92	
1186		-----		-----	
1299	D2700	85.0		-0.92	
1399	D2700	85.8		1.57	
1498		-----		-----	
1585	GOST511	85.50		0.64	
1857	D2700	85.19		-0.33	
1862	D2700	85.3		0.01	
6049	D2700	84.8		-1.54	
6142		-----		-----	
6143		-----		-----	
6266		-----		-----	
6416		-----		-----	

normality	suspect
n	31
outliers	1
mean (n)	85.295
st.dev. (n)	0.3010
R(calc.)	0.843
st.dev.(D2700:23)	0.3214
R(D2700:23)	0.900


86.5
86
85.5
85
84.5
84
159
657
6049
92
862
1039
1299
171
551
754
1857
312
52
323
209
823
381
1862
62
150
206
120
846
962
207
1585
631
140
963
995
1399
971


Kernel Density
1.4
1.2
1
0.8
0.6
0.4
0.2
0
83
84
85
86
87

APPENDIX 2

Determination of other Oxygenates on sample #23025; in %V/V

lab	DIPE	ETBE	Methanol	TAME	Other Oxygenates
52	-----	-----	-----	-----	-----
62	-----	-----	-----	-----	-----
92	<0.01	<0.01	<0.01	<0.01	<0.01
120	0	0	0	0	0
140	<0.10	<0.10	<0.10	<0.10	<0.10
150	<0.10	<0.10	<0.10	<0.10	7.82
158	-----	-----	-----	-----	-----
159	-----	-----	-----	-----	-----
169	-----	-----	-----	-----	-----
171	ND	ND	ND	ND	-----
206	-----	-----	-----	-----	-----
207	-----	-----	-----	-----	-----
208	-----	-----	-----	-----	-----
209	-----	-----	-----	-----	-----
212	-----	-----	-----	-----	-----
217	-----	-----	-----	-----	-----
221	-----	-----	-----	-----	-----
224	-----	-----	-----	-----	-----
225	-----	-----	-----	-----	-----
228	-----	-----	-----	-----	-----
235	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----
253	-----	-----	-----	-----	-----
254	-----	-----	-----	-----	-----
256	-----	-----	-----	-----	-----
258	-----	-----	-----	-----	-----
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	-----	-----	-----	-----	-----
480	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----
551	-----	-----	-----	-----	-----
554	-----	-----	-----	-----	-----
555	-----	-----	-----	-----	-----
557	-----	-----	-----	-----	-----
558	-----	-----	-----	-----	-----
562	-----	-----	-----	-----	-----
603	-----	-----	-----	-----	-----
631	<0.1	0.95	0.27	0.26	-----
633	-----	-----	-----	-----	-----
634	-----	-----	-----	-----	-----
657	<0.2	<0.2	<0.2	<0.2	<0.2
663	-----	-----	-----	-----	-----
671	-----	-----	-----	-----	-----
753	-----	-----	-----	-----	-----
754	-----	-----	-----	-----	-----
823	<0.20	<0.20	<0.20	<0.20	<0.20
845	-----	-----	-----	-----	-----
846	-----	-----	-----	-----	-----
854	-----	-----	-----	-----	-----
856	<0.20	<0.20	<0.20	<0.20	<0.20
861	-----	-----	-----	-----	-----
862	<0.2	<0.2	<0.2	<0.2	<0.2
864	<0.20	<0.20	<0.20	-----	<0.20
872	-----	-----	-----	-----	-----
912	<0.2	<0.2	<0.2	<0.2	2.55
913	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----
922	<0.2	<0.2	<0.2	<0.2	<0.2
962	<0.20	<0.20	<0.20	<0.20	<0.20
963	<0.2	<0.2	<0.2	<0.2	<0.2
970	-----	-----	-----	-----	-----
971	<0.20	<0.20	<0.20	<0.20	<0.20
974	-----	-----	-----	-----	-----
995	<0.17	<0.17	<0.17	<0.17	<0.17
996	-----	-----	-----	-----	-----
1006	<0.1	<0.1	<0.1	<0.1	-----
1012	-----	-----	-----	-----	-----

