Institute for
Interlaboratory Studies

Results of Proficiency Test
Gasoline - EN (winter)
October 2022

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1995 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Gasoline twice a year. One round based on the latest version of ASTM D4814 and one round based on the latest version of EN228. During the annual proficiency testing program 2022/2023 it was decided to continue the round robin for the analysis of Gasoline - EN (winter). In this PT an extra sample was added for RON 91 Gasoline.

In this interlaboratory study registered for participation:
- 142 laboratories in 49 countries for regular analyzes in Gasoline - EN iis22B06EN
- 114 laboratories in 45 countries for DVPE analyzes in Gasoline iis22B06DVPE
- 79 laboratories in 43 countries for RON and MON analyzes in Gasoline iis22B06RON
- 14 laboratories in 13 countries for the extra RON and MON analyzes iis22B06R91

In total 148 laboratories in 50 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 - EN (winter) 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 four different samples of Gasoline, see table below.

Sample ID	PT ID	Quantity	Purpose
#22185	iis22B06EN	1x 1 L	Regular analyzes
#22186	iis22B06DVPE	1x 1 L (75% filled)	DVPE
#22187	iis22B06RON	2x 1 L	RON and MON
#22188	iis22B06R91	2x 1 L	RON 91 Gasoline

Table 1: Gasoline PT samples used in iis22B06

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 and RON/MON analyzes in Gasoline a batch of approximately 400 liters of a regular winter grade Gasoline was obtained from a local supplier. To this batch a detectable amount of Sulfur was added. After homogenization 180 amber glass bottles of 1 L were filled and labelled #22185 for the regular analyzes in gasoiline and 190 amber glass bottles of 1 L were filled and labelled #22187 for the analyzes of RON and MON.
The homogeneity of the subsamples was checked by the determination of Density at 15 °C in accordance with ISO12185 on 16 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3
sample 1	731.42
sample 2	731.37
sample 3	731.51
sample 4	731.40
sample 5	731.40
sample 6	731.55
sample 7	731.27
sample 8	731.45
sample 9	731.38
sample 10	731.33
sample 11	731.44
sample 12	731.67
sample 13	731.34
sample 14	731.54
sample 15	731.35
sample 16	731.56

Table 2: homogeneity test results of subsamples #22185 and #22187

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)	0.29
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 3: evaluation of the repeatability of subsamples #22185 and #22187

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 DVPE analysis in Gasoline a batch of approximately 110 liters of a regular winter grade Gasoline was obtained from a local supplier. After homogenization 140 amber glass bottles of 1 L were filled with approximately 750 mL Gasoline and labelled #22186.
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 #22186-1	88.1	G(0.05)
sample #22186-2	87.1	
sample #22186-3	87.0	
sample #22186-4	87.2	
sample #22186-5	87.4	
sample #22186-6	87.1	
sample #22186-7	87.5	
sample #22186-8	87.4	

Table 4: homogeneity test results of subsamples #22186

Subsample 1 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)	0.5
reference test method	EN13016-1:18
0.3 x R (reference test method)	0.5

Table 5: evaluation of the repeatability of subsamples #22186

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 extra sample for the RON 91 Gasoline for RON/MON analyzes a batch of approximately 200 liters of a Nigerian Gasoline was obtained from a third-party laboratory. After homogenization 45 amber glass bottles of 1 L were filled and labelled #22188.
The homogeneity of the subsamples was checked by the determination of Density at 15 °C in accordance with ISO12185 on 8 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3
sample #22188-1	742.73
sample #22188-2	742.76
sample #22188-3	742.75
sample #22188-4	742.75
sample #22188-5	742.75
sample #22188-6	742.75
sample #22188-7	742.75
sample #22188-8	742.76

Table 6: homogeneity test results of subsamples #22188

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

	Density at 15 °C in kg/m^3
r (observed)	0.03
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 7: evaluation of the repeatability of subsamples #22188

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 September 14, 2022. 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 #22185: API Gravity, Appearance, Aromatics by FIA and by GC (%V/V and %M/M), Benzene, Copper Corrosion 3 hrs at 50 °C, Density at 15 °C, Distillation at 760 mmHg (Initial Boiling Point, Temperature at 10%, 50% and 90% evaporated, Final Boiling Point, % evaporated at 70 °C, 100 °C and 150 °C, Distillation Residue and Distillation Loss), Doctor test, Gum (solvent washed), Lead as Pb, Manganese as Mn, Olefins by FIA and by GC (%V/V and %M/M), Oxidation Stability, Oxygenates: Methanol, Ethanol, iso-Propyl alcohol, iso-Butyl alcohol, tert-Butyl alcohol, Ethers (C5 or more C atoms), DIPE, ETBE, MTBE, TAME, Sum of Other Oxygenates, Oxygen content and Sulfur.
On sample #22186 it was requested to determine: Air Saturated Vapor Pressure (ASVP) and Dry Vapor Pressure Equivalent (DVPE) according to EN13016-1.
On both samples #22187 and #22188 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 and 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.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used, 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 in appendix 1.

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

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

4 EVALUATION

In this proficiency test some problems were encountered with the dispatch of the samples.
For the regular Gasoline PT sixteen participants reported test results after the final reporting date and eight other participants did not report any test results.
For the DVPE round twelve participants reported test results after the final reporting date and twelve other participants did not report any test results.
For the RON/MON round seven participants reported test results after the final reporting date and four other participants did not report any test results.
For the R91 round two participants reported test results after the final reporting date and two other participants did not report any test results.
Not all participants were able to report all tests requested.
In total 139 participants reported 2604 numerical test results. Observed were 92 outlying test results, which is 3.5%. 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. D1298) and an added designation for the year that the test method was adopted or revised (e.g. D1298:12b). When a method has been reapproved an “R” will be added and the year of approval (e.g. D1298:12bR17).

sample #22185

API Gravity: 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 D1298:12bR17.

Appearance: This determination was not problematic. Allmost all reporting participants agreed on the appearance as Pass or Clear & Bright.

Aromatics by FIA: 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 EN15553:07.

Aromatics by GC: The determination in %V/V was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ISO22854-A:21.

The determination in %M/M may not be problematic. Regretfully for the determination in %M/M no precision data is available. Therefore, no z-scores are calculated. No statistical outliers were observed in the test results reported in %M/M. The calculated reproducibility is higher than in the previous PT iis21B05EN.

Benzene: This determination was problematic depending on the test method used. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:21, but is in agreement with the requirements of EN12177:22.
When the test results from test method ISO22854 are evaluated separately the calculated reproducibility is in full agreement with the requirements of ISO22854-A:21.

Copper Corrosion: This determination was not problematic. All reporting participants agreed on a test result of 1 (1a or 1b).

Density at 15 °C: This determination was not problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Distillation: This determination was not problematic. In total over the eight distillation parameters thirty statistical outliers were observed and six other test results were excluded. All calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ISO3405:19 automatic mode and with the requirements of the manual mode.

Doctor Test: This determination was not problematic. Allmost all reporting participants agreed on the absence of Mercaptans and reported sweet or negative.

Gum (solvent washed): This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO6246:17.

Lead: This determination was not problematic. All reporting participants agreed on a level of <3 mg/L. Therefore, no z-scores are calculated.

Manganese: This determination was not problematic. All reporting participants agreed on a level of <2 mg/L. Therefore, no z-scores are calculated.

Olefins by FIA: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN15553:07.

Olefins by GC: The determination in %V/V was not problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:21.

The determination in %M/M may not be problematic. Regretfully, no precision data is available for the determination in %M/M. Therefore, no z-scores are calculated. Three statistical outliers were observed in the test results reported in %M/M. The calculated reproducibility is lower than in the previous PT iis21B05EN.

Oxidation Stability: This determination was not problematic. Allmost all reporting participants agreed on an Oxidation Stability >360 minutes. Therefore, no z-scores are calculated.

Ethanol: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:21.

Ethers (C5 or more): This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:21.

MTBE: This determination was problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:21.

Oxygen content: This determination was not problematic. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO22854-A:21.

Sulfur: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO20846:19.

The majority of the participants agreed on a concentration near or below the limit of detection for all other Oxygenates mentioned in paragraph 2.6. Therefore, no z-scores are calculated. The test results are given in appendix 2.

sample #22186

ASVP: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN13016-1:18.

DVPE: The Air Saturated Vapor Pressure (ASVP) can be converted to Dry Vapor Pressure Equivalent (DVPE) according to EN13016-1. This conversion was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN13016-1:18.

sample #22187

RON: 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 ISO5164:14.

MON: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO5163:14.

sample #22188 (extra PT sample for RON 91 Gasoline)

RON: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ISO5164:14.

MON: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ISO5163:14.

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 table.

Parameter	unit	n	average	2.8 * sd	R(lit)
API Gravity		55	61.8	0.2	0.3
Appearance		97	Pass	n.a.	n.a.
Aromatics by FIA	%V/V	50	25.4	3.1	3.7
Aromatics by GC	%V/V	57	24.4	1.3	1.2
Aromatics by GC	%M/M	37	29.3	1.5	n.a.
Benzene	%V/V	95	0.43	0.04	0.03
Copper Corrosion 3 hrs at 50 °C		92	1(1a/1b)	n.a.	n.a.
Density at 15 °C	kg/m^3	127	731.6	0.9	1.5
Initial Boiling Point	°C	125	27.4	4.8	4.7
Temp. at 10% evaporated	°C	125	41.9	3.9	4.0
Temp. at 50% evaporated	°C	121	88.4	3.5	4.1
Temp. at 90% evaporated	°C	122	141.6	2.9	5.5
Final Boiling Point	°C	127	171.4	5.0	7.1
%volume at 70 °C	%V/V	114	40.7	2.7	2.7
%volume at 100 °C	%V/V	115	57.5	1.8	2.2
%volume at 150 °C	%V/V	110	94.2	1.3	1.3
Doctor Test		50	negative	n.a.	n.a.
Gum (solvent washed)	mg/100 mL	59	0.6	1.1	2.2

Parameter	unit	n	average	2.8 * sd	R(lit)
Lead as Pb	mg/L	56	<3	n.e.	n.e.
Manganese as Mn	mg/L	49	<2	n.e.	n.e.
Olefins by FIA	%V/V	48	6.3	3.4	2.5
Olefins by GC	%V/V	56	6.5	0.8	1.3
Olefins by GC	%M/M	33	6.0	0.6	n.a.
Oxidation Stability	minutes	59	>360	n.a.	n.a.
Ethanol	%V/V	84	4.60	0.48	0.34
Ethers (C5 or more C atoms)	%V/V	50	4.19	0.32	0.46
MTBE	%V/V	80	4.14	0.33	0.19
Oxygen content	%M/M	77	2.51	0.18	0.19
Sulfur	mg/kg	124	30.9	9.6	6.4

Table 8: reproducibilities of tests on sample #22185

Parameter	unit	n	average	2.8 * sd	R(lit)
ASVP	kPa	65	93.7	2.4	1.6
DVPE acc. to EN13016-1	kPa	97	86.6	2.2	1.6

Table 9: reproducibilities of tests on sample #22186

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		67	95.3	0.6	0.7
MON		63	85.8	0.9	0.9

Table 10: reproducibilities of tests on sample #22187

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		11	91.5	1.0	0.7
MON		10	80.5	1.7	0.9

Table 11: reproducibilities of tests on extra RON 91 Gasoline sample #22188

Without further statistical calculations it can be concluded that for many 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 OCTOBER 2022 WITH PREVIOUS PTS

	October 2022	October 2021	October 2020	October 2019	October 2018
Number of reporting laboratories	139	143	140	161	143
Number of test results	2604	2379	2447	2643	2587
Number of statistical outliers	92	79	83	83	77
Percentage of statistical outliers	3.5%	3.3%	3.4%	3.1%	3.0%

Table 12: 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	October 2022	October 2021	October 2020	October 2019	October 2018
API Gravity	+	+	+	+	+/-
Aromatics by FIA	+	+	-	-	-
Aromatics by GC	+/-	+/-	-	+	+/-
Benzene	-	-	-	-	+
Density at 15 °C	+	+	+	+	+
Distillation	+/-	+/-	+/-	+/-	+/-
Gum (solvent washed)	++	++	+	+	+
Lead as Pb	n.e.	n.e.	n.e.	n.e.	+
Manganese as Mn	n.e.	n.e.	n.e.	n.e.	-
Olefins by FIA	-	-	+/-	+/-	-
Olefins by GC	+	+	+	+/-	+
Methanol	n.e.	n.e.	n.e.	n.e.	n.e.
Ethanol	-	-	+/-	+/-	+/-
Ethers (C5 or more C atoms)	+	+	+	+	+
ETBE	n.e.	n.e.	+	+	n.e.
MTBE	-	--	+	+	+
Oxygen content	+/-	-	+	+	+
Sulfur	-	+/-	+/-	+/-	+/-
ASVP	-	-	-	-	+/-
DVPE acc. to EN13016-1	-	-	-	-	+/-
RON	+	-	-	+/-	-
MON	+/-	+/-	-	+/-	-

Table 13: comparison of determinations to the reference test methods on samples #22185, #22186 and #22187

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

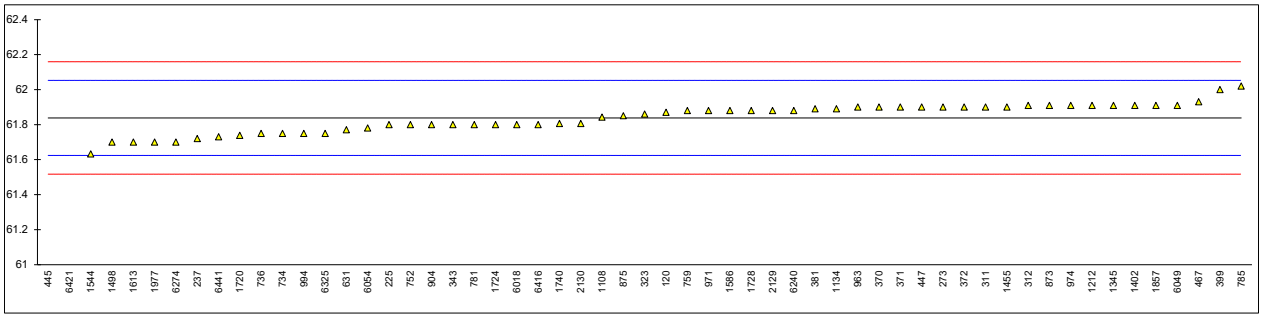
APPENDIX 1

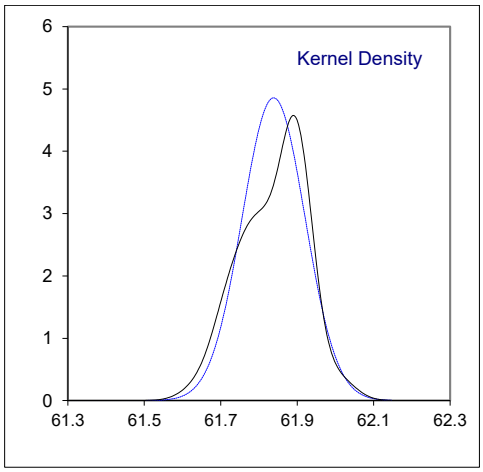
Determination of API Gravity on sample #22185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	61.87		0.30	1205		-----		-----
140		-----		-----	1212	ISO12185	61.91		0.67
171		-----		-----	1266		-----		-----
225	D4052	61.8		-0.36	1275		-----		-----
237	D4052	61.72		-1.10	1299		-----		-----
238		-----		-----	1345	D1250	61.91		0.67
273	D4052	61.9		0.58	1357	D1298	NA		-----
311	D4052	61.90		0.58	1389		-----		-----
312	D1298	61.91		0.67	1397		-----		-----
323	D1298	61.86		0.20	1399		-----	W	-----
328		-----		-----	1402	D4052	61.91		0.67
333		-----		-----	1455	D1250	61.90		0.58
334		-----		-----	1459		-----		-----
335		-----		-----	1498	D4052	61.7		-1.29
337		-----		-----	1528		-----		-----
338		-----		-----	1537		-----		-----
343	D1298	61.8		-0.36	1538		-----		-----
344		-----		-----	1544	D1298	61.632		-1.92
352		-----		-----	1569		-----		-----
365		-----		-----	1586	ISO12185	61.88		0.39
369		-----		-----	1613	D4052	61.7		-1.29
370	ISO12185	61.9		0.58	1636		-----		-----
371	D4052	61.9		0.58	1720	D4052	61.739		-0.92
372	D1298	61.9		0.58	1724	D4052	61.8		-0.36
381	ISO12185	61.89		0.48	1728	D4052	61.88		0.39
391		-----		-----	1740	D1298	61.806		-0.30
399	D4052	62.0		1.51	1742		-----		-----
404		-----		-----	1746		-----		-----
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	D4052	60.23	R(0.01)	-15.01	1803		-----		-----
447	D4052	61.9		0.58	1804		-----		-----
467	ISO12185	61.93		0.86	1805		-----		-----
480		-----		-----	1810		-----		-----
496		-----		-----	1811		-----		-----
631	D4052	61.77		-0.64	1833		-----		-----
633		-----		-----	1856		-----		-----
734	D4052	61.75		-0.82	1857	Calc.	61.91		0.67
736	D1298	61.75		-0.82	1911		-----		-----
752	D4052	61.8		-0.36	1941		-----		-----
759	D1298	61.88		0.39	1953		-----		-----
779		-----		-----	1968		-----		-----
781	D4052	61.80		-0.36	1977	D1298	61.7		-1.29
782		-----		-----	2129	D1298	61.88		0.39
785	D1298	62.02		1.70	2130	D1298	61.806		-0.30
798		-----		-----	2146		-----		-----
873		61.91		0.67	6018	D4052	61.80		-0.36
875	D1250	61.85		0.11	6047		-----		-----
904	ISO12185	61.80		-0.36	6049	ISO12185	61.91		0.67
912		-----		-----	6054	D4052	61.78		-0.54
914		-----		-----	6058		-----		-----
963	D4052	61.9		0.58	6075		-----		-----
971	ISO12185	61.88		0.39	6103		-----		-----
974	D1298	61.91		0.67	6142		-----		-----
994	D1250	61.75		-0.82	6192		-----		-----
1006		-----		-----	6203		-----		-----
1011		-----		-----	6240	D1298	61.88		0.39
1033		-----		-----	6258		-----		-----
1039		-----		-----	6274	D1298	61.70		-1.29
1059		-----		-----	6279		-----		-----
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO12185	61.843		0.05	6325	D4052	61.75		-0.82
1109		-----		-----	6416	D1298	61.8		-0.36
1126		-----		-----	6421	D1298	60.8	R(0.01)	-9.69
1134	D4052	61.89		0.48	6441	ISO12185	61.73		-1.01
1141		-----		-----	6446		-----		-----
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194		-----		-----	6496		-----		-----

normality	OK
n	55
outliers	2
mean (n)	61.838
st.dev. (n)	0.0821
R(calc.)	0.230
st.dev.(D1298:12bR17)	0.1071
R(D1298:12bR17)	0.3

Lab 1399 test result withdrawn, reported 24.255





Determination of Appearance on sample #22185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	Visual	C&B		-----	1205		-----		-----
140		-----		-----	1212	Visual	C&B		-----
171	Visual	Clear and Bright		-----	1266	D4176	Clear & Bright		-----
225	Visual	Clear & Bright		-----	1275	D4176	Clear & Bright		-----
237	D4176	C&B		-----	1299	Visual	CL&BR		-----
238		-----		-----	1345	D4176	Clear & bright		-----
273	Visual	Bright & Clear		-----	1357	Visual	Bright & Clear		-----
311		-----		-----	1389	Visual	Clear & Bright		-----
312	Visual	br&cl		-----	1397		-----		-----
323	Visual	CBL		-----	1399	Visual	Clear and bright [Pass]		-----
328	Visual	Clear and bright		-----	1402	D4176	Clear and Bright		-----
333		-----		-----	1455	Visual	Clear and Bright		-----
334	Visual	C&B		-----	1459		-----		-----
335	Visual	clear and bright		-----	1498	D4176	B&C		-----
337	Visual	Clear and Bright		-----	1528	Visual	C&B		-----
338		-----		-----	1537	Visual	Clear&Bright		-----
343	Visual	C&B		-----	1538		-----		-----
344	D4176	C&B		-----	1544	Visual	clear & bright		-----
352	Visual	Clear and Bright		-----	1569	D4176	Pass		-----
365	D4176	Pass		-----	1586	Visual	clear & bright		-----
369	Visual	C & B		-----	1613	Visual	B&C		-----
370	D4176	clear and bright		-----	1636	Visual	C&B		-----
371	D4176	Pass		-----	1720		-----		-----
372	D4176	pass		-----	1724	Visual	clear & bright		-----
381	Visual	C&B		-----	1728	Visual	CLEAR		-----
391		-----		-----	1740	D4176	clear & bright		-----
399	Visual	c&b		-----	1742		-----		-----
404		-----		-----	1746		-----		-----
420	D4176	clear and bright		-----	1753	Visual	clear and bright		-----
431		-----		-----	1776		-----		-----
444	E2680	Pass		-----	1802	Visual	Clear&Bright		-----
445	D4176	C&B		-----	1803	Visual	Clear&Bright		-----
447	Visual	C&B		-----	1804	Visual	clear, transparent		-----
467	D4176	Clear & Bright		-----	1805	Visual	clear and bright		-----
480		-----		-----	1810		-----		-----
496	Visual	clear&bright		-----	1811		-----		-----
631	Visual	clear & bright		-----	1833	Visual	Clear&Bright		-----
633		-----		-----	1856		-----		-----
734	Visual	Cl&Br		-----	1857	Visual	Clear & Bright		-----
736	Visual	C&B		-----	1911	Visual	Clear&Bright		-----
752	D4176	Clear and bright		-----	1941	Visual	clear & bright		-----
759	D4176	Pass		-----	1953	D4176	C&B		-----
779	Visual	clear and bright		-----	1968	D4176	clean and bright		-----
781	Visual	clean and bright		-----	1977		-----		-----
782		-----		-----	2129	D4176	C&B		-----
785		-----		-----	2130	D4176	Clear&Bright		-----
798		-----		-----	2146		-----		-----
873	D4176	clear&Bright		-----	6018	Visual	Clear&Bright		-----
875		C&B		-----	6047		-----		-----
904	Visual	C&B		-----	6049	Visual	Bright and Clear		-----
912		-----		-----	6054		-----		-----
914		-----		-----	6058	D4176	Pass/Pass		-----
963	Visual	Clear & Bright		-----	6075		-----		-----
971	Visual	Clear		-----	6103	Visual	CLAIR		-----
974	Visual	Clear		-----	6142	Visual	C&B		-----
994	Visual	C&B		-----	6192		Bright & Clear		-----
1006		-----		-----	6203		-----		-----
1011		-----		-----	6240	Visual	C&B		-----
1033		-----		-----	6258	Visual	Clear & Bright		-----
1039	D4176	Clear & Bright		-----	6274	Visual	Clear & Bright		-----
1059	Visual	clear & bright		-----	6279	EN15769	Clear & Bright		-----
1082		-----		-----	6299	Visual	Clear and bright		-----
1097	Visual	C & B		-----	6321		-----		-----
1108	Visual	Clear and Bright		-----	6325	D4176	Cl & Br		-----
1109		-----		-----	6416	Visual	clear & bright		-----
1126		-----		-----	6421		Slightly yellow		-----
1134		C+B		-----	6441	D4176	1		-----
1141	Visual	clear & bright		-----	6446	Visual	bright and clear		-----
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478	Visual	clear and transparent		-----
1194		-----		-----	6496		-----		-----

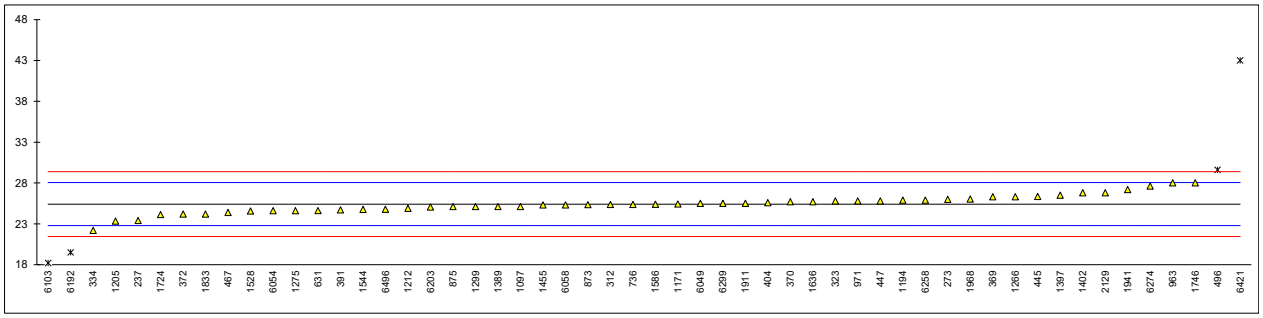
	n	97
	mean(n)	Pass (Clear & Bright)

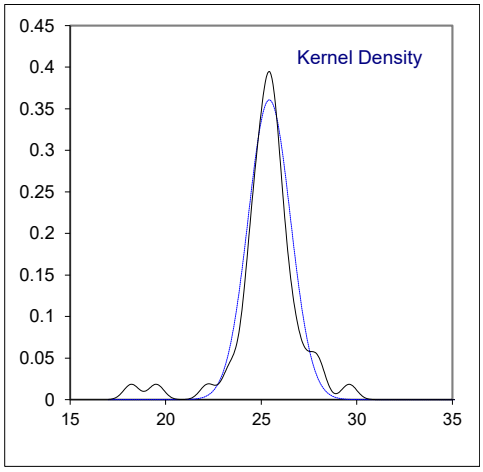
Determination of Aromatics by FIA (without oxygenates correction) on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205	D1319	23.33		-1.58
140		-----		-----	1212	EN15553	24.91		-0.39
171		-----		-----	1266	D1319	26.3		0.67
225		-----		-----	1275	In house	24.6		-0.62
237	D1319	23.4		-1.53	1299		25.1		-0.24
238		-----		-----	1345		-----		-----
273	D1319	26.0	C	0.44	1357	D1319	NA		-----
311		-----		-----	1389	D1319	25.1		-0.24
312	EN15553	25.36		-0.04	1397	EN15553	26.5		0.82
323	D1319	25.8		0.29	1399		-----		-----
328		-----		-----	1402	D1319	26.8		1.04
333		-----		-----	1455	D1319	25.3		-0.09
334	D1319	22.2		-2.44	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	EN15553	24.56		-0.65
338		-----		-----	1537		-----		-----
343		-----		-----	1538		-----		-----
344		-----		-----	1544	D1319	24.76		-0.50
352		-----		-----	1569		-----		-----
365		-----		-----	1586	D1319	25.4		-0.01
369	EN15553	26.3		0.67	1613		-----		-----
370	D1319	25.7		0.21	1636	EN15553	25.71		0.22
371		-----		-----	1720		-----		-----
372	EN15553	24.2		-0.92	1724	D1319	24.13		-0.98
381		-----		-----	1728		-----		-----
391	EN15553	24.7		-0.54	1740		-----		-----
399		-----		-----	1742		-----		-----
404	D1319	25.58		0.12	1746	D1319	28.0		1.95
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	EN15553	26.35		0.70	1803		-----		-----
447	D1319	25.8		0.29	1804		-----		-----
467	D1319	24.4		-0.77	1805		-----		-----
480		-----		-----	1810		-----		-----
496	EN15553	29.6	R(0.05)	3.16	1811		-----		-----
631	D1319	24.61		-0.61	1833	D1319	24.2		-0.92
633		-----		-----	1856		-----		-----
734		-----		-----	1857		-----		-----
736	EN15553	25.37		-0.04	1911	EN15553	25.51		0.07
752		-----		-----	1941	EN15553	27.2		1.35
759		-----		-----	1953		-----		-----
779		-----		-----	1968	D1319	26.03		0.46
781		-----		-----	1977		-----		-----
782		-----		-----	2129	D1319	26.8		1.04
785		-----		-----	2130		-----	W	-----
798		-----		-----	2146		-----		-----
873	EN15553	25.35		-0.05	6018		-----		-----
875	EN15553	25.1		-0.24	6047		-----		-----
904		-----		-----	6049	D1319	25.5		0.06
912		-----		-----	6054	D1319	24.5989		-0.62
914		-----		-----	6058	EN15553	25.3		-0.09
963	D1319	28.0		1.95	6075		-----		-----
971	D1319	25.8		0.29	6103	D1319	18.2	C,R(0.01)	-5.46
974		-----		-----	6142		-----		-----
994		-----		-----	6192	EN15553	19.5	R(0.01)	-4.48
1006		-----		-----	6203	D1319	25.06		-0.27
1011		-----		-----	6240		-----		-----
1033		-----		-----	6258	EN15553	25.9		0.36
1039		-----		-----	6274	EN15553	27.62		1.67
1059		-----		-----	6279		-----		-----
1082		-----		-----	6299	EN15553	25.5		0.06
1097	D1319	25.12		-0.23	6321		-----		-----
1108		-----		-----	6325		-----		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421	EN15553	43	R(0.01)	13.30
1134		-----		-----	6441		-----		-----
1141		-----		-----	6446		-----		-----
1171	In house	25.43		0.01	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194	EN15553	25.9		0.36	6496	EN15553	24.78		-0.48

normality	suspect
n	50
outliers	4
mean (n)	25.419
st.dev. (n)	1.1061
R(calc.)	3.097
st.dev.(EN15553:07)	1.3214
R(EN15553:07)	3.7