lab	DIPE	ETBE	Methanol	TAME	Other Oxygenates
1016	0.03	0.00	0.01	-----	-----
1039	-----	-----	-----	-----	-----
1066	0.02	<0.01	<0.01	<0.01	<0.1
1126	<0,05	<0,05	<0,05	<0,05	-----
1186	-----	-----	-----	-----	-----
1205	-----	0.109	-----	0.035	0.081
1297	-----	-----	-----	-----	-----
1299	-----	0.00	0.00	-----	0.00
1399	-----	-----	-----	-----	-----
1498	-----	-----	-----	-----	-----
1531	-----	-----	-----	-----	-----
1585	<0.17	<0.17	<0.17	<0.17	<0.17
1730	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----
1746	-----	-----	-----	-----	-----
1807	-----	-----	-----	-----	-----
1857	-----	-----	-----	-----	-----
1862	-----	-----	-----	-----	-----
1984	<0.17	<0.17	<0.17	<0.17	<0.17
6049	<0.10	<0.10	<0.10	<0.10	<0.10
6142	-----	-----	-----	-----	9.36
6143	-----	-----	-----	-----	-----
6163	-----	-----	-----	-----	-----
6172	-----	-----	-----	-----	-----
6266	-----	-----	-----	-----	-----
6404	0.00	0.00	0.06	0.03	0.0
6416	-----	-----	-----	-----	-----
6447	-----	-----	-----	-----	-----

APPENDIX 3

Distillation z-scores

lab	IBP	10% evaporated	50% evaporated	90% evaporated	FBP
52	-0.94	0.18	0.20	0.14	-0.60
62	-0.52	-0.32	-0.10	-0.65	-0.25
92	1.27	0.25	0.20	-0.07	1.29
120	0.43	0.11	0.35	0.25	0.11
140	-2.67	0.18	0.35	0.19	0.07
150	-2.96	-1.37	-1.01	-0.70	-1.51
158	-----	-----	-----	-----	-----
159	-----	-----	-----	-----	-----
169	-2.84	-0.25	-0.41	-0.12	0.74
171	-1.29	-0.03	-0.03	-0.39	-----
206	-0.10	-0.74	-0.48	-0.02	0.34
207	-0.22	-0.25	-0.18	-0.12	0.74
208	0.19	-0.60	-0.93	0.09	-0.05
209	0.25	-0.46	-0.63	0.04	0.15
212	-0.28	-0.17	0.20	0.14	0.46
217	0.67	0.53	0.12	-0.44	-0.76
221	0.13	1.23	1.17	1.35	0.78
224	1.98	0.41	0.39	-1.78	-1.78
225	-----	-----	-----	-----	-----
228	0.55	0.46	-0.48	-1.86	1.61
235	-2.01	0.25	0.05	0.25	0.23
237	0.55	-1.16	-0.03	-0.02	-1.15
238	-----	-----	-----	-----	-----
253	0.25	-0.17	0.50	-0.12	0.82
254	-0.40	0.04	-0.03	-0.07	-2.14
256	0.31	0.46	-0.03	-1.12	0.54
258	1.80	0.74	0.95	0.04	1.49
312	-0.46	-0.25	0.12	-0.17	-0.80
323	0.43	0.04	0.12	0.19	-0.21
328	0.19	-0.25	-0.33	-0.12	-0.29
335	2.52	0.39	0.27	0.56	-1.35
337	1.15	0.25	0.05	0.19	-1.55
355	-0.31	-0.05	-1.00	-0.18	-1.23
365	-0.28	0.18	-0.25	-0.17	-0.09
381	-0.52	0.39	0.05	-0.65	-0.56
447	-0.64	-0.32	-0.18	-0.17	-0.64
480	1.06	0.00	-0.18	-0.02	-0.35
541	-0.82	-0.39	-0.25	-0.17	0.38
551	0.61	-0.53	0.27	0.46	0.90
554	2.34	0.53	0.50	4.72	-0.37
555	4.72	1.23	-1.76	-3.18	-2.34
557	1.39	0.60	1.62	2.30	2.40
558	2.34	0.53	-0.25	2.09	-0.37
562	-----	-----	-----	-----	-----
603	1.21	0.67	0.65	3.20	-0.33
631	-3.02	-1.23	-0.63	0.25	1.02
633	2.70	0.39	0.42	0.67	0.94
634	0.91	0.74	1.10	2.20	0.07
657	0.91	0.53	0.35	0.09	0.23
663	-0.40	0.28	0.08	-0.10	-0.54
671	-----	-----	-----	-----	-----
753	0.85	0.18	0.12	-0.02	0.03
754	-1.47	-0.03	0.27	-0.07	1.05
823	-0.28	0.74	0.12	0.19	-0.60
845	-----	-----	-----	-----	-----
846	0.79	0.25	0.27	0.19	0.66
854	-----	-----	-----	-----	-----
856	-0.28	0.04	-0.41	-0.23	0.58
861	-----	-----	-----	-----	-----
862	0.02	0.18	0.35	-0.12	0.42
864	0.08	0.25	1.10	0.40	0.42
872	0.85	0.18	-0.25	0.77	-0.17
912	-0.04	-0.17	-1.01	-1.07	0.03
913	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----
922	-0.34	0.18	0.12	0.51	-0.76
962	-1.47	-1.58	-0.86	-0.54	-0.09
963	0.85	0.95	0.27	-0.44	-0.21
970	1.21	0.53	-0.25	-0.28	0.42
971	0.19	0.25	-0.10	-0.28	0.54
974	0.13	0.11	0.27	-0.02	0.34
995	0.55	-0.53	0.12	-0.54	-0.37
996	1.15	-0.17	0.50	1.56	-0.76
1006	0.55	0.32	0.20	0.19	-0.84
1012	0.31	0.04	-0.03	-0.07	0.34