Lab 273 first reported 28.4
Lab 2130 test result withdrawn, reported 30.8
Lab 6103 first reported 29.60



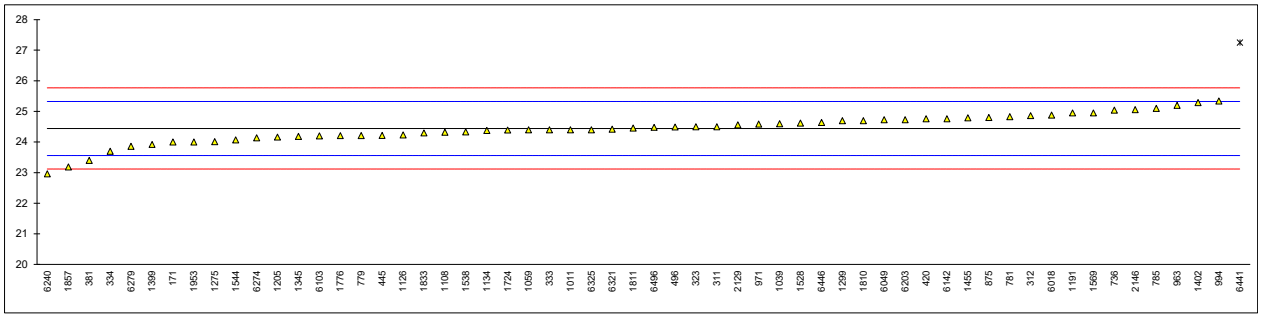


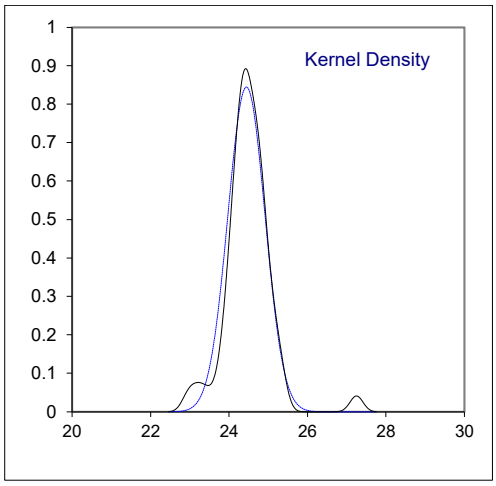
Determination of Aromatics by GC on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205	D8071	24.16		-0.64
140		-----		-----	1212		-----		-----
171	ISO22854-A	24.0		-1.00	1266		-----		-----
225		-----		-----	1275	ISO22854-A	24.01		-0.98
237		-----		-----	1299	ISO22854-A	24.7		0.58
238		-----		-----	1345	D6730	24.185		-0.59
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	24.5		0.13	1389		-----		-----
312	ISO22854-A	24.86		0.94	1397		-----		-----
323	ISO22854-A	24.5		0.13	1399	D6839	23.92	C	-1.18
328		-----		-----	1402	ISO22854-A	25.29		1.91
333	ISO22854-A	24.4		-0.10	1455	ISO22854-A	24.79		0.78
334	ISO22854-A	23.7		-1.68	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	24.62		0.40
338		-----		-----	1537		-----		-----
343		-----		-----	1538	ISO22854-A	24.33		-0.26
344		-----		-----	1544	ISO22854-A	24.07		-0.85
352		-----		-----	1569	D6839	24.95		1.14
365		-----		-----	1586		-----		-----
369		-----		-----	1613		-----		-----
370		-----		-----	1636		-----		-----
371		-----		-----	1720		-----		-----
372		-----		-----	1724	ISO22854-A	24.39		-0.12
381	ISO22854-A	23.4		-2.36	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404		-----		-----	1746		-----		-----
420	ISO22854-A	24.76		0.71	1753		-----		-----
431		-----		-----	1776	ISO22854-A	24.21		-0.53
444		-----		-----	1802		-----		-----
445	ISO22854-A	24.22		-0.51	1803		-----		-----
447		-----		-----	1804		-----		-----
467		-----		-----	1805		-----		-----
480		-----		-----	1810	D6839	24.7		0.58
496	ISO22854-A	24.49		0.10	1811	ISO22854-A	24.46		0.04
631		-----		-----	1833	ISO22854-A	24.3		-0.33
633		-----		-----	1856		-----		-----
734		-----		-----	1857	D6729	23.186		-2.84
736	ISO22854-A	25.04		1.35	1911		-----		-----
752		-----		-----	1941		-----		-----
759		-----		-----	1953		24.0		-1.00
779	D6729	24.212		-0.52	1968		-----		-----
781	D6729	24.830		0.87	1977		-----		-----
782		-----		-----	2129	D6730	24.56		0.26
785	D6729	25.10		1.48	2130		-----		-----
798		-----		-----	2146	ISO22854-A	25.06		1.39
873		-----		-----	6018	ISO22854-A	24.88		0.99
875	D6729	24.80		0.80	6047		-----		-----
904		-----		-----	6049	ISO22854-A	24.73		0.65
912		-----		-----	6054		-----		-----
914		-----		-----	6058		-----		-----
963	D6730	25.20		1.71	6075		-----		-----
971	D6839	24.59		0.33	6103	D6730	24.197		-0.56
974		-----		-----	6142	ISO22854-A	24.76		0.71
994	D6729	25.341		2.03	6192		-----		-----
1006		-----		-----	6203	ISO22854-A	24.73		0.65
1011	ISO22854-A	24.4		-0.10	6240	ISO22854-A	22.96		-3.36
1033		-----		-----	6258		-----		-----
1039	ISO22854-A	24.60		0.35	6274	ISO22854-A	24.14		-0.69
1059	ISO22854-A	24.4		-0.10	6279	ISO22854-A	23.86		-1.32
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321	ISO22854-A	24.42		-0.05
1108	ISO22854-A	24.32		-0.28	6325	ISO22854-A	24.4		-0.10
1109		-----		-----	6416		-----		-----
1126	ISO22854-A	24.23		-0.48	6421		-----		-----
1134	ISO22854-A	24.38		-0.14	6441	ISO22854-A	27.25	R(0.01)	6.34
1141		-----		-----	6446	ISO22854-A	24.64		0.44
1171		-----		-----	6447		-----		-----
1191	ISO22854-A	24.95		1.14	6478		-----		-----
1194		-----		-----	6496	ISO22854-A	24.48		0.08

normality	suspect
n	57
outliers	1
mean (n)	24.444
st.dev. (n)	0.4724
R(calc.)	1.323
st.dev.(ISO22854-A:21)	0.4423
R(ISO22854-A:21)	1.238

Lab 1399 first reported 24.255



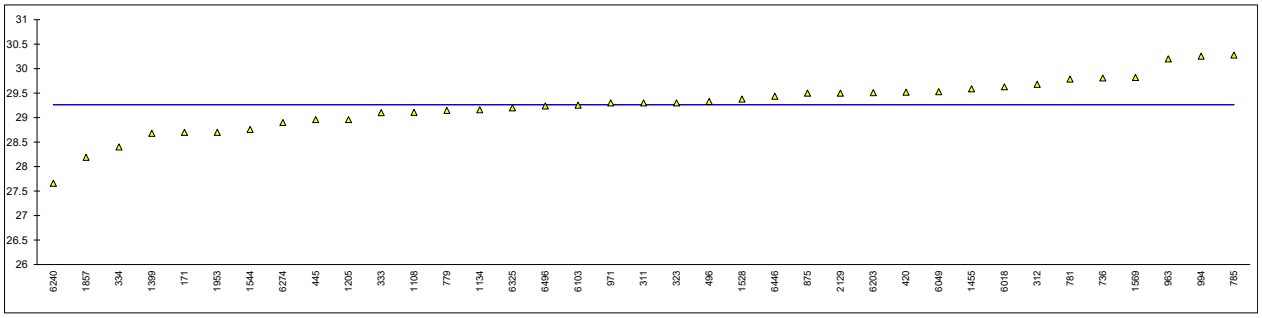


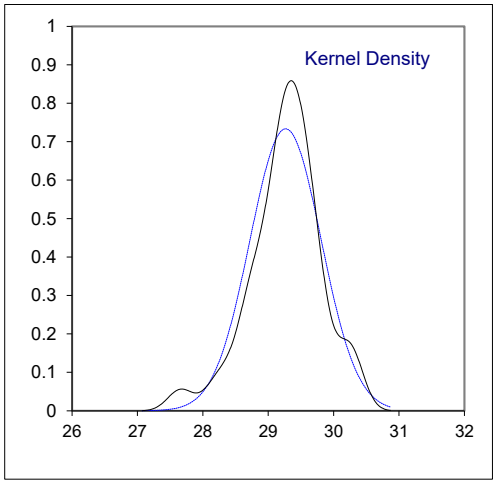
Determination of Aromatics by GC on sample #22185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205	D8071	28.96		-----
140		-----		-----	1212		-----		-----
171	ISO22854-A	28.7		-----	1266		-----		-----
225		-----		-----	1275		-----		-----
237		-----		-----	1299		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	29.3		-----	1389		-----		-----
312	ISO22854-A	29.68		-----	1397		-----		-----
323	ISO22854-A	29.3		-----	1399	D6839	28.68	C	-----
328		-----		-----	1402		-----		-----
333	ISO22854-A	29.1		-----	1455	ISO22854-A	29.59		-----
334	ISO22854-A	28.4		-----	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	29.38		-----
338		-----		-----	1537		-----		-----
343		-----		-----	1538		-----		-----
344		-----		-----	1544	ISO22854-A	28.76		-----
352		-----		-----	1569	D6839	29.82		-----
365		-----		-----	1586		-----		-----
369		-----		-----	1613		-----		-----
370		-----		-----	1636		-----		-----
371		-----		-----	1720		-----		-----
372		-----		-----	1724		-----		-----
381		-----		-----	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404		-----		-----	1746		-----		-----
420	ISO22854-A	29.52		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	ISO22854-A	28.96		-----	1803		-----		-----
447		-----		-----	1804		-----		-----
467		-----		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496	ISO22854-A	29.33		-----	1811		-----		-----
631		-----		-----	1833		-----		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857	D6729	28.189		-----
736	ISO22854-A	29.81		-----	1911		-----		-----
752		-----		-----	1941		-----		-----
759		-----		-----	1953		28.7		-----
779	D6729	29.148		-----	1968		-----		-----
781	D6729	29.789		-----	1977		-----		-----
782		-----		-----	2129	D6730	29.5		-----
785	D6729	30.28		-----	2130		-----		-----
798		-----		-----	2146		-----		-----
873		-----		-----	6018	ISO22854-A	29.63		-----
875	D6729	29.50		-----	6047		-----		-----
904		-----		-----	6049	ISO22854-A	29.53		-----
912		-----		-----	6054		-----		-----
914		-----		-----	6058		-----		-----
963	D6730	30.20		-----	6075		-----		-----
971	D6839	29.30		-----	6103	D6730	29.255		-----
974		-----		-----	6142		-----		-----
994	D6729	30.255		-----	6192		-----		-----
1006		-----		-----	6203	ISO22854-A	29.51		-----
1011		-----		-----	6240	ISO22854-A	27.66		-----
1033		-----		-----	6258		-----		-----
1039		-----		-----	6274		28.90		-----
1059		-----		-----	6279		-----		-----
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO22854-A	29.11		-----	6325	ISO22854-A	29.2		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		29.16		-----	6441		-----		-----
1141		-----		-----	6446	ISO22854-A	29.44		-----
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194		-----		-----	6496	ISO22854-A	29.24		-----

normality	suspect
n	37
outliers	0
mean (n)	29.264
st.dev. (n)	0.5439
R(calc.)	1.523
st.dev.(lit)	unknown
R(lit)	unknown
Compare:	
R(iis21B05EN)	1.063

Lab 1399 first reported 29.12



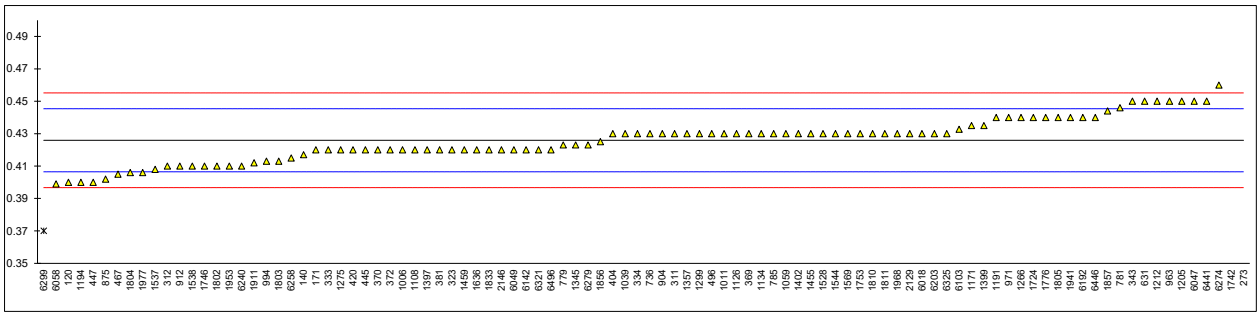


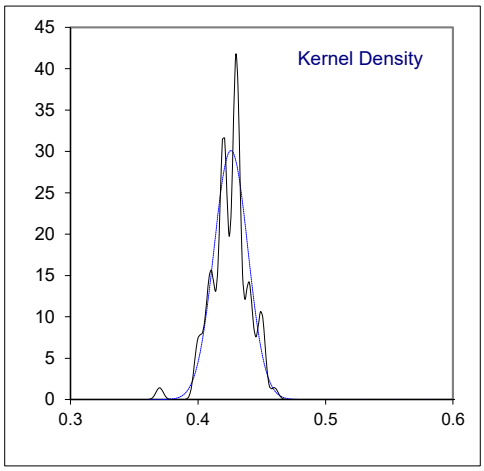
Determination of Benzene on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D3606	0.40		-2.66	1205	D8071	0.45		2.47
140	D3606	0.4170		-0.92	1212	EN238	0.45		2.47
171	ISO22854-A	0.42		-0.61	1266	EN238	0.44		1.45
225		-----		-----	1275	ISO22854-A	0.42		-0.61
237		-----		-----	1299	ISO22854-A	0.43		0.42
238		-----		-----	1345	D6730	0.423		-0.30
273	D6277	0.80	C,R(0.01)	38.42	1357	D6839	0.43		0.42
311	ISO22854-A	0.43		0.42	1389		-----	W	-----
312	ISO22854-A	0.41		-1.64	1397	EN238	0.42		-0.61
323	ISO22854-A	0.42		-0.61	1399	D6839	0.435		0.93
328		-----		-----	1402	ISO22854-A	0.43		0.42
333	ISO22854-A	0.42		-0.61	1455	ISO22854-A	0.43		0.42
334	ISO22854-A	0.43		0.42	1459	In house	0.42	C	-0.61
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	0.43		0.42
338		-----		-----	1537	EN238	0.408		-1.84
343	EN238	0.45	C	2.47	1538	EN238	0.41		-1.64
344		-----		-----	1544	EN12177	0.430		0.42
352		-----		-----	1569	D6839	0.43		0.42
365		-----		-----	1586		-----		-----
369	EN238	0.43		0.42	1613		-----		-----
370	EN238	0.42		-0.61	1636	EN238	0.42		-0.61
371		-----		-----	1720		-----		-----
372	EN12177	0.42		-0.61	1724	EN12177	0.44		1.45
381	ISO22854-A	0.42		-0.61	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742	EN238	0.67	R(0.01)	25.07
404	EN238	0.43		0.42	1746	D3606	0.41		-1.64
420	EN12177	0.42		-0.61	1753	EN12177	0.43		0.42
431		-----		-----	1776	ISO22854-A	0.44		1.45
444		-----		-----	1802	EN238	0.41	C	-1.64
445	ISO22854-A	0.42		-0.61	1803	EN12177	0.413		-1.33
447	IP429	0.4		-2.66	1804	EN238	0.406		-2.05
467	EN238	0.405		-2.15	1805	EN238	0.44		1.45
480		-----		-----	1810	D6839	0.43		0.42
496	ISO22854-A	0.43		0.42	1811	ISO22854-A	0.43		0.42
631	D6277	0.45		2.47	1833	ISO22854-A	0.42		-0.61
633		-----		-----	1856	EN12177	0.425		-0.09
734		-----		-----	1857	D6729	0.444		1.86
736	ISO22854-A	0.43		0.42	1911	EN12177	0.412		-1.43
752		-----		-----	1941	EN12177	0.44		1.45
759		-----		-----	1953		0.41		-1.64
779	D6729	0.423		-0.30	1968	D4053Mod.	0.43		0.42
781	D6729	0.446		2.06	1977	D6730	0.406		-2.05
782		-----		-----	2129	D6730	0.43		0.42
785	D6729	0.43		0.42	2130		-----		-----
798		-----		-----	2146	ISO22854-A	0.42		-0.61
873		-----		-----	6018	ISO22854-A	0.43		0.42
875	EN12177	0.402		-2.46	6047	EN12177	0.45		2.47
904	D5580	0.43		0.42	6049	ISO22854-A	0.42		-0.61
912	D5580	0.41		-1.64	6054		-----		-----
914		-----		-----	6058	EN12177	0.399		-2.77
963	D6730	0.45		2.47	6075		-----		-----
971	D5580	0.44		1.45	6103	D6730	0.4327		0.70
974		-----		-----	6142	ISO22854-A	0.42		-0.61
994	D6729	0.413		-1.33	6192	ISO22854-A	0.44		1.45
1006	D5580	0.42		-0.61	6203	ISO22854-A	0.43		0.42
1011	ISO22854-A	0.43		0.42	6240	ISO22854-A	0.41		-1.64
1033		-----		-----	6258	EN12177	0.415		-1.12
1039	ISO22854-A	0.43		0.42	6274	ISO22854-A	0.46		3.50
1059	ISO22854-A	0.43		0.42	6279	ISO22854-A	0.423		-0.30
1082		-----		-----	6299	EN238	0.37	R(0.01)	-5.74
1097		-----		-----	6321	ISO22854-A	0.42		-0.61
1108	ISO22854-A	0.42		-0.61	6325	ISO22854-A	0.43		0.42
1109		-----		-----	6416		-----		-----
1126	ISO22854-A	0.43		0.42	6421		-----		-----
1134	ISO22854-A	0.43		0.42	6441	ISO22854-A	0.45		2.47
1141		-----		-----	6446	ISO22854-A	0.440		1.45
1171	D6277	0.435		0.93	6447		-----		-----
1191	ISO22854-A	0.44		1.45	6478		-----		-----
1194	EN12177	0.4		-2.66	6496	ISO22854-A	0.42		-0.61

		ISO22854 only:
normality	OK	not OK
n	95	39
outliers	3	0
mean (n)	0.4259	0.4278
st.dev. (n)	0.01325	0.00981
R(calc.)	0.0371	0.0275
st.dev.(ISO22854-A:21)	0.00974	0.00975
R(ISO22854-A:21)	0.0273	0.0273
Compare:		
R(EN12177:22)	0.10	-----

Lab 273 first reported 0.52
Lab 343 first reported 0.5
Lab 1389 test result withdrawn, reported 0.36
Lab 1459 first reported 0.39
Lab 1802 first reported 0.39





Determination of Copper Corrosion 3 hrs at 50 °C on sample #22185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D130	1a		-----	1205		-----		-----
140	D130	1A		-----	1212	ISO2160	1A		-----
171	D130	1a		-----	1266	ISO2160	1a		-----
225	D130	1A		-----	1275	IP154	1a		-----
237	D130	1A		-----	1299	D130	1A		-----
238		-----		-----	1345	D130	1A		-----
273	D130	1a		-----	1357	D130	1a		-----
311		-----		-----	1389	D130	1A		-----
312	ISO2160	1a		-----	1397		-----		-----
323	ISO2160	1A		-----	1399	D130	1		-----
328	ISO2160	1		-----	1402	IP154	1A		-----
333		-----		-----	1455	D130	1A		-----
334	ISO2160	1		-----	1459		-----		-----
335	ISO2160	1a		-----	1498		-----		-----
337		-----		-----	1528	ISO2160	1a		-----
338		-----		-----	1537		-----		-----
343	D130	1A		-----	1538		-----		-----
344	D130	1a		-----	1544	D130	1A		-----
352	ISO2160	1a		-----	1569	ISO2160	1a		-----
365	IP154	1a		-----	1586	IP154	1B		-----
369		-----		-----	1613	D130	1a		-----
370	ISO2160	1A		-----	1636	ISO2160	1a		-----
371	ISO2160	1a		-----	1720	D130	1a		-----
372	ISO2160	1A		-----	1724	D130	1a		-----
381		-----		-----	1728		-----		-----
391		-----		-----	1740	D130	1a		-----
399	D130	1A		-----	1742		-----		-----
404	ISO2160	clasa 1		-----	1746	D130	1a		-----
420	ISO2160	class 1a		-----	1753	ISO2160	1a		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	IP154	1a		-----	1803		-----		-----
447	D130	1a		-----	1804		-----		-----
467	ISO2160	1a		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496	D130	1a		-----	1811		-----		-----
631	D130	1a		-----	1833	ISO2160	No.1		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857	D130	1a		-----
736	D130	1a		-----	1911		-----		-----
752		-----		-----	1941	ISO2160	1		-----
759		-----		-----	1953	ISO2160	Class 1A		-----
779	D130	1a		-----	1968	D130	1a		-----
781		1a		-----	1977		-----		-----
782		-----		-----	2129	IP154	1a		-----
785	ISO2160	1a		-----	2130	IP154	1a		-----
798		-----		-----	2146		-----		-----
873	D130	1a		-----	6018	ISO2160	1a		-----
875	D130	1a		-----	6047		-----		-----
904		1a		-----	6049	D130	1a		-----
912	D130	1a		-----	6054	D130	1a		-----
914		-----		-----	6058	ISO2160	1a		-----
963	D130	1a		-----	6075		-----		-----
971	ISO2160	1a		-----	6103	D130	1a		-----
974	D130	1a		-----	6142		-----		-----
994	D130	1A		-----	6192	ISO2160	1a		-----
1006	D130	1a		-----	6203	ISO2160	1a		-----
1011	ISO2160	1a		-----	6240	D130	1a		-----
1033		-----		-----	6258	ISO2160	1a		-----
1039	ISO2160	1A		-----	6274		-----		-----
1059	ISO2160	1a		-----	6279		-----		-----
1082		-----		-----	6299	ISO2160	1A		-----
1097	ISO2160	1a		-----	6321	IP154	1A		-----
1108	ISO2160	1a		-----	6325	D130	1a		-----
1109		-----		-----	6416	D130	1a		-----
1126		-----		-----	6421	ISO2160	1		-----
1134		1a		-----	6441		-----		-----
1141	ISO2160	1a		-----	6446	D130	1A		-----
1171	ISO2160	1A		-----	6447		-----		-----
1191		-----		-----	6478	ISO2160	1 class		-----
1194		-----		-----	6496	ISO2160	1a		-----

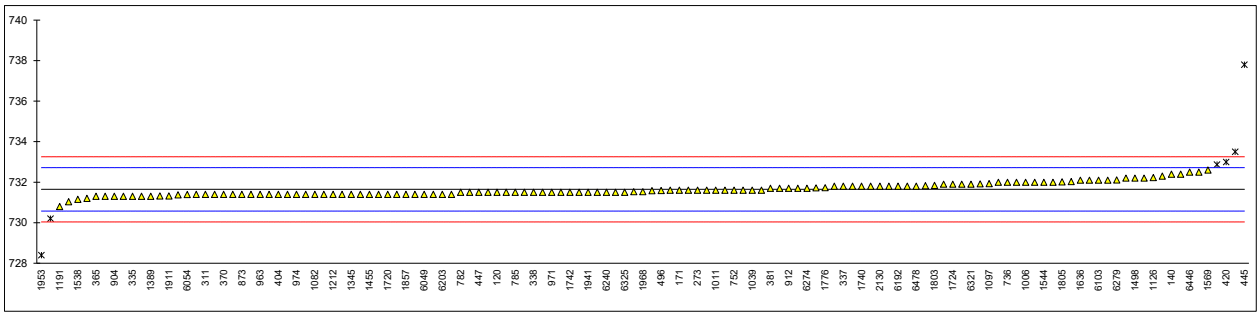
n	92
mean (n)	1 (1a / 1b)

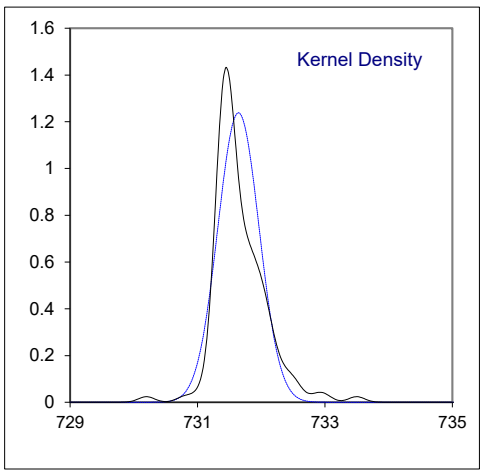
Determination of Density at 15 °C on sample #22185; results in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	731.5		-0.27	1205	ISO12185	732.03		0.72
140	D4052	732.40		1.41	1212	ISO12185	731.4		-0.46
171	ISO12185	731.6		-0.08	1266	ISO3675	731.3	C	-0.64
225	D4052	731.8		0.29	1275	IP365	731.8		0.29
237	D4052	731.6		-0.08	1299	D4052	731.6		-0.08
238		-----		-----	1345	D4052	731.4		-0.46
273	D4052	731.6		-0.08	1357	D4052	731.3		-0.64
311	D4052	731.4		-0.46	1389	D4052	731.3		-0.64
312	ISO12185	731.4		-0.46	1397	ISO12185	732.2		1.04
323	ISO12185	731.6		-0.08	1399	D4052	732.3		1.22
328	ISO12185	731.5		-0.27	1402	IP365	731.4		-0.46
333	ISO12185	731.5		-0.27	1455	ISO12185	731.4		-0.46
334	ISO12185	731.4		-0.46	1459	ISO12185	731.38		-0.49
335	ISO12185	731.3		-0.64	1498	D4052	732.2		1.04
337	ISO12185	731.8		0.29	1528	ISO12185	731.4		-0.46
338	ISO12185	731.5		-0.27	1537	ISO12185	732.00		0.66
343	ISO12185	731.4		-0.46	1538	ISO12185	731.16		-0.90
344	D4052	731.6		-0.08	1544	D1298	732.00		0.66
352	ISO12185	731.7		0.10	1569	ISO12185	732.6	C	1.78
365	IP365	731.3		-0.64	1586	ISO12185	731.5		-0.27
369	ISO12185	731.4		-0.46	1613	D4052	732.4		1.41
370	ISO12185	731.4		-0.46	1636	ISO12185	732.1		0.85
371	ISO12185	731.4		-0.46	1720	D4052	731.4		-0.46
372	ISO12185	731.5		-0.27	1724	D4052	731.9		0.48
381	ISO12185	731.7		0.10	1728	D4052	731.53		-0.21
391	ISO12185	731.3		-0.64	1740	D1298	731.8		0.29
399	D4052	731.2		-0.83	1742	ISO12185	731.5		-0.27
404	ISO12185	731.4		-0.46	1746	D4052	732.1		0.85
420	ISO12185	733.0	C,R(0.05)	2.53	1753	ISO12185	731.5		-0.27
431		-----		-----	1776	ISO12185	731.73		0.16
444	D4052	731.4		-0.46	1802	ISO12185	731.83		0.35
445	D4052	737.8	R(0.01)	11.49	1803	ISO12185	731.84		0.37
447	D4052	731.5		-0.27	1804	ISO12185	732.0		0.66
467	ISO12185	731.32		-0.61	1805	ISO12185	732.02		0.70
480	ISO12185	731.4		-0.46	1810	ISO12185	731.4		-0.46
496	ISO12185	731.59		-0.10	1811	ISO12185	731.7		0.10
631	D4052	731.92		0.51	1833	ISO12185	731.8		0.29
633		-----		-----	1856	ISO12185	731.9		0.48
734	D4052	732.0		0.66	1857	ISO12185	731.4		-0.46
736	ISO12185	732.0		0.66	1911	ISO12185	731.32		-0.61
752	D4052	731.6		-0.08	1941	ISO12185	731.5	C	-0.27
759	ISO12185	731.5		-0.27	1953		728.4	R(0.01)	-6.06
779	D4052	731.4		-0.46	1968	ISO3675	731.53		-0.21
781	ISO12185	731.6		-0.08	1977	ISO3675	730.2	R(0.05)	-2.70
782	D4052	731.5		-0.27	2129	D4052	731.4		-0.46
785	ISO12185	731.5		-0.27	2130	D4052	731.8		0.29
798		-----		-----	2146	ISO12185	731.5		-0.27
873	ISO12185	731.4		-0.46	6018	ISO12185	731.8		0.29
875	ISO12185	731.6		-0.08	6047	ISO12185	732.2		1.04
904	ISO12185	731.3		-0.64	6049	ISO12185	731.4		-0.46
912	D4052	731.7		0.10	6054	D4052	731.39		-0.47
914		-----		-----	6058	ISO12185	731.4		-0.46
963	D4052	731.4		-0.46	6075		-----		-----
971	ISO12185	731.5		-0.27	6103	ISO12185	732.10		0.85
974	D1298	731.4		-0.46	6142	ISO12185	732.1		0.85
994	ISO12185	732.0		0.66	6192	D1298	731.8		0.29
1006	D4052	732.0		0.66	6203	ISO12185	731.4		-0.46
1011	ISO12185	731.6		-0.08	6240	ISO12185	731.5		-0.27
1033		-----		-----	6258	ISO12185	731.5		-0.27
1039	ISO12185	731.6		-0.08	6274	ISO12185	731.7		0.10
1059	ISO12185	731.9		0.48	6279	ISO12185	732.11		0.87
1082	ISO12185	731.4		-0.46	6299	ISO12185	732.87	R(0.05)	2.29
1097	ISO12185	731.93		0.53	6321	IP365	731.9		0.48
1108	ISO12185	731.72		0.14	6325	ISO12185	731.5		-0.27
1109		-----		-----	6416	D1298	731.8		0.29
1126	ISO12185	732.23		1.09	6421	ISO12185	733.5	R(0.01)	3.46
1134	IP365	731.5		-0.27	6441	ISO12185	731.58		-0.12
1141	ISO12185	731.4	C	-0.46	6446	ISO12185	732.5		1.60
1171	D4052	731.03		-1.15	6447	D4052	732.5		1.60
1191	ISO12185	730.8		-1.58	6478	ISO12185	731.8	C	0.29
1194		-----		-----	6496	ISO12185	731.4		-0.46

normality	OK
n	127
outliers	6
mean (n)	731.644
st.dev. (n)	0.3222
R(calc.)	0.902
st.dev.(ISO12185:96)	0.5357
R(ISO12185:96)	1.5

Lab 420 first reported 733.4
Lab 1141 first reported 0.7314 kg/m^3
Lab 1266 first reported 729.8
Lab 1569 first reported 733.1
Lab 1941 first reported 0.7315 kg/m^3
Lab 6478 first reported 732.7



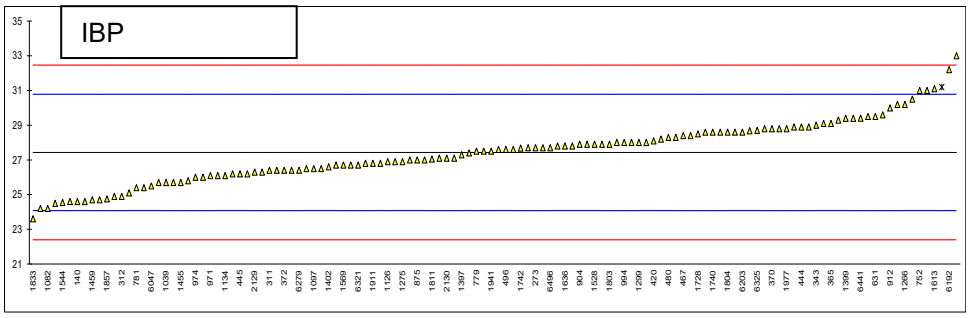


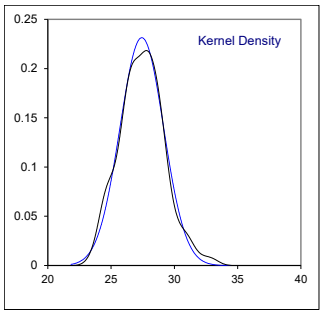
Determination of Distillation at 760 mmHg on sample #22185; results in °C

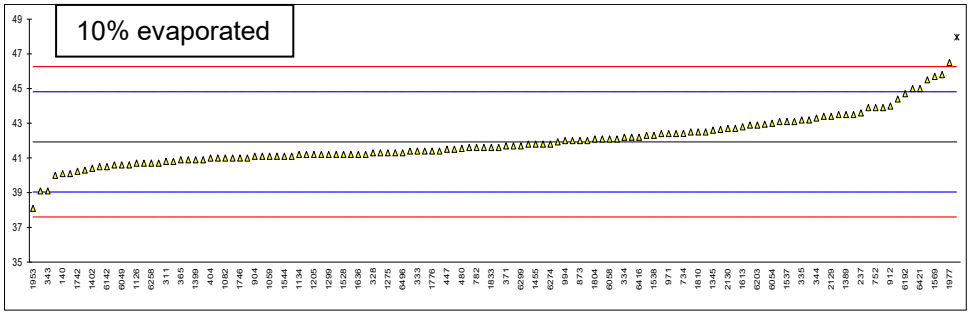
lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
120	D86-automated	26.8		41.8		88.4		141.3		171.4	
140	D86-automated	24.6		40.1		87.5		141.4		171.7	
171	ISO3405-automated	26.5		45.8		87.7		142.8		166.6	
225	D86-manual	28.0		45.0		94.0	R(5)	151.0	R(1)	177.0	
237	D86-manual	30.5		43.6		89.2		141.3		173.0	
238		-----		-----		-----		-----		-----	
273	D86-automated	27.7		41.2		88.4		140.5		173.7	
311	D86-automated	26.4		40.8		88.3		141.6		167.3	
312	ISO3405-automated	24.9		40.5		88.1		140.9		170.9	
323	D86-automated	29.3		41.1		88.2		141.5		171.6	
328	ISO3405-automated	25.7		41.3		87.8		141.2		170.2	
333	ISO3405-automated	24.9		41.4		88.2		140.9		169.9	
334	ISO3405-automated	27.7		42.2		88.6		141.1		170.1	
335	ISO3405-automated	30.2		43.2		89.2		142.1		172.0	
337		-----		-----		-----		-----		-----	
338	ISO3405-automated	28.6		41.6		87.9		141.3		171.0	
343	ISO3405-automated	29		39.1		87.6		143		172.9	
344	D86-automated	28.9		43.3		91.9		143.8		170.2	
352		-----		-----		-----		-----		-----	
365	D86-automated	29.1		40.9		86.8		140.9		171.6	
369	ISO3405-automated	28.2		43.9		88.0		142.3		170.3	
370	ISO3405-automated	28.8		41.1		87.1		141.6		170.8	
371	ISO3405-automated	27.6		41.7		86.5		141.7	C	172.0	
372	ISO3405-automated	26.4		41.7		88.3		141.4		172.5	
381	D86-automated	28.0		43.2		89.5		142.9		170.5	
391		-----		-----		-----		-----		-----	
399		-----		-----		-----		-----		-----	
404	ISO3405-automated	27.5		41.0		86.8		140.3		167.2	
420	ISO3405-automated	28.1		39.1		86.15		140.15		173.7	
431		-----		-----		-----		-----		-----	
444	D86-automated	28.9		45.5		89.7		140.1		169.7	
445	IP123-automated	26.2		40.3	C	86.4		140.8		170.1	
447	D86-automated	24.2		41.5		88.6		141.4		172.0	
467	ISO3405-automated	28.4		41.3		88.9		141.6		173.6	
480	ISO3405-automated	28.3		41.55		88.8		141.3		173.65	
496	ISO3405-automated	27.6		40.9		88.6		142.0		172.7	
631	D86-manual	29.5		41.0		88.0		140.0		172.0	
633		-----		-----		-----		-----		-----	
734	D86-automated	24.60		42.42		88.90		141.91		172.05	
736	ISO3405-manual	26.5		41.5		88.0		141.0		171.5	
752	ISO3405-manual	31.0		43.9		90.9		143.0		170.3	
759	ISO3405-automated	27.0		43.5		92.0		142.0		171.5	
779	D86-manual	27.5		42.5		89.5		141.5		172.5	
781	ISO3405-automated	25.4		41.3		88.2		140.8		172.6	
782	GOST2177-manual	29.5		41.6		88.7		141.9		172.5	
785	D86-automated	29.1		41.0		86.9		141.2		171.5	
798		-----		-----		-----		-----		-----	
873	ISO3405-manual	27.0		42.0		88.5		142.5		172.5	
875	ISO3405	27.0		42.0		88.5		142.5		172.5	
904	ISO3405-automated	27.9		41.1		87.7		141.0		172.1	
912	D86-manual	30		44		88		138		170	
914		-----		-----		-----		-----		-----	
963	D86-automated	26.1		42.3		89.2		142.4		170.1	
971	D86-automated	26.1		42.4		89.2		142.0		171.6	
974	D86-automated	26.0		42.4		89.3		142.4		171.4	
994	D86-manual	28.0		42.0		90.0		141.0		173.0	
1006	D86-automated	28.8		42.4		89.0		141.8		169.0	
1011	ISO3405-automated	25.8		43.1		90.6		143.1		171.8	
1033		-----		-----		-----		-----		-----	
1039	ISO3405-automated	25.7		41.4		88.4		141.6		171.8	
1059	ISO3405-automated	26.7		41.1		88.1		139.3		171.6	
1082	ISO3405-automated	24.2		41.0		88.1		141.6		171.2	
1097	ISO3405-automated	26.5		42.9		88.9		141.3		171.9	
1108	ISO3405-automated	28.9		43.9		88.1		141.5		169.9	
1109		-----		-----		-----		-----		-----	
1126	ISO3405-automated	26.9		40.7		88.0		141.2		171.3	
1134	IP123-automated	26.1		41.2		87.5		141.5		171.8	
1141	ISO3405-automated	25.7		40.0		86.9		140.8		171.1	
1171	ISO3405-automated	28.68		42.65		87.95		141.35		174.95	
1191	ISO3405-automated	26.4		41.2		87.7		141.1		170.9	
1194		-----		-----		-----		-----		-----	
1205	D86-automated	26.9		41.2		87.9		141.2		175.0	
1212	D86-automated	26.2		41.6		87.9		141.3		171.6	
1266	D86-automated	30.20		42.95		90.35		142.35	C	173.85	
1275	IP123-automated	26.9		41.3		87.7		141.3		170.6	
1299	D86-automated	28.0		41.2		87.8		141.3		172.0	

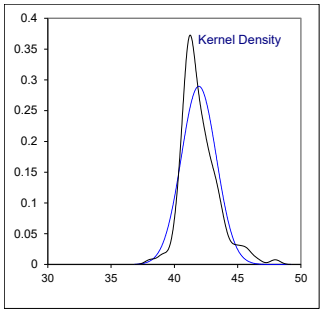
lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
1345	D86-automated	27.1		42.6		91.3	C	146.0	C,R(1)	173.8	
1357	D86-automated	NA		40.1		87.0		140.6		168.8	
1389	D86-automated	25.1	C	43.5	C	91.1	C	143.2	C	173.0	C
1397	ISO3405-automated	27.3		44.4		87.1	C	141.0	C	169.9	
1399	D86-automated	29.4		40.9		86.8		141.5		176.4	
1402	ISO3405-automated	26.6		40.4		87.5		141.2		172.6	
1455	ISO3405-automated	25.7		41.8		89.0		141.5		176.1	
1459	ISO3405-automated	24.7	C	40.6		87.5		140.8		168.0	
1498		27.9		41.2		87.8		141.4		171.6	
1528	ISO3405-automated	27.9		41.2		87.6		141.9		172.4	
1537	ISO3405-automated	28.8		43.1		89.9		141.3		168.8	
1538	ISO3405-automated	27.8		42.3		90.3		142.5		173.8	
1544	D86-automated	24.55		41.10		87.60		141.10		167.55	
1569	ISO3405-automated	26.7		45.7		98.5	R(1)	160.2	R(1)	169.6	
1586	D86-automated	26.7		41.2		88.3		141.2		172.3	
1613	D86-automated	31.1		42.8		88.8		141.6		172.7	
1636		27.8		41.2		87.2		141.1		168.6	
1720	D86-automated	27.7		41.1		87.0		140.9		171.7	
1724	D86-automated	26.4		40.9		88.1		141.9		171.5	
1728	D86-manual	28.5		42		87		141.5		172	
1740	D86-automated	28.6		42.2		89.3		141.6		169.3	
1742	ISO3405-automated	27.68		40.23		87.82		141.49		173.82	
1746	D86-manual	31.0		41.0		90.0		140.0		173.5	
1753	ISO3405-manual	27.9		41.4		87.7		142.0		172.2	
1776	ISO3405-automated	24.7		41.4		88.0		140.7		171.7	
1802	ISO3405-automated	28.6		41.4		87.8		141.5		170.1	
1803	ISO3405-automated	27.9		41.2		87.7		141.5		169.9	
1804	ISO3405-automated	28.6		42.1		87.1		141.3		170.0	
1805	ISO3405-automated	28.6		40.7		86.5		140.8		170.8	
1810	D86-automated	27.8		42.5		88.5		142.1		171.2	
1811	D86-automated	27.05		43.4		86.1		140.5		169.3	
1833	ISO3405-automated	23.6		41.6		88.7		140.9		171.2	
1856	ISO3405-automated	27.4		-----		-----		-----		172.8	
1857	ISO3405-automated	24.75		41.00		87.70		141.00		171.60	
1911		26.80		40.80		87.25		141.25		170.70	
1941	ISO3405-automated	27.5		42.1		86.3		141.2		172.0	
1953	ISO3405-automated	28.4		38.1		88.1		143.2		172.7	
1968		-----		-----		-----		141.5		170.0	
1977	ISO3405-automated	28.8		46.5		91.8		145.2		170.5	
2129	IP123-automated	26.3		43.4		87.7	C	141.3	C	171.2	
2130	IP123-automated	27.1		42.7		88.3		141.4		171.8	
2146	ISO3405-automated	27.1		41.6		88.3		141.6		172.5	
6018	ISO3405-automated	26.2		41.8		88.5		141.6		172.5	
6047	ISO3405-automated	25.5		42.5		89.5		141.8		170.6	
6049	ISO3405-automated	28.0		40.6		87.1		140.9		170.9	
6054	D86-automated	24.5		43.0		91.7		145.0		171.2	
6058	ISO3405-automated	28.3		42.1		87.6		142.0		172.0	
6075		-----		-----		-----		-----		-----	
6103	ISO3405-automated	29.6		42.7		93.4	C,R(5)	146.9	C,R(1)	169.3	
6142	ISO3405-automated	26.3		40.5		87.7		141.6		170.5	
6192	D86-automated	32.2		44.7		93.2	R(5)	145.5		173.3	
6203	ISO3405-automated	28.6		42.9		90.7		144.4		170.1	
6240	D86-automated	24.6		42.1		89.2		141.3		172.1	
6258	ISO3405-automated	26.8		40.7		87.4		140.9		172.9	
6274	ISO3405-automated	27.6		41.8		88.0		141.3		172.9	
6279	ISO3405-automated	26.4		43.5		91.3		141.6	C	170.25	
6299	ISO3405-automated	25.4		41.7		88.1		141.5		167.6	
6321	IP123-automated	26.7		40.7		87.4		141.0		170.2	
6325	D86-automated	28.7		43.1		88.6		141.3		171.3	
6416	D86-automated	29.4	C	42.2		88.8		142.0		173.3	
6421	ISO3405	33		45		90		144		171	
6441	D86-automated	29.41		41.93		87.92		141.78		172.62	
6446	ISO3405-automated	26.0		40.6		86.8		141.3		168.7	
6447		-----		-----		-----		-----		-----	
6478	ISO3405-manual	31.2	ex,C	47.96	R(1)	99.29	R(1)	150.83	R(1)	172.03	ex
6496	ISO3405-automated	27.7		41.3		87.8		141.0		169.8	
	normality	OK		suspect		OK		not OK		suspect	
	n	125		125		121		122		127	
	outliers	0 +1ex		1		5		5		0 +1ex	
	mean (n)	27.43		41.93		88.36		141.57		171.44	
	st.dev. (n)	1.725		1.377		1.263		1.020		1.769	
	R(calc.)	4.83		3.86		3.54		2.86		4.95	
	st.dev.(ISO3405-A:19)	1.679		1.443		1.454		1.955		2.536	
	R(ISO3405-A:19)	4.7		4.04		4.07		5.47		7.1	
Compare:											
	R(ISO3405-M:19)	5.6		4.11		4.16		3.66		7.2	

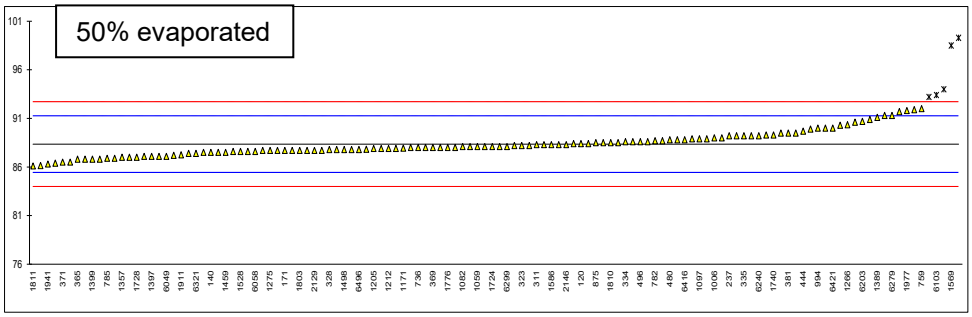
Lab 371 first reported 143.5
Lab 445 first reported 34.2
Lab 1266 first reported 145.85
Lab 1345 first reported 93.2 (50% eva) and 147.5 (90% eva)
Lab 1389 first reported 26.7 (IBP), 44.0 (10% eva), 91.8 (50% eva), 144.1 (90% eva) and 174.6 (FBP)
Lab 1397 first reported 92.6 (50% eva) and 146.9 (90% eva)
Lab 1459 first reported 18.1
Lab 2129 first reported 91.6 (50% eva) and 145.8 (90% eva)
Lab 6103 first reported 91.6 (50% eva) and 145.7 (90% eva)
Lab 6279 first reported 145.5
Lab 6416 first reported 32.4
Lab 6478 first reported 33.5

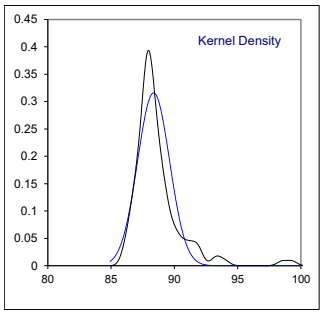


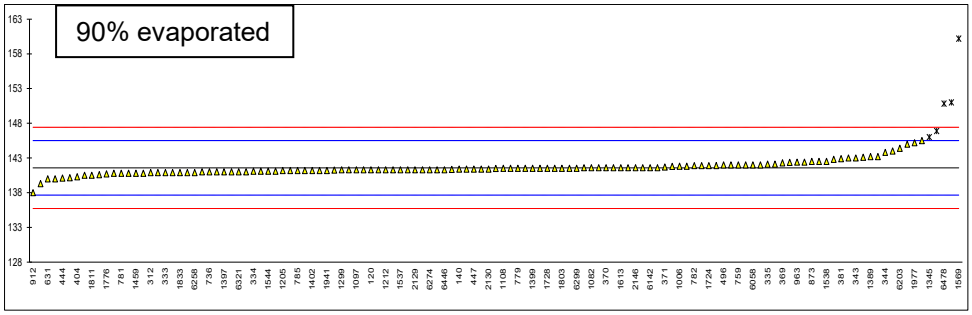


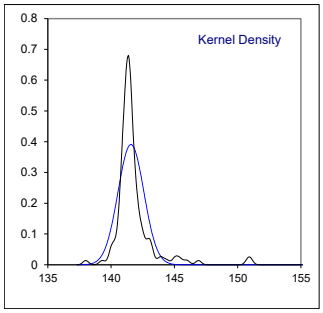


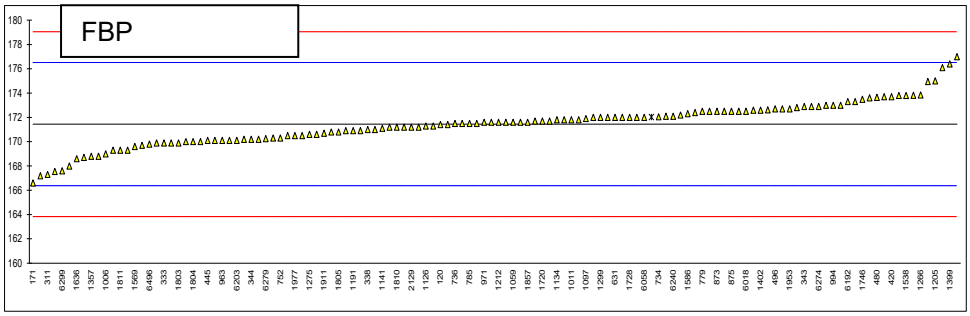


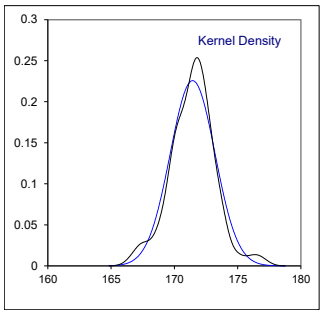










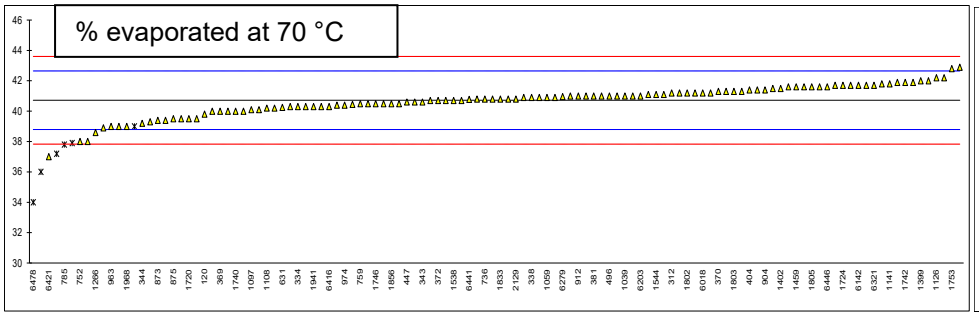


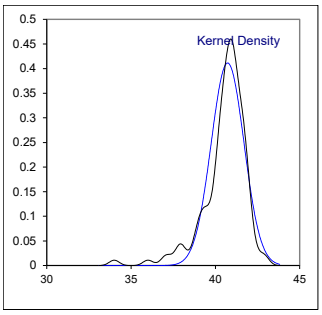
Determination of Distillation at 760 mmHg on sample #22185; results in %V/V