lab	IBP	10% evaporated	50% evaporated	90% evaporated	FBP
1016	-----	-----	-----	-----	-----
1039	-0.76	-0.39	-0.10	-0.12	0.19
1066	-0.70	0.11	0.27	0.19	-0.60
1126	-1.29	-0.53	0.20	-0.23	0.03
1186	-----	-----	-----	-----	-----
1205	-0.22	0.11	0.35	0.14	0.98
1297	0.19	-0.81	-0.41	-0.12	0.15
1299	-1.41	-3.91	-6.11	4.78	0.38
1399	1.03	-0.67	-0.86	-0.23	0.78
1498	-0.34	-0.25	0.05	0.09	0.74
1531	-1.59	0.11	0.05	-0.33	-0.52
1585	0.25	0.32	0.27	0.19	1.02
1730	-----	-----	-----	-----	-----
1740	1.03	-0.10	-0.18	-0.28	0.15
1746	0.25	-0.53	-0.25	0.51	0.42
1807	-2.67	-0.53	-1.01	-0.81	-1.71
1857	0.37	0.81	0.20	-0.23	-0.64
1862	0.13	-0.39	-0.18	-0.02	0.11
1984	-0.70	-0.03	0.27	0.25	1.13
6049	-1.35	-0.60	-0.25	-0.17	-1.15
6142	-1.77	-0.10	-0.41	0.40	-0.68
6143	-----	-----	-----	-----	-----
6163	-----	-----	-----	-----	-----
6172	-----	-----	-----	-----	-----
6266	0.61	0.32	0.35	-0.12	0.62
6404	-1.00	0.11	0.27	0.72	0.23
6416	-0.58	-0.46	-0.41	0.72	-0.68
6447	-----	-----	-----	-----	-----

APPENDIX 4

Number of participants per country

1 lab in	ALBANIA
1 lab in	ARGENTINA
2 labs in	AUSTRIA
2 labs in	BELGIUM
5 labs in	BRAZIL
3 labs in	CANADA
3 labs in	CHILE
7 labs in	CHINA, People's Republic
1 lab in	COTE D'IVOIRE
1 lab in	CYPRUS
1 lab in	DJIBOUTI
4 labs in	FRANCE
2 labs in	GEORGIA
4 labs in	GREECE
1 lab in	GUAM
1 lab in	GUINEA REPUBLIC
3 labs in	INDIA
1 lab in	IRAQ
2 labs in	IRELAND
1 lab in	ISRAEL
1 lab in	KENYA
1 lab in	KOREA, Republic of
1 lab in	LITHUANIA
1 lab in	MALAYSIA
1 lab in	MAURITIUS
5 labs in	MOROCCO
1 lab in	MOZAMBIQUE
6 labs in	NETHERLANDS
1 lab in	NIGER
3 labs in	NIGERIA
1 lab in	OMAN
1 lab in	PAKISTAN
3 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	SOUTH AFRICA
2 labs in	SPAIN
1 lab in	SWEDEN
1 lab in	TAIWAN
2 labs in	TANZANIA
1 lab in	THAILAND
1 lab in	TOGO
1 lab in	TUNISIA
1 lab in	TURKMENISTAN
2 labs in	UNITED ARAB EMIRATES
1 lab in	UNITED KINGDOM
7 labs in	UNITED STATES OF AMERICA

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
f+?	= possibly a false positive test result?
f-?	= possibly a false negative test result?
SDS	= Safety Data Sheet

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