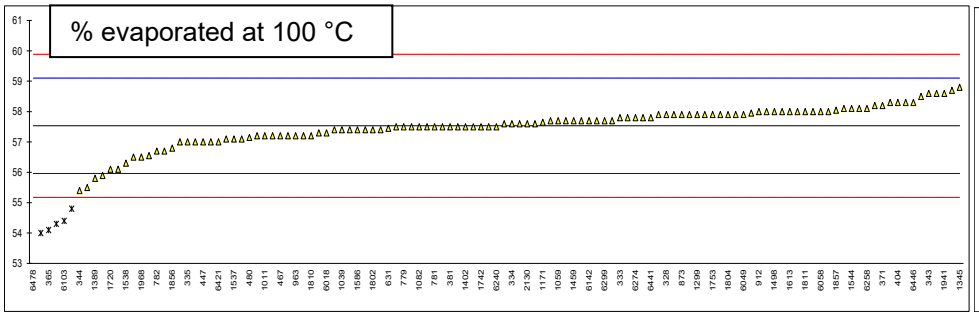
lab	method	%E70 °C	mark	%E100 °C	mark	%E150 °C	mark	%residue	%loss
120	D86-automated	39.8		55.9		90.7	C.R(0.01)	1.0	1.6
140		-----		-----		-----		1.0	2.8
171	ISO3405-automated	38.0		57.7		93.3		1.0	1.8
225	D86-manual	36.0	R(0.01)	54.0	R(0.01)	90.5	R(0.01)	1.2	2.8
237		-----		-----		-----		1.0	0.5
238		-----		-----		-----		-----	-----
273		-----		-----		-----		-----	-----
311	D86-automated	41.8		57.2		94.1		1.1	2.5
312	ISO3405-automated	41.2		57.4		94.2		1.0	2.1
323	D86-automated	41.0		57.5		94.2		1.0	2.9
328	ISO3405-automated	40.8		57.9		94.4		1.0	2.0
333	ISO3405-automated	41.0		57.8		94.3		1.0	1.5
334	ISO3405-automated	40.3		57.6		94.1		1.0	1.9
335	ISO3405-automated	40.6		57.0		94.0		1.0	1.8
337		-----		-----		-----		-----	-----
338	ISO3405-automated	40.9		57.9		94.4		1.0	2.5
343	ISO3405-automated	40.6		58.6		94.0		1.0	4.3
344	D86-automated	39.2		55.4		93.8		1	2.1
352		-----		-----		-----		-----	-----
365	D86-automated	37.9	ex	54.1	R(0.01)	90.2	R(0.01)	1.0	3.6
369	ISO3405-automated	40.0		58.3		94.4		1.0	1.4
370	ISO3405-automated	41.3		58.3		94.0		1.0	2.0
371	ISO3405-automated	41.5		58.2		93.4		1.0	1.7
372	ISO3405-automated	40.7		57.5		94.7		1.0	1.6
381	D86-automated	41.0		57.5		94.2		0.8	1.5
391		-----		-----		-----		-----	-----
399		-----		-----		-----		-----	-----
404	ISO3405-automated	41.4		58.3		94.8		0.7	2.7
420	ISO3405-automated	41.9		58.7		95.1		1.0	-----
431		-----		-----		-----		-----	-----
444		-----		-----		-----		1.0	2.4
445	IP123-automated	42.2		58.6		94.5		1.1	3.8
447	D86-automated	40.6		57.0		94.8		1.0	1.7
467	ISO3405-automated	40.9		57.2		94.0		0.9	1.6
480	ISO3405-automated	40.7		57.15		94.05		1.1	1.4
496	ISO3405-automated	41.0		57.2		93.8		1.0	2.5
631	D86-manual	40.25		57.45		95.0		0.8	1.0
633		-----		-----		-----		-----	-----
734	D86-automated	40.50		57.10		93.95		1.0	1.25
736	ISO3405-manual	40.8		57.9		94.5		0.8	1.4
752	ISO3405-manual	38.0		57.0		92.0	R(0.01)	0.8	2.2
759	ISO3405-automated	40.5		56.5		93.5		1.0	1.0
779	D86-manual	39.5		57.5		93.5		1.0	1.0
781	ISO3405-automated	40.8		57.5		94.8		0.8	1.6
782	GOST2177-manual	40.2		56.7		93.2		0.8	1.7
785	D86-automated	37.8	ex	54.3	R(0.01)	91.0	R(0.01)	1.0	2.9
798		-----		-----		-----		-----	-----
873	ISO3405-manual	39.4		57.9		94.0		0.9	2.1
875	ISO3405	39.5		57.5		94.5		1.0	0.9
904	ISO3405-automated	41.4		57.8		94.7		1.0	1.0
912	D86-manual	41		58		96	R(0.01)	1	1
914		-----		-----		-----		-----	-----
963	D86-automated	39.0		57.2	C	93.2		1.0	1.1
971	D86-automated	40.3		57.5		94.0		1.0	1.0
974	D86-automated	40.4		57.2		94.1		1.0	1.2
994		-----		57.0		95.0		1.0	1.0
1006		-----		-----		-----		1.0	1.7
1011	ISO3405-automated	40.4		57.2		94.5		1.0	0.9
1033		-----		-----		-----		-----	-----
1039	ISO3405-automated	41.0		57.4		94.7		1.0	1.9
1059	ISO3405-automated	40.9		57.7		94.1		1.0	1.9
1082	ISO3405-automated	41.0		57.5		94.1		1.0	-----
1097	ISO3405-automated	40.1		57.0		94.6		0.8	0.3
1108	ISO3405-automated	40.2		57.3		93.9		1.0	2.1
1109		-----		-----		-----		-----	-----
1126	ISO3405-automated	42.2		57.6		94.2		1.1	2.4
1134	IP123-automated	41.6		57.6		94.7		1.0	2.2
1141	ISO3405-automated	41.8		58.2		95.0		0.7	3.2
1171	ISO3405-automated	40.45		57.65		94.25		0.80	2.20
1191	ISO3405-automated	41.2		57.7		94.8		1.0	-----
1194		-----		-----		-----		-----	-----
1205	D86-automated	41.4		57.4		94.7		1.0	3.4
1212	D86-automated	40.9		57.5		94.9		0.7	2.0
1266	D86-automated	38.60		56.55		92.9	C	2.0	2.4
1275	IP123-automated	41.0		57.9		94.4		1.0	3.2
1299	D86-automated	41.1		57.9		94.7		1.0	1.3

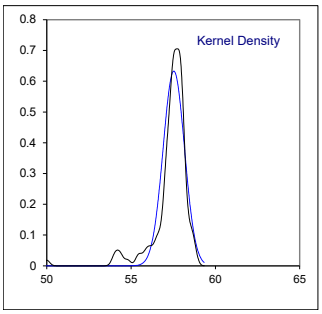
lab	method	%E70 °C	mark	%E100 °C	mark	%E150 °C	mark	%residue	%loss	
1345	D86-automated	40.0	C	58.8		91.5	C,R(0.01)	-----	-----	
1357	D86-automated	NA		NA		NA		0.9	1.0	
1389	D86-automated	39.3	C	55.8	C	93.6	C	0.6	0.4	
1397	ISO3405-automated	40.3		58.1		94.3		1.0	2.9	
1399	D86-automated	42.0		58.0		94.3		1.0	1.4	
1402	ISO3405-automated	41.5		57.5		94.2		1.0	2.8	
1455	ISO3405-automated	40.7		57.2		94.2		1.0	1.1	
1459	ISO3405-automated	41.6		57.7		94.5		1.0	2.4	
1498		42		58		94		1.0	2.0	
1528	ISO3405-automated	42.9		58.0		94.5		0.9	2.5	
1537	ISO3405-automated	41.3		57.1		94.2		1.0	0.8	
1538	ISO3405-automated	40.7		56.3		94.0		0.9	0.7	
1544	D86-automated	41.10		58.10		94.40		1.00	1.4	C
1569	ISO3405-automated	41.7		58.1		93.9		1.1	4.3	
1586	D86-automated	41.0		57.4		94.3		0.9	3.0	
1613	D86-automated	40		58		94		1.0	1.0	
1636		41.6		57.9		94.2		1.0	2.8	
1720	D86-automated	39.5		56.1		93.2		1.0	0.8	
1724	D86-automated	41.7		57.4		94.2		1.3	1.6	
1728	D86-manual	39		57.5		95	C	1.5	0.5	
1740	D86-automated	40.0		56.7		94.1		1	2.2	
1742	ISO3405-automated	41.9		57.5		94.1		1.0	3.6	
1746	D86-manual	40.5		58.0		95.0	C	-----	-----	
1753	ISO3405-manual	42.8		57.9		94.5		0.8	2.5	
1776	ISO3405-automated	41.1		57.7		94.3		1.0	2.3	
1802	ISO3405-automated	41.2		57.4		94.6		0.9	-----	
1803	ISO3405-automated	41.3		57.9		94.6		1.0	-----	
1804	ISO3405-automated	41.2		57.9		94.2		0.8	0.9	
1805	ISO3405-automated	41.6		58.5		94.3		1.0	-----	
1810	D86-automated	40.5		57.2		93.9		1	1.2	
1811	D86-automated	40.1		58.0		94.5		1	1	
1833	ISO3405-automated	40.8		57.4		95.0		1.0	1.2	
1856	ISO3405-automated	40.5		56.8		94.1		-----	-----	
1857	ISO3405-automated	40.80		58.05		93.95		1.05	2.30	
1911		41.70		57.95		94.70		1.00	2.70	
1941	ISO3405-automated	40.3		58.6		94.6		0.7	2.5	
1953	ISO3405-automated	41.3		58.0		93.0		0.9	5	
1968	ISO3405-manual	39.0		56.5		94.0		1.0	0.5	
1977		-----		-----		-----		-----	1	
2129	IP123-automated	40.8		57.9		94.1		1.3	2.0	
2130	IP123-automated	40.3		57.6		94.1		1.0	1.5	
2146	ISO3405-automated	40.7		57.5		94.3		1.0	0.8	
6018	ISO3405-automated	41.2		57.3		94.8		0.8	2.1	
6047	ISO3405-automated	39.4		56.1		93.2		1.0	0.8	
6049	ISO3405-automated	41.6		57.9		94.8		1.0	2.4	
6054	D86-automated	38.9		55.5		92.2	R(0.05)	0.9	2.0	
6058	ISO3405-automated	41.9		58.0		93.8		1.6	2.3	
6075		-----		-----		-----		-----	-----	
6103	ISO3405-automated	39.0	ex	54.4	C,R(0.01)	91.4	C,R(0.01)	1.0	2.95	
6142	ISO3405-automated	41.7		57.7		94.4		1	2.5	
6192	D86-automated	37.2	ex	54.8	R(0.01)	92.4	R(0.05)	0.7	0.8	
6203	ISO3405-automated	41		58		94.8		1.0	1.8	
6240	D86-automated	40.0		57.5		94.4		1	0.1	
6258	ISO3405-automated	41.2		58.1		94.6		1.0	3.0	
6274	ISO3405-automated	40.5		57.8		94.5		1.3	1.0	
6279	ISO3405-automated	40.965		57.70		94.365		1.85	-----	
6299	ISO3405-automated	41.7		57.7		94.2		1.2	1.5	
6321	IP123-automated	41.7		57.8		94.7		0.9	3.0	
6325	D86-automated	39.5		57.7		94.0		1.0	1.7	
6416	D86-automated	40.3		57.1		94		1.0	1.3	
6421	ISO3405	37		57		93		1	1	
6441	D86-automated	40.78		57.80		94.04		0.80	3.17	
6446	ISO3405-automated	41.6		58.3		94.1		1.0	3.5	
6447		-----		-----		-----		-----	-----	
6478	ISO3405-manual	34	R(0.01)	50	R(0.01)	89	R(0.01)	0.8	4.2	
6496	ISO3405-automated	40.9		57.6		94.3		1	2.8	
	normality	suspect		suspect		OK				
	n	114		115		110				
	outliers	2 +4ex		6		11				
	mean (n)	40.719		57.533		94.236				
	st.dev. (n)	0.9694		0.6303		0.4731				
	R(calc.)	2.714		1.765		1.325				
	st.dev.(ISO3405-A:19)	0.9643		0.7857		0.4643				
	R(ISO3405-A:19)	2.7		2.2		1.3				

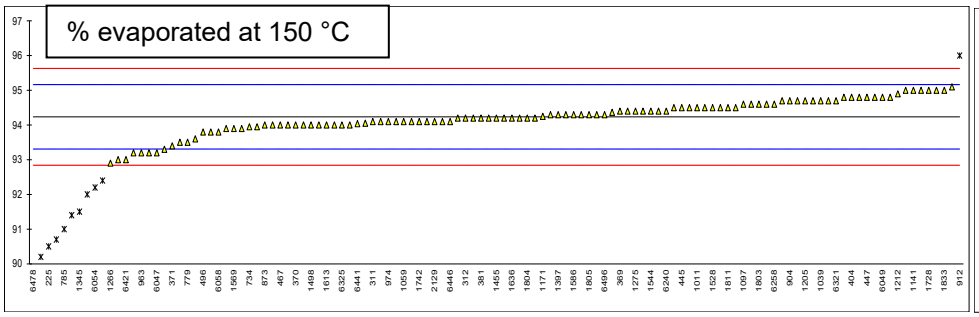
Lab 120 first reported 92.6
Lab 365 test result for %E70 °C excluded as statistical outliers in related test parameters
Lab 785 test result for %E70 °C excluded as statistical outliers in related test parameters
Lab 963 first reported 55.7
Lab 1266 first reported 91.35
Lab 1345 first reported 44.1 (%E70 °C) and 95.6 (%E150 °C)
Lab 1389 first reported 42.0 (%E70 °C), 55.4 (%E100 °C) and 93.0 (%E150 °C)
Lab 1544 first reported 97.60 for Distillation Loss
Lab 1728 first reported 93
Lab 1746 first reported 92.0
Lab 6103 test result for %E70 °C excluded as statistical outliers in related test parameters. Fr. 55.7 (%E100 °C) and 92.3 (%E150 °C)
Lab 6192 test result for %E70 °C excluded as statistical outliers in related test parameters

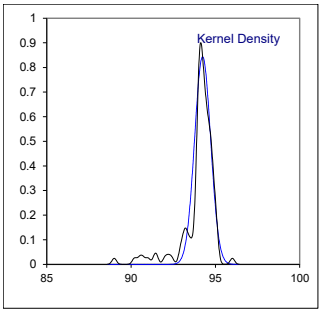












Determination of Doctor Test on sample #22185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4952	NEGATIVE		-----	1205		-----		-----
140	D4952	negative		-----	1212	D4952	Neg.		-----
171	D4952	Negative		-----	1266		-----		-----
225	D4952	Négative		-----	1275	IP30	Negative mercaptans [thiols]		-----
237	D4952	NEGATIVE		-----	1299		-----		-----
238		-----		-----	1345		-----		-----
273	IP30	Negative		-----	1357	D4952	Negative		-----
311		-----		-----	1389	IP30	Negative		-----
312	IP30	neg		-----	1397		-----		-----
323	D4952	NEG		-----	1399	IP30	Negative		-----
328	D4952	negative		-----	1402	IP30	Positive	f+?	-----
333		-----		-----	1455	IP30	Negatief		-----
334	D4952	negatif		-----	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528		-----		-----
338		-----		-----	1537		-----		-----
343		-----		-----	1538		-----		-----
344		-----		-----	1544	D4952	negative		-----
352		-----		-----	1569		-----		-----
365		-----		-----	1586	IP30	negative		-----
369		-----		-----	1613	D4952	Negative		-----
370		-----		-----	1636		-----		-----
371		-----		-----	1720	D4952	Negative		-----
372	ISO5275	negative		-----	1724		-----		-----
381		-----		-----	1728		-----		-----
391		-----		-----	1740	D4952	negative		-----
399	D4952	Negative		-----	1742		-----		-----
404		-----		-----	1746	D4952	Negative		-----
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	IP30	Negative		-----	1803		-----		-----
447	D4952	Sweet		-----	1804		-----		-----
467	IP30	negative		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496		-----		-----	1811		-----		-----
631		-----		-----	1833		-----		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857		-----		-----
736	D4952	Negative		-----	1911		-----		-----
752		-----		-----	1941		-----		-----
759		-----		-----	1953		-----		-----
779		-----		-----	1968		-----		-----
781	D4952	sweet		-----	1977		-----		-----
782		-----		-----	2129	IP30	Negative		-----
785	D4952	Negative		-----	2130	IP30	Negative		-----
798		-----		-----	2146		-----		-----
873		-----		-----	6018		-----		-----
875	D4952	negative		-----	6047		-----		-----
904		-----		-----	6049	D4952	Negative		-----
912		-----		-----	6054	D4952	Négatif		-----
914		-----		-----	6058		-----		-----
963	D4952	Negative		-----	6075		-----		-----
971	D4952	Negative		-----	6103	NF M07-029	NEGATIF		-----
974	D4952	Negative		-----	6142	IP30	Negative		-----
994	D4952	negative		-----	6192		-----		-----
1006		-----		-----	6203	D4952	negativ		-----
1011		-----		-----	6240	D4952	Negative		-----
1033		-----		-----	6258	IP30	Negative		-----
1039	D4952	negative		-----	6274	IP30	Negative		-----
1059	ISO5275	negative		-----	6279		-----		-----
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108		-----		-----	6325	IP30	negative		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		Neg/Neg		-----	6441		-----		-----
1141	ISO5275	negativ		-----	6446		-----		-----
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194		-----		-----	6496		-----		-----

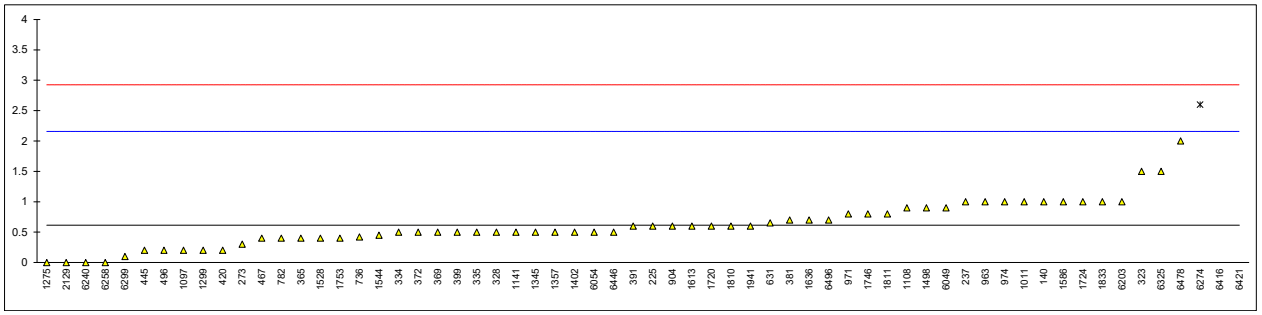
n	50
mean(n)	negative

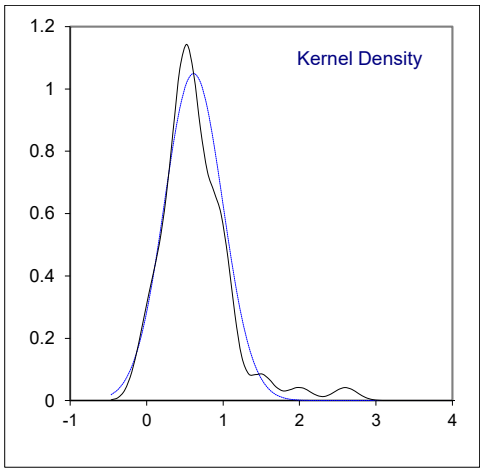
Determination of Gum (solvent washed) on sample #22185; results in mg/100 mL

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205		-----		-----
140	D381	1.0		0.50	1212	ISO6246	<0,5		-----
171		-----		-----	1266		-----		-----
225	D381	0.6		-0.02	1275	IP131	0.0		-0.80
237	D381	1.0		0.50	1299	D381	0.2		-0.54
238		-----		-----	1345	D381	0.5		-0.15
273	D381	0.3		-0.41	1357	D381	0.5		-0.15
311	ISO6246	<0.5		-----	1389	D381	<0.5		-----
312	ISO6246	<0.5		-----	1397		-----		-----
323	D381	1.5		1.15	1399		-----		-----
328	ISO6246	0.5		-0.15	1402	ISO6246	0.5		-0.15
333		-----		-----	1455	D381	< 0.5		-----
334	ISO6246	0.5		-0.15	1459		-----		-----
335	ISO6246	0.5		-0.15	1498	D381	0.9		0.37
337		-----		-----	1528	ISO6246	0.4		-0.28
338		-----		-----	1537		-----		-----
343	D381	<0.5		-----	1538	ISO6246	<1,0		-----
344		-----		-----	1544	D381	0.45		-0.22
352		-----		-----	1569	ISO6246	<0.5		-----
365	IP131	0.4		-0.28	1586	D381	1.0		0.50
369	ISO6246	0.5		-0.15	1613	D381	0.6		-0.02
370	ISO6246	<0.5		-----	1636	ISO6246	0.7		0.11
371		-----		-----	1720	D381	0.6		-0.02
372	ISO6246	0.5		-0.15	1724	D381	1.0		0.50
381	ISO6246	0.7		0.11	1728		-----		-----
391	ISO6246	0.6		-0.02	1740		-----		-----
399	D381	0.5		-0.15	1742		-----		-----
404		-----		-----	1746	D381	0.8		0.24
420	ISO6246	0.2		-0.54	1753	ISO6246	0.4		-0.28
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	IP131	0.2		-0.54	1803		-----		-----
447	D381	<0.5		-----	1804		-----		-----
467	ISO6246	0.4		-0.28	1805		-----		-----
480		-----		-----	1810	ISO6246	0.6		-0.02
496	ISO6246	0.2		-0.54	1811	ISO6246	0.8		0.24
631	D381	0.65		0.04	1833	ISO6246	1.0		0.50
633		-----		-----	1856		-----		-----
734		-----		-----	1857	D381	<0.5		-----
736	D381	0.42		-0.25	1911		-----		-----
752		-----		-----	1941	ISO6246	0.6		-0.02
759		-----		-----	1953		-----		-----
779		-----		-----	1968		-----		-----
781		-----		-----	1977		-----		-----
782	D381	0.4		-0.28	2129	IP131	0		-0.80
785		-----		-----	2130	IP131	<0.5		-----
798		-----		-----	2146		-----		-----
873		-----		-----	6018		-----		-----
875	D381	<0.5		-----	6047		-----		-----
904	ISO6246	0.6		-0.02	6049	ISO6246	0.90		0.37
912		-----		-----	6054	D381	0.5		-0.15
914		-----		-----	6058		-----		-----
963	D381	1.0		0.50	6075		-----		-----
971	D381	0.8		0.24	6103		-----		-----
974	D381	1.0		0.50	6142		-----		-----
994	D381	<0.5		-----	6192		-----		-----
1006	D381	<0.5		-----	6203	ISO6246	1		0.50
1011	ISO6246	1.0		0.50	6240	D381	0		-0.80
1033		-----		-----	6258	ISO6246	0.0		-0.80
1039	ISO6246	<1		-----	6274	ISO6246	2.6	R(0.01)	2.58
1059	ISO6246	<0,5		-----	6279		-----		-----
1082		-----		-----	6299	ISO6246	0.1		-0.67
1097	ISO6246	0.2		-0.54	6321	IP131	<0.5		-----
1108	ISO6246	0.9		0.37	6325	D381	1.5		1.15
1109		-----		-----	6416	D381	8.5	C,R(0.01)	10.24
1126		-----		-----	6421	ISO6246	22	R(0.01)	27.77
1134		-----		-----	6441		-----		-----
1141	D381	0.5		-0.15	6446	ISO6246	0.5		-0.15
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478	ISO6246	2.0		1.80
1194		-----		-----	6496	ISO6246	0.7		0.11

normality	not OK
n	59
outliers	3
mean (n)	0.616
st.dev. (n)	0.3802
R(calc.)	1.064
st.dev.(ISO6246:17)	0.7701
R(ISO6246:17)	2.156

Lab 6416 first reported 5.1





Determination of Lead as Pb on sample #22185; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205		-----		-----
140	D3237	1.587		-----	1212	EN237	<2,5		-----
171	D3237	<2.5		-----	1266		-----		-----
225		-----		-----	1275		-----		-----
237		-----		-----	1299	EN237	<2.5		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357	EN237	NA		-----
311		-----		-----	1389	D3237	<2.5		-----
312	EN237	<2.5		-----	1397	EN13723	<0,4		-----
323	EN237	< 2.5		-----	1399	IP352	<0.003		-----
328		-----		-----	1402	EN237	0.0		-----
333		-----		-----	1455		-----		-----
334	EN237	<2.5		-----	1459	EN13723	0		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	EN237	<2.5		-----
338		-----		-----	1537		-----		-----
343		-----		-----	1538	EN237	<2,5		-----
344		-----		-----	1544	EN237	0.00		-----
352		-----		-----	1569	In house	<1		-----
365		-----		-----	1586	EN237	0.04		-----
369		-----		-----	1613	D3237	<2.5		-----
370		-----		-----	1636		-----		-----
371	EN237	<2.5		-----	1720	D3237	0.0035		-----
372	EN237	<2.5		-----	1724	IP428	<3,0		-----
381	EN237	<2,5		-----	1728		-----		-----
391		-----		-----	1740	EN237	<2.5		-----
399		-----		-----	1742		-----		-----
404	EN237	<2.5		-----	1746	D3237	1.8		-----
420	EN237	<3,0		-----	1753	EN237	<2.5		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	EN237	<2.5		-----	1803		-----		-----
447	IP428	<2.5		-----	1804		-----		-----
467	EN16136	<1,4		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496	EN237	<0.5		-----	1811		-----		-----
631	D3237	<3		-----	1833	EN237	<3		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857	EN237	<2.5		-----
736	EN237	<2.5		-----	1911		-----		-----
752		-----		-----	1941	EN237	< 2,5		-----
759		-----		-----	1953		-----		-----
779		-----		-----	1968	D3237	<2,5		-----
781	EN237	Less 2.5		-----	1977		-----		-----
782		-----		-----	2129	EN237	0		-----
785		-----		-----	2130		-----		-----
798		-----		-----	2146	In house	<2		-----
873		-----		-----	6018		-----		-----
875	EN237	<2.5		-----	6047		-----		-----
904	EN237	<2.5		-----	6049	EN237	0.05		-----
912		-----		-----	6054		-----		-----
914		-----		-----	6058	EN237	< 2.5		-----
963		-----		-----	6075		-----		-----
971	D3237	<2.5		-----	6103	D4294	<0.1		-----
974		-----		-----	6142		-----		-----
994		-----		-----	6192		-----		-----
1006	D3237	<2.5		-----	6203		-----		-----
1011		-----		-----	6240		-----		-----
1033		-----		-----	6258	EN237	0.0		-----
1039		-----		-----	6274	EN237	<3.0		-----
1059	EN13723	<2,5		-----	6279		-----		-----
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108		-----		-----	6325	D3237	0.20		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		-----		-----	6441	EN237	<0.01		-----
1141		-----		-----	6446		-----		-----
1171	D5059-C	2.2		-----	6447		-----		-----
1191	D8110	0.00219		-----	6478		-----		-----
1194		-----		-----	6496	EN237	<2.5		-----

n	56
mean(n)	<3

Determination of Manganese as Mn on sample #22185; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205		-----		-----
140	D3831	0.00		-----	1212		-----		-----
171	D3831	<0.25		-----	1266		-----		-----
225		-----		-----	1275		-----		-----
237	EN16136	<0.5		-----	1299	D3831	<2		-----
238		-----		-----	1345		-----		-----
273	D3831	<0.1		-----	1357	EN16136	NA		-----
311		-----		-----	1389	D3831	<0.25		-----
312	EN16136	<0.5		-----	1397		-----		-----
323	EN16136	< 0.50		-----	1399	In house	<1		-----
328		-----		-----	1402	EN16135	0.0198		-----
333	EN16135	0.3		-----	1455		-----		-----
334	EN16135	<2.0		-----	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	EN16135	<2		-----
338		-----		-----	1537		-----		-----
343		-----		-----	1538	EN16135	<2,0		-----
344		-----		-----	1544	EN16135	0.00		-----
352		-----		-----	1569	EN16135	<0.1		-----
365		-----		-----	1586	EN16135	0.00		-----
369	EN16136	<0.5		-----	1613	EN16136	<0.5		-----
370		-----		-----	1636		-----		-----
371	EN16135	<2.0		-----	1720		-----		-----
372	EN16135	<2.0		-----	1724	EN16135	<2,0		-----
381	EN16135	<2,0		-----	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404	EN16135	<2.0		-----	1746		-----		-----
420	EN16136	<0,5		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	EN16135	<0.2		-----	1803		-----		-----
447	IP588	<2.0		-----	1804		-----		-----
467	EN16136	<0,5		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496	EN16136	<0.1		-----	1811		-----		-----
631		-----		-----	1833	EN16135	<2		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857	EN16135	<2.0		-----
736	EN16135	<2.0		-----	1911		-----		-----
752		-----		-----	1941	EN16135	< 2,0		-----
759		-----		-----	1953		-----		-----
779		-----		-----	1968	EN16135	<2,0		-----
781	D3831	Less 0.25		-----	1977		-----		-----
782		-----		-----	2129	D3831	0.0		-----
785		-----		-----	2130		-----		-----
798		-----		-----	2146	In house	<1		-----
873		-----		-----	6018		-----		-----
875	GOST51925	<0.25		-----	6047		-----		-----
904	EN16136	<2		-----	6049	EN16136	0.10		-----
912		-----		-----	6054		-----		-----
914		-----		-----	6058		-----		-----
963		-----		-----	6075		-----		-----
971	D3831	0.30		-----	6103	D3831	0.362		-----
974		-----		-----	6142		-----		-----
994		-----		-----	6192		-----		-----
1006		-----		-----	6203	EN16136	<0.5		-----
1011		-----		-----	6240		-----		-----
1033		-----		-----	6258	EN16136	0.04		-----
1039		-----		-----	6274	EN16135	<2.0		-----
1059		-----		-----	6279		-----		-----
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108		-----		-----	6325	EN16136	0.04		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		-----		-----	6441	D5185	<0.01		-----
1141		-----		-----	6446		-----		-----
1171		-----		-----	6447		-----		-----
1191	D8110	0.00292		-----	6478		-----		-----
1194		-----		-----	6496	EN16135	<2.0		-----

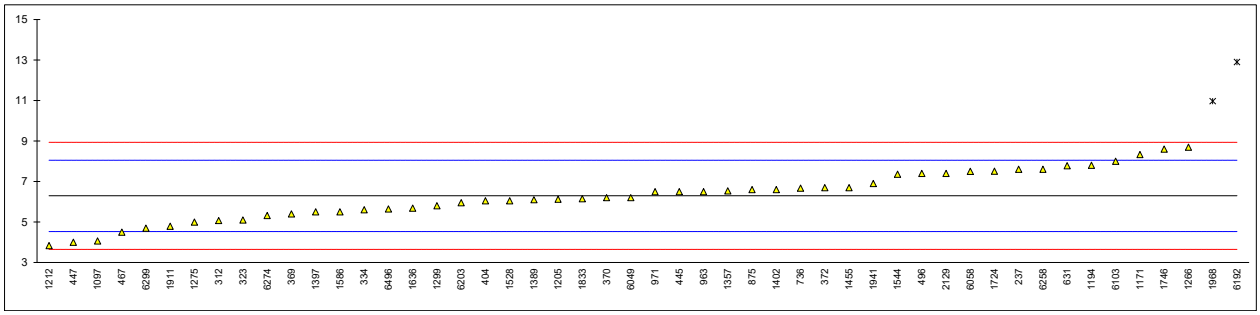
n	49
mean(n)	<2

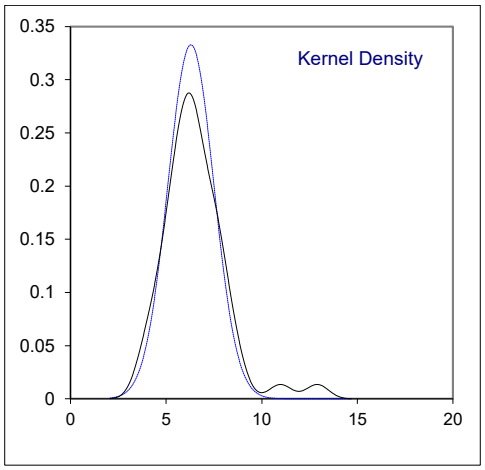
Determination of Olefins by FIA (without oxygenates correction) on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205	D1319	6.13		-0.19
140		-----		-----	1212	EN15553	3.84		-2.78
171		-----		-----	1266	D1319	8.7		2.73
225		-----		-----	1275	IP156	5.0		-1.47
237	D1319	7.6		1.48	1299	D1319	5.8		-0.56
238		-----		-----	1345		-----		-----
273		-----		-----	1357	D1319	6.54		0.28
311		-----		-----	1389	D1319	6.1		-0.22
312	EN15553	5.07		-1.39	1397	EN15553	5.5		-0.90
323	D1319	5.1		-1.35	1399		-----		-----
328		-----		-----	1402	D1319	6.6		0.35
333		-----		-----	1455	D1319	6.7		0.46
334	D1319	5.6		-0.79	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	EN15553	6.05		-0.28
338		-----		-----	1537		-----		-----
343		-----		-----	1538		-----		-----
344		-----		-----	1544	D1319	7.36		1.21
352		-----		-----	1569		-----		-----
365		-----		-----	1586	D1319	5.5		-0.90
369	EN15553	5.4		-1.01	1613		-----		-----
370	D1319	6.2		-0.11	1636	EN15553	5.68		-0.70
371		-----		-----	1720		-----		-----
372	EN15553	6.7		0.46	1724	D1319	7.51		1.38
381		-----		-----	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404	D1319	6.05		-0.28	1746	D1319	8.6		2.62
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	EN15553	6.5		0.23	1803		-----		-----
447	D1319	4.0		-2.60	1804		-----		-----
467	D1319	4.5		-2.04	1805		-----		-----
480		-----		-----	1810		-----		-----
496	EN15553	7.4		1.25	1811		-----		-----
631	D1319	7.78		1.69	1833	D1319	6.15		-0.16
633		-----		-----	1856		-----		-----
734		-----		-----	1857		-----		-----
736	EN15553	6.67		0.43	1911	EN15553	4.79		-1.71
752		-----		-----	1941	EN15553	6.9		0.69
759		-----		-----	1953		-----		-----
779		-----		-----	1968	D1319	10.97	R(0.05)	5.30
781		-----		-----	1977		-----		-----
782		-----		-----	2129	D1319	7.4		1.25
785		-----		-----	2130		-----	W	-----
798		-----		-----	2146		-----		-----
873		-----		-----	6018		-----		-----
875	EN15553	6.6		0.35	6047		-----		-----
904		-----		-----	6049	D1319	6.2		-0.11
912		-----		-----	6054		-----		-----
914		-----		-----	6058	EN15553	7.5		1.37
963	D1319	6.5		0.23	6075		-----		-----
971	D1319	6.5		0.23	6103	D1319	8.0		1.93
974		-----		-----	6142		-----		-----
994		-----		-----	6192	EN15553	12.9	R(0.01)	7.49
1006		-----		-----	6203	D1319	5.95		-0.39
1011		-----		-----	6240		-----		-----
1033		-----		-----	6258	EN15553	7.6		1.48
1039		-----		-----	6274	EN15553	5.32		-1.11
1059		-----		-----	6279		-----		-----
1082		-----		-----	6299	EN15553	4.7		-1.81
1097	D1319	4.06		-2.53	6321		-----		-----
1108		-----		-----	6325		-----		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		-----		-----	6441		-----		-----
1141		-----		-----	6446		-----		-----
1171	In house	8.33		2.31	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194	D1319	7.8		1.71	6496	EN15553	5.65		-0.73

normality	OK
n	48
outliers	2
mean (n)	6.294
st.dev. (n)	1.1988
R(calc.)	3.357
st.dev.(EN15553:07)	0.8815
R(EN15553:07)	2.468

Lab 2130 test result withdrawn, reported 11.3



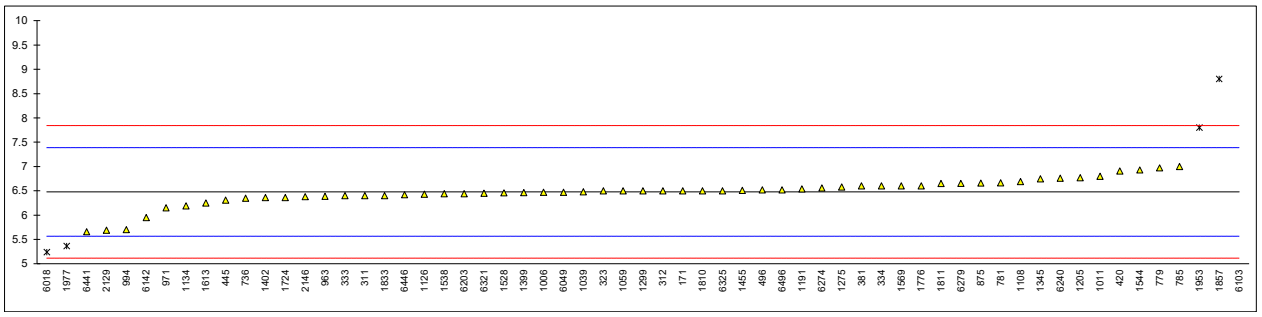


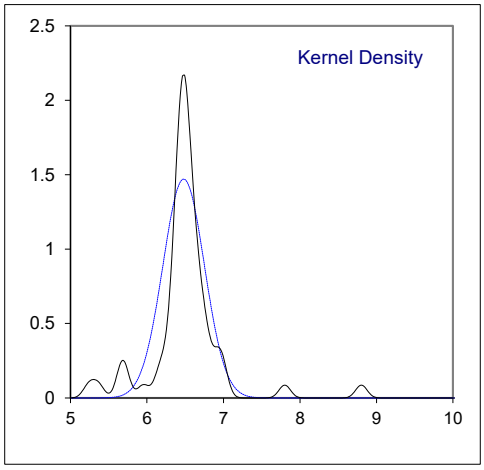
Determination of Olefins by GC on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205	D8071	6.77		0.64
140		-----		-----	1212		-----		-----
171	ISO22854-A	6.5		0.05	1266		-----		-----
225		-----		-----	1275	ISO22854-A	6.58		0.22
237		-----		-----	1299	ISO22854-A	6.5		0.05
238		-----		-----	1345	D6730	6.748		0.59
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	6.4		-0.17	1389		-----		-----
312	ISO22854-A	6.50		0.05	1397		-----		-----
323	ISO22854-A	6.5		0.05	1399	D6839	6.465	C	-0.03
328		-----		-----	1402	ISO22854-A	6.36		-0.26
333	ISO22854-A	6.4		-0.17	1455	ISO22854-A	6.51		0.07
334	ISO22854-A	6.6		0.27	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	6.46		-0.04
338		-----		-----	1537		-----		-----
343		-----		-----	1538	ISO22854-A	6.44		-0.08
344		-----		-----	1544	ISO22854-A	6.93		0.99
352		-----		-----	1569	D6839	6.60		0.27
365		-----		-----	1586		-----		-----
369		-----		-----	1613	D6839	6.25		-0.50
370		-----		-----	1636		-----		-----
371		-----		-----	1720		-----		-----
372		-----		-----	1724	ISO22854-A	6.36		-0.26
381	ISO22854-A	6.6		0.27	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404		-----		-----	1746		-----		-----
420	ISO22854-A	6.91	C	0.95	1753		-----		-----
431		-----		-----	1776	ISO22854-A	6.60		0.27
444		-----		-----	1802		-----		-----
445	ISO22854-A	6.31		-0.37	1803		-----		-----
447		-----		-----	1804		-----		-----
467		-----		-----	1805		-----		-----
480		-----		-----	1810	D6839	6.50		0.05
496	ISO22854-A	6.52		0.09	1811	ISO22854-A	6.65		0.38
631		-----		-----	1833	ISO22854-A	6.4		-0.17
633		-----		-----	1856		-----		-----
734		-----		-----	1857	D6729	8.802	R(0.01)	5.11
736	ISO22854-A	6.35		-0.28	1911		-----		-----
752		-----		-----	1941		-----		-----
759		-----		-----	1953		7.8	R(0.01)	2.90
779	D6729	6.972		1.08	1968		-----		-----
781	D6729	6.664		0.41	1977	D6730	5.3630	R(0.01)	-2.45
782		-----		-----	2129	D6730	5.69	C	-1.73
785	D6729	7.00		1.15	2130		-----		-----
798		-----		-----	2146	ISO22854-A	6.38		-0.22
873		-----		-----	6018	ISO22854-A	5.24	R(0.01)	-2.72
875	D6729	6.66		0.40	6047		-----		-----
904		-----		-----	6049	ISO22854-A	6.47	C	-0.02
912		-----		-----	6054		-----		-----
914		-----		-----	6058		-----		-----
963	D6730	6.39		-0.19	6075		-----		-----
971	D6839	6.15		-0.72	6103	D6730	11.895	C,R(0.01)	11.91
974		-----		-----	6142	ISO22854-A	5.95		-1.16
994	D6729	5.700		-1.71	6192		-----		-----
1006	D6730	6.47	C	-0.02	6203	ISO22854-A	6.44		-0.08
1011	ISO22854-A	6.8		0.71	6240	ISO22854-A	6.76		0.62
1033		-----		-----	6258		-----		-----
1039	ISO22854-A	6.48		0.00	6274	ISO22854-A	6.56		0.18
1059	ISO22854-A	6.5		0.05	6279	ISO22854-A	6.653		0.38
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321	ISO22854-A	6.45		-0.06
1108	ISO22854-A	6.69		0.46	6325	ISO22854-A	6.5		0.05
1109		-----		-----	6416		-----		-----
1126	ISO22854-A	6.43		-0.11	6421		-----		-----
1134	ISO22854-A	6.19		-0.63	6441	ISO22854-A	5.66		-1.80
1141		-----		-----	6446	ISO22854-A	6.42	C	-0.13
1171		-----		-----	6447		-----		-----
1191	ISO22854-A	6.54		0.13	6478		-----		-----
1194		-----		-----	6496	ISO22854-A	6.52		0.09

normality	not OK
n	56
outliers	5
mean (n)	6.479
st.dev. (n)	0.2712
R(calc.)	0.759
st.dev.(ISO22854-A:21)	0.4549
R(ISO22854-A:21)	1.274

Lab 420 first reported 5.91
Lab 1006 first reported 5.79
Lab 1399 first reported 6.545
Lab 2129 first reported 5.70
Lab 6049 first reported 5.92
Lab 6103 first reported 7.105
Lab 6446 first reported 5.9



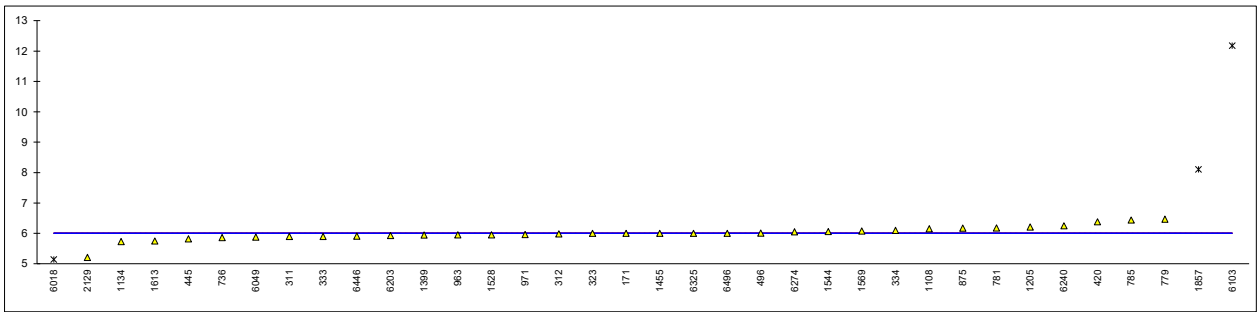


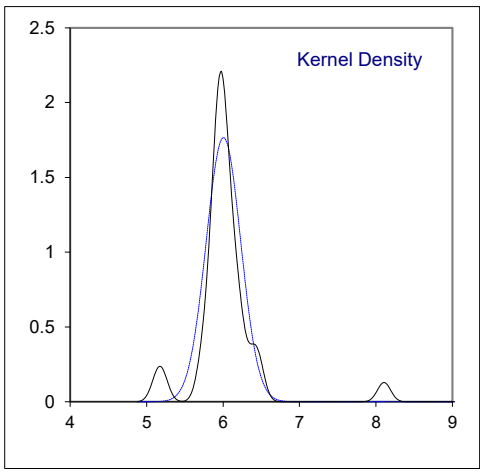
Determination of Olefins by GC on sample #22185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205	D8071	6.21		-----
140		-----		-----	1212		-----		-----
171	ISO22854-A	6.0		-----	1266		-----		-----
225		-----		-----	1275		-----		-----
237		-----		-----	1299		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	5.9		-----	1389		-----		-----
312	ISO22854-A	5.98		-----	1397		-----		-----
323	ISO22854-A	6.0		-----	1399	D6839	5.945	C	-----
328		-----		-----	1402		-----		-----
333	ISO22854-A	5.9		-----	1455	ISO22854-A	6.00		-----
334	ISO22854-A	6.1		-----	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	5.95		-----
338		-----		-----	1537		-----		-----
343		-----		-----	1538		-----		-----
344		-----		-----	1544	ISO22854-A	6.06	C	-----
352		-----		-----	1569	D6839	6.08		-----
365		-----		-----	1586		-----		-----
369		-----		-----	1613	D6839	5.75		-----
370		-----		-----	1636		-----		-----
371		-----		-----	1720		-----		-----
372		-----		-----	1724		-----		-----
381		-----		-----	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404		-----		-----	1746		-----		-----
420	ISO22854-A	6.38	C	-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	ISO22854-A	5.82		-----	1803		-----		-----
447		-----		-----	1804		-----		-----
467		-----		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496	ISO22854-A	6.01		-----	1811		-----		-----
631		-----		-----	1833		-----		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857	D6729	8.107	R(0.01)	-----
736	ISO22854-A	5.86		-----	1911		-----		-----
752		-----		-----	1941		-----		-----
759		-----		-----	1953		-----		-----
779	D6729	6.466		-----	1968		-----		-----
781	D6729	6.175		-----	1977		-----		-----
782		-----		-----	2129	D6730	5.21		-----
785	D6729	6.44		-----	2130		-----		-----
798		-----		-----	2146		-----		-----
873		-----		-----	6018	ISO22854-A	5.14	R(0.05)	-----
875	D6729	6.17		-----	6047		-----		-----
904		-----		-----	6049	ISO22854-A	5.88		-----
912		-----		-----	6054		-----		-----
914		-----		-----	6058		-----		-----
963	D6730	5.95		-----	6075		-----		-----
971	D6839	5.96		-----	6103	D6730	12.178	C,R(0.01)	-----
974		-----		-----	6142		-----		-----
994		-----		-----	6192		-----		-----
1006		-----		-----	6203	ISO22854-A	5.93		-----
1011		-----		-----	6240	ISO22854-A	6.25		-----
1033		-----		-----	6258		-----		-----
1039		-----		-----	6274		6.05		-----
1059		-----		-----	6279		-----		-----
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO22854-A	6.15		-----	6325	ISO22854-A	6.0		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		5.73		-----	6441		-----		-----
1141		-----		-----	6446	ISO22854-A	5.91	C	-----
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194		-----		-----	6496	ISO22854-A	6.0		-----

normality	not OK
n	33
outliers	3
mean (n)	6.007
st.dev. (n)	0.2260
R(calc.)	0.633
st.dev.(lit)	unknown
R(lit)	unknown
Compare:	
R(iis21B05EN)	0.709

Lab 420 first reported 5.47
Lab 1399 first reported 6.035
Lab 1544 first reported 6.46
Lab 6103 first reported 6.771
Lab 6446 first reported 5.35





Determination of Oxidation Stability on sample #22185; results in minutes

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1205		-----		-----
140		-----		-----	1212	ISO7536	>900		-----
171	D525	>240		-----	1266		-----		-----
225		-----		-----	1275	IP40	>900		-----
237	D525	>900		-----	1299	D525	>960		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357	D525	>360		-----
311	D525	>900		-----	1389	D525	>360		-----
312	ISO7536	>900		-----	1397		-----		-----
323	D525	>900		-----	1399		-----		-----
328	ISO7536	>900		-----	1402	D525	>900		-----
333		-----		-----	1455	D525	360+		-----
334	ISO7536	>900		-----	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO7536	>900		-----
338		-----		-----	1537		-----		-----
343	D525	>360		-----	1538	ISO7536	>900		-----
344		-----		-----	1544	D525	>900		-----
352		-----		-----	1569	ISO7536	>500		-----
365		-----		-----	1586	ISO7536	>900		-----
369		-----		-----	1613	D525	>360		-----
370		-----		-----	1636	ISO7536	>600		-----
371	ISO7536	>900		-----	1720		-----		-----
372	ISO7536	>900		-----	1724	D525	>1440		-----
381		-----		-----	1728		-----		-----
391	ISO7536	>900		-----	1740		-----		-----
399	D525	>360		-----	1742		-----		-----
404		-----		-----	1746	D525	>900		-----
420	ISO7536	>600		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1802		-----		-----
445	IP40	>360		-----	1803		-----		-----
447	D525	>900		-----	1804		-----		-----
467	ISO7536	>900		-----	1805		-----		-----
480		-----		-----	1810		-----		-----
496		-----		-----	1811		-----		-----
631	D525	>900		-----	1833	ISO7536	>900		-----
633		-----		-----	1856	ISO7536	> 900		-----
734		-----		-----	1857	D525	>900		-----
736	ISO7536	>900		-----	1911		-----		-----
752		-----		-----	1941	ISO7536	> 900		-----
759		-----		-----	1953		-----		-----
779		-----		-----	1968		-----		-----
781	ISO7536	>900		-----	1977	ISO7536	627		-----
782		-----		-----	2129	D525	>900		-----
785		-----		-----	2130	D525	>900		-----
798		-----		-----	2146		-----		-----
873		-----		-----	6018		-----		-----
875		-----		-----	6047		-----		-----
904	ISO7536	360+		-----	6049	ISO7536	>900		-----
912		-----		-----	6054		-----		-----
914		-----		-----	6058		-----		-----
963	D525	>240		-----	6075		-----		-----
971	D525	>900		-----	6103	D7525	1350.18		-----
974		-----		-----	6142		-----		-----
994		-----		-----	6192		-----		-----
1006		-----		-----	6203	ISO7536	>900		-----
1011	ISO7536	>400		-----	6240	D525	>900		-----
1033		-----		-----	6258	ISO7536	>900		-----
1039	ISO7536	>900		-----	6274		-----		-----
1059	ISO7536	>900		-----	6279		-----		-----
1082	ISO7536	1560		-----	6299		-----		-----
1097		-----		-----	6321	IP40	>1000		-----
1108	ISO7536	>900		-----	6325	D525	>900		-----
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134		-----		-----	6441		-----		-----
1141		-----		-----	6446	ISO7536	>1000		-----
1171		-----		-----	6447		-----		-----
1191	ISO7536	1500		-----	6478	ISO7536	360		-----
1194		-----		-----	6496	ISO7536	>900		-----

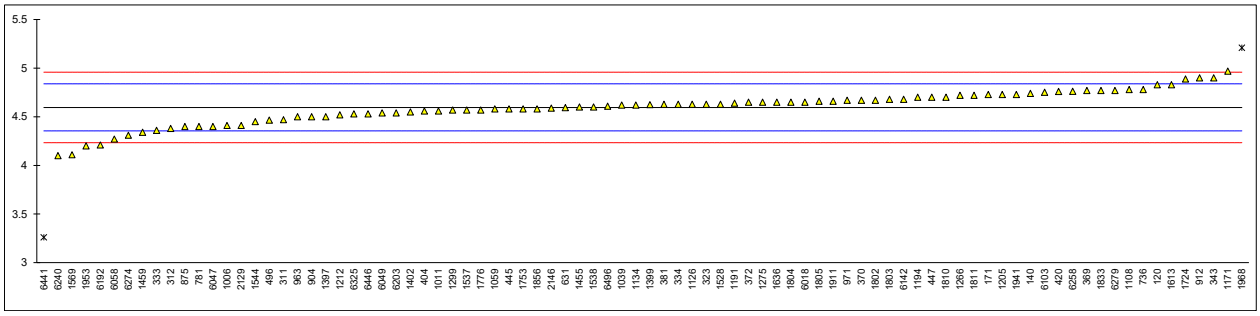
n	59
mean(n)	>360

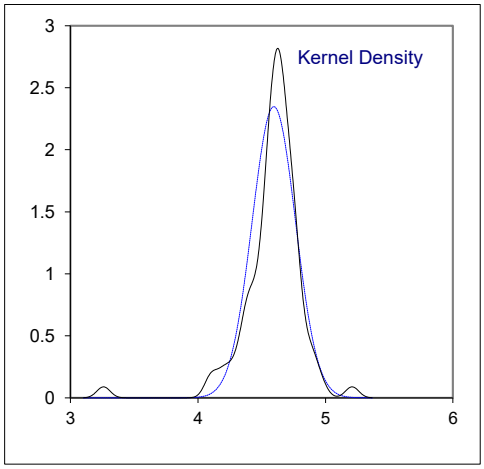
Determination of Ethanol on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	4.83		1.93	1205	D8071	4.73		1.11
140	D5599	4.74		1.19	1212	EN13132	4.52		-0.63
171	ISO22854-A	4.73		1.11	1266	D5845	4.72		1.02
225		-----		-----	1275	ISO22854-A	4.65		0.45
237		-----		-----	1299	ISO22854-A	4.57		-0.22
238		-----		-----	1345		-----	W	-----
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	4.47		-1.04	1389		-----		-----
312	ISO22854-A	4.38		-1.78	1397	EN13132	4.5		-0.79
323	ISO22854-A	4.63		0.28	1399	D6839	4.625	C	0.24
328		-----		-----	1402	ISO22854-A	4.55		-0.38
333	ISO22854-A	4.36		-1.95	1455	ISO22854-A	4.6		0.03
334	ISO22854-A	4.63		0.28	1459	In house	4.34		-2.11
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	4.63		0.28
338		-----		-----	1537	EN13132	4.57		-0.22
343	EN13132	4.9		2.51	1538	ISO22854-A	4.60		0.03
344		-----		-----	1544	EN13132	4.45		-1.21
352		-----		-----	1569	D6839	4.11		-4.01
365		-----		-----	1586		-----		-----
369	EN13132	4.77		1.44	1613	D6839	4.83		1.93
370	EN13132	4.67		0.61	1636	EN13132	4.65		0.45
371		-----		-----	1720		-----		-----
372	EN13132	4.65		0.45	1724	EN13132	4.89		2.43
381	ISO22854-A	4.63		0.28	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404	D5845	4.56		-0.30	1746		-----		-----
420	EN13132	4.76		1.35	1753	EN13132	4.58		-0.13
431		-----		-----	1776	ISO22854-A	4.57		-0.22
444		-----		-----	1802	EN13132	4.67		0.61
445	ISO22854-A	4.58		-0.13	1803	EN13132	4.68		0.69
447	IP466	4.7		0.86	1804	EN13132	4.65		0.45
467		-----		-----	1805	EN13132	4.66		0.53
480		-----		-----	1810	D6839	4.70		0.86
496	ISO22854-A	4.465		-1.08	1811		4.72		1.02
631	D5845	4.595		-0.01	1833	ISO22854-A	4.77		1.44
633		-----		-----	1856	EN13132	4.58		-0.13
734		-----		-----	1857		-----		-----
736	ISO22854-A	4.78		1.52	1911	EN13132	4.66		0.53
752		-----		-----	1941	EN13132	4.73		1.11
759		-----		-----	1953		4.20		-3.27
779		-----		-----	1968	D5845	5.21	R(0.05)	5.07
781	EN13132	4.40		-1.62	1977		-----		-----
782		-----		-----	2129	D6730	4.41		-1.54
785		-----		-----	2130		-----		-----
798		-----		-----	2146	ISO22854-A	4.59		-0.05
873		-----		-----	6018	ISO22854-A	4.65		0.45
875	EN13132	4.40		-1.62	6047	EN13132	4.4		-1.62
904	D4815	4.5		-0.79	6049	ISO22854-A	4.54		-0.46
912	D4815	4.9		2.51	6054		-----		-----
914		-----		-----	6058	EN13132	4.27		-2.69
963	D4815	4.50	C	-0.79	6075		-----		-----
971	D4815	4.67		0.61	6103	D6730	4.7521		1.29
974		-----		-----	6142		4.68		0.69
994		-----		-----	6192	ISO22854-A	4.21		-3.19
1006	D4815	4.41		-1.54	6203	ISO22854-A	4.54		-0.46
1011	ISO22854-A	4.56		-0.30	6240	ISO22854-A	4.1		-4.09
1033		-----		-----	6258	EN13132	4.761		1.36
1039	ISO22854-A	4.62		0.20	6274		4.31		-2.36
1059	ISO22854-A	4.58		-0.13	6279	ISO22854-A	4.77		1.44
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO22854-A	4.78		1.52	6325	ISO22854-A	4.53		-0.55
1109		-----		-----	6416		-----		-----
1126		4.63		0.28	6421		-----		-----
1134	ISO22854-A	4.62		0.20	6441	ISO22854-A	3.26	R(0.01)	-11.03
1141		-----		-----	6446	ISO22854-A	4.53		-0.55
1171	In house	4.97		3.09	6447		-----		-----
1191		4.64		0.36	6478		-----		-----
1194	D5845	4.7		0.86	6496	ISO22854-A	4.61		0.12

normality	OK
n	84
outliers	2
mean (n)	4.5960
st.dev. (n)	0.16997
R(calc.)	0.4759
st.dev.(ISO22854-A:21)	0.12115
R(ISO22854-A:21)	0.3392

Lab 963 first reported 5.17
Lab 1345 test result withdrawn, reported 4.01
Lab 1399 first reported 0.00



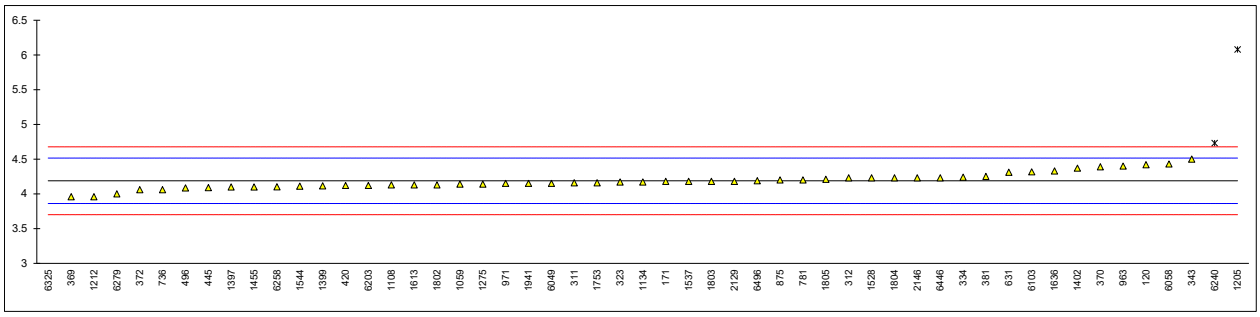


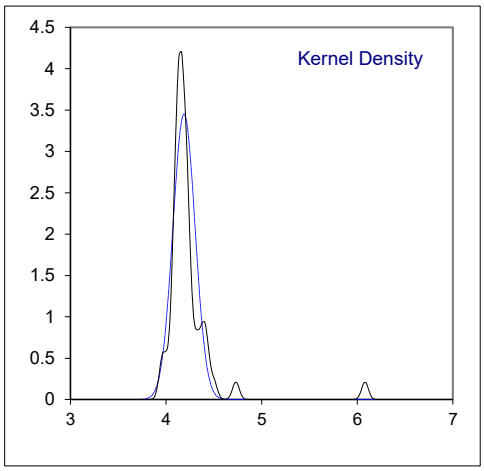
Determination of Ethers (C5 or more C atoms) on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	4.42	C	1.42	1205	D8071	6.08	R(0.01)	11.60
140		-----		-----	1212	EN13132	3.96		-1.40
171	ISO22854-A	4.18		-0.05	1266		-----		-----
225		-----		-----	1275	ISO22854-A	4.14		-0.29
237		-----		-----	1299		-----		-----
238		-----		-----	1345		-----		-----
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	4.16		-0.17	1389		-----		-----
312	ISO22854-A	4.23		0.26	1397	EN13132	4.1		-0.54
323	ISO22854-A	4.17		-0.11	1399	D6839	4.115	C	-0.45
328		-----		-----	1402	ISO22854-A	4.37		1.12
333		-----		-----	1455	ISO22854-A	4.1	C	-0.54
334	ISO22854-A	4.24		0.32	1459		-----		-----
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	4.23		0.26
338		-----		-----	1537	EN13132	4.18		-0.05
343	EN13132	4.5		1.91	1538		-----		-----
344		-----		-----	1544	EN13132	4.11		-0.48
352		-----		-----	1569	D6839	ND		-----
365		-----		-----	1586		-----		-----
369	EN13132	3.96		-1.40	1613	D6839	4.13		-0.35
370	EN13132	4.39		1.24	1636	EN13132	4.33		0.87
371		-----		-----	1720		-----		-----
372	EN13132	4.06		-0.78	1724		-----		-----
381	ISO22854-A	4.25		0.38	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404		-----		-----	1746		-----		-----
420	EN13132	4.12		-0.42	1753	EN13132	4.16		-0.17
431		-----		-----	1776		-----		-----
444		-----		-----	1802	EN13132	4.13		-0.35
445	ISO22854-A	4.09		-0.60	1803	EN13132	4.18		-0.05
447		-----		-----	1804	EN13132	4.23		0.26
467		-----		-----	1805	EN13132	4.21		0.14
480		-----		-----	1810		-----		-----
496	ISO22854-A	4.085		-0.63	1811		-----		-----
631	D5845	4.31		0.75	1833		-----		-----
633		-----		-----	1856		-----		-----
734		-----		-----	1857		-----		-----
736	ISO22854-A	4.06		-0.78	1911		-----		-----
752		-----		-----	1941	EN13132	4.15		-0.23
759		-----		-----	1953		-----		-----
779		-----		-----	1968		-----		-----
781	EN13132	4.20		0.08	1977		-----		-----
782		-----		-----	2129	D6730	4.18		-0.05
785		-----		-----	2130		-----		-----
798		-----		-----	2146	ISO22854-A	4.23		0.26
873		-----		-----	6018	ISO22854-A	<0,01	f-?	<-25.07
875	EN13132	4.20		0.08	6047		-----		-----
904	D4815	<0.2	f-?	<-24.45	6049	ISO22854-A	4.15		-0.23
912	D4815	<0.2	f-?	<-24.45	6054		-----		-----
914		-----		-----	6058	EN13132	4.43		1.49
963	D4815	4.40		1.30	6075		-----		-----
971	D4815	4.15		-0.23	6103	D6730	4.316	C	0.79
974		-----		-----	6142		-----		-----
994		-----		-----	6192		-----		-----
1006		-----		-----	6203	ISO22854-A	4.12		-0.42
1011		-----		-----	6240	ISO22854-A	4.73	R(0.01)	3.33
1033		-----		-----	6258	EN13132	4.102		-0.53
1039		-----		-----	6274		-----		-----
1059	ISO22854-A	4.14		-0.29	6279	ISO22854-A	4.00		-1.15
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO22854-A	4.13		-0.35	6325	ISO22854-A	0.07	R(0.01)	-25.25
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134	ISO22854-A	4.17		-0.11	6441		-----		-----
1141		-----		-----	6446	ISO22854-A	4.23	C	0.26
1171		-----		-----	6447		-----		-----
1191		-----		-----	6478		-----		-----
1194		-----		-----	6496	ISO22854-A	4.19		0.01

normality	OK
n	50
outliers	3
mean (n)	4.1878
st.dev. (n)	0.11549
R(calc.)	0.3234
st.dev.(ISO22854-A:21)	0.16308
R(ISO22854-A:21)	0.4566

Lab 120 first reported 0.0
Lab 904 possibly a false negative test result?
Lab 912 possibly a false negative test result?
Lab 1399 first reported 0.00
Lab 1455 first reported <0.1
Lab 6018 possibly a false negative test result?
Lab 6103 first reported 0.2997
Lab 6446 first reported 0.090



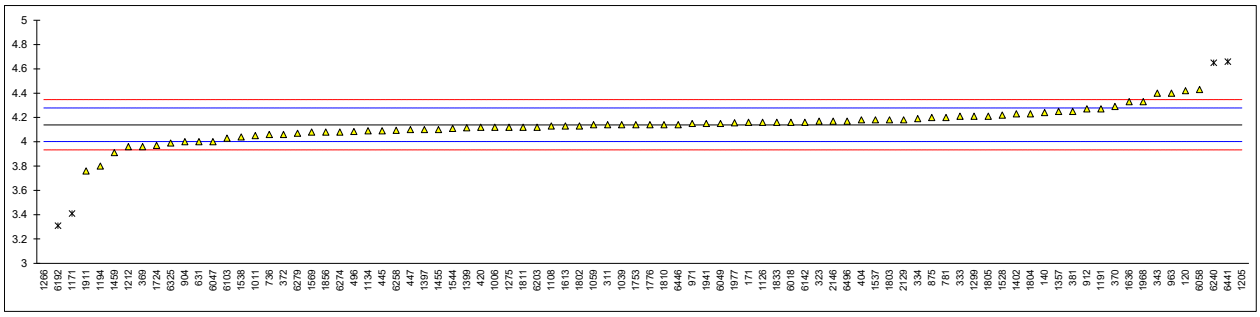


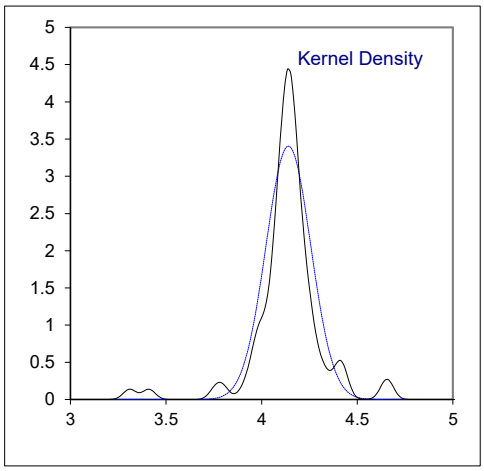
Determination of MTBE on sample #22185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	4.42	C	4.06	1205	D8071	5.87	R(0.01)	25.07
140	D5599	4.24		1.45	1212	EN13132	3.96		-2.60
171	ISO22854-A	4.16		0.30	1266	D5845	2.14	C,R(0.01)	-28.97
225		-----		-----	1275	ISO22854-A	4.12		-0.28
237		-----		-----	1299	ISO22854-A	4.21		1.02
238		-----		-----	1345		-----	W	-----
273		-----		-----	1357	D6839	4.25		1.60
311	ISO22854-A	4.14		0.01	1389		-----		-----
312	ISO22854-A	<0.10	f-?	<-58.52	1397	EN13132	4.1		-0.57
323	ISO22854-A	4.17		0.44	1399	D6839	4.115	C	-0.36
328		-----		-----	1402	ISO22854-A	4.23		1.31
333	ISO22854-A	4.21		1.02	1455	ISO22854-A	4.1		-0.57
334	ISO22854-A	4.19		0.73	1459	In house	3.91		-3.33
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	4.22		1.16
338		-----		-----	1537	EN13132	4.18		0.58
343	EN13132	4.4		3.77	1538	ISO22854-A	4.04		-1.44
344		-----		-----	1544	EN13132	4.11		-0.43
352		-----		-----	1569	D6839	4.08		-0.86
365		-----		-----	1586		-----		-----
369	EN13132	3.96		-2.60	1613	D6839	4.13		-0.14
370	EN13132	4.29		2.18	1636	EN13132	4.33		2.76
371		-----		-----	1720		-----		-----
372	EN13132	4.06		-1.15	1724	EN13132	3.97		-2.46
381	ISO22854-A	4.25		1.60	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742		-----		-----
404	D5845	4.18		0.58	1746		-----		-----
420	EN13132	4.12		-0.28	1753	EN13132	4.14		0.01
431		-----		-----	1776	ISO22854-A	4.14		0.01
444		-----		-----	1802	EN13132	4.13		-0.14
445	ISO22854-A	4.09		-0.72	1803	EN13132	4.18		0.58
447	IP466	4.1		-0.57	1804	EN13132	4.23		1.31
467		-----		-----	1805	EN13132	4.21		1.02
480		-----		-----	1810	D6839	4.14		0.01
496	ISO22854-A	4.085		-0.79	1811		4.12		-0.28
631	D5845	4.0		-2.02	1833	ISO22854-A	4.16		0.30
633		-----		-----	1856	EN13132	4.08		-0.86
734		-----		-----	1857		-----		-----
736	ISO22854-A	4.06		-1.15	1911	EN13132	3.76	C	-5.50
752		-----		-----	1941	EN13132	4.15		0.15
759		-----		-----	1953		-----		-----
779		-----		-----	1968	D5845	4.33		2.76
781	EN13132	4.20		0.87	1977	D6730	4.156		0.24
782		-----		-----	2129	D6730	4.18		0.58
785		-----		-----	2130		-----		-----
798		-----		-----	2146	ISO22854-A	4.17		0.44
873		-----		-----	6018	ISO22854-A	4.16		0.30
875	EN13132	4.20		0.87	6047	EN13132	4.0		-2.02
904	D4815	4.0		-2.02	6049	ISO22854-A	4.15		0.15
912	D4815	4.27		1.89	6054		-----		-----
914		-----		-----	6058	EN13132	4.43		4.21
963	D4815	4.40		3.77	6075		-----		-----
971	D4815	4.15		0.15	6103	D6730	4.030	C	-1.59
974		-----		-----	6142		4.16		0.30
994		-----		-----	6192	ISO22854-A	3.31	R(0.01)	-12.02
1006	D4815	4.12		-0.28	6203	ISO22854-A	4.12		-0.28
1011	ISO22854-A	4.05		-1.30	6240	ISO22854-A	4.65	R(0.01)	7.39
1033		-----		-----	6258	EN13132	4.094		-0.66
1039	ISO22854-A	4.14		0.01	6274		4.08		-0.86
1059	ISO22854-A	4.14		0.01	6279	ISO22854-A	4.07	C	-1.01
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO22854-A	4.13		-0.14	6325	ISO22854-A	3.99		-2.17
1109		-----		-----	6416		-----		-----
1126		4.16		0.30	6421		-----		-----
1134	ISO22854-A	4.09		-0.72	6441	ISO22854-A	4.66	R(0.01)	7.54
1141		-----		-----	6446	ISO22854-A	4.14		0.01
1171	In house	3.41	R(0.01)	-10.57	6447		-----		-----
1191		4.27		1.89	6478		-----		-----
1194	D5845	3.8		-4.92	6496	ISO22854-A	4.17		0.44

normality	suspect
n	80
outliers	6
mean (n)	4.1396
st.dev. (n)	0.11716
R(calc.)	0.3281
st.dev.(ISO22854-A:21)	0.06903
R(ISO22854-A:21)	0.1933

Lab 120 first reported 0.0
Lab 312 possibly a false negative test result?
Lab 1266 first reported 3.24
Lab 1345 test result withdrawn, reported 4.73
Lab 1399 first reported 4.15
Lab 1911 first reported 4.77
Lab 6103 first reported 0
Lab 6279 first reported 0



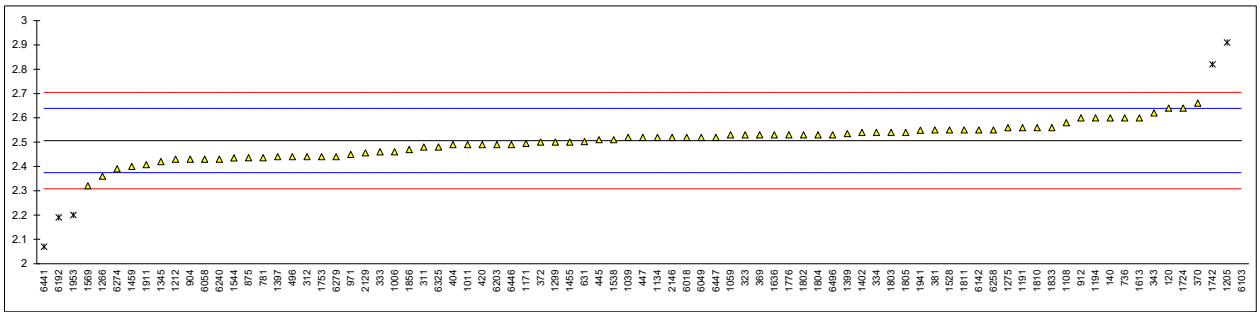


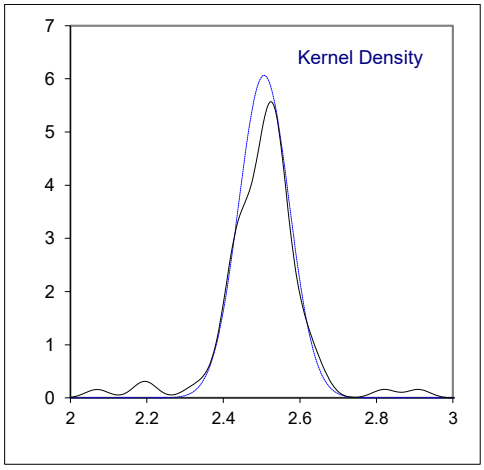
Determination of Oxygen content on sample #22185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	2.64	C	2.02	1205	D8071	2.91	R(0.01)	6.10
140	D5599	2.6		1.41	1212	EN13132	2.43		-1.16
171		-----		-----	1266	EN1601	2.36		-2.21
225		-----		-----	1275	ISO22854-A	2.56		0.81
237		-----		-----	1299	ISO22854-A	2.50		-0.10
238		-----		-----	1345	D6730	2.42		-1.31
273		-----		-----	1357	D6839	NA		-----
311	ISO22854-A	2.48		-0.40	1389		-----		-----
312	ISO22854-A	2.44		-1.01	1397	EN13132	2.44		-1.01
323	ISO22854-A	2.53		0.36	1399	D6839	2.535	C	0.43
328		-----		-----	1402	ISO22854-A	2.54		0.51
333	ISO22854-A	2.46		-0.70	1455	ISO22854-A	2.5		-0.10
334	ISO22854-A	2.54		0.51	1459	In house	2.4		-1.61
335		-----		-----	1498		-----		-----
337		-----		-----	1528	ISO22854-A	2.55		0.66
338		-----		-----	1537		-----		-----
343	EN13132	2.62		1.72	1538	ISO22854-A	2.51		0.05
344		-----		-----	1544	EN13132	2.435		-1.08
352		-----		-----	1569	D6839	2.32		-2.82
365		-----		-----	1586		-----		-----
369	EN13132	2.53		0.36	1613	D6839	2.6		1.41
370	EN13132	2.66		2.32	1636	EN13132	2.53		0.36
371		-----		-----	1720		-----		-----
372	EN13132	2.50		-0.10	1724	ISO22854-A	2.64		2.02
381	ISO22854-A	2.55		0.66	1728		-----		-----
391		-----		-----	1740		-----		-----
399		-----		-----	1742	D5622	2.82	R(0.01)	4.74
404	D5845	2.49		-0.25	1746		-----		-----
420	EN13132	2.49		-0.25	1753	EN13132	2.44		-1.01
431		-----		-----	1776	ISO22854-A	2.53		0.36
444		-----		-----	1802	EN13132	2.53		0.36
445	ISO22854-A	2.51		0.05	1803	EN13132	2.54		0.51
447	IP466	2.52		0.20	1804	EN13132	2.53		0.36
467		-----		-----	1805	EN13132	2.54		0.51
480		-----		-----	1810	D6839	2.56		0.81
496	ISO22854-A	2.440		-1.01	1811	ISO22854-A	2.55		0.66
631	D5845	2.502312487		-0.06	1833	ISO22854-A	2.56		0.81
633		-----		-----	1856	EN13132	2.469		-0.57
734		-----		-----	1857		-----		-----
736	ISO22854-A	2.60		1.41	1911	EN13132	2.407		-1.50
752		-----		-----	1941	EN13132	2.549		0.64
759		-----		-----	1953		2.20	R(0.01)	-4.63
779		-----		-----	1968		-----	W	-----
781		2.436		-1.07	1977		-----		-----
782		-----		-----	2129	D6730	2.456		-0.76
785		-----		-----	2130		-----		-----
798		-----		-----	2146	ISO22854-A	2.52		0.20
873		-----		-----	6018	ISO22854-A	2.52		0.20
875	EN13132	2.436		-1.07	6047		-----		-----
904	D4815	2.43		-1.16	6049	ISO22854-A	2.52		0.20
912	D4815	2.60		1.41	6054		-----		-----
914		-----		-----	6058	EN13132	2.43		-1.16
963		-----		-----	6075		-----		-----
971	D4815	2.45		-0.85	6103	D6730	3.457	C,R(0.01)	14.37
974		-----		-----	6142	ISO22854-A	2.55		0.66
994		-----		-----	6192	ISO22854-A	2.19	R(0.01)	-4.78
1006	D4815	2.46		-0.70	6203	ISO22854-A	2.49		-0.25
1011	ISO22854-A	2.49		-0.25	6240	ISO22854-A	2.43		-1.16
1033		-----		-----	6258	EN13132	2.55		0.66
1039	ISO22854-A	2.52		0.20	6274	ISO22854-A	2.39		-1.76
1059	ISO22854-A	2.53		0.36	6279	ISO22854-A	2.44		-1.01
1082		-----		-----	6299		-----		-----
1097		-----		-----	6321		-----		-----
1108	ISO22854-A	2.58		1.11	6325	ISO22854-A	2.48		-0.40
1109		-----		-----	6416		-----		-----
1126		-----		-----	6421		-----		-----
1134	ISO22854-A	2.52		0.20	6441	ISO22854-A	2.07	R(0.01)	-6.60
1141		-----		-----	6446	ISO22854-A	2.49	C	-0.25
1171	In house	2.495		-0.17	6447	D5622	2.52		0.20
1191	ISO22854-A	2.56		0.81	6478		-----		-----
1194	D5845	2.6		1.41	6496	ISO22854-A	2.53		0.36

normality	OK
n	77
outliers	6
mean (n)	2.5065
st.dev. (n)	0.06575
R(calc.)	0.1841
st.dev.(ISO22854-A:21)	0.06615
R(ISO22854-A:21)	0.1852

Lab 120 first reported 1.82
Lab 1399 first reported 1.32
Lab 1968 test result withdrawn, reported 2.88 %V/V
Lab 6103 first reported 1.837
Lab 6446 first reported 9.260



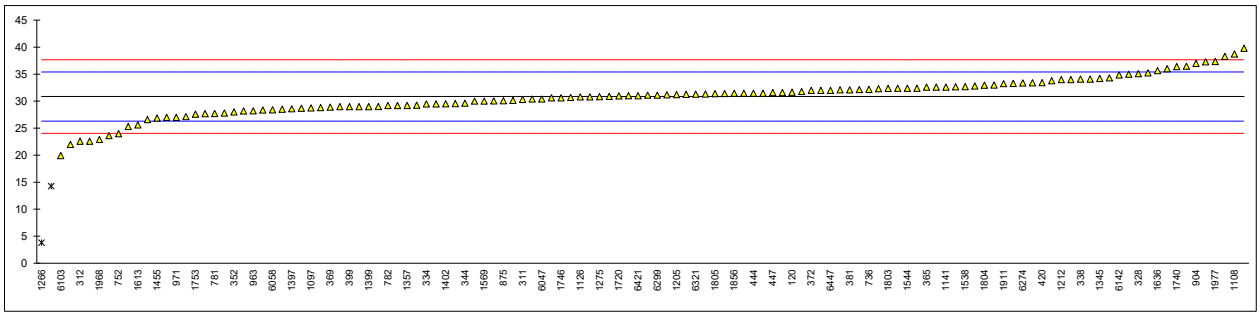


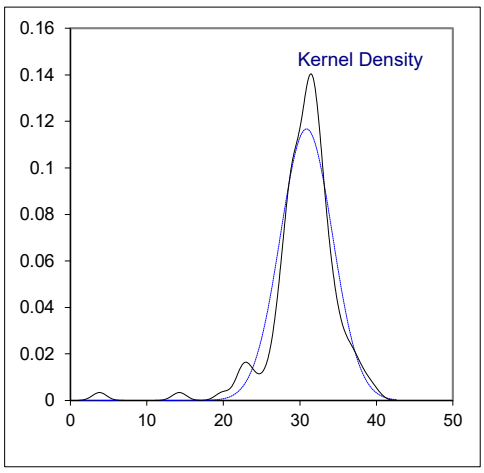
Determination of Sulfur on sample #22185; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D2622	31.65		0.35	1205	ISO20846	31.21		0.15
140	D5453	36.48		2.47	1212	ISO20846	34		1.38
171	D5453	29		-0.82	1266	ISO20846	3.8	C,R(0.01)	-11.92
225		-----		-----	1275	IP490	30.83		-0.02
237	D5453	22	C	-3.90	1299	ISO20884	30.6		-0.12
238		-----		-----	1345	D5453	34.2		1.47
273	D5453	23.6		-3.20	1357	D5453	29.2		-0.73
311	ISO20846	30.3		-0.25	1389	ISO20846	33.4		1.12
312	ISO20846	22.6		-3.64	1397	ISO20884	28.6		-1.00
323		-----		-----	1399	D5453	29	C	-0.82
328	ISO20846	35.1		1.87	1402	IP490	29.51		-0.60
333	ISO20846	37.3		2.83	1455	ISO20846	26.9		-1.75
334	ISO20846	29.5		-0.60	1459	ISO20884	30.15		-0.31
335	ISO20846	32.6		0.76	1498	D5453	31.2		0.15
337	ISO20846	31.1		0.10	1528	ISO20884	30.9		0.02
338	ISO20846	34.1		1.42	1537	ISO20846	33.29		1.07
343		-----		-----	1538	ISO20884	32.7		0.81
344	D5453	29.637		-0.54	1544	ISO20846	32.39		0.67
352	ISO20846	28	C	-1.26	1569	ISO20846	30		-0.38
365	IP490	32.599		0.76	1586	ISO20846	31.4		0.24
369	ISO20846	28.9		-0.87	1613	D5453	25.6		-2.32
370	ISO20846	32.8		0.85	1636	ISO20846	35.66		2.11
371	ISO20846	32.66		0.79	1720	D5453	30.97		0.05
372	ISO20846	32		0.50	1724	D5453	30.7		-0.07
381	ISO20846	32.1		0.54	1728		-----		-----
391	ISO20846	39.8		3.93	1740	D5453	36.4		2.44
399	D5453	29		-0.82	1742	ISO20846	31.6		0.32
404	ISO20846	27.8		-1.35	1746	D7039	30.6		-0.12
420	ISO20846	33.44		1.13	1753	ISO20846	27.6		-1.44
431		-----		-----	1776	ISO20846	36		2.26
444	D5453	31.5		0.28	1802	ISO20846	31.49		0.28
445	IP490	32.39		0.67	1803	ISO20846	32.37		0.66
447	IP490	31.6		0.32	1804	ISO20846	32.98		0.93
467	ISO20846	28.36		-1.10	1805	ISO20846	31.37		0.22
480		-----		-----	1810	D5453	28.5		-1.04
496	ISO20846	14.24	R(0.01)	-7.32	1811	ISO20846	30.4		-0.20
631	D4294	29.2		-0.73	1833	ISO20846	30.8		-0.03
633		-----		-----	1856	ISO20846	31.45		0.26
734	D5453	32.14		0.56	1857	ISO20846	29.54		-0.58
736	ISO20846	32.2		0.59	1911	ISO20846	33.24		1.05
752	D4294	24.0		-3.02	1941	ISO20846	31.8		0.41
759	D4294	29		-0.82	1953	D4294	38.31		3.28
779	ISO20884	30.05		-0.36	1968	ISO20846	22.93		-3.49
781	ISO20846	27.72		-1.38	1977	D5453	37.35		2.86
782	ISO20884	29.2		-0.73	2129	IP490	31.5		0.28
785	ISO20846	31.33		0.20	2130		-----		-----
798		-----		-----	2146		-----		-----
873	ISO20846	33		0.94	6018	ISO20846	28.81		-0.90
875	ISO20846	30.1		-0.34	6047	ISO20846	30.4		-0.20
904	ISO20846	37.0		2.70	6049	ISO20846	33.8		1.29
912	D5453	35		1.82	6054	D4294	34.1		1.42
914		-----		-----	6058	ISO20884	28.4		-1.09
963	D5453	28.2		-1.17	6075		-----		-----
971	D5453	27		-1.70	6103	D4294	19.9	C	-4.83
974	D5453	27		-1.70	6142		34.85		1.75
994	D5453	34.0		1.38	6192	ISO20846	25.3		-2.45
1006	D5453	31		0.06	6203	D5453	27.15		-1.64
1011	ISO20846	22.6		-3.64	6240	ISO20846	29.5		-0.60
1033		-----		-----	6258	ISO20846	32.31		0.64
1039	ISO20846	32.1		0.54	6274	ISO20846	33.38		1.11
1059	ISO20846	26.6		-1.88	6279	ISO20884	35.236		1.92
1082		-----		-----	6299	ISO20846	31.1		0.10
1097	D5453	28.74		-0.94	6321	ISO20846	31.3		0.19
1108	ISO20846	38.74		3.47	6325	ISO20846	28.7		-0.95
1109		-----		-----	6416	D5453	29.249		-0.71
1126	ISO20846	30.8		-0.03	6421	ISO20846	31.0		0.06
1134	IP490	32.40		0.68	6441	ISO20846	31.28		0.18
1141	ISO20846	32.61		0.77	6446	D2622	32		0.50
1171	ISO20846	28.17		-1.19	6447	D2622	32	C	0.50
1191	ISO20846	30.0		-0.38	6478	ISO20884	29.02		-0.81
1194	D7220/IP532	34.3		1.51	6496	ISO20846	27.69		-1.40

normality	suspect
n	124
outliers	2
mean (n)	30.865
st.dev. (n)	3.4186
R(calc.)	9.572
st.dev.(ISO20846:19)	2.2708
R(ISO20846:19)	6.358

Lab 237 first reported 19
Lab 352 first reported 8.54
Lab 1266 first reported 5.2
Lab 1399 first reported 1.79
Lab 6103 first reported 4.7
Lab 6447 first reported 0.0032



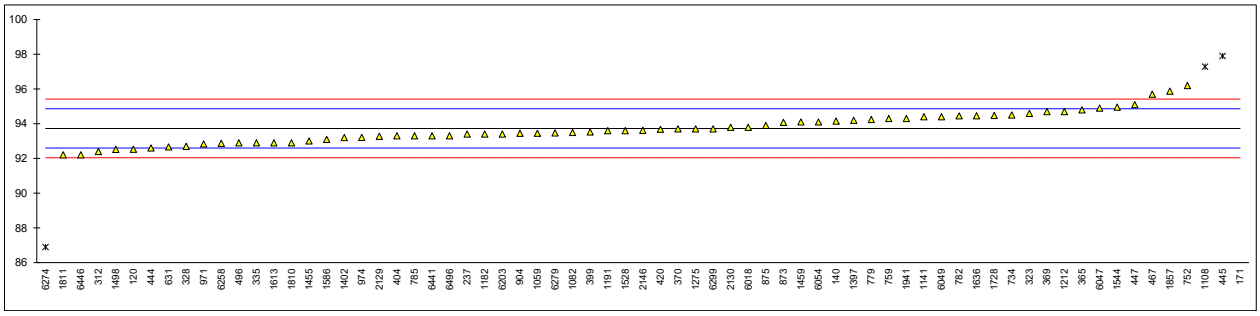


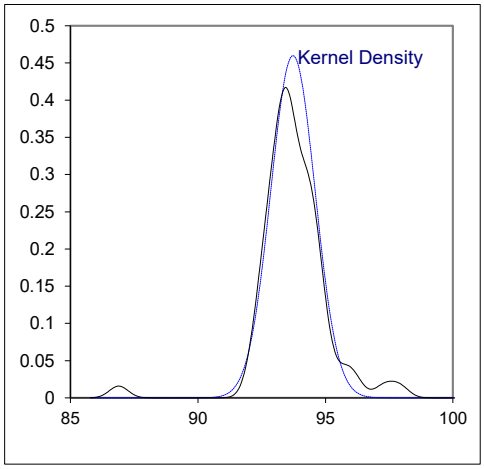
Determination of ASVP on sample #22186; results in kPa

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5191	92.53		-2.13	1544	EN13016-1	94.95		2.16
140	D5191	94.15		0.74	1586	EN13016-1	93.1		-1.12
171	EN13016-1	111.4	R(0.01)	31.31	1613	EN13016-1	92.9		-1.47
225		-----		-----	1636	EN13016-1	94.46		1.29
237	D5191	93.4	C	-0.59	1720		-----		-----
238		-----		-----	1724		-----		-----
311		-----		-----	1728	EN13016-1	94.48		1.33
312	EN13016-1	92.4		-2.36	1730		-----		-----
323	D5191	94.6		1.54	1746		-----		-----
328	EN13016-1	92.7		-1.83	1776		-----		-----
333		-----		-----	1802		-----		-----
334		-----		-----	1803		-----		-----
335	EN13016-1	92.9		-1.47	1804		-----		-----
337		-----		-----	1805		-----		-----
338		-----		-----	1810	EN13016-1	92.9		-1.47
344		-----		-----	1811	EN13016-1	92.2		-2.71
365	D5191	94.8		1.90	1833		-----		-----
369	EN13016-1	94.7		1.72	1856		-----		-----
370	EN13016-1	93.7		-0.05	1857	EN13016-1	95.87		3.79
372		-----		-----	1941	EN13016-1	94.3		1.01
381		-----		-----	1953		-----		-----
391		-----		-----	2129	EN13016-1	93.28		-0.80
399	EN13016-1	93.52		-0.37	2130	D5191	93.8	C	0.12
404	EN13016-1	93.3		-0.76	2146	EN13016-1	93.62		-0.20
420	EN13016-1	93.68		-0.09	6018	EN13016-1	93.8		0.12
444	D5191	92.6		-2.00	6047		94.9		2.07
445	IP394	97.9	R(0.01)	7.39	6049	EN13016-1	94.4		1.19
447	D5191	95.1		2.43	6054	D5191	94.1		0.65
467	EN13016-1	95.7		3.49	6075		-----		-----
480		-----		-----	6103		-----		-----
496	EN13016-1	92.9		-1.47	6142		-----		-----
631	D5191	92.667		-1.88	6203	EN13016-1	93.4		-0.59
734	D5191	94.5		1.36	6258	EN13016-1	92.87		-1.53
752	EN13016-1	96.2		4.38	6274	EN13016-1	86.9	R(0.01)	-12.10
759	EN13016-1	94.3		1.01	6279	EN13016-1	93.47		-0.46
779	D5191	94.25		0.92	6299	EN13016-1	93.7		-0.05
782	EN13016-1	94.45		1.27	6321		-----		-----
785	EN13016-1	93.3		-0.76	6325		-----		-----
798		-----		-----	6416		-----		-----
873	EN13016-1	94.08		0.62	6421		-----		-----
875	EN13016-1	93.9		0.30	6441	EN13016-1	93.3		-0.76
904	EN13016-1	93.45		-0.50	6446	EN13016-1	92.2		-2.71
963		-----		-----	6496	EN13016-1	93.3		-0.76
971	D5191	92.83		-1.60					
974	D5191	93.21		-0.92					
1006		-----		-----					
1011		-----		-----					
1033		-----		-----					
1039		-----		-----					
1059	EN13016-1	93.45		-0.50					
1082	EN13016-1	93.5		-0.41					
1108	EN13016-1	97.29	R(0.01)	6.31					
1109		-----		-----					
1134		-----		-----					
1141	EN13016-1	94.4		1.19					
1182	D5191	93.4		-0.59					
1191	EN13016-1	93.6		-0.23					
1194		-----		-----					
1212	EN13016-1	94.7		1.72					
1275	EN13016-1	93.7		-0.05					
1299		-----		-----					
1357	D5191	NA		-----					
1397	EN13016-1	94.2		0.83					
1399		-----	W	-----					
1402	EN13016-1	93.2		-0.94					
1455	EN13016-1	93.0		-1.29					
1459	EN13016-1	94.1		0.65					
1498	D5191	92.52		-2.15					
1528	EN13016-1	93.6		-0.23					
1537		-----		-----					
1538		-----		-----					

normality	OK
n	65
outliers	4
mean (n)	93.731
st.dev. (n)	0.8677
R(calc.)	2.430
st.dev.(EN13016-1:18)	0.5643
R(EN13016-1:18)	1.58

Lab 237 first reported 86.5
Lab 1399 test result withdrawn, reported 90.87
Lab 2130 first reported 87.7



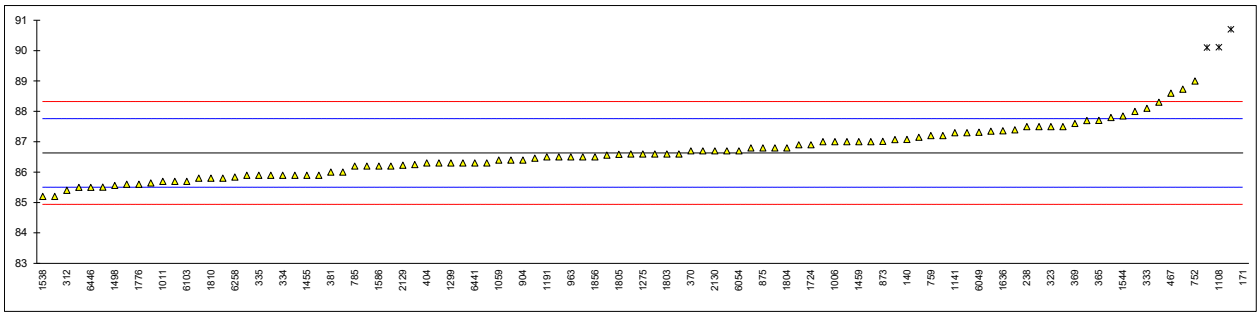


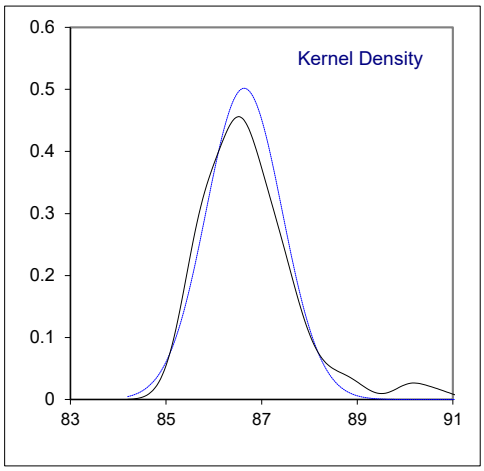
Determination of DVPE acc. to EN13016-1 on sample #22186; results in kPa

lab	method	value	mark	z(targ)
120	D5191	85.51		-1.99
140	D5191	87.074		0.78
171	EN13016-1	103.7	R(0.01)	30.25
225	D5191	85.9		-1.30
237	D5191	86.5	C	-0.23
238	D5191	87.5	C	1.54
311	D5191	86.8		0.30
312	EN13016-1	85.4		-2.18
323	D5191	87.5		1.54
328	EN13016-1	85.7		-1.65
333	EN13016-1	88.1		2.60
334	EN13016-1	85.9		-1.30
335	EN13016-1	85.9		-1.30
337	EN13016-1	87.0		0.65
338	EN13016-1	86.6		-0.06
344		-----		-----
365	D5191	87.702		1.90
369	EN13016-1	87.6		1.71
370	EN13016-1	86.7		0.12
372		-----		-----
381	EN13016-1	86.0		-1.12
391		-----		-----
399	EN13016-1	86.46		-0.31
404	EN13016-1	86.3		-0.59
420	EN13016-1	86.9	E	0.47
444	D5191	85.6		-1.83
445	EN13016-1	90.7	R(0.01)	7.21
447	D5191	88.0		2.42
467	EN13016-1	88.6		3.49
480	EN13016-1	87.5		1.54
496	EN13016-1	85.9		-1.30
631	D5191	85.643		-1.75
734	D5191	87.5		1.54
752	EN13016-1	89.0		4.20
759	EN13016-1	87.2		1.01
779	D5191	87.15		0.92
782	EN13016-1	87.35		1.27
785	EN13016-1	86.2		-0.77
798		-----		-----
873	EN13016-1	87.01		0.67
875	EN13016-1	86.8		0.30
904	EN13016-1	86.4		-0.41
963	D5191	86.5		-0.23
971	D5191	85.80		-1.48
974	D5191	86.25		-0.68
1006	D5191	87.0		0.65
1011	EN13016-1	85.7		-1.65
1033		-----		-----
1039	EN13016-1	87.3		1.18
1059	EN13016-1	86.4		-0.41
1082	EN13016-1	86.4		-0.41
1108	EN13016-1	90.11	R(0.01)	6.16
1109		-----		-----
1134		-----		-----
1141	EN13016-1	87.3		1.18
1182	D5191	86.3		-0.59
1191	EN13016-1	86.5		-0.23
1194	EN13016-1	85.5		-2.01
1212	EN13016-1	87.7		1.89
1275	EN13016-1	86.6		-0.06
1299	D5191	86.3		-0.59
1357	D5191	86.6		-0.06
1397	EN13016-1	87		0.65
1399	D5191	85.9		-1.30
1402	EN13016-1	86.2		-0.77
1455	EN13016-1	85.9		-1.30
1459	EN13016-1	87.0		0.65
1498	D5191	85.56		-1.90
1528	EN13016-1	86.5		-0.23
1537	EN13016-1	86.8		0.30
1538	EN13016-1	85.2		-2.54
1544	EN13016-1	87.85		2.16
1586	EN13016-1	86.2		-0.77
1613	EN13016-1	85.9		-1.30
1636	EN13016-1	87.36		1.29
1720		-----		-----
1724	IP394	86.9		0.47
1728	EN13016-1	87.39		1.34
1730		-----		-----
1746	D5191	88.3		2.96
1776	EN13016-1	85.6		-1.83
1802	EN13016-1	86.2		-0.77
1803	EN13016-1	86.6		-0.06
1804	EN13016-1	86.8		0.30
1805	EN13016-1	86.59		-0.08
1810	EN13016-1	85.8		-1.48
1811	EN13016-1	85.2		-2.54
1833	EN13016-1	86.7		0.12
1856	EN13016-1	86.5		-0.23
1857	EN13016-1	88.73		3.72
1941	EN13016-1	87.2		1.01
1953	EN13016-1	85.8		-1.48
2129	EN13016-1	86.23		-0.71
2130	D5191	86.7		0.12
2146	EN13016-1	86.56		-0.13
6018	EN13016-1	86.7		0.12
6047		87.8		2.07
6049	EN13016-1	87.316		1.21
6054	D5191	86.7	E	0.12
6075		-----		-----
6103	EN13016-1	85.7		-1.65
6142	EN13016-1	90.1	R(0.01)	6.15
6203	EN13016-1	86.3		-0.59
6258	EN13016-1	85.84		-1.40
6274		-----		-----
6279	EN13016-1	87.07	E	0.78
6299	EN13016-1	86.6		-0.06
6321	IP394	87.0		0.65
6325	D5191	86.0		-1.12
6416		-----		-----
6421		-----		-----
6441	EN13016-1	86.3		-0.59
6446	EN13016-1	85.5	E	-2.01
6496	EN13016-1	86.3		-0.59

normality	OK
n	97
outliers	4
mean (n)	86.632
st.dev. (n)	0.7953
R(calc.)	2.227
st.dev.(EN13016-1:18)	0.5643
R(EN13016-1:18)	1.58
Compare:	
R(EN13016-1:07)	2.50

Lab 237 first reported 93.4
Lab 238 first reported 83.0
Lab 420 calculation difference, iis calculated 86.6
Lab 6054 calculation difference, iis calculated 87.0
Lab 6279 calculation difference, iis calculated 86.4
Lab 6446 calculation difference, iis calculated 85.2



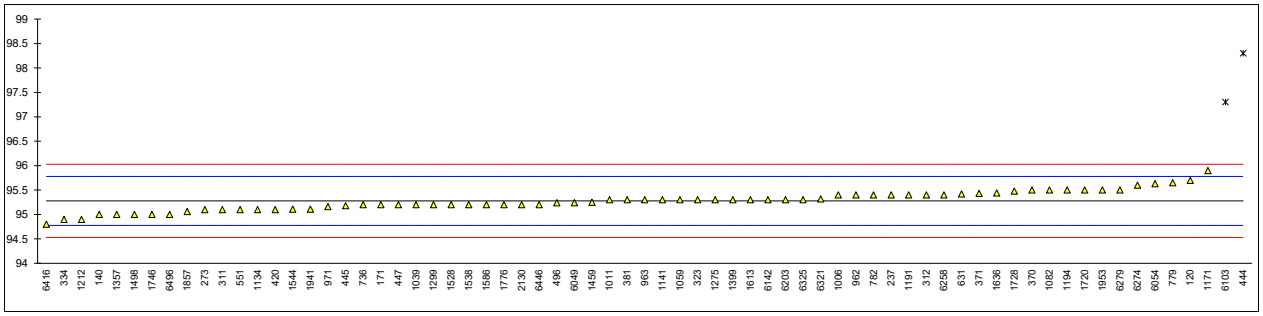


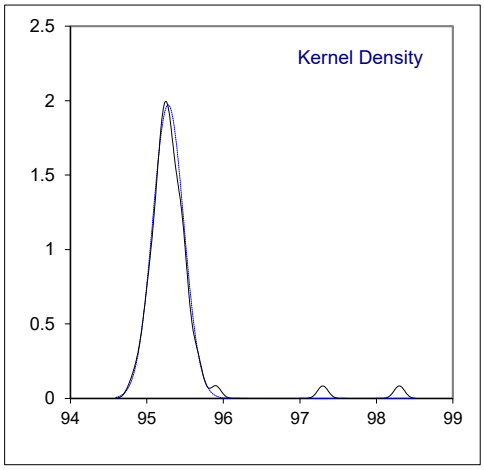
Determination of RON on sample #22187;

lab	method	value	mark	z(targ)	remarks
120	D2699	95.7		1.69	
140	D2699	95.0		-1.11	
171	D2699	95.2		-0.31	
237	D2699	95.4		0.49	
273	D2699	95.1		-0.71	
311	D2699	95.1		-0.71	
312	ISO5164	95.4		0.49	
323	D2699	95.3		0.09	
334	ISO5164	94.9		-1.51	
370	ISO5164	95.5		0.89	
371	ISO5164	95.43		0.61	
381	ISO5164	95.3		0.09	
399		-----		-----	
420	ISO5164	95.1		-0.71	
444	D2699	98.3	R(0.01)	12.09	
445	IP237	95.18		-0.39	
447	D2699	95.2		-0.31	
496	ISO5164	95.24		-0.15	
551	D2699	95.1		-0.71	
631	D2699	95.42		0.57	
736	D2699	95.2		-0.31	
779	GOST8226	95.65		1.49	
782	GOST8226	95.4		0.49	
798		-----		-----	
962	D2699	95.4		0.49	
963	D2699	95.3		0.09	
971	D2699	95.16		-0.47	
1006	D2699	95.4		0.49	
1011	ISO5164	95.3		0.09	
1039	ISO5164	95.2		-0.31	
1059	ISO5164	95.3		0.09	
1082	ISO5164	95.5		0.89	
1109		-----		-----	
1134	ISO5164	95.1		-0.71	
1141	In house	95.3		0.09	
1171	In house	95.9	C	2.49	first reported 96.15
1191	ISO5164	95.4		0.49	
1194	D2699	95.5		0.89	
1212	ISO5164	94.9		-1.51	
1275	IP237	95.3		0.09	
1299	D2699	95.2		-0.31	
1357	D2699	95.0		-1.11	
1399	D2699	95.3		0.09	
1459	In house	95.25		-0.11	
1498	D2699	95.0		-1.11	
1528	ISO5164	95.2		-0.31	
1537		-----		-----	
1538	ISO5164	95.2		-0.31	
1544	ISO5164	95.11		-0.67	
1586	D2699	95.2		-0.31	
1613	D2699	95.3		0.09	
1636	ISO5164	95.44		0.65	
1720	D2699	95.5		0.89	
1728	D2699	95.48		0.81	
1746	D2699	95.0		-1.11	
1776	ISO5164	95.2		-0.31	
1802		-----		-----	
1803		-----		-----	
1804		-----		-----	
1805		-----		-----	
1856		-----		-----	
1857	ISO5164	95.06		-0.87	
1941	ISO5164	95.11		-0.67	
1953	In house	95.5		0.89	
2130	IP237	95.2		-0.31	
6049	ISO5164	95.24		-0.15	
6054	D2699	95.629		1.40	
6075		-----		-----	
6103	In house	97.3	R(0.01)	8.09	
6142	ISO5164	95.3		0.09	
6203	ISO5164	95.3		0.09	
6258	ISO5164	95.4		0.49	
6274	ISO5164	95.6		1.29	
6279	ISO5164	95.5	C	0.89	first reported 95.83
6321	D2699	95.32		0.17	

lab	method	value	mark	z(targ)	remarks
6325	D2699	95.3		0.09	
6416	D2699	94.8	C	-1.91	first reported 94.7
6446	ISO5164	95.2		-0.31	
6496	ISO5164	95.0		-1.11	

normality	OK
n	67
outliers	2
mean (n)	95.28
st.dev. (n)	0.202
R(calc.)	0.57
st.dev.(ISO5164:14)	0.250
R(ISO5164:14)	0.7



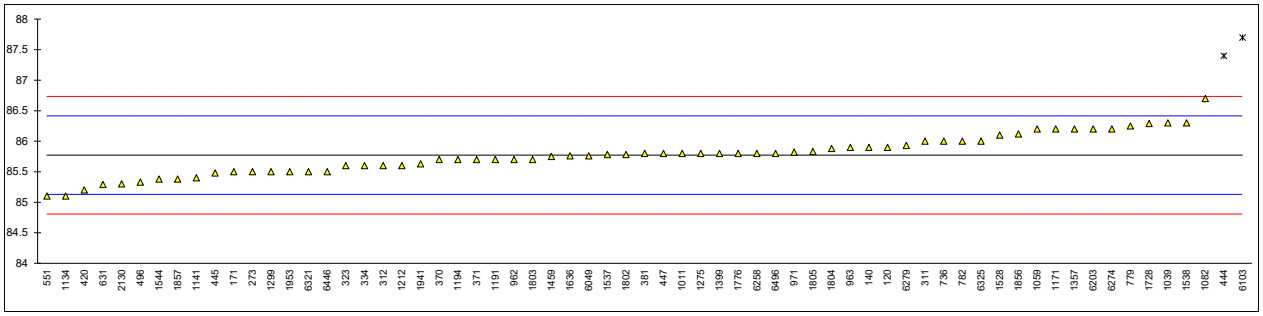


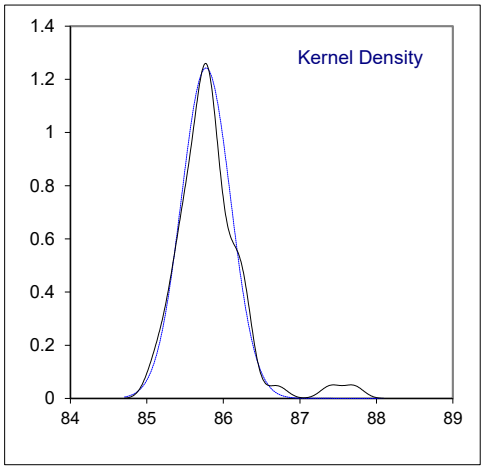
Determination of MON on sample #22187;

lab	method	value	mark	z(targ)	remarks
120	D2700	85.9		0.40	
140	D2700	85.9		0.40	
171	D2700	85.5		-0.85	
237		-----		-----	
273	D2700	85.5		-0.85	
311	D2700	86.0		0.71	
312	ISO5163	85.6		-0.54	
323	D2700	85.6		-0.54	
334	ISO5163	85.6		-0.54	
370	ISO5163	85.7		-0.22	
371	ISO5163	85.7		-0.22	
381	ISO5163	85.8		0.09	
399		-----		-----	
420	ISO5163	85.2		-1.78	
444	D2700	87.4	R(0.01)	5.06	
445	ISO5163	85.48		-0.91	
447	D2700	85.8		0.09	
496	ISO5163	85.33		-1.38	
551	D2700	85.1		-2.09	
631	D2700	85.29		-1.50	
736	D2700	86.0		0.71	
779	GOST511	86.25		1.49	
782	GOST511	86.0		0.71	
798		-----		-----	
962	D2700	85.7		-0.22	
963	D2700	85.9		0.40	
971	D2700	85.82		0.15	
1006		-----		-----	
1011	ISO5163	85.8		0.09	
1039	ISO5163	86.3		1.64	
1059	ISO5163	86.2		1.33	
1082	ISO5163	86.7		2.89	
1109		-----		-----	
1134	ISO5163	85.1		-2.09	
1141	In house	85.4		-1.16	
1171	In house	86.20		1.33	
1191	ISO5163	85.7		-0.22	
1194	D2700	85.7		-0.22	
1212	ISO5163	85.6		-0.54	
1275	IP236	85.8		0.09	
1299	D2700	85.5		-0.85	
1357	D2700	86.2		1.33	
1399	D2700	85.8		0.09	
1459	In house	85.75		-0.07	
1498		-----		-----	
1528	ISO5163	86.1		1.02	
1537	ISO5163	85.78		0.02	
1538	ISO5163	86.3		1.64	
1544	ISO5163	85.38		-1.22	
1586		-----		-----	
1613		-----		-----	
1636	ISO5163	85.76		-0.04	
1720		-----		-----	
1728	D2700	86.29		1.61	
1746		-----		-----	
1776	ISO5163	85.8		0.09	
1802	ISO5163	85.78		0.02	
1803	ISO5163	85.70		-0.22	
1804	ISO5163	85.88		0.34	
1805	ISO5163	85.83		0.18	
1856	ISO5163	86.12		1.08	
1857	ISO5163	85.38		-1.22	
1941	ISO5163	85.63		-0.44	
1953	In house	85.5		-0.85	
2130	IP236	85.3		-1.47	
6049	ISO5163	85.76		-0.04	
6054		-----		-----	
6075		-----		-----	
6103	In house	87.7	R(0.01)	6.00	
6142		-----		-----	
6203	ISO5163	86.2		1.33	
6258	ISO5163	85.8		0.09	
6274	ISO5163	86.2		1.33	
6279	ISO5163	85.93		0.49	
6321	D2700	85.50		-0.85	

lab	method	value	mark	z(targ)	remarks
6325	D2700	86.0		0.71	
6416		-----		-----	
6446	ISO5163	85.5		-0.85	
6496	ISO5163	85.8		0.09	

normality	OK
n	63
outliers	2
mean (n)	85.77
st.dev. (n)	0.321
R(calc.)	0.90
st.dev.(ISO5163:14)	0.321
R(ISO5163:14)	0.9

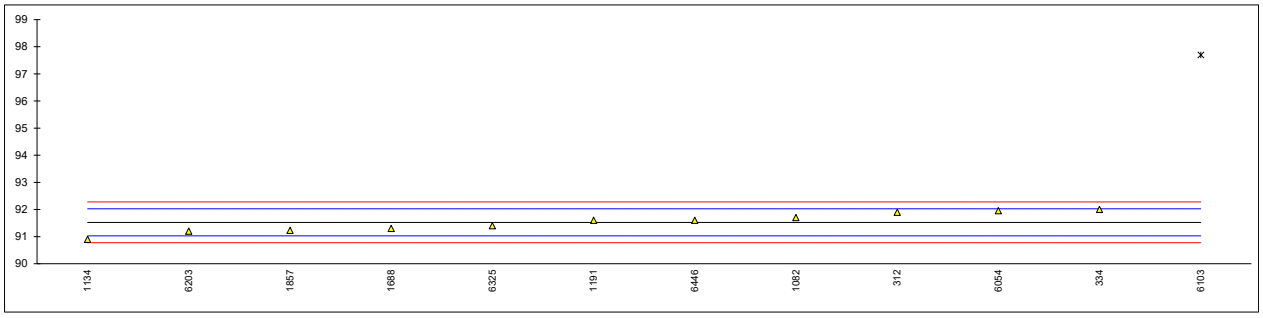


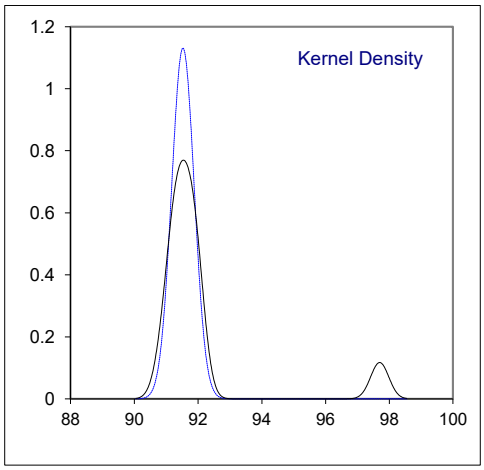


Determination of RON on extra RON 91 sample #22188;

lab	method	value	mark	z(targ)	remarks
312	ISO5164	91.9		1.50	
334	ISO5164	92.0		1.90	
1082	ISO5164	91.7		0.70	
1109		-----		-----	
1134	ISO5164	90.9		-2.50	
1191	ISO5164	91.6		0.30	
1379		-----		-----	
1688	D2699	91.3		-0.90	
1857	ISO5164	91.23		-1.18	
6054	D2699	91.9565		1.72	
6103	In house	97.7	D(0.01)	24.70	
6203	ISO5164	91.2		-1.30	
6325	D2699	91.4		-0.50	
6446	ISO5164	91.6		0.30	

normality	OK
n	11
outliers	1
mean (n)	91.53
st.dev. (n)	0.353
R(calc.)	0.99
st.dev.(ISO5164:14)	0.250
R(ISO5164:14)	0.7

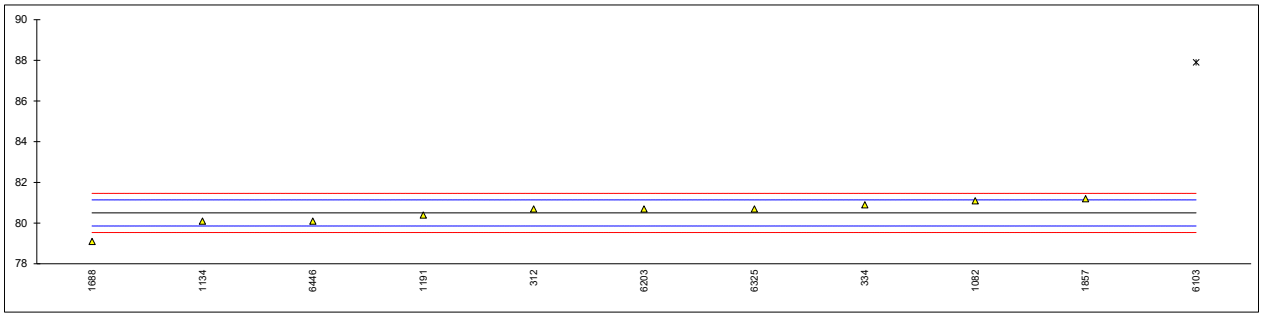


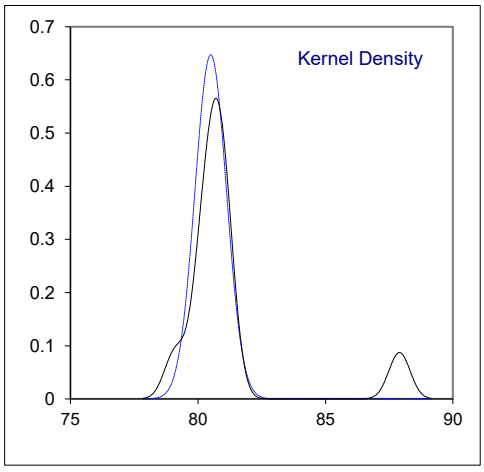


Determination of MON on extra RON 91 sample #22188;

lab	method	value	mark	z(targ)	remarks
312	ISO5163	80.7		0.62	
334	ISO5163	80.9		1.24	
1082	ISO5163	81.1		1.87	
1109		-----		-----	
1134	ISO5163	80.1		-1.24	
1191	ISO5163	80.4		-0.31	
1379		-----		-----	
1688	D2700	79.1	C	-4.36	first reported 83.3
1857	ISO5163	81.20		2.18	
6054		-----		-----	
6103	In house	87.9	D(0.01)	23.02	
6203	ISO5163	80.7		0.62	
6325	D2700	80.7		0.62	
6446	ISO5163	80.1		-1.24	

normality	not OK
n	10
outliers	1
mean (n)	80.50
st.dev. (n)	0.616
R(calc.)	1.73
st.dev.(ISO5163:14)	0.321
R(ISO5163:14)	0.9





APPENDIX 2: Determination of Other Oxygenates on sample #22185; results in %V/V

lab	MeOH	i-PrOH	i-BuOH	t-BuOH	DIPE	ETBE	TAME	Sum of Other Oxygenates
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.83
140	0.01	0	0	0	0	0	0	0
171	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03
225	-----	-----	-----	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
273	-----	-----	-----	-----	-----	-----	-----	-----
311	0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
312	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
323	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
328	-----	-----	-----	-----	-----	-----	-----	-----
333	<0.50	<0.61	<0.61	<0.61	-----	<0.80	-----	-----
334	<0.50	<0.61	<0.61	<0.61	<0.61	<0.80	<0.80	<0.61
335	-----	-----	-----	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----
343	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
344	-----	-----	-----	-----	-----	-----	-----	-----
352	-----	-----	-----	-----	-----	-----	-----	-----
365	-----	-----	-----	-----	-----	-----	-----	-----
369	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
370	<0.17	<0.17	<0.17	<0.17	-----	<0.17	<0.17	<0.17
371	-----	-----	-----	-----	-----	-----	-----	-----
372	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-----
381	<0,80	<0,80	<0,80	<0,80	<0,80	<0,80	<0,80	<0,80
391	-----	-----	-----	-----	-----	-----	-----	-----
399	-----	-----	-----	-----	-----	-----	-----	-----
404	-----	-----	-----	-----	-----	-----	-----	-----
420	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1
431	-----	-----	-----	-----	-----	-----	-----	-----
444	-----	-----	-----	-----	-----	-----	-----	-----
445	<1.05	<0.01	<0.01	0.02	0.02	0.02	<0.01	0.03
447	-----	-----	-----	-----	-----	-----	-----	-----
467	-----	-----	-----	-----	-----	-----	-----	-----
480	-----	-----	-----	-----	-----	-----	-----	-----
496	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
631	<0.3	-----	-----	-----	-----	-----	-----	-----
633	-----	-----	-----	-----	-----	-----	-----	-----
734	-----	-----	-----	-----	-----	-----	-----	-----
736	0.02	0.03	0.02	0.004	<0.2	<0.2	<0.2	-----
752	-----	-----	-----	-----	-----	-----	-----	-----
759	-----	-----	-----	-----	-----	-----	-----	-----
779	-----	-----	-----	-----	-----	-----	-----	-----
781	Less 0.17	Less 0.17	Less 0.17	Less 0.17	-----	Less 0.17	Less 0.17	Less 0.17
782	-----	-----	-----	-----	-----	-----	-----	-----
785	-----	-----	-----	-----	-----	-----	-----	-----
798	-----	-----	-----	-----	-----	-----	-----	-----
873	-----	-----	-----	-----	-----	-----	-----	-----
875	<0.17	<0.17	<0.17	<0.17	<0.17	<0.15	<0.17	<0.17
904	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-----
912	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
914	-----	-----	-----	-----	-----	-----	-----	-----
963	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-----
971	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
974	-----	-----	-----	-----	-----	-----	-----	-----
994	-----	-----	-----	-----	-----	-----	-----	-----
1006	<0.1	-----	-----	-----	<0.1	<0.1	<0.1	-----
1011	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	8.66
1033	-----	-----	-----	-----	-----	-----	-----	-----
1039	-----	-----	-----	-----	-----	-----	-----	-----
1059	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20
1082	-----	-----	-----	-----	-----	-----	-----	-----
1097	-----	-----	-----	-----	-----	-----	-----	-----
1108	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
1109	-----	-----	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	0.02	-----	-----
1134	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05
1141	-----	-----	-----	-----	-----	-----	-----	-----
1171	0.00	-----	-----	-----	0.00	0.00	0.00	-----
1191	0.00	0.00	0.00	0.0	-----	0.00	0.00	-----
1194	0.0	0.5	-----	0.0	-----	0.0	0.5	-----
1205	-----	-----	-----	-----	-----	0.12	0.09	-----
1212	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1
1266	-----	-----	-----	-----	-----	-----	-----	-----

lab	MeOH	i-PrOH	i-BuOH	t-BuOH	DIPE	ETBE	TAME	Sum of Other Oxygenates
1275	0.05	0.00	0.00	0.00	0.00	0.02	0.00	0.03
1299	-----	-----	-----	-----	0.02	0.02	-----	-----
1345	-----	-----	-----	-----	-----	-----	-----	-----
1357	NA	NA	NA	NA	NA	NA	NA	NA
1389	-----	-----	-----	-----	-----	-----	-----	-----
1397	<0,2	<0,2	<0,2	<0,2	-----	<0,2	-----	<0,2
1399	<0.20 C	<0.20 C	<0.20 C	<0.20 C	<0.20 C	<0.20 C	<0.20 C	<0.20 C
1402	0.04	0.00	0.00	0.00	0.00	0.06	0.00	0.05
1455	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	8.8
1459	-----	-----	-----	-----	-----	0	-----	-----
1498	-----	-----	-----	-----	-----	-----	-----	-----
1528	0.03	-----	-----	-----	-----	0.01	-----	-----
1537	<0.17	<0.17	<0.17	<0.17	nie oznaczano	<0.17	nie oznaczano	2.57
1538	-----	-----	-----	-----	-----	-----	-----	-----
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1569	ND	ND	ND	ND	ND	ND	ND	0.04
1586	-----	-----	-----	-----	-----	-----	-----	-----
1613	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-----
1636	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17
1728	-----	-----	-----	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----	-----	-----	-----
1742	-----	-----	-----	-----	-----	-----	-----	-----
1746	-----	-----	-----	-----	-----	-----	-----	-----
1753	-----	-----	-----	-----	-----	-----	-----	-----
1776	-----	-----	-----	-----	-----	-----	-----	-----
1802	-----	-----	-----	-----	-----	-----	-----	-----
1803	-----	-----	-----	-----	-----	-----	-----	-----
1804	<0,17	<0,17	<0,17	<0,17	not marked	<0,17	not marked	<0,17
1805	<0,17	<0,17	<0,17	<0,17	-----	<0,17	-----	-----
1810	-----	-----	-----	-----	-----	-----	-----	-----
1811	-----	-----	-----	-----	-----	-----	-----	0.04
1833	-----	-----	-----	-----	-----	-----	-----	-----
1856	-----	-----	-----	-----	-----	-----	-----	-----
1857	-----	-----	-----	-----	-----	-----	-----	-----
1911	<0,20	<0,20	<0,20	<0,20	-----	<0,20	-----	<0,20
1941	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1
1953	-----	-----	-----	-----	-----	-----	-----	-----
1968	0.0	-----	-----	0.0	0.75	0.0	0.38	-----
1977	-----	-----	-----	-----	-----	-----	-----	-----
2129	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2130	-----	-----	-----	-----	-----	-----	-----	-----
2146	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1
6018	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01
6047	-----	-----	-----	-----	-----	<0.17	<0.17	-----
6049	0.05	0	0	0.03	0	0	0	0
6054	-----	-----	-----	-----	-----	-----	-----	-----
6058	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
6075	-----	-----	-----	-----	-----	-----	-----	-----
6103	0.0113	0.0	0.0	0.0	0.0	0.2997	0.0	0.0
6142	-----	-----	-----	-----	-----	-----	-----	8.88
6192	-----	-----	-----	-----	0.0	0.0	0.0	-----
6203	0.03	0	0	0	0	0	0	0.02
6240	0	0	0	0	0	0.08	0	0
6258	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6274	-----	-----	-----	0.02	-----	-----	-----	-----
6279	0	0	0.0267	0	<LOD C	0.12	0	8.88
6299	-----	-----	-----	-----	-----	-----	-----	-----
6321	-----	-----	-----	-----	-----	-----	-----	-----
6325	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05
6416	-----	-----	-----	-----	-----	-----	-----	-----
6421	-----	-----	-----	-----	-----	-----	-----	-----
6441	-----	-----	-----	-----	-----	-----	-----	-----
6446	0	0	0	0	0	0	0	0.03
6447	-----	-----	-----	-----	-----	-----	-----	-----
6478	-----	-----	-----	-----	-----	-----	-----	-----
6496	0.04	-----	-----	-----	-----	-----	0.02	-----

Lab 1399 first reported 0.00, 0.00, 0.00, 0.00, 0.00, 3.345, 0.00, 7.49 respectively
Lab 6279 first reported 4.02

APPENDIX 3: z-scores of the determination of distillation at 760 mmHg

lab	IBP	10% eva	50% eva	90% eva	FBP	E70 %V/V	E100 %V/V	E150 %V/V
120	-0.37	-0.09	0.03	-0.14	-0.02	-0.95	-2.08	-7.61
140	-1.69	-1.27	-0.59	-0.09	0.10	-----	-----	-----
171	-0.55	2.68	-0.45	0.63	-1.91	-2.82	0.21	-2.01
225	0.34	2.13	3.88	4.82	2.19	-4.89	-4.50	-8.05
237	1.83	1.16	0.58	-0.14	0.62	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
273	0.16	-0.51	0.03	-0.55	0.89	-----	-----	-----
311	-0.61	-0.78	-0.04	0.01	-1.63	1.12	-0.42	-0.29
312	-1.51	-0.99	-0.18	-0.34	-0.21	0.50	-0.17	-0.08
323	1.11	-0.58	-0.11	-0.04	0.06	0.29	-0.04	-0.08
328	-1.03	-0.44	-0.38	-0.19	-0.49	0.08	0.47	0.35
333	-1.51	-0.37	-0.11	-0.34	-0.61	0.29	0.34	0.14
334	0.16	0.19	0.17	-0.24	-0.53	-0.43	0.09	-0.29
335	1.65	0.88	0.58	0.27	0.22	-0.12	-0.68	-0.51
337	-----	-----	-----	-----	-----	-----	-----	-----
338	0.70	-0.23	-0.31	-0.14	-0.17	0.19	0.47	0.35
343	0.94	-1.96	-0.52	0.73	0.58	-0.12	1.36	-0.51
344	0.88	0.95	2.44	1.14	-0.49	-1.58	-2.71	-0.94
352	-----	-----	-----	-----	-----	-----	-----	-----
365	1.00	-0.71	-1.07	-0.34	0.06	-2.92	-4.37	-8.69
369	0.46	1.37	-0.25	0.37	-0.45	-0.75	0.98	0.35
370	0.82	-0.58	-0.86	0.01	-0.25	0.60	0.98	-0.51
371	0.10	-0.16	-1.28	0.07	0.22	0.81	0.85	-1.80
372	-0.61	-0.16	-0.04	-0.09	0.42	-0.02	-0.04	1.00
381	0.34	0.88	0.79	0.68	-0.37	0.29	-0.04	-0.08
391	-----	-----	-----	-----	-----	-----	-----	-----
399	-----	-----	-----	-----	-----	-----	-----	-----
404	0.04	-0.64	-1.07	-0.65	-1.67	0.71	0.98	1.22
420	0.40	-1.96	-1.52	-0.73	0.89	1.22	1.49	1.86
431	-----	-----	-----	-----	-----	-----	-----	-----
444	0.88	2.47	0.92	-0.75	-0.69	-----	-----	-----
445	-0.73	-1.13	-1.35	-0.40	-0.53	1.54	1.36	0.57
447	-1.92	-0.30	0.17	-0.09	0.22	-0.12	-0.68	1.22
467	0.58	-0.44	0.37	0.01	0.85	0.19	-0.42	-0.51
480	0.52	-0.26	0.30	-0.14	0.87	-0.02	-0.49	-0.40
496	0.10	-0.71	0.17	0.22	0.50	0.29	-0.42	-0.94
631	1.23	-0.64	-0.25	-0.80	0.22	-0.49	-0.11	1.65
633	-----	-----	-----	-----	-----	-----	-----	-----
734	-1.69	0.34	0.37	0.17	0.24	-0.23	-0.55	-0.61
736	-0.55	-0.30	-0.25	-0.29	0.02	0.08	0.47	0.57
752	2.13	1.37	1.75	0.73	-0.45	-2.82	-0.68	-4.81
759	-0.26	1.09	2.50	0.22	0.02	-0.23	-1.31	-1.58
779	0.04	0.40	0.79	-0.04	0.42	-1.26	-0.04	-1.58
781	-1.21	-0.44	-0.11	-0.40	0.46	0.08	-0.04	1.22
782	1.23	-0.23	0.24	0.17	0.42	-0.54	-1.06	-2.23
785	1.00	-0.64	-1.00	-0.19	0.02	-3.03	-4.11	-6.97
798	-----	-----	-----	-----	-----	-----	-----	-----
873	-0.26	0.05	0.10	0.47	0.42	-1.37	0.47	-0.51
875	-0.26	0.05	0.10	0.47	0.42	-1.26	-0.04	0.57
904	0.28	-0.58	-0.45	-0.29	0.26	0.71	0.34	1.00
912	1.53	1.44	-0.25	-1.83	-0.57	0.29	0.59	3.80
914	-----	-----	-----	-----	-----	-----	-----	-----
963	-0.79	0.26	0.58	0.42	-0.53	-1.78	-0.42	-2.23
971	-0.79	0.33	0.58	0.22	0.06	-0.43	-0.04	-0.51
974	-0.85	0.33	0.65	0.42	-0.02	-0.33	-0.42	-0.29
994	0.34	0.05	1.13	-0.29	0.62	-----	-0.68	1.65
1006	0.82	0.33	0.44	0.12	-0.96	-----	-----	-----
1011	-0.97	0.81	1.54	0.78	0.14	-0.33	-0.42	0.57
1033	-----	-----	-----	-----	-----	-----	-----	-----
1039	-1.03	-0.37	0.03	0.01	0.14	0.29	-0.17	1.00
1059	-0.43	-0.58	-0.18	-1.16	0.06	0.19	0.21	-0.29
1082	-1.92	-0.64	-0.18	0.01	-0.09	0.29	-0.04	-0.29
1097	-0.55	0.67	0.37	-0.14	0.18	-0.64	-0.68	0.79
1108	0.88	1.37	-0.18	-0.04	-0.61	-0.54	-0.30	-0.72
1109	-----	-----	-----	-----	-----	-----	-----	-----
1126	-0.32	-0.85	-0.25	-0.19	-0.06	1.54	0.09	-0.08
1134	-0.79	-0.51	-0.59	-0.04	0.14	0.91	0.09	1.00
1141	-1.03	-1.34	-1.00	-0.40	-0.13	1.12	0.85	1.65
1171	0.75	0.50	-0.28	-0.11	1.38	-0.28	0.15	0.03
1191	-0.61	-0.51	-0.45	-0.24	-0.21	0.50	0.21	1.22
1194	-----	-----	-----	-----	-----	-----	-----	-----
1205	-0.32	-0.51	-0.31	-0.19	1.40	0.71	-0.17	1.00
1212	-0.73	-0.23	-0.31	-0.14	0.06	0.19	-0.04	1.43
1266	1.65	0.71	1.37	0.40	0.95	-2.20	-1.25	-2.88
1275	-0.32	-0.44	-0.45	-0.14	-0.33	0.29	0.47	0.35
1299	0.34	-0.51	-0.38	-0.14	0.22	0.40	0.47	1.00

lab	IBP	10% eva	50% eva	90% eva	FBP	E70 %V/V	E100 %V/V	E150 %V/V
1345	-0.20	0.46	2.02	2.27	0.93	-0.75	1.61	-5.89
1357	-----	-1.27	-0.93	-0.50	-1.04	-----	-----	-----
1389	-1.39	1.09	1.89	0.83	0.62	-1.47	-2.21	-1.37
1397	-0.08	1.71	-0.86	-0.29	-0.61	-0.43	0.72	0.14
1399	1.17	-0.71	-1.07	-0.04	1.96	1.33	0.59	0.14
1402	-0.49	-1.06	-0.59	-0.19	0.46	0.81	-0.04	-0.08
1455	-1.03	-0.09	0.44	-0.04	1.84	-0.02	-0.42	-0.08
1459	-1.63	-0.92	-0.59	-0.40	-1.36	0.91	0.21	0.57
1498	0.28	-0.51	-0.38	-0.09	0.06	1.33	0.59	-0.51
1528	0.28	-0.51	-0.52	0.17	0.38	2.26	0.59	0.57
1537	0.82	0.81	1.06	-0.14	-1.04	0.60	-0.55	-0.08
1538	0.22	0.26	1.34	0.47	0.93	-0.02	-1.57	-0.51
1544	-1.72	-0.58	-0.52	-0.24	-1.53	0.40	0.72	0.35
1569	-0.43	2.61	6.97	9.53	-0.73	1.02	0.72	-0.72
1586	-0.43	-0.51	-0.04	-0.19	0.34	0.29	-0.17	0.14
1613	2.19	0.60	0.30	0.01	0.50	-0.75	0.59	-0.51
1636	0.22	-0.51	-0.80	-0.24	-1.12	0.91	0.47	-0.08
1720	0.16	-0.58	-0.93	-0.34	0.10	-1.26	-1.82	-2.23
1724	-0.61	-0.71	-0.18	0.17	0.02	1.02	-0.17	-0.08
1728	0.64	0.05	-0.93	-0.04	0.22	-1.78	-0.04	1.65
1740	0.70	0.19	0.65	0.01	-0.84	-0.75	-1.06	-0.29
1742	0.15	-1.18	-0.37	-0.04	0.94	1.22	-0.04	-0.29
1746	2.13	-0.64	1.13	-0.80	0.81	-0.23	0.59	1.65
1753	0.28	-0.37	-0.45	0.22	0.30	2.16	0.47	0.57
1776	-1.63	-0.37	-0.25	-0.45	0.10	0.40	0.21	0.14
1802	0.70	-0.37	-0.38	-0.04	-0.53	0.50	-0.17	0.79
1803	0.28	-0.51	-0.45	-0.04	-0.61	0.60	0.47	0.79
1804	0.70	0.12	-0.86	-0.14	-0.57	0.50	0.47	-0.08
1805	0.70	-0.85	-1.28	-0.40	-0.25	0.91	1.23	0.14
1810	0.22	0.40	0.10	0.27	-0.09	-0.23	-0.42	-0.72
1811	-0.23	1.02	-1.55	-0.55	-0.84	-0.64	0.59	0.57
1833	-2.28	-0.23	0.24	-0.34	-0.09	0.08	-0.17	1.65
1856	-0.02	-----	-----	-----	0.54	-0.23	-0.93	-0.29
1857	-1.60	-0.64	-0.45	-0.29	0.06	0.08	0.66	-0.61
1911	-0.37	-0.78	-0.76	-0.17	-0.29	1.02	0.53	1.00
1941	0.04	0.12	-1.41	-0.19	0.22	-0.43	1.36	0.79
1953	0.58	-2.65	-0.18	0.83	0.50	0.60	0.59	-2.66
1968	-----	-----	-----	-0.04	-0.57	-1.78	-1.31	-0.51
1977	0.82	3.17	2.37	1.86	-0.37	-----	-----	-----
2129	-0.67	1.02	-0.45	-0.14	-0.09	0.08	0.47	-0.29
2130	-0.20	0.53	-0.04	-0.09	0.14	-0.43	0.09	-0.29
2146	-0.20	-0.23	-0.04	0.01	0.42	-0.02	-0.04	0.14
6018	-0.73	-0.09	0.10	0.01	0.42	0.50	-0.30	1.22
6047	-1.15	0.40	0.79	0.12	-0.33	-1.37	-1.82	-2.23
6049	0.34	-0.92	-0.86	-0.34	-0.21	0.91	0.47	1.22
6054	-1.74	0.74	2.30	1.75	-0.09	-1.89	-2.59	-4.38
6058	0.52	0.12	-0.52	0.22	0.22	1.22	0.59	-0.94
6075	-----	-----	-----	-----	-----	-----	-----	-----
6103	1.29	0.53	3.47	2.73	-0.84	-1.78	-3.99	-6.11
6142	-0.67	-0.99	-0.45	0.01	-0.37	1.02	0.21	0.35
6192	2.84	1.92	3.33	2.01	0.73	-3.65	-3.48	-3.95
6203	0.70	0.67	1.61	1.45	-0.53	0.29	0.59	1.22
6240	-1.69	0.12	0.58	-0.14	0.26	-0.75	-0.04	0.35
6258	-0.37	-0.85	-0.66	-0.34	0.58	0.50	0.72	0.79
6274	0.10	-0.09	-0.25	-0.14	0.58	-0.23	0.34	0.57
6279	-0.61	1.09	2.02	0.01	-0.47	0.26	0.21	0.28
6299	-1.21	-0.16	-0.18	-0.04	-1.51	1.02	0.21	-0.08
6321	-0.43	-0.85	-0.66	-0.29	-0.49	1.02	0.34	1.00
6325	0.76	0.81	0.17	-0.14	-0.06	-1.26	0.21	-0.51
6416	1.17	0.19	0.30	0.22	0.73	-0.43	-0.55	-0.51
6421	3.32	2.13	1.13	1.24	-0.17	-3.86	-0.68	-2.66
6441	1.18	0.00	-0.30	0.11	0.47	0.06	0.34	-0.42
6446	-0.85	-0.92	-1.07	-0.14	-1.08	0.91	0.98	-0.29
6447	-----	-----	-----	-----	-----	-----	-----	-----
6478	2.25	4.18	7.52	4.74	0.23	-6.97	-9.59	-11.28
6496	0.16	-0.44	-0.38	-0.29	-0.65	0.19	0.09	0.14

APPENDIX 4

Number of participants per country

1 lab in	AUSTRALIA	1 lab in	MALTA
1 lab in	AUSTRIA	1 lab in	MARTINIQUE
2 labs in	AZERBAIJAN	1 lab in	MOROCCO
2 labs in	BELGIUM	6 labs in	NETHERLANDS
2 labs in	BOSNIA and HERZEGOVINA	1 lab in	NIGER
1 lab in	BRAZIL	2 labs in	NIGERIA
2 labs in	BULGARIA	2 labs in	NORTH MACEDONIA, Republic of
2 labs in	CHILE	1 lab in	OMAN
2 labs in	COTE D'IVOIRE	2 labs in	PHILIPPINES
1 lab in	CROATIA	9 labs in	POLAND
2 labs in	CYPRUS	3 labs in	PORTUGAL
3 labs in	CZECH REPUBLIC	7 labs in	ROMANIA
1 lab in	ESTONIA	10 labs in	RUSSIAN FEDERATION
4 labs in	FINLAND	3 labs in	SAUDI ARABIA
9 labs in	FRANCE	4 labs in	SERBIA
2 labs in	GEORGIA	1 lab in	SLOVENIA
2 labs in	GERMANY	2 labs in	SOUTH AFRICA
5 labs in	GREECE	9 labs in	SPAIN
2 labs in	INDIA	1 lab in	SUDAN
2 labs in	IRELAND	3 labs in	SWEDEN
3 labs in	ITALY	1 lab in	TAIWAN
1 lab in	JORDAN	4 labs in	TURKEY
2 labs in	KAZAKHSTAN	2 labs in	UNITED ARAB EMIRATES
3 labs in	LATVIA	11 labs in	UNITED KINGDOM
1 lab in	LITHUANIA	3 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)/R(1)	= outlier in Rosner's outlier test
R(0.05)/R(5)	= 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

Literature

